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APR - 8

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FROM: BRENNON T. MORIOKA, Ph.D., P.E., DIRECTOR  
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SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION  
FEDERAL AID PROJECT NO. NH-030-1(35)R  
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)  
LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII  
TAX MAP KEYS: 4-05-015: PORTION OF 010 & 888; 4-05-021:  
PORTION OF 003 AND 022

09 MAR 27 4:02  
RECEIVED

The State Department of Transportation (DOT) is submitting four (4) copies of the Final Environmental Assessment / Finding of No Significant Impact (FEA/FONSI), for the Lahaina Bypass Modified Alignment project. The FEA/FONSI was prepared in compliance with the requirements of Chapter 343, Hawaii Revised Statutes, and Hawaii Administrative Rules, Title 11, Department of Health, Chapter 200. Attached are the public notice, project summary, and four copies of the FEA/FONSI. Please publish the notice of availability of the FEA/SONSI in the April 8, 2009 issue of *The Environmental Notice*.

The proposed modification to the highway alignment is required to avoid an inadvertently discovered archaeological site. The FEA is triggered by the proposed use of State lands as well as State and County funds to implement the proposed project.

The basis for the FONSI determination is set forth in Chapter 10 of the FEA. The determination is pursuant to the significance criteria set forth in Hawaii Administrative Rules, Title 11, State of Hawaii, Department of Health, Chapter 200, Environmental Impact Statement Rules, Section 12.

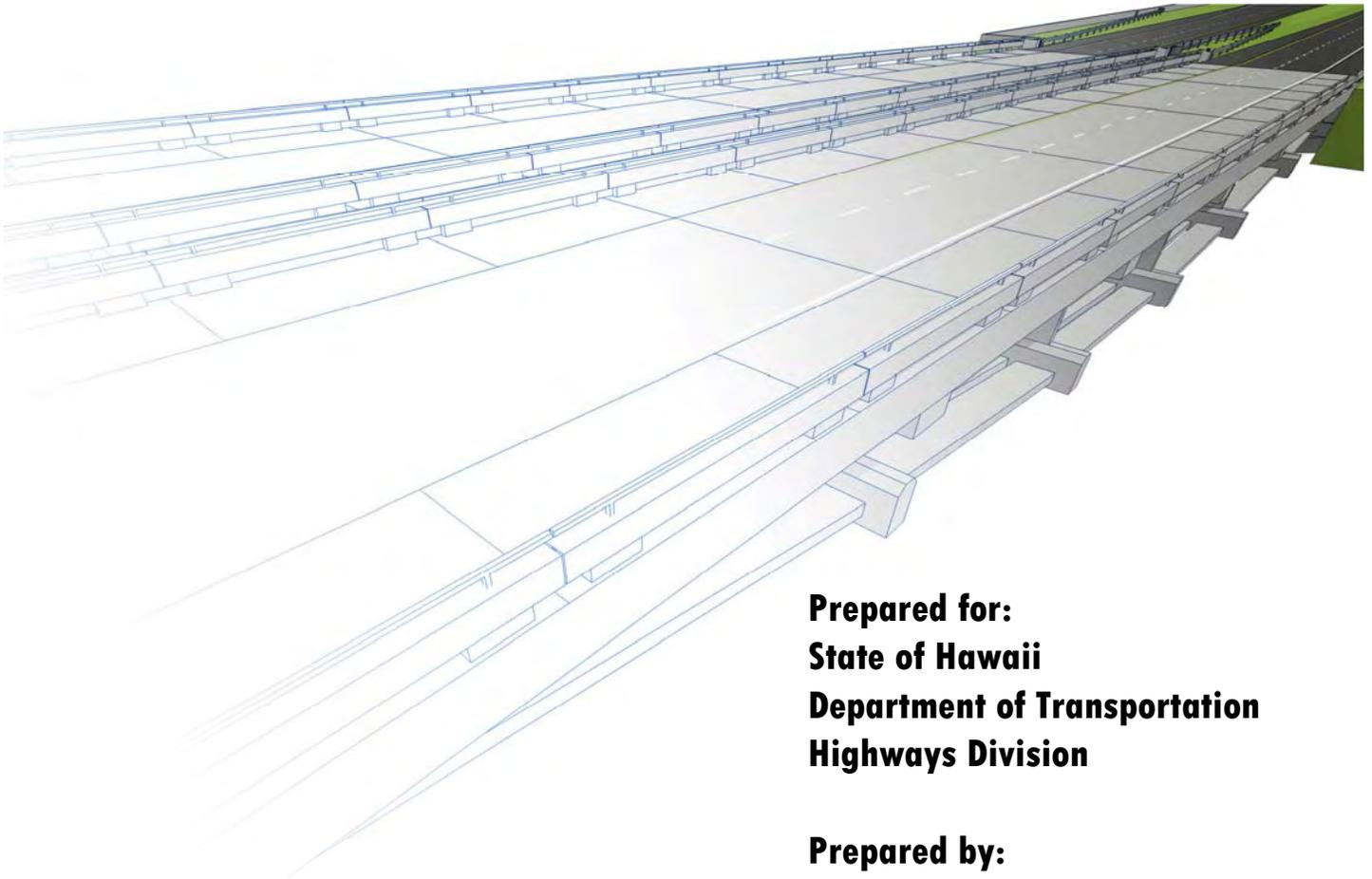
Should you have any questions or require additional information, please call Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Misako.K.Mimura@hawaii.gov).

***Final Environmental Assessment/  
Finding of No Significant Impact***

**Lahaina Bypass Modified Alignment**

**Kahoma Stream to Keawe Street Extension**

**District of Lahaina, Island of Maui**



**Prepared for:  
State of Hawaii  
Department of Transportation  
Highways Division**

**Prepared by:  
Wilson Okamoto Corporation**

**March 2009**



**FINAL ENVIRONMENTAL ASSESSMENT /  
FINDING OF NO SIGNIFICANT IMPACT**

**Lahaina Bypass Modified Alignment  
Kahoma Stream to Keawe Street Extension**

District of Lahaina, Island of Maui

Prepared for:



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

Prepared by:



WILSON OKAMOTO  
CORPORATION

**MARCH 2009**



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## **PREFACE**

This Final Environmental Assessment (EA) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawaii. The State Department of Transportation, Highways Division is proposing the Lahaina Bypass Modified Alignment project in the Lahaina District of the Island of Maui. The proposed project involves the design and construction of a 0.76-mile section of the Lahaina Bypass and a 0.30-mile extension of Keawe Street. The project corridor includes a T-shaped swath of land totaling approximately 29.9 acres located in the area northwest of Ikena Avenue and northeast of Keawe Street. The project requires the use of State lands and involves State and County of Maui funds. Therefore, the project is subject to the State environmental review process.

This EA was processed as an anticipated FONSI by the Department of Transportation, and subsequently prepared as a Final EA and FONSI, determining that the impacts of the proposed project will not warrant the preparation of an environmental impact statement pursuant to Chapter 343, HRS.

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## 1. INTRODUCTION

The State of Hawaii (State), Department of Transportation (DOT), Highways Division is proposing to implement in Lahaina, Maui the Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension, referred to herein as the “project” or the “proposed project.” This Final Environmental Assessment (EA) was prepared pursuant to Chapter 343, Environmental Impact Statements (EIS), Hawaii Revised Statutes (HRS), as amended, and Title 11, Chapter 200 (Environmental Impact Statement Rules) of the Department of Health’s Administrative Rules, as amended.

Chapter 1 of this Final EA provides a summary of project information. Chapter 2 includes a detailed project description, as well as information on project planning considerations. Alternatives considered with respect to the proposed project are discussed in Chapter 3. Chapters 4, 5, and 6 examine the project’s anticipated impacts and propose appropriate mitigation measures. Conformance with plans and polices, and required permits and approvals are addressed in Chapters 7 and 8, respectively. Project consultation efforts and the Chapter 343, HRS, anticipated determination are discussed in Chapters 9 and 10. References are included as Chapter 11. Appendices supporting this Final EA are attached. Copies of comments and responses related to consultation efforts are provided in Appendices A and B. Project design plans are included in Appendix C. Supporting reports on natural resources, archaeological resources, and cultural impacts are provided as Appendices D through H.

### 1.1 PROJECT SUMMARY

The proposed project includes approximately 1.06 miles of highway and roadway facilities, encompassing approximately 29.9 acres, in the Lahaina District of the Island of Maui. The project is part of the larger DOT Honoapiilani Highway, from Launiupoko to Honokowai project, commonly known as the “Lahaina Bypass.” An EIS was prepared for the Lahaina Bypass and accepted by DOT in 1990. A Supplemental EIS was prepared and accepted in 2002 to address the extension of the Lahaina Bypass as well as the addition of connector and access roads. More information on the project’s planning context is presented in Chapter 2.1 of this document.

DOT will phase the construction of the Lahaina Bypass, identifying the initial phase as Phase 1A. The proposed project affects a portion of the Phase 1A alignment, as well as the extension of Keawe Street to the Lahaina Bypass. The project proposes a 0.76-mile modification to the alignment of Phase 1A and a 0.30-mile modification to the alignment of the Keawe Street Extension project. Figure 1-1 illustrates the proposed project’s relationship to Phase 1A. Table 1-1 is summary of project information.



**FIGURE 1-1**  
**PROJECT RELATIONSHIP TO LAHAINA BYPASS**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

**Legend**  
 [Blue Outline Symbol] Archaeological Resources



**Table 1-1: Project Summary**

<b><i>Project Name:</i></b>	Lahaina Bypass Modified Alignment
<b><i>Proposing Agency:</i></b>	Highways Division Department of Transportation State of Hawaii 601 Kamokila Boulevard, Room 688 Kapolei, Hawaii 96707 Contact: Misako Mimura, P.E.
<b><i>Authorized Agent</i></b>	Wilson Okamoto Corporation 1907 S. Beretania Street, Suite 400 Honolulu, Hawaii 96826 Contact: Earl Matsukawa, AICP
<b><i>Approving Agency:</i></b>	State of Hawaii Department of Transportation, Highways Division
<b><i>Project Description:</i></b>	The State Department of Transportation, Highways Division is proposing the Lahaina Bypass Modified Alignment project in the Lahaina District of the Island of Maui. The proposed project involves the design and construction of a 0.76-mile section of the Lahaina Bypass and a 0.30-mile extension of Keawe Street. The project corridor includes a T-shaped swath of land totaling approximately 29.9 acres located in the area northwest of Ikena Avenue and northeast of Keawe Street.
<b><i>Project Location:</i></b>	The project is located in the County of Maui, Lahaina District, approximately 0.5 mile mauka of Honoapiilani Highway, northwest of Kahoma Stream and northeast of the current terminus of Keawe Street. The project extends from the north end of Ikena Avenue in the Kelaweia Mauka Subdivision, across Kahoma Stream, and across undeveloped land. The central portion of the project corridor extends makai to Keawe Street in the Lahaina Industrial Area.
<b><i>Tax Map Key (TMK):</i></b>	(2) 4-05-021: portions of 003 and 022, and (2) 4-05-015: portion of 010
<b><i>Land Ownership:</i></b>	Approximately 29.3 acres of the project corridor are under the jurisdiction of the State of Hawaii, including Hawaii Housing Finance and Development Corporation (TMK (2) 4-05-021: portion of 003) and Department of Land and Natural Resources (TMK (2) 4-05-021: portion of 022). Approximately 0.6 acre of the project corridor is privately owned (TMK (2) 4-05-015: portion of 010). DOT is currently coordinating the transfer of these lands to the State.
<b><i>State Land Use:</i></b>	Urban District and Agricultural District
<b><i>County Zoning:</i></b>	Agricultural District and M-1 Light Industrial District
<b><i>Community Plan Designation:</i></b>	Agricultural and Light Industrial land uses under the West Maui Community Plan.
<b><i>SMA Designation:</i></b>	The project corridor is not located within the SMA.

The proposed project resulted from the inadvertent discovery of an archaeological site in the Lahaina Bypass Phase 1A alignment. Alternatives were developed to avoid impacts to the archaeological site, while affording road facilities that provide the same utility and functionality planned for in Phase 1A. The proposed project was identified as the most feasible and prudent alternative, as it avoids impacts to the archaeological site, does not impact other park or known historical or archaeological sites, does not require the relocation of residents or businesses, and minimizes the alteration of the overall Lahaina Bypass. The modification of the highway alignment dictates an adjustment to the design of the Keawe Street Extension and its intersection with the Lahaina Bypass. Therefore, this work is included in the proposed project. Further discussion of the proposed project and alternatives is provided in Chapters 2 and 3 of this Final EA.

## **1.2 PROJECT PURPOSE**

The proposed Lahaina Bypass Modified Alignment project resulted from the discovery of an archaeological site in the alignment of DOT's Lahaina Bypass Phase 1A project (more information on the objective and need for the project is provided in Chapter 2). Phase 1A, which commenced in January 2007, was to include the portion of the bypass extending north from Lahainaluna Road along Ikena Avenue to a new intersection with the planned mauka extension of Keawe Street. While completing archaeological data recovery work for a previously identified site referred to as State Inventory of Historic Properties (SIHP) #50-50-03-2484 (SIHP 2484), archaeologists discovered a new archaeological site within the Phase 1A alignment. The new site was assigned the descriptor of SIHP Site #50-50-10-6277 (SIHP 6277). Since the site was discovered during the construction phase, the State Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD) determined the find to be an inadvertent discovery. Further field survey revealed the site to be a large complex of agricultural terraces associated with the historic era. The complex extends inland beyond the highway corridor.

With the discovery of SIHP 6277, construction work on Lahaina Bypass Phase 1A was postponed. SHPD and other government agencies were notified of the discovery of SIHP 6277 and consulted on the effects of the discovery on Lahaina Bypass Phase 1A. Native Hawaiian organizations, community organizations, and individuals with lineal ties to the area were notified of the discovery of SIHP 6277 and solicited for input on the site and other potential historic properties that may exist in the area.

In acknowledgement of the need to avoid or minimize impacts to SIHP 6277, new alternatives to the Phase 1A alignment were developed and evaluated for feasibility and practicability. DOT also revisited alternatives previously identified during the planning of the

Lahaina Bypass project. In evaluating each alternative, DOT also considered the potential for adverse environmental and social impacts, such as the relocation of residents.

The proposed project was identified as the most feasible and prudent alternative, as it avoids impacts to SIHP 6277, does not impact other park or known historical or archaeological sites, does not require the relocation of residents or businesses, and minimizes the alteration of the overall Lahaina Bypass. The proposed project includes the work required to adjust the extension of Keawe Street and its intersection with the Lahaina Bypass to accommodate the modified highway alignment.

### **1.3 PROJECT LOCATION AND VICINITY**

The area affected by the proposed project is referred to herein as the “project corridor” and is located in the northeast area of Lahaina, Island of Maui. It delineates the necessary right-of-way for the proposed project, and is situated approximately 0.5 mile mauka of Honoapiilani Highway, spanning the Ahupuaa of Kelaweā, Paeohi, and Wahikuli. The project corridor includes approximately 29.9 acres in a T-shaped swath of land northwest of Kahoma Stream and northeast of the current terminus of Keawe Street. It extends from the north end of Ikena Avenue in the Kelaweā Mauka Subdivision, across Kahoma Stream, and across undeveloped, former sugarcane lands. The central portion of the project corridor extends makai to the planned extension of Keawe Street in the Lahaina Industrial Area. Figure 1-2 illustrates the location of the project.

The project corridor includes approximately 29.3 acres of State land in Tax Map Key (TMK) (2) 4-05-021: portions of 003 and 022, which are under the respective jurisdictions of the Hawaii Housing Finance and Development Corporation (HHFDC) and DLNR. Approximately 0.6 acre of the project corridor, identified as TMK (2) 4-05-015: portion of 010, is privately owned. Figure 1-3 shows the project corridor with respect to the TMK boundaries. The transfer of all lands in the project corridor to the jurisdiction of DOT is currently being coordinated. Land ownership and the acquisition of lands in the project corridor are discussed further in Chapter 2.

### **1.4 COMPLIANCE WITH CHAPTER 343, HRS**

The proposed project involves the use of State land and State and County funds and, therefore, triggers the State environmental review process in accordance with Chapter 343, HRS. Because the proposed project has been initiated by DOT, the project is considered an “Agency Action” by DOT. The Governor of the State of Hawaii is the “Approving Agency” for the EA. Wilson Okamoto Corporation is the “Authorized Agent” on behalf of the State DOT in the preparation of this environmental document. Based on the Draft EA and



**FIGURE 1-2**  
**LOCATION MAP**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division





**FIGURE 1-3**  
**TAX MAP KEYS**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division



comments received during the Draft EA public review period, the DOT has determined that a Finding of No Significant Impact (FONSI) will be issued for this project. Therefore, an Environmental Impact Statement will not be prepared.

## **1.5 FEDERAL REGULATORY CONTROLS**

The proposed project is subject to several federal regulatory controls. The following sections summarize the project's compliance with applicable federal regulations. Chapter 3 provides a more detailed discussion of federal regulatory considerations that influenced the development and evaluation of project alternatives.

### **1.5.1 U.S. Department of Transportation Act of 1966**

Pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966, the inadvertent discovery of SIHP 6277 required consideration of alternative alignments to evaluate the possibility of avoiding SIHP 6277, or minimizing or mitigating impacts to SIHP 6277. Section 4(f) of the Department of Transportation Act 49 U.S.C. 303 and 23 U.S.C. 138 permits the use of publicly owned park land, recreational area, wildlife and waterfowl refuge, or historic site for a transportation project only if it is determined that:

- There is no prudent and feasible alternative to using that land or resource; and
- The program or project has included all possible planning to minimize harm to the resource.

The alternatives evaluation process addressed the requirements of Section 4(f) of the U.S. Department of Transportation Act of 1966. The proposed project was determined to be the most prudent and feasible alternative. A detailed discussion of the alternatives assessment is provided in Chapter 3.

### **1.5.2 National Historic Preservation Act**

Because of the involvement of federal funds, the proposed project is considered a federal action subject to the consultation requirements of Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's implementation procedures (CFR Part 800). The "agency official" responsible for this consultation is the Federal Highway Administration (FHWA). Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of federal actions on historic properties. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal actions through consultation among the agency official and interested parties. The goal of consultation is to identify historic properties potentially affected by the action, assess the effects and seek ways to avoid, minimize or mitigate any adverse effects on historic properties.

The Section 106 consultation has been integrated with the State of Hawaii environmental review process. The Section 106 consultation activities have thus far included the pre-assessment, agency, and public consultation efforts conducted during the preparation of this EA. An extensive archaeological inventory survey was conducted for the project (see Chapter 4 for discussion), and the survey report recommended a project specific effect of “no historic properties affected.” In a letter dated November 14, 2008, SHPD indicated preliminarily concurrence with the survey report’s findings and significance recommendations, subject to minor revisions of the report. This Final EA provided the opportunity for SHPD’s review of the proposed project and facilitates the State Historic Preservation Officer’s final determination of the project’s effect on historic properties under Section 106. In a subsequent letter dated March 11, 2009, SHPD determined that the project will have *no adverse effect* on culturally significant historic or archaeological properties because it has already undergone the historic preservation review process. Appropriate mitigation will be conducted in the form of precautionary archaeological monitoring for the deconstruction/removal of SIHP Site #50-50-03-6596 (post-Contact agricultural clearing pile) and ground altering disturbance along the northern abutment of Kahoma Stream. Therefore, the Section 106 process is complete.

### **1.5.3 National Environmental Policy Act**

The proposed project is partially funded by FHWA; this federal funding subjects the project to the environmental review requirements of the National Environmental Policy Act (NEPA), prescribed under 40 CFR Parts 1500-1508 (Council on Environmental Quality (CEQ)). FHWA serves as the lead federal agency, or Administrator, responsible for the project’s compliance with NEPA documentation and processing requirements, as provided in 23 CFR Part 771, Environmental and Related Procedures (U.S. Department of Transportation, Federal Highway Administration).

According to FHWA’s regulations for NEPA compliance, the proposed project qualifies as a Categorical Exclusion (CATEX). Based on the findings of this EA, FHWA plans to issue a declaration of Categorical Exclusion, and a NEPA EA will not be required for this project. Projects that qualify for Categorical Exclusion do not involve significant environmental impacts, such that the proposed action:

- does not induce significant impacts to planned growth or land use for the area;
- does not require the relocation of significant numbers of people;
- does not have a significant impact on any natural, cultural, recreational, historic or other resource;
- does not involve significant air, noise, or water quality impacts;
- does not have significant impacts on travel patterns; and
- does not otherwise, either individually or cumulatively, have any significant environmental impacts.

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## **2. PROJECT DESCRIPTION**

This chapter describes the proposed project in detail, beginning with an overview of the planning context. An explanation of the project objectives and need is followed by a description of the proposed improvements and the surrounding uses. The proposed development schedule, cost estimates, and information on the required acquisition of property are also provided.

### **2.1. PLANNING CONTEXT**

The proposed project has an integral role in the regional transportation system of West Maui. Both DOT and the County of Maui have evaluated alternatives and selected preferred projects to meet West Maui's regional transportation needs. The proposed project is consistent with and supportive of these regional efforts, and this section summarizes previous and ongoing State and County efforts in Sections 2.1.1 and 2.1.2, respectively.

#### **2.1.1. State DOT**

The mission of the State DOT, Highways Division, is to provide a safe, and efficient and accessible highway system for the public through the utilization of available resources in the maintenance, enhancement and support of land transportation facilities. The purpose of the Lahaina Bypass is two-fold, as follows:

- To relieve existing and future projected traffic congestion along the existing Honoapiilani Highway between the areas of Launiupoko and Honokowai; and
- To respond to requests from the residents of the County of Maui, many of whom live and/or work in the West Maui district, who wanted relief from the current and future traffic congestion along this corridor. Other requests for improvements were received from school officials, County agencies, and emergency response officials.

Two environmental documents were completed by the DOT for the approximately 9-mile Lahaina Bypass project corridor extending from Launiupoko to Honokowai:

#### **1990 Final Environmental Impact Statement**

A Final Environmental Impact Statement (EIS) was initially completed for the Honoapiilani Highway, Puamana to Honokowai project (Lahaina Bypass) in November 1990. This Final EIS selected for construction Alternative B, Mauka Tier Variation, for the Puamana to Kaanapali section, and the Widening Alternative for the Kaanapali to Honokowai section, together involving a total of

about 8.5 miles. The Mauka Tier Variation included: 1) realigning about 2.5 miles of the highway within a 150-foot minimum right-of-way from Puamana to Lahainaluna Road, and 2) realigning an approximately 3-mile long, four-lane highway within a 150-foot right-of-way from Lahainaluna Road through Ikena Avenue, crossing Kahoma Stream, and continuing to the Kaanapali Parkway. The widening portion included widening the existing highway to a four-lane divided highway along a 3-mile stretch from Kaanapali to Honokowai.

Notice of the Final EIS was published in the February 23, 1991 issue of the State Office of Environmental Quality Control's (OEQC) *OEQC Bulletin*. The 60-day legal challenge period to the acceptance of the Final EIS expired in April 1991. This Final EIS was also published in the March 29, 1991 *Federal Register*, and the 30-day availability period expired on April 29, 1991. The FHWA issued a Record of Decision (ROD) approval of this document in June 1991.

### **2002 Final Supplemental Environmental Impact Statement**

A Final Supplemental Environmental Impact Statement (SEIS) was completed for the Honoapiilani Highway, Launiupoko to Honokowai project (Lahaina Bypass) in April 2002 to evaluate modifications to the highway project. This Final SEIS addressed modifications including: 1) extending the bypass highway alignment 5.1 miles from Kahoma Stream to Honokowai; 2) evaluating connector and access roads along with modifications to roadway profiles and typical sections; and, 3) extending the southern alignment of the bypass highway from Puamana 1.3 miles further south to Launiupoko. The initial widening planned for the existing highway from Kaanapali to Honokowai was eliminated from the Lahaina Bypass project. These modifications extended the entire Lahaina Bypass to a total length of approximately 9 miles.

Notice of the Final SEIS was published in the June 23, 2002 issue of the State OEQC's *The Environmental Notice* (formerly the *OEQC Bulletin*). The 60-day legal challenge period to the acceptance of this Final SEIS expired in August 2002. The Final SEIS was also published in the July 12, 2002 *Federal Register*, and the 30-day availability period expired on August 12, 2002. The FHWA's ROD approval of the document was issued in October 2003.

Implementation of the Lahaina Bypass will be phased due to limitations on available funding and the prioritization of other statewide highway improvements. DOT is currently constructing a portion of Phase 1A, which is the first of several phases of the Lahaina Bypass. The portion of Phase 1A that is currently under construction includes two lanes along Ikena

Avenue from Lahainaluna Road northward to the Kahoma Stream. DOT is also implementing design work for the construction of other phases of this highway corridor towards Launiupoko in accordance with the plans illustrated in the aforementioned completed environmental documents.

It should be noted that future connector roads to the Lahaina Bypass will be designed and constructed by other entities, such as the County.

### **2.1.2. County of Maui**

A Final Environmental Assessment (Final EA) was completed for the County of Maui's Proposed Keawe Street Extension Project in June 2007. The Final EA addressed the impacts associated with the extension of Keawe Street from its present terminus within the Lahaina Business Park to the Lahaina Bypass. Keawe Street will be extended by approximately 2,500 lineal feet mauka to connect with the Lahaina Bypass Modified Alignment, providing functional operation between Honoapiilani Highway and the Lahaina Bypass.

Notice of the Final EA and Finding of No Significant Impact (FONSI) were published in the June 23, 2007 issue of the State OEQC's *The Environmental Notice*. The 30-day legal challenge period tthe acceptance of this FONSI determination expired in August 2007. The FHWA determined that the Keawe Street extension project qualified for a Categorical Exclusion and issued the required documentation in September 2007.

## **2.2. PROJECT OBJECTIVE AND NEED**

This section discusses the project objective and need as well as federal regulatory controls that apply to the proposed project.

### **2.2.3. Project Objective**

The objective of the proposed project is to provide highway facilities that afford the same utility and functionality planned for the Lahaina Bypass, while avoiding significant impacts to the archaeological site identified as SIHP Site 50-50-10-6277 (SIHP 6277). SIHP 6277 is located within the Lahaina Bypass Phase 1A alignment, and proceeding with Phase 1A as planned will significantly impact the archaeological site. The proposed project was identified as the most feasible and prudent alternative to modify the highway alignment and allow SIHP 6277 to remain in place. The modification will also avoid a separate, previously identified archaeological site SIHP Site 50-50-03-2484 (SIHP 2484). DOT recognizes the avoidance of SIHP 2484 as another objective for the realignment of the Phase 1A project. Mitigative data recovery work was completed in preparation for SIHP 2484 in 2008 in conjunction with the construction of Phase 1A.

#### 2.2.4. Project Need

The proposed project includes the modification to the Lahaina Bypass from Kahoma Stream up to and including, the planned Keawe Street extension, as illustrated in Figure 1-1. The proposed project resulted from the discovery of SIHP 6277 in the alignment of DOT's Lahaina Bypass Phase 1A project (see Figure 1-1). As discussed in Chapter 1, Phase 1A commenced in January 2007 and was to include the portion of the bypass extending north from Lahainaluna Road along Ikena Avenue to a new intersection with the County's planned mauka extension of Keawe Street. A public informational meeting was held on April 25, 2007 to inform the community of the pending start of construction.

In preparing for the start of construction, required archaeological data recovery work was being completed for an existing archaeological site identified as SIHP 2484 (see Figure 1-1). This site was described as an L-shaped rock wall remnant and determined to be significant for informational content based upon an approved archaeological inventory survey. The data recovery mitigation effort for this site was approved in August 1996 by SHPD as part of the archaeological treatment plan for Lahaina Bypass Phase 1A.

In May 2007, pursuant to consultation with SHPD, data recovery work on SIHP 2484 included a follow-up field inspection conducted by Cultural Surveys Hawaii, Inc. (CSH) to fulfill the mitigation requirements of the approved archaeological treatment plan. During the field inspection, a new archaeological site designated as SIHP 6277 was discovered in proximity to SIHP 2484 within the Lahaina Bypass right-of-way. Since the site was identified during the construction phase of Phase 1A, SHPD determined it to be an inadvertent discovery and required additional investigation and a determination of its significance. Further field survey of this site identified it as a large complex of agricultural terraces. The site encompasses approximately 30 acres, of which approximately two acres lie within the Lahaina Bypass right-of-way. Proceeding with the Lahaina Bypass alignment as originally planned would require cutting into a portion of the agricultural terraces and developing mitigation measures for the remainder of the archaeological site.

Pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966, alternatives to the Lahaina Bypass alignment were developed and evaluated by DOT for feasibility and practicability (see Chapter 1.5.1 for further discussion of Section 4(f) requirements). DOT also revisited alternatives previously identified during the planning of the Lahaina Bypass project. In evaluating each alternative, DOT also considered the potential for adverse environmental and social impacts, such as the relocation of residents. The proposed project was identified as the most feasible and prudent alternative, as it avoids impacts to SIHP 6277, does not impact other park or known historical or archaeological sites,

does not require the relocation of residents or businesses, and minimizes the alteration of the overall Lahaina Bypass..

Modifying the highway alignment to avoid SIHP 6277 dictated an adjustment to the design of the Keawe Street Extension and the intersection with the Lahaina Bypass. The initial roadway plans for the Keawe Street extension provided for an alignment routed in a northeast direction, creating an intersection with the highway at the location of SIHP 2484. The proposed project provides for a more northwesterly position of the highway intersection with Keawe Street, based upon highway engineering design requirements. This new intersection location will require realignment of the Keawe Street Extension over a shorter distance and in a more northerly direction. Therefore, this work is also included in the proposed project.

### **2.3. PROPOSED PROJECT IMPROVEMENTS**

#### **2.3.1. Design Guidelines and Criteria**

This section discusses the general design criteria and parameters that were applied in the development of the proposed project. These general design criteria include technical criteria and criteria related to the project's physical environment.

The general technical criteria deal with typical guidelines, policies, and design standards established by various government agencies for highway facilities and County roadways. These reference documents included: 1) *A Policy on Geometric Design of Highways and Streets* published in 2004 by the American Association of State Highway and Transportation Officials (AASHTO); 2) State DOT's *Statewide Uniform Design Manual for Streets and Highways*, published October 1980; and 3) the *Manual of Uniform Traffic Control Devices* (MUTCD).

These technical standards and guidelines establish highway design controls, minimum turning paths, acceleration and deceleration distances, design speed, etc. The Lahaina Bypass is classified as a rural principal arterial intended for the main movement of vehicles through corridors serving larger populations.

The design speed for the highway's ultimate four-lane configuration is designated by DOT at 55 miles per hour (mph) resulting in a posted speed limit of 45 mph. The posted speed for the highway's original Phase 1A two-lane configuration is 30 mph. The proposed project's highway improvements are designed for a 35 mph design speed corresponding with a 30 mph posted speed limit. The proposed project's Keawe Street improvements will have a design speed of 30 mph corresponding with a 25 mph posted speed limit.

Physical and environmental criteria incorporated in the highway's design included avoiding the archaeological SIHP 6277. Existing residences along Ikena Avenue, park sites, commercial sites, and major infrastructure facilities such as water reservoirs were other important criteria incorporated. Two new single-span bridges will cross Kahoma Stream. The single span design will preclude the need for permanent support structures within the stream. Other physical conditions of the area considered in the design included floodways and the topography of the surrounding area.

### **2.3.2. Description of Improvements**

The proposed project improvements consist of three main components:

- 1) Realign a 0.76-mile section of the planned Lahaina Bypass from Kahoma Stream to the extension of Keawe Street;
- 2) Modify the bridge crossings at Kahoma Stream; and
- 3) Realign a 0.30-mile section of the Keawe Street Extension.

The total length of the highway and roadway improvements is approximately 1.06 miles (5,600 feet). Each component is illustrated in Figure 2-1 and further described in the sections below.

#### **Realignment of the Highway**

The proposed 0.76-mile realignment of the highway would begin from the northwest end of Ikena Avenue at Kahoma Stream (see Figure 2-1). Two new bridge crossings will single span Kahoma Stream. From the bridges, the highway will continue toward the northwest, away from archaeological SIHP 6277, for approximately 2,300 feet to a new T-intersection with the realigned extension of Keawe Street. From the T-intersection, the highway will turn inland and proceed north (mauka) approximately 1,700 feet to connect with the planned Lahaina Bypass Phase 1C alignment.

This highway will ultimately be configured within a 150-foot right-of-way as a four-lane divided highway, consistent with other phases of the Lahaina Bypass. This highway will have two 12-foot wide travel lanes in each direction, two 10-foot wide paved shoulders, and 6-foot wide grassed or concrete swales along each shoulder for drainage purposes. Also included will be a median measuring approximately 22 to 34 feet, including two 6-foot wide paved median shoulders and a grassed median measuring approximately 10 to 22 feet wide. Typical roadway sections associated with these improvements are included in Appendix C.

The T-intersection with Keawe Street will eventually require signalization when warranted by traffic conditions. However, signalization is not anticipated to be necessary until the Phase 1C segment toward Honokowai is implemented and the ultimate 4-lane highway configuration is completed. Plans describing the proposed configuration of the intersection are included in Appendix C.

Priority at this intersection will be given to the eastbound and westbound vehicular movements along the highway. Westbound vehicles traveling along the highway toward Honokowai will be able to bypass the intersection via two-lanes provided as shown on plans in Appendix C. Eastbound vehicles headed toward Launiupoko will travel through the intersection along two left-turn lanes. Vehicles making turning movements onto, or from Keawe Street will be required to stop, or yield to the eastbound movements.

Construction of the proposed highway realignment will require a large volume of cut and fill due to highway design parameters to accommodate the sloping topography of the area. Preliminary design plans showing plan and profile views of the highway are provided in Appendix C. As indicated in the plans, cut and fill activities will affect some additional areas beyond the highway right-of-way. The preliminary estimated earthwork quantities required for the construction of the realigned highway is about 286,000 cubic yards of excavated material and 50,400 cubic yards of embankment material.

### **Modification of the Kahoma Stream Bridge Crossing**

The initial highway alignment for the Lahaina Bypass Phase 1A included a single span bridge design crossing over Kahoma Stream at the current terminus of Ikena Avenue. The proposed bridge will be slightly curved to accommodate the realignment of the highway. Also included in the proposed project is a second single span bridge located immediately makai of the first bridge. The second bridge will be designed to incorporate a parallel curvature of the first bridge and will be constructed in conjunction with the ultimate build-out phase of the Lahaina Bypass. Appendix C includes plans describing the preliminary layout for the bridges.

The proposed mauka bridge crossing measures approximately 350 feet in length and will be constructed within the 150-foot right-of-way. The ultimate buildout will provide adjacent and parallel twin bridge structures (mauka bridge and makai bridge). Each bridge will accommodate two travel lanes. The mauka bridge will support the westbound vehicles traveling toward Honokowai, and the makai bridge will support eastbound vehicles headed



**FIGURE 2-1**  
**PROPOSED PROJECT IMPROVEMENTS**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

- LEGEND**
-  Project Corridor
  - Realignment of Phase 1A
  - Realignment of Keawe Street Extension
  - Connection Back to Phase 1C (Future)



traveling toward Launiupoko. Appendix C includes plans showing a cross section view of both the mauka and makai bridges. Some excavation work will be required at both ends of the bridge abutments.

### **Realignment of the Keawe Street Extension**

The proposed realignment of the Keawe Street extension would begin at the current terminus of Keawe Street at the existing T-intersection with Kupuohi Street. From this point, Keawe Street would be extended approximately 1,600 feet inland (mauka) in a northwesterly direction to intersect with the realigned highway (see Figure 2-1). A right-of-way approximately 90-foot wide is planned for this roadway extension, which will increase in width to about 150 feet or more as it approaches the proposed intersection with the highway.

This roadway extension will be constructed as a two-lane undivided roadway consistent with the existing portion of Keawe Street. This roadway will have one 12-foot wide travel lane in each direction, 10-foot wide paved shoulders, and 12-foot wide grassed shoulders. A grassed median up to 46-foot wide will be provided along the approach to the proposed intersection. The width of the paved areas will also be adjusted near its intersection with the new highway. Typical roadway sections for the realigned extension of Keawe Street are included in Appendix C.

Construction of the realigned Keawe Street extension will involve a large amount of cut and fill to accommodate roadway design parameters and the sloping topography of the area. Preliminary design plans showing plan and profile views of the roadway are provided in Appendix C. As indicated in the plans, cut and fill activities will affect some additional areas beyond the road right-of-way. The preliminary estimated earthwork quantities required for the construction of the extension of Keawe Street is about 3,700 cubic yards of excavated material and 141,000 cubic yards of embankment material.

## **2.4. PROJECT VICINITY AND SURROUNDING USES**

The project corridor is situated within the Lahaina Judicial District and the County's West Maui Community Plan area, which encompasses a region generally covering the western slopes and coastal plain from Ukumehame to Kapalua. Urban development in this region is concentrated along the coastline from Lahaina to Kapalua. These communities are predominantly comprised of residential, resort, and commercial uses. More rural communities in this region include Olowalu and Launiupoko.

The project corridor is located approximately 0.5 miles inland (mauka) of Honoapiilani Highway, within the Kelaweia, Paeohi, and Wahikuli Ahupuaa of the Lahaina District. It

extends in a northern direction from the Kelaweā Mauka residential subdivision, across the Kahoma Stream, and across undeveloped, former sugarcane fields. The central portion of the project corridor extends makai to the current terminus of Keawe Street in the Lahaina Industrial Area.

### **Existing Roadway Facilities**

Existing public roadways in the project vicinity include both State and County roadway facilities (see Figure 2-2). The only existing State highway facility in the Lahaina District is Honoapiilani Highway, which generally runs along the coastline in a north-south direction. This highway connects the West Maui district with other parts of the island, such as Kihei and Kahului. Within the Lahaina area, this highway is a two-lane, minor arterial up to the intersection with Lahainaluna Road. North of this intersection, the highway widens to four lanes, providing two travel lanes in each direction.

Other major roadway facilities in the project vicinity are County roadways that provide local access from the highway to areas inland (mauka) and seaward (makai). Lahainaluna Road and Keawe Street are the primary County roadways providing access to residential and commercial uses in the project vicinity.

Mauka of the highway, Lahainaluna Road is a two-lane, two-way County roadway, oriented in the east-west direction, providing vehicular access to the Kelaweā subdivision and terminating at Lahainaluna High School. The intersection of Lahainaluna Road with Honoapiilani Highway is signalized.

Keawe Street is a two-lane, two-way roadway located further north of Lahainaluna Road. It provides access to an industrial subdivision mauka of the highway. The intersection of Keawe Street with Honoapiilani Highway is signalized. Keawe Street will be realigned and extended inland to connect with the Lahaina Bypass Road as part of this project.

### **Existing and Surrounding Uses**

Existing uses within the immediate project vicinity include residences, undeveloped land (formerly use for cultivation of sugarcane), commercial and light industrial uses, various types of public facilities, and Kahoma Stream (see Figure 2-2). The Kelaweā subdivision is a single-family residential development that extends from Honoapiilani Highway inland for approximately one mile. This subdivision is located generally between Lahainaluna Road and Kahoma Stream. Lahainaluna Road is the only County roadway providing vehicular access for residents into and out from this subdivision.



**Legend**  
 Archaeological Resources



**LEGEND**  
 Realignment of Phase 1A Highway Corridor & Keawe Street



**FIGURE 2-2**  
**PROJECT VICINITY MAP**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

This subdivision is developed in smaller blocks of single-family residences served by local streets and cul-de-sacs. The portion of the subdivision nearest the project corridor is referred to as the Kelaweia Mauka residential subdivision (see Exhibit 2-1). Phase 1A of the Lahaina Bypass is planned to be routed through this subdivision along Ikena Avenue, proceeding northbound across Kahoma Stream.



Exhibit 2-1: South View of Corridor Across Kahoma Stream and Ikena Avenue

The project vicinity is dominated by undeveloped land that was previously used for plantation-scale cultivation of sugar cane. These lands extend inland several miles from the urbanized areas along the coastline and Honoapiilani Highway. Areas located to the north and south of the Kelaweia residential subdivision are also former plantation lands. The project corridor primarily consists of these former plantation lands.

Existing commercial, industrial, and resort uses are generally concentrated along the coastline in the Lahaina area. Such commercial uses include shopping centers such as the Lahaina Cannery Shopping Center, and several shops and restaurants along Front Street. The Lahaina Industrial Area is a recently-established light industrial subdivision located between Keawe Street and Kahoma Stream. Resort uses in the Lahaina area include several hotels, condominiums, and restaurants between the coast and Honoapiilani Highway. These land uses generate much activity, employment, visitors, and traffic in the Lahaina area.

Other uses in the general vicinity of the project corridor include public facilities such as schools, parks, and other recreational facilities. Three State Department of Education (DOE) school facilities are located a short distance northeast of the project corridor. These schools are Princess Nahienaena Elementary School, Lahaina Intermediate School, and Lahainaluna High School.

The State DOE's Lahaina school complex has a total of four member schools, which serve the entire West Maui district. Three of these four schools are situated mauka of the Kelaweia residential subdivision. The fourth school is Kamehameha III Elementary School, located on Front Street makai of Honoapiilani Highway. The only vehicular access to Princess Nahienaena Elementary School, Lahaina Intermediate School, and Lahainaluna High

School is via Lahainaluna Road (see Exhibit 2-3). The average combined enrollment for these three schools over the past three school years (2004 to 2007) was about 2,260 students. Due to the location of these schools above the subdivision and the limited vehicular access, considerable traffic congestion occurs along Lahainaluna Road and at its intersection with Honoapiilani Highway during the morning and afternoon commuter periods.

The County's Kelaweia Mauka Park is located at the intersection of Lahainaluna Road and Ikena Avenue. This park is adjacent to the Lahaina Bypass Road. Exhibit 2-4 is a photo of the park. Recreational facilities such as track and field areas and basketball courts are available at Princess Nahienaena Elementary School, Lahaina Intermediate School, and Lahainaluna High School. Other recreational facilities available in Lahaina are generally situated along the highway, including the Lahaina Recreation Center (youth center and ballfields) and Aquatic Center, or along the shoreline, such as beach parks.

Kahoma Stream generally runs along the northwestern boundary of the Kelaweia residential subdivision. The stream system flows through Kahoma Gulch. Kahoma Stream is fed by tributary Kanaha Stream at a confluence mauka of the project corridor. Most of downstream portion of Kahoma Stream has been hardened and channelized as part of a flood control project completed by the Army Corps of Engineers in 1990 (see Exhibit 2-5). The proposed project crosses Kahoma Stream immediately upstream of the hardened channel.

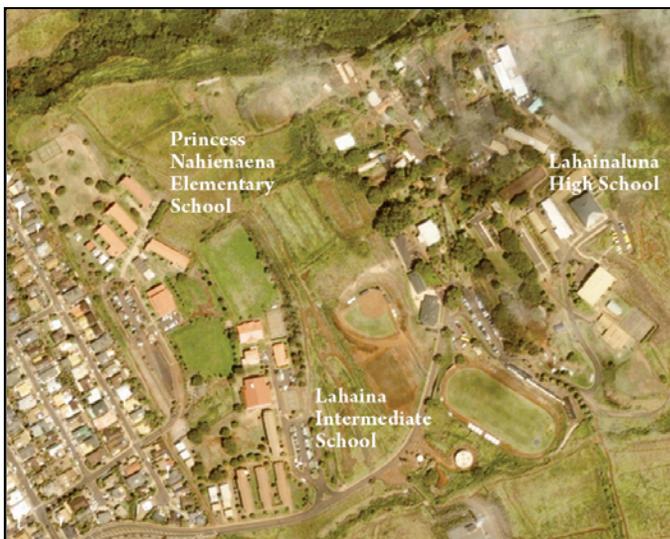


Exhibit 2-2: Aerial View of Existing Schools



Exhibit 2-3: View of Kelaweia Mauka Makai Park



Exhibit 2-4: View of Kahoma Stream (Improved Portion)

## **2.5. DEVELOPMENT SCHEDULE, COSTS, AND PROPERTY OWNERSHIP**

### **2.5.1. Construction Schedule and Project Costs**

The commencement of construction of the proposed project is dependent on the completion of the State environmental review process, acquisition of other required environmental clearances, and procurement of ministerial permits. Design work for this project is in progress and construction plans will need to be reviewed and approved by appropriate government agencies. At this time, it is anticipated that construction may begin in the summer of 2009 and is expected to continue for approximately 22 months, with completion of the project in 2011.

The construction activities in the project corridor anticipated for 2009 to 2011 will realize only two travel lanes, consistent with the design and construction plans for Lahaina Bypass Phase 1A. Likewise, the bridge crossing at Kahoma Stream will only include construction of the mauka bridge by 2011. The extension of Keawe Street will be constructed in conjunction with this initial portion of the project. The schedule for the construction of the ultimate, 4-lane divided highway configuration of the Lahaina Bypass along the proposed project alignment, as well as the makai bridge, will be coordinated as appropriate with future phases of the Lahaina Bypass.

The estimated construction cost for the ultimate build-out of project corridor is approximately \$110 million in 2008 dollars. This estimate includes a four-lane divided highway, the two bridge system crossing Kahoma Stream, and the realigned extension of Keawe Street.

### **2.5.2. Property Ownership**

The project corridor includes lands that are either privately-owned or owned by the State of Hawaii. Figure 2-3 indicates the landowners associated with the affected properties. The total area of the project corridor is approximately 29.9 acres. This estimate is based upon preliminary design plans, and the actual acreage required for the project will be determined during the final design. Table 2-1 summarizes information regarding TMK, ownership, and affected acres.

Tax Map Key (TMK) 4-05-021: 003 and 022 are owned by the State of Hawaii and are under the jurisdictions of the State Hawaii Housing Finance and Development Corporation (HHFDC) and Department of Land and Natural Resources, respectively. HHFDC is currently planning the Villages at Leialii mixed use residential community on Parcel 003. Portions of Parcels 003 and 022 in the project corridor will be conveyed as a parcel to DOT by a recorded

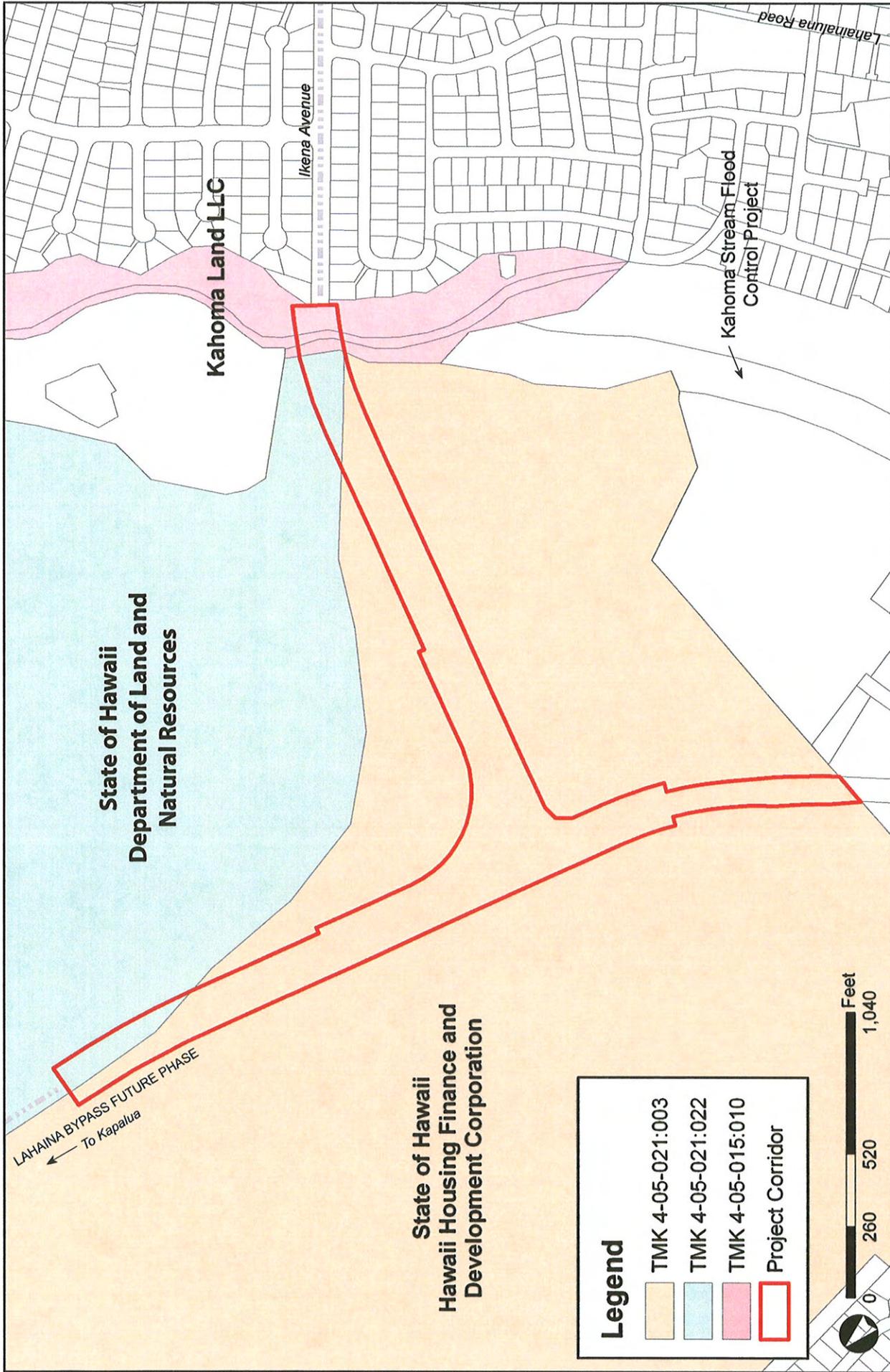
document, such as quitclaim deed. The portion of the project corridor within privately-owned TMK 4-05-015:010 will be acquired from the landowner by DOT either as a friendly acquisition or condemnation. Additional rights-of-way will be acquired as needed to accommodate grading activities along adjacent slopes.

<b>Table 2-1: Listing of Property Affected by Project Corridor</b>		
<b>Property Description (TMK)</b>	<b>Affected Acres (ac.)</b>	<b>Ownership Description<sup>(1)</sup></b>
1. 4-05-021: portion of 003	28.4	State of Hawaii (Jurisdiction of Hawaii Housing Finance and Development Corporation)
2. 4-05-021: portion of 022	0.9	State of Hawaii (Jurisdiction of Department of Land and Natural Resources)
3. 4-05-015: portion of 010	0.6	Kahoma Land, LLC
<b>Total Acreage</b>	<b>29.9</b>	

(1) Ownership information as listed by County of Maui, Real Property Assessment Division

Following the construction of the realigned Keawe Street Extension, the facility will fall under DOT’s jurisdiction and ownership. It is DOT’s intent, however, to ultimately convey the Keawe Street Extension right-of-way as a parcel to the County of Maui by a recorded document, such as quitclaim deed.

It should be noted that a portion of the existing right-of-way for Lahaina Bypass Road Phase 1A will not be utilized, since a new right-of-way is being acquired to accommodate the proposed project. Jurisdiction of the unused portion of the Phase 1A right-of-way will be transferred from the State DOT back to the appropriate State agency.



**FIGURE 2-3**  
**LANDOWNERSHIP MAP**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division



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### 3. ALTERNATIVES TO THE PROPOSED PROJECT

Pursuant to Chapter 343, HRS, alternatives to the proposed project were identified and evaluated. This chapter presents alternatives associated with the proposed project and discusses the rationale for their elimination from further consideration. Section 3.1 describes the alternatives identification process and identifies project alternatives. Section 3.2 presents an analysis of the alternatives.

#### 3.1. ALTERNATIVES IDENTIFICATION PROCESS

In identifying alternatives, possible options needed to meet the basic need for the overall Lahaina Bypass. These needs were established in the 1990 FINAL EIS and the 2002 FINAL SEIS and are summarized as follows:

- **Address traffic congestion:** There has been and continues to be traffic congestion along Honoapiilani Highway, and particularly in the vicinity of Lahainaluna Road during the weekday morning and afternoon peak hours of traffic. Honoapiilani Highway is a two-lane rural highway from its intersection with Lahainaluna Road southbound toward Launiupoko. This limits capacity because there is only one vehicular lane in each direction. Traffic congestion at the highway's intersection with Lahainaluna Road can be attributed to high traffic demand generated from existing land uses located above (mauka) the highway, including the Kelawea residential subdivision. Further major public school facilities, including Lahainaluna High School and Lahaina Intermediate School, serve the entire West Maui district, and thus generates considerable traffic.
- **Accommodate future traffic volumes:** Planning for and addressing future projected traffic conditions in the area is an important factor generating the need for the Lahaina Bypass Road. Future growth anticipated in the West Maui district was incorporated into the analysis and evaluations conducted as part of previous environmental documents, and there continues to be a need to address future projected traffic volumes.
- **Provide alternate routes in the event of accidents and natural hazards:** The Lahaina Bypass Road improvement is also intended to provide alternative routes for vehicles in the event of traffic accidents occurring along the existing Honoapiilani Highway or during natural hazards such as a tsunami or storm surge from high waves. Honoapiilani Highway is the only roadway facility providing vehicular access for the public into and out from the West Maui district. South of Lahainaluna Road, it is only a two-lane highway facility. In addition, this highway is generally routed along the

coastline and is situated fairly close to the shoreline in some areas particularly from Puamana to Launiupoko. As a result, the public has no alternative routes in the event of road closures or natural disasters. Related to disruptions associated with traffic accidents and natural hazards is the need for alternative access by emergency vehicles.

The process for identifying possible alternatives that meet these overall needs included an evaluation of three categories of alternatives as follows:

1. Alternative routes considered under prior environmental documents completed for the Lahaina Bypass Road;
2. Alternatives that either modified or realigned the original Phase 1A of the Lahaina Bypass Road; including alternatives that split the highway into two separate routes of two-lanes, thereby creating a couplet, and
3. No-Action Alternative.

In all, 15 alternatives were initially identified in these three categories, and five alternatives, including the proposed project, emerged for further study. The following sections summarize alternatives developed in each category.

### **3.1.1. Alternatives Considered in the 1990 FINAL EIS**

The three alignment alternatives studied in the 1990 FINAL EIS included 1) a Lahainaluna High School Mauka Alignment; 2) a Kalena Street Alignment; and 3) a Cane Haul Road Corridor Alignment.

The Lahainaluna High School Mauka Alignment was not considered a viable alternative in this EA. It was generally routed through an area between the complex of three public schools situated above (mauka or northeast) the Kelaweia subdivision. The corridor is generally routed through an area below (makai) Lahainaluna High School and above (mauka) Princess Nahienaena Elementary School and Lahaina Intermediate School.

This alignment was not considered in this EA for two reasons. First, its impacts on school facilities and their operations are significant. It would require relocation of intermediate school buildings, parking lots, playcourts, and an open field used for activities. This relocation is highly unlikely due to limited property available for those school sites and potential noise impacts and required mitigation measures. Second, this alignment would impact archaeological sites situated north of the school complex, including Site 6277 and other sensitive areas.

The remaining two alignments, the Kalena Street Alignment and the Cane Haul Road Corridor Alignment, were evaluated as alternatives in this EA.

### **Kalena Street Alternative**

The Kalena Street Alternative is depicted in Figure 3-1. This alternative is routed through Kalena Street which is below (makai) the present Lahaina Bypass Road corridor.

### **Cane Haul Road Corridor Alternative**

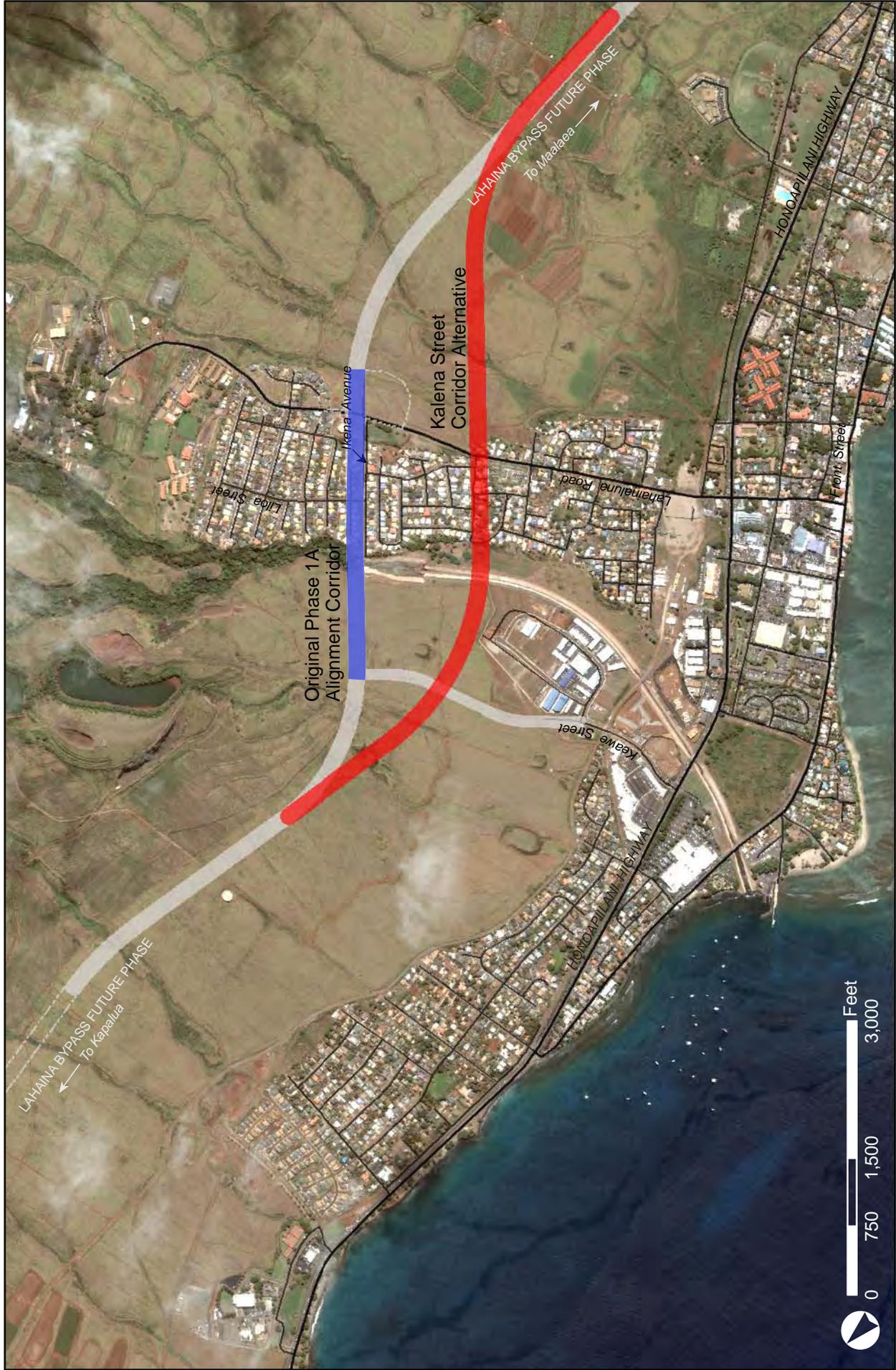
This alternative has an alignment routed along a corridor generally following an existing cane haul road that travels in a north-south direction situated slightly inland of Honoapiilani Highway. As shown on Figure 3-2, this alignment would be routed near Mill Street and below of Kuhua Street in the area of the former Pioneer Sugar Mill complex. The route is close to the existing highway, generally following the cane haul road.

It is noted that this alignment does not actually utilize much of the existing cane haul road. Some residents of the community expressed the desire that this “cane haul road” alternative be considered for the new highway. The actual cane haul road cannot be used for the new highway, however, because the alignment of this road does not meet highway design standards such as curve radius, sight distance, shoulder width, and roadside safety. Thus, the highway’s alignment for this alternative would generally follow the path shown in Figure 3-2, based upon information from the 1990 Final EIS.

### **3.1.2. Modification and Realignment of the Original Phase 1A Alignment**

Three modifications of the original Phase 1A alignment were evaluated. One of the modifications is the proposed project, which changes the original alignment by extending the corridor in a westerly, or makai, direction. The proposed project is described in detail in Chapter 2.

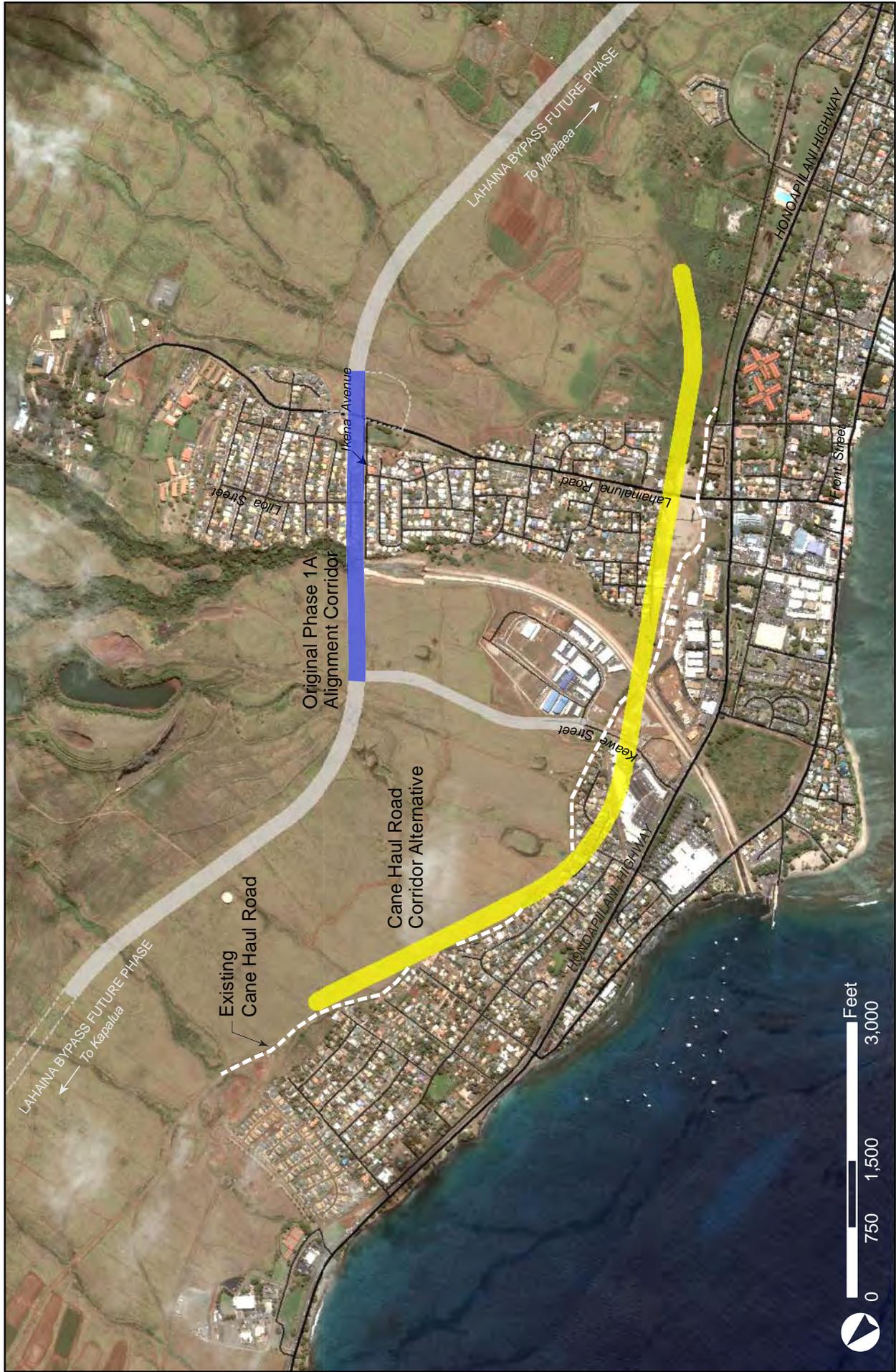
Two other alternatives to realign the original Phase 1A corridor and are described as: 1) Ikena Avenue Realignment; and 2) Couplet Alignment.



- LEGEND**
- Kalena Street Corridor Alternative
  - Original Phase 1A Corridor



**FIGURE 3-1**  
**KALENA STREET ALTERNATIVE**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



**FIGURE 3-2**  
**CANE HAUL ROAD CORRIDOR ALTERNATIVE**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

**LEGEND**

- Cane Haul Road Corridor Alternative
- Original Phase 1A Corridor



### **Ikena Avenue Realignment Alternative**

This alignment begins at Lahainaluna Road and travels in the northern direction proceeding below (makai) the existing Ikena Avenue corridor as it approaches Kahoma Stream. It would cross over the improved concrete lined portion of Kahoma Stream, proceed below Site 6277, and then turn inland (mauka) to connect with the existing Lahaina Bypass Road corridor. The highway's intersection with the extension of Keawe Street would occur below the currently established intersection location. This realignment alternative involves about 5,000 feet of highway, as illustrated Figure 3-3.

Five other realignment variations were also developed for this Ikena Avenue Realignment Alternative during the planning phase. These variations consisted of modifications to the alignment from Lahainaluna Road, particularly concentrated around the Ikena Avenue corridor. Some variations involved the alignment initially being routed mauka of Ikena Avenue, then turning makai crossing Kahoma Stream and below Site 6277. Other alignment variations started by proceeding below Ikena Avenue before crossing Kahoma Stream and continuing below Site 6277. Different variations of this alignment modified the curve radius of the highway so that it was either being routed further below or passing closer to Site 6277.

These variations involved more environmental effects than the Ikena Avenue Realignment alternative previously shown in Figure 3-3. These impacts included taking larger portions of Kelaweia Mauka Park, or would involve the relocation of the County's existing water reservoir facility. Impacts to existing residences were also considerable and greater due to the alignments and effects on local streets, which further impact existing residents. As a result, these variations were eliminated from further consideration early on in the process.

### **Couplet Alignment Alternative**

This alternative is referred to as the Couplet Alignment Alternative and can be described as a single highway characterized by two separate one-way facilities to handle vehicular traffic traveling in opposite directions and separated by a city block or other large areas. This alternative involves about 12,200 feet of realigned and additional highway, and is graphically shown on Figure 3-4.



**FIGURE 3-3**  
**IKENA AVENUE REALIGNMENT ALTERNATIVE**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

**LEGEND**

- Ikena Avenue Makai Realignment Alternative
- Original Phase 1A Corridor





**FIGURE 3-4**  
**COUPLER ALIGNMENT ALTERNATIVE**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

**LEGEND**

- Couplet Alternative (Ikena Avenue & Kalena Street)
- Original Phase 1A Corridor



As shown on this figure, the alternative involves splitting the Lahaina Bypass Road into two separate roadways or facilities. One facility would generally follow a route along Ikena Avenue, and be comprised of two travel lanes for vehicles traveling in the northern direction. The second facility would follow a corridor similar to the Kalena Street Alignment Alternative and provide two travel lanes for vehicles traveling in the southern direction. Both highway facilities would merge northwest of Site 6277 and continue toward Kapalua as the planned four-lane highway facility.

### **3.1.3. No Action Alternative**

The No Action Alternative consists of moving forward with construction of the original highway corridor. That corridor already has an established right-of-way and was studied under accepted environmental documents completed for the overall Lahaina Bypass Road improvement. As discussed in Chapter 2, those documents continue to be applicable to the Lahaina Bypass Road and have subsequently resulted in the commitment by the State DOT to implement the highway's construction.

## **3.2. ALTERNATIVES ANALYSIS**

### **3.2.1. Evaluation Criteria**

As stated earlier, the alternatives evaluated in this EA generally meet the need criteria for the Lahaina Bypass, as set forth in previously-accepted FINAL EISs. The analysis of the alternatives for this EA was therefore based on environmental and other factors, as follows:

1. Impacts on public recreational facilities are considered because Section 4(f) of the U.S. Department of Transportation Act of 1966 requires such sites should be avoided unless there are no other feasible and prudent alternative. Such resources include public park and recreation lands, wildlife refuges, and historic sites. Major public facilities such as schools and water reservoirs are also important resources because schools usually have recreational facilities, and displacement and relocation impacts to such facilities may be significant.
2. Effects on historic sites are relevant because these resources also fall under Section 4(f) and should be avoided unless there are no other feasible and prudent alternative.
3. The potential displacement of residences and commercial properties is a significant factor due to the socio-economic impacts on families and businesses, and includes associated costs to mitigate such effects.

4. The degree of potential alterations to the established Lahaina Bypass Road corridor is significant because deviations may require new rights-of-way to be acquired, as well as the evaluation of traffic engineering and design issues that may not have been studied in prior environmental documents.

The following sections present an analysis of each alternative relative to these evaluation factors.

### **3.2.2. Kalena Street Alignment**

This alternative would not affect existing recreational facilities or other public facilities. There is a historic agricultural push pile that would be affected by this alignment, although, that site was determined to be significant only for informational content.

This alternative would impact a portion of the Lahaina Industrial Area. This recently-established light industrial subdivision is located between Keawe Street and Kahoma Stream. Several light industrial lots situated along Kupuohi Street and the end of Ulupono Street would be affected by this alternative.

Further, this alignment would have a significant impact on many residences along Kalena Street and in the surrounding vicinity. It was estimated that between 25 to 30 residential properties may need to be displaced by this alternative. Besides physically displacing existing residences, the alteration of local streets would subsequently result in additional lots being displaced due to lost access. Local streets affected include Lui Street, Kahena Street, Kahako Street, Kalakini Street, and Pikanele Street.

About 25 percent of the existing Lahaina Bypass Road corridor would need to be changed under this alternative; this is a significant amount of the corridor. Other environmental impacts may result, as this new corridor area was not addressed in prior environmental documents.

### **3.2.3. Cane Haul Road Alignment**

While this alternative generally meets the need criteria of the overall Phase 1A, it is anticipated that existing and projected traffic congestion particularly at the existing highway's intersection with Lahainaluna Road would not be adequately alleviated. There would be insufficient spacing between the existing highway and new highway to alleviate congestion in that area. All of the traffic traveling either mauka or makai along Lahainaluna Road would continue to be concentrated near the intersection with the existing highway. The option to utilize a planned extension of Keawe Street to access inland areas within the Kelawea

subdivision area would not be available, thereby concentrating traffic at this Lahainaluna Road intersection. With the limited spacing distance between the existing highway and Cane Haul Road alignment, there would be insufficient space to provide the required roadway lengths for left-turn and right-turn storage lanes.

The existing Lahaina Recreation Center may be affected by the alignment's connection back to the existing Lahaina Bypass Road corridor, causing the removal of some structures along with noise effects from the highway being situated close to that facility. Under Section 4(f) of the U.S. DOT Act, other alternatives would need to be evaluated because these recreational facilities would be affected by this alternative.

There is also the potential for this alternative to affect several historic properties in the area. A section of this alignment corridor would run through the location of the historic Pioneer Mill complex identified as SIHP No. 50-50-03-4787. Associated with this mill site are the remnants of the Pioneer Mill Railroad identified as SIHP No. 50-50-03-4997 constructed along a 40-foot railroad easement running inland of the existing highway in a northern direction in the Lahaina town area. Exhibit 3-1 shows the location of this cane haul road alternative's route through the Pioneer Mill site, and crossing through the current Sugar Cane Train track that utilizes the same grade used by the historic Pioneer Mill railway.

Potential historic properties affected by this alternative also include both pre-contact and post-contact historic properties associated with the numerous Land Commission Awards (LCA) or Land Grants in the area. Just within a short section alone

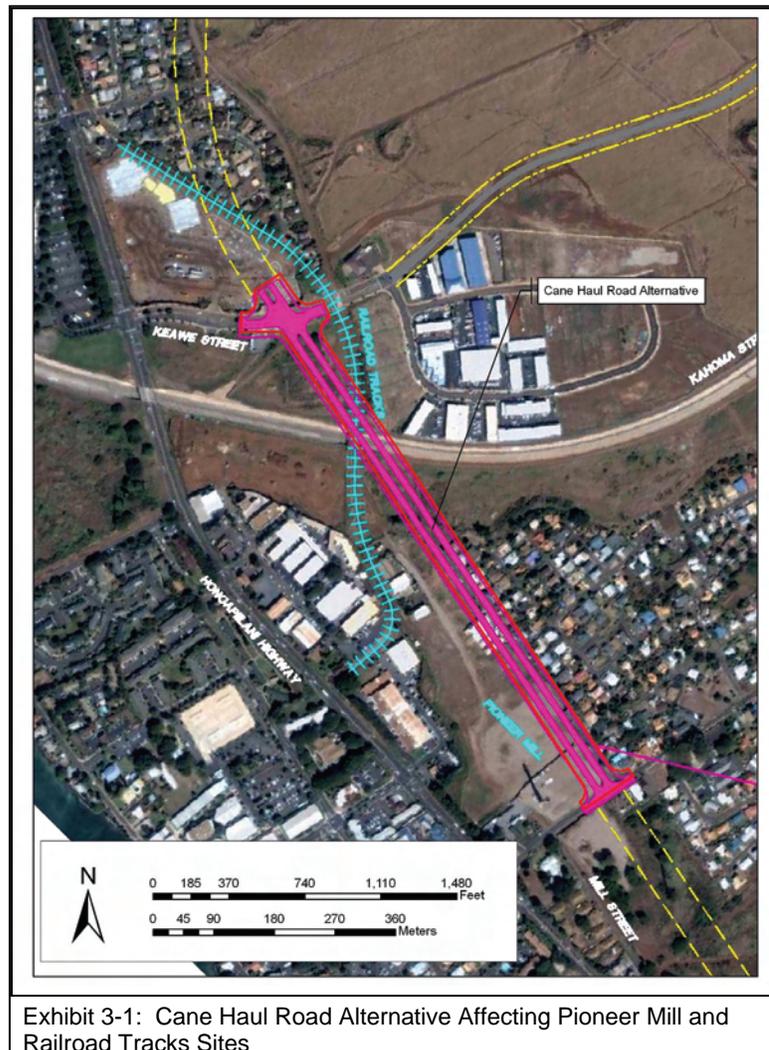


Exhibit 3-1: Cane Haul Road Alternative Affecting Pioneer Mill and Railroad Tracks Sites

from Keawe Street to Lahainaluna Road, 23 Royal Patent Grants and LCA parcels were sold to native Hawaiian families, beginning in 1848, as well as 5 Land Grants. Beyond this area, there are many more LCA parcels situated along the corridor for this alternative since most of the grants were located along the coastline.

Given the high number of house lots listed in the LCAs in the project area, as well as the number of historic agricultural plots, the potential for subsurface historic properties along this alternative corridor is high. Potential subsurface historic properties include structures or cultural material deposits representing agricultural plots or house lots, human remains, and agricultural soils associated with taro or sweet potato cultivation.

Therefore, it is anticipated that this alternative would affect existing historic sites, and would encounter a high number of LCAs within this alternative's corridor and the attendant high potential for subsurface historic properties. The alternative may thus pose a potential adverse effect to the integrity of previously recorded historic properties, as well as potential historic properties that have yet to be formally documented. Further, other alternatives would need to be evaluated under Section 4(f) of the U.S. DOT Act because of the effects from these resources.

This alternative would also significantly impact several commercial properties along with existing and developing residential properties resulting in their displacement. The right-of-way for the highway alignment is 150 feet-wide, and about another 50 feet on each end of this right-of-way would likely be necessary due to grading (cut and fill) activities necessary to construct the highway. Thus, a corridor of approximately 200 to 250 feet wide would actually be needed for this alternative. This would affect a considerable number of properties as previously shown on Figure 3-2.

Impacted commercial properties would consist of two new shopping centers located along Keawe Street on the mauka side of Honoapiilani Highway. About 30 to 50 percent of each of these commercial properties would be affected. The Lahaina Industrial Area is a recently established and expanding light industrial subdivision located along Keawe Street above these shopping centers that would also be impacted. A portion of a new condominium development located along Kahoma Street would also be affected.

This alternative would significantly impact many existing residences within and along the alignment's corridor. It was estimated that between 35 to 40 residential properties may need to be displaced by this alternative. Besides physically displacing existing residences, existing local streets in that area would be cut off and altered that would subsequently result in additional lots being displaced due to lost access. Many of the residences along local

streets affected include Nahele Street, Ipukula Way, Kapunakea Street, Kahua Street, Mill Street, Alike Place, David Malo Circle, Keone Street, Kamamalu Street and Aki Street.

Further, about 40 to 50 percent of the existing Lahaina Bypass Road corridor would need to be changed under this alternative which is a significant amount to the present corridor. Other environmental impacts may result, since this new corridor area was not addressed in prior environmental documents.

#### **3.2.4. Ikena Avenue Realignment**

This alternative could affect a small portion of the existing Kelaweia Mauka Park situated along Ikena Avenue. It would not impact the existing County water reservoir tank located across (mauka) the park. There is a historic agricultural push pile that would be affected by this alignment, although that site was determined to be significant only for informational content.

About 10 to 15 percent of the existing Lahaina Bypass Road corridor would need to be changed under this alternative, which is not a significant amount of the corridor.

This alternative would significantly impact many existing residences situated below Ikena Avenue because the alignment would be routed through these properties. Further, additional areas needed for the construction of the highway associated with grading activities (cut and fill) could expand the impact area beyond the 150-foot right-of-way established. It was estimated that between 16 to 30 residential properties may need to be displaced by this alternative. Besides physically displacing existing homes within the alignment right-of-way, existing local streets in that area would be cut off and altered that would subsequently result in additional lots being displaced due to lost access. Many of the residences along local streets affected include Kaakolu Street, Kanakea Loop, and remaining homes along Ikena Avenue.

#### **3.2.5. Couplet Alignment Alternative**

There is a historic agricultural push pile affected by this alternative that is significant only for informational content. This alternative would not affect Kelaweia Mauka Park or the County water reservoir tank located across the park.

About 10 to 15 percent of the existing Lahaina Bypass Road corridor would need to be changed under this alternative, which is not a significant modification to the corridor. This alternative would, however, add another 10 to 15 percent for a new highway facility associated with the lower southbound leg added through Kalena Street.

This alternative would significantly impact many existing residences situated below Ikena Avenue because the alignment would be routed through these properties. In addition, many existing residents along the Kalena Street corridor would also need to be relocated due to this alternative. It was estimated that between 45 to 50 residential properties may need to be displaced by this alternative. Several existing local streets in the areas near Ikena Avenue along with Kalena Street would be cut off and altered that would subsequently result in additional lots being displaced due to lost access.

### **3.2.6. Summary and Conclusion**

A summary of how the proposed project and each alternative meet the evaluation criteria is presented in Table 3-1. While all alternatives will generate impacts in one or more categories of the evaluation criteria, the proposed project will generate the least impact, as shown on Table 3-1. Two agricultural push piles will be impacted, however, no significant or sensitive archaeological resources were discovered as a result of an archaeological inventory survey conducted on both push piles. Further, an archaeological monitoring plan has been prepared and is pending review and approval by SHPD. No recreational sites will be impacted, no residential or commercial activities will be displaced, and no public facilities will be affected. Further, the potential alteration to the Lahaina Bypass Highway is not significant.

In contrast, the other alternatives are likely to result in major negative impacts, ranging from residential and commercial displacement, to impacts on historical resources and recreational and other public facilities. Further, two of the alternatives would result in significant deviation from the Lahaina Bypass Highway corridor. These four alternatives have therefore been eliminated.

**Table 3-1: Summary of Alternatives Analysis**

Proposed Project and Alternatives	Evaluation Criteria						Lahaina Bypass Corridor
	Historic Properties	Recreational Sites	Est. Residential Displacement	Commercial Displacement	Public Facilities		
Proposed Project	2 push piles; monitoring plan part of mitigation	None	None	None	None	None	Alters about 10% - 15% of bypass corridor
Kalena Street	None at this time	None	About 25 to 30 homes	Impacts future lots of commercial site	None	None	Alters about 25% of bypass corridor
Cane Haul Alignment	Historic railroad & high potential for other sites due to high LCA concentration in area	Impacts Malu'uluo Lele Park and Lahaina Recreation Center	About 35 to 40 homes	Impacts 2 commercial sites affecting up to 30-50% of facilities	None	None	Alters about 40%-50% of bypass corridor
Ikenu Ave. Realignment	1 push pile significant for informational content	Impacts Kelaweia Mauka Park	About 16 to 30 homes	None	None	None	Alters about 10%-15% of bypass corridor
Couplet	1 push pile significant for informational content	None	About 45 to 50 homes	None	None	None	Alters about 10%-15% of bypass corridor & adds another 15% for 2nd couplet corridor
No Action (Original Alignment)	Impacts Site 6277	None	None	None	None	None	None

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## **4. PHYSICAL AND BIOLOGICAL ENVIRONMENT**

This chapter describes the existing physical and biological conditions within the project corridor and surrounding environment, and addresses the probable impacts associated with the proposed project. Mitigative measures are also discussed as appropriate.

### **4.1. CLIMATE, TOPOGRAPHY, AND SOILS**

#### **4.1.1. Climate**

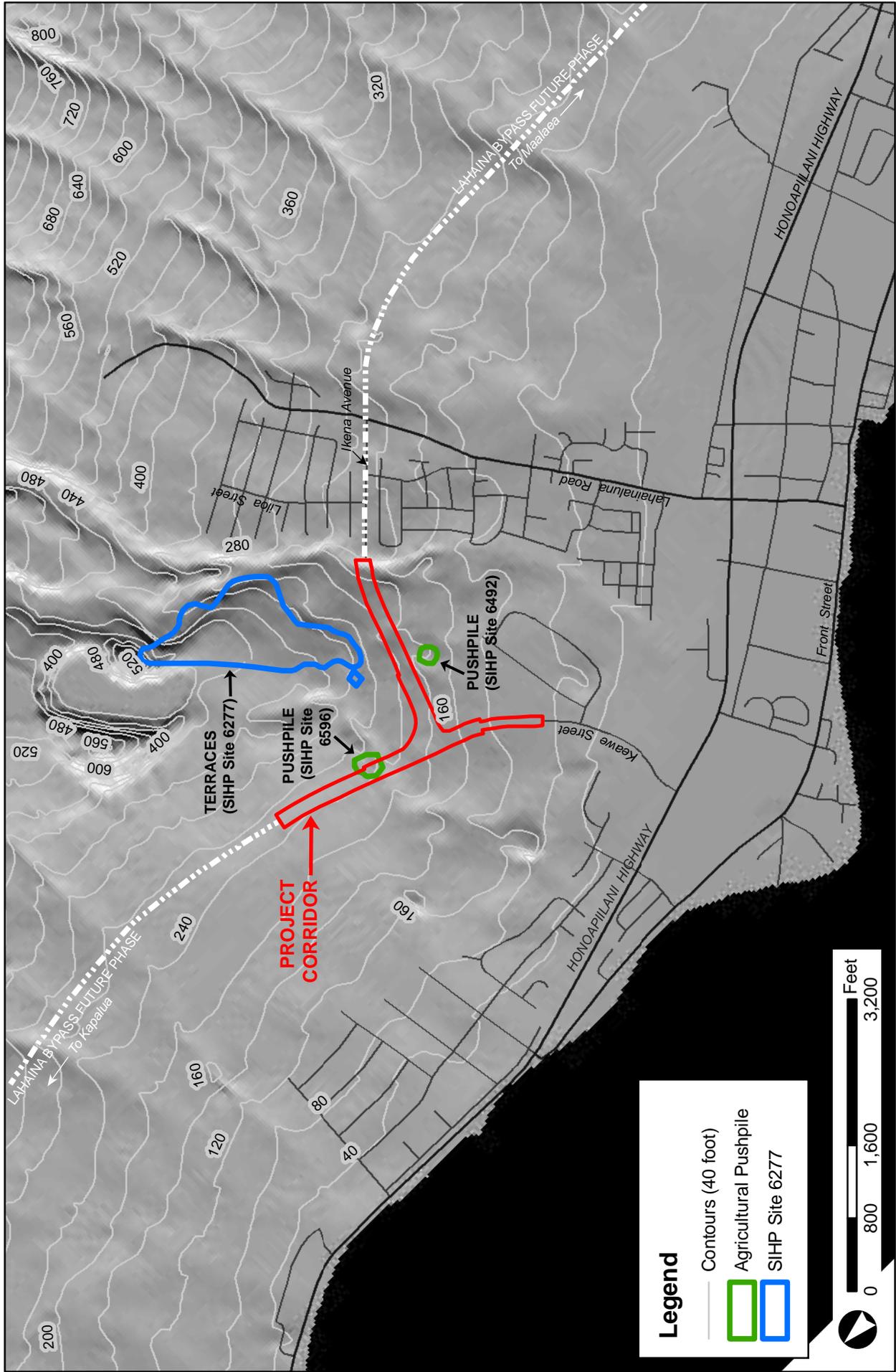
Climate on the Island of Maui can be characterized as mild sub-tropical with low day-to-day and month-to-month variability. The project corridor is located in the Lahaina District on the western flank of the West Maui Mountain. According to the U.S. Geological Survey, Pacific Islands Water Science Center, the Lahaina District experiences a dramatic range average annual rainfall, with over 371 inches at the Puu Kukui rain gauge station (altitude of 5,788 feet), and less than 15 inches at the shoreline. Winter storms from November to April are responsible for a large portion of rainfall. Fog drip is a significant contributor to precipitation at higher elevations.

Temperature data from 1949 to 2001 indicates August and September as the warmest months in Lahaina, with average high temperatures of 88 degrees Fahrenheit and average low temperatures of 70 degrees. January and February are historically the coolest month of the year, with average high temperatures of 81 degrees Fahrenheit and average low temperatures of 63 degrees Fahrenheit.

The entire state of Hawaii lies well within the belt of northeasterly trade winds generated by the semi-permanent Pacific high pressure cell to the north and east of the islands. Winds patterns in the Lahaina area exhibit seasonal variations. The northeasterly tradewinds occur 90 percent of the time during the summer and 50 percent of the time during the winter, with average wind speeds of approximately 10 miles per hour. Winds also vary on a daily basis, with tradewinds generally being stronger in the afternoon. During the day, winds blow onshore toward the warmer land mass. In the evening, the reverse occurs, as breezes blow toward the relatively warm ocean.

#### **4.1.2. Topography**

Steep, mountainous topography characterizes the interior of the Lahaina district, while sloping alluvial and colluvial plains extend west and north along the shoreline. The project corridor is approximately 2,950 feet from the coastline near the proposed Keawe Street extension and 5,570 feet from the coastline over the majority of the project corridor. Figure 4-1 shows the general topography of the surrounding.



**FIGURE 4-1**  
**Existing Topography**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



Elevations associated with the project corridor range from 55 feet to 230 feet above mean sea level (msl). In the project vicinity, the topography slopes in a northeast to southwest direction. Slopes throughout the project corridor generally vary from 8 percent to 20 percent.

A significant topographic feature of the area is Kahoma Stream, where portions of the stream channel seaward (makai) of the project corridor have been significantly altered as part of the U.S. Army Corps of Engineers Kahoma Stream Flood Control Project. Near the project corridor, the original stream bed was excavated and lined with concrete. The altered portion of the stream channel exhibits near vertical walls from 20 to 35 feet tall.

Another feature in the project vicinity is identified as historic SIHP 6277, a complex of agricultural terraces and irrigation ditches located mauka (northeast) of the project corridor. As shown in Figure 4-1, SIHP 6277 extends between the 280- and 400-foot elevations.

Other topographic features in the project vicinity include agricultural pushpiles (see Figure 4-1). One pushpile located below and makai of the project corridor is generally square-shaped (approximately 145 feet wide by 150 feet long) and varies between 25 to 35 feet in height. The agricultural pushpile is constructed of loosely sorted, small to very large, subangular to angular basalt boulders mixed with large basalt cobbles.

A second agricultural pushpile is irregularly-shaped and is located within the northern section of the project corridor. This feature is approximately 120 feet wide, 175 feet long, and 35 feet high and mostly consists of large to very large, subangular to angular basalt boulders underlain by loosely sorted, small to medium basalt boulders. The pushpile is situated at the head of a shallow drainage channel that generally runs east-west through the northern portion of the project corridor. The drainageway appears to extend from an existing water reservoir to Honoapiilani Highway.

#### **4.1.3. Soils**

Soil suitability studies completed for the Hawaiian Islands describe the physical attributes and the relative productivity of different land types for agricultural uses. Relevant studies include: 1) the U.S. Department of Agriculture Soil Conservation Services (SCS) Soil Survey, 2) the University of Hawaii Land Study Bureau (LSB) Detailed Land Classification, and 3) the State Department of Agriculture's Agricultural Lands of Importance to the State of Hawaii (ALISH). The soil conditions along the project corridor are described below.

## SCS Soil Survey

The SCS's *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* includes general soil maps developed for these islands based upon soil surveys. These soil maps show soil characteristics by area, classified by soil series and associations. As indicated by the soil survey maps, the project corridor is situated on lands within two soil associations: 1) Waiakoa-Keahua-Molokai association, and 2) Rock land-Rough mountainous land association.

The Waiakoa-Keahua-Molokai association is comprised of the Wahikuli Series and the Wainee Series. The Wahikuli Series exists between elevations from sea level to 600 feet and consists of gently to moderately sloping, well-drained soils developed from weathered basic igneous rock. This series is somewhat influenced by volcanic ash from local cinder cones. The Wainee series exists from nearly sea level to 1,000 feet and consists of gently to moderately sloping, well-drained soils developed on alluvial fans from weathered basic igneous rock. Both the Wahikuli Series and the Wainee Series soils were mostly used for sugarcane, with a small acreage used for home sites. The natural vegetation is fingergrass, kiawe, and uhaloa.

The Rock land-Rough mountainous land association is comprised of Rock land (rRK) and Rough broken and stony land (rRS). The Rock land-Rough mountainous land association consists of very shallow soils on intermediate and high upland areas. These soils are steep and very steep, with local relief generally more than 500 feet.. Rock outcrops cover 60 to 80 percent of the surface and the soil is 2 to 10 inches thick over bedrock. This association is used mainly for wildlife habitat and water supply. Small acreages of Rock land are used for pasture.

Figure 4-2 illustrates the extent of the five specific soil types that occur throughout the project corridor. Descriptions of these soil types adapted from the SCS Soil Survey are provided below:

- **Wahikuli stony silty clay, 7 to 15 percent slopes (WcC):** This soil is similar to Wahikuli silty clay, 3 to 7 percent slopes, except that there are enough stones on the surface to hinder cultivation. Runoff is slow to medium, and the erosion hazard is slight to moderate. Included in mapping were small, nonstony areas and some moderately steep areas. This soil is used mostly for sugarcane. A small acreage is used for home sites. (Capability classification IIIe if irrigated, IVe if nonirrigated; sugarcane group 1; pasture group 3)



- **Wahikuli very stony silty clay, 3 to 7 percent slopes (WdB):** This soil is similar to Wahikuli silty clay, 3 to 7 percent slopes, except that as much as 3 percent of the surface is covered by stones. Included in mapping were small areas where stones cover 3 to 15 percent of the surface. This soil is used mostly for sugarcane. A small acreage is used for home sites. (Capability classification IVs if irrigated, VIs if nonirrigated; sugarcane group 1; pasture group 3)
- **Wainee very stony silty clay, 3 to 7 percent slopes (WxB):** On this soil, runoff is slow and the erosion hazard is slight. Stones cover as much as 3 percent of the surface. Included in mapping were small areas where bedrock is at a depth of about 36 inches. Most of this soil is used for sugarcane; a small acreage is used for home sites. (Capability classification IVs if irrigated, VIs if nonirrigated; sugarcane group 1; pasture group 1)
- **Rock land (rRK):** Rock land is made up of areas where exposed rock covers 25 to 90 percent of the surface. The rock outcrops and very shallow soils are the main characteristics. The rock outcrops are mainly basalt and andesite. This land type is nearly level to very steep. Elevations range from nearly sea level to more than 6,000 feet. The annual rainfall amounts to 15 to 60 inches. Rock land is used for pasture, wildlife habitat, and water supply. The natural vegetation at the lower elevations consists mainly of kiawe, klu, piligrass, Japanese tea, and koa haole. Lantana, guava, Natal redbud, and molasses grass are dominant at the higher elevations. This land type is also used for urban development. In many areas, the soil material associated with the rock outcrops is very sticky and very plastic. It also has high shrink-swell potential. Buildings on the steep slopes are susceptible to sliding when the soil is saturated. Foundations and retaining walls are susceptible to cracking. (Capability classification VIIs, non-irrigated).
- **Rough broken and stony land (rRS):** Rough broken and stony land consists of very steep, stony gulches. The local relief is generally between 25 and 500 feet. Runoff is rapid, and geologic erosion is active. Elevations range from nearly sea level to 3,000 feet. The annual rainfall amounts to 20 to 40 inches. The soil material is generally less than 20 inches deep over saprolite or bedrock. About 3 to 25 percent of the surface is covered with stones, and there are a few rock outcrops. Included in mapping were small areas of colluvium and alluvium along the bottoms of gulches. This land type is used for pasture, wildlife habitat, and watershed. The dominant natural vegetation consists of lantana, koa, haole, klu, feather finger grass, Bermuda grass, and ilima. (Capability classification VIIs, nonirrigated)

The SCS Survey includes a Land Capability rating of soil types according to eight levels of productivity for commercial cultivation. Class I soils have few limitations that restrict their

use. Class VIII soils and landforms have limitations that preclude their use for commercial plant production and restrict their use to recreation, wildlife habitat, or water supply, or to esthetic purposes. The five soil types within the project corridor have varying capability class ratings ranging from Class III (with irrigation) to Class VII (without irrigation). In general, the soils within the project corridor have severe to very severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture or range, woodland, or wildlife habitat.

Geotechnical investigations conducted within the project corridor during October 2008 revealed that soils in the project corridor are relatively shallow. A total of 27 soil borings were taken as part of the design work to assess the subsurface conditions. Based upon these soil borings, the average soil depth within the project corridor is about 3.5 feet. Only three of the borings revealed soils that extend to depths of 6.5 and 7.5 feet.

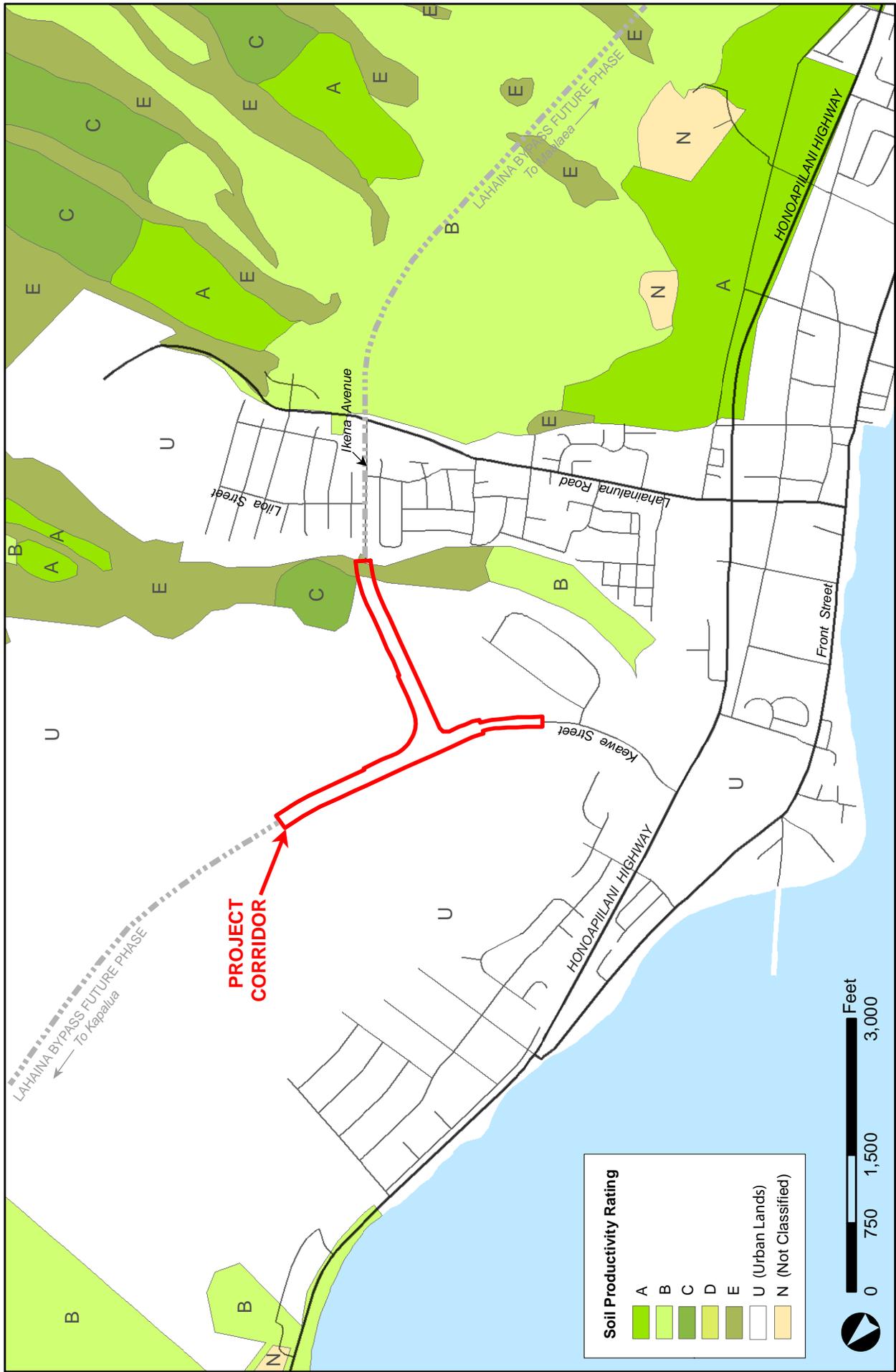
### **Land Study Bureau**

The University of Hawaii Land Study Bureau's *Detailed Land Classifications – Island of Maui*, establishes a soil productivity rating from "A" to "E," with "A" reflecting the highest level of productivity and "E" representing the poorest. The rating system is based on factors such as slope, drainage rainfall, texture, stoniness, elevation, clay properties, and machine tillability. The majority of the project corridor has a soil productivity rating of "U," indicating lands designated for urban use. A 200-foot long section of the project corridor includes lands rated "E," indicating land very poorly suited for agricultural production. Figure 4-3 shows the classification of lands within the project corridor.

### **Agricultural Lands of Importance to the State of Hawaii**

The State Department of Agriculture's *Agricultural Lands of Importance to the State of Hawaii* (ALISH), established a classification system for identification of agriculturally important lands to the State of Hawaii. Three classes of lands were established for the State of Hawaii, primarily, but not exclusively, on the basis of soil characteristics. The three classes of ALISH lands are: 1) prime, 2) unique, and 3) other. Lands not included under this system are "unclassified".

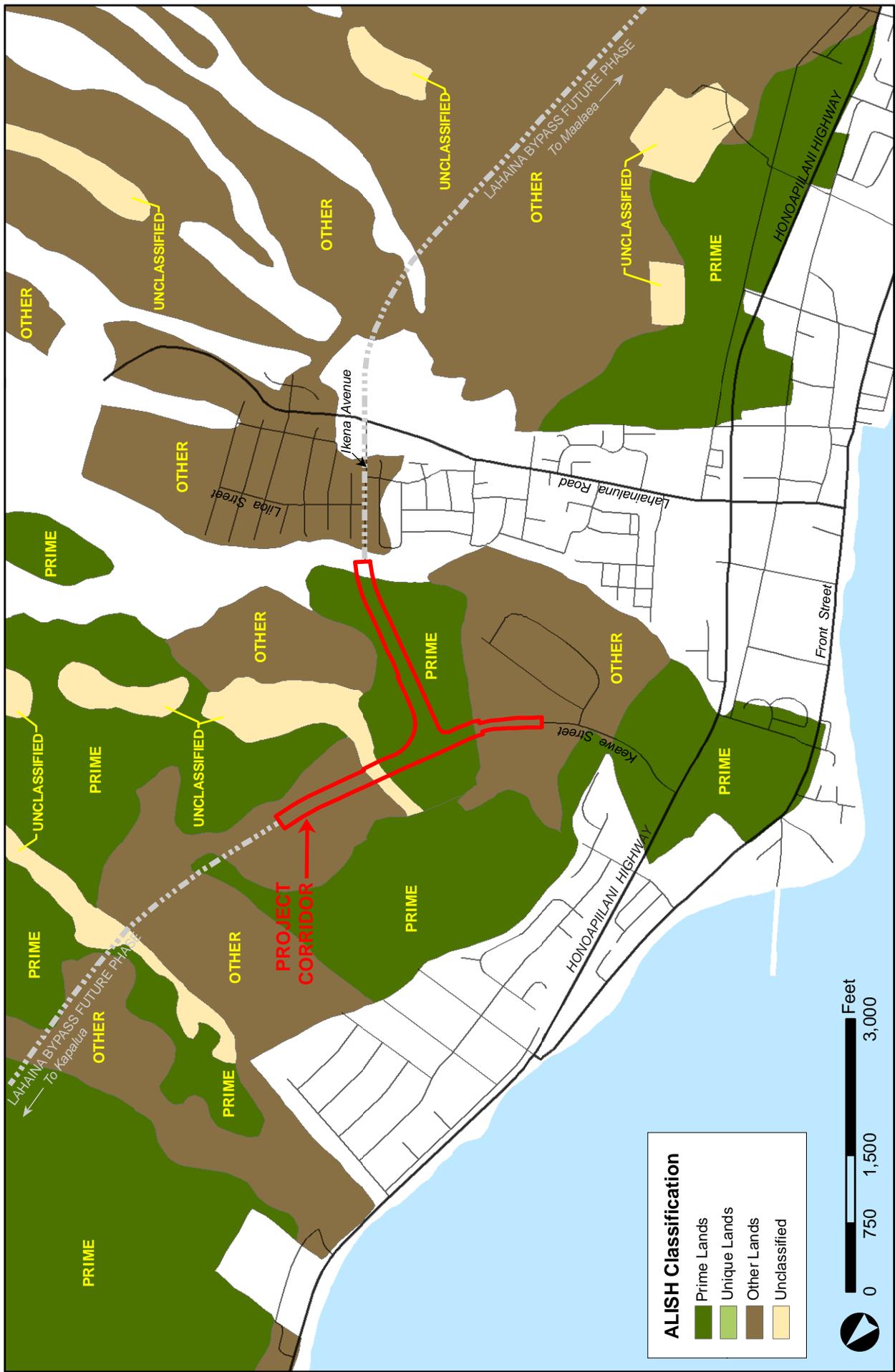
Figure 4-4 shows the project corridor in relation to the various ALISH class boundaries established for agricultural lands. Based upon this figure, the project corridor predominantly includes areas that are designated as "prime" and "other" land classifications. A small portion is located within "unclassified" agricultural lands.



**FIGURE 4-3**  
**LSB SOIL PRODUCTIVITY RATING**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division





**ALISH Classification**

<span style="color: green;">■</span>	Prime Lands
<span style="color: lightgreen;">■</span>	Unique Lands
<span style="color: brown;">■</span>	Other Lands
<span style="color: yellow;">■</span>	Unclassified



**FIGURE 4-4  
ALISH MAP**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division



#### 4.1.4. Probable Impacts on Topography and Soils

##### Effects on Topography

Construction of the project will inevitably alter portions of the existing topography within the proposed right-of-way and adjacent areas due to excavation and grading activities. However, these impacts are not expected to be significant. An existing plantation agricultural pushpile comprised of medium to large basalt boulders will be demolished. An existing drainageway will be improved with a road crossing and the installation of a culvert to allow for drainage. Impacts to Kahoma Stream would minimal, as the proposed bridge crossing is designed to span the width of the stream channel. No existing large trees within the project corridor need to be removed.

Construction of the project will involve cut and fill activities based upon the project's design plans, which must comply with highway design parameters. Additional areas generally extending up to 50 feet beyond the 150-foot right-of-way will be affected by cut and fill activities. Cut and fill activities associated with work along the Keawe Street extension affect areas up to approximately 50 feet beyond the right-of-way, primarily near the intersection with the highway.

The project's design would try to achieve a balanced cut and fill condition to minimize disturbances to the property's topography and soils to the extent practical. However, due to horizontal and vertical geometric design considerations, the quantity of excavated material will exceed the quantity of embankment material.

The preliminary estimated earthwork quantities required for the construction of the realigned highway is approximately 286,000 cubic yards of material for excavation and 50,400 cubic yards of material for embankment. Earthwork quantities for the construction of the Keawe Street extension are estimated at approximately 3,700 cubic yards of material for excavation and 141,000 cubic yards of material for embankment. Thus, a total of about 98,300 cubic yards in excess excavated material will be generated by the earthwork over the entire project corridor.

The excess excavated material is planned to be stockpiled in appropriate areas south of Lahinaluna Road within the DOT's Lahaina Bypass right-of-way. Erosion control measures will be implemented around these piles and may include the use of temporary silt fencing, sand bags, or screens. Also, the piles will be sodded using hydromulch to contain the materials and further minimize erosion from wind and rain. This material may be used by DOT for construction of future highway phases.

General Permit coverage for construction activities under the State's National Pollutant Discharge Elimination System (NPDES) permit will be obtained for this project. Plans to address this stock pile of material will be incorporated under a best management practices (BMP) plan developed in conjunction with the permit. It should be noted that General Permit coverage for the original Lahaina Bypass Phase 1A alignment was obtained in December 2008 from the State Department of Health. BMPs were developed for a proposed storage area for excess material. Similar measures will be incorporated for the proposed project to minimize effects from storage areas.

### **Effects on Soils**

Project effects on existing soils would primarily be associated with short-term construction activities associated with soil erosion. Once constructed, the project should not have long-term impacts on existing soils. Graded areas not part of the paved highway would be grassed to minimize erosion.

Construction of the project area would inevitably involve temporary land-disturbing activities that may result in some soil erosion during periods of heavy rainfall or high winds. Various mitigation measures will be incorporated into the project's design to minimize potential short-term erosion impacts during such construction activities. Erosion control measures considered may include: use of temporary sprinklers in non-active construction areas; stationing water trucks on the site during construction to provide sprinkling in active areas; use of temporary silt fencing, sand bags, or screens; thorough watering of graded areas after construction activity has ceased for the day; or grassing of affected areas immediately after site work has been completed.

An Erosion Control Plan will be prepared for the proposed project. Erosion control measures to be implemented along the project corridor will be developed during the final design phase of this project. However, such control measures will comply with DOT's erosion and sedimentation control regulations and NPDES permit requirements. Grading activities will similarly be performed in accordance with permits approvals to be obtained from the State DOH.

#### **4.1.5. Effect on Agricultural Activities**

The project area is located within lands that were formerly used for large scale sugarcane plantation agriculture under the Pioneer Mill Company. However, sugarcane agricultural activities ended in the 1990's culminating with the closing of the company in 1999. Since then, this area has been left fallow and undeveloped. There are no existing large

or small scale agricultural activities occurring on these State-owned parcels or privately-owned property.

No future agricultural uses are planned for the project corridor. Therefore, no long-term impacts to area agriculture uses are expected. There are some prime agricultural lands within the project corridor, however, the majority of the project corridor affect lands designated as “other” due to poor soil characteristics. Furthermore, the State-owned properties are under the jurisdiction of the State Hawaii Housing Finance and Development Corporation (HHFDC), and the agency is planning the Villages at Leialii mixed use residential community, and thus not intending to utilize this area for agricultural activities.

#### 4.2. AIR QUALITY

Federal ambient air quality standards (AAQS) have been established by the U.S. Environmental Protection Agency (EPA) for six criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), lead (Pb), ozone (O<sub>3</sub>), and concentrations of particulate matter less than 10 microns (PM<sub>10</sub>) and 2.5 microns (PM<sub>2.5</sub>). A summary of the federal and Hawaii ambient air quality standards that apply to the proposed project area is presented in Table 4-1.

Air Pollutant	Averaging Time	Hawaii AAQS	Federal (NAAQS)	
			Primary	Secondary
Carbon Monoxide (CO)	1-hour	9 ppm	35 ppm	--
	8-hour	4.4 ppm	9 ppm	--
Lead (Pb)	Quarterly	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	Annual	0.04 ppm	0.053 ppm	0.053 ppm
Ozone (O <sub>3</sub> )	8-hour	0.08 ppm	0.075 ppm	0.075 ppm
Particulate Matter ≤10 micrometers in diameter (PM <sub>10</sub> )	Annual	50 µg/m <sup>3</sup>	--	--
	24-hour	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Particulate Matter ≤2.5 micrometers in diameter (PM <sub>2.5</sub> )	Annual	--	15 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	--	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
Hydrogen Sulfide (H <sub>2</sub> S)	1-hour	0.025 ppm	--	--
Sulfur Oxides (SO <sub>2</sub> )	Annual	0.03 ppm	0.03 ppm	--
	24-hour	0.14 ppm	0.14 ppm	--
	3-hour	0.50 ppm	--	0.50 ppm

Source: State Department of Health, 2008.

Since 2003, the State began participating in the National PM<sub>2.5</sub> speciation monitoring program. Additionally, a State standard has been established for hydrogen sulfide (H<sub>2</sub>S)

primarily associated with geothermal and volcanic activity since there are no federal standards for this pollutant (State DOH, October 2008). For selected criteria pollutants, the State of Hawaii has established State ambient air quality standards that are somewhat more stringent than the federal standards under Title 11, Chapter 59, Hawaii Administrative Rules (HAR) as indicated in Table 4-1.

#### **4.2.1. Existing Ambient Air Quality Conditions**

The State DOH operates several ambient air monitoring stations throughout the State. The pollutants monitored by the State are generally done on a regional level, and most of these stations are located at various sites on the Island of Oahu. There are no monitoring stations for lead. Stations located on the Island of Hawaii are intended to monitor pollutants associated with volcanic (vog) and geothermal activity (SO<sub>2</sub> and H<sub>2</sub>S). Another monitoring station is located in Kihei on the Island of Maui. However, the monitoring objective for this station is for pollutants associated with sugarcane burning (PM<sub>10</sub> and PM<sub>2.5</sub>).

Regional air quality on Maui and in the State is generally characterized as relatively clean and low in pollution, and continues to be one of the best in the nation. The pollutant levels remain well below both State and federal ambient air quality standards for all pollutants monitored. The State DOH's 5-year trends of air quality data for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, and CO from 2003 to 2007 indicate levels are within standards which further confirm this determination. Northeast tradewinds that are predominant throughout the year as discussed under Chapter 4.1 typically carry emissions and other air pollutants from inland areas out toward the ocean. Therefore, there are presently no air quality issues with those pollutants for the State which includes the Lahaina district.

Present air quality within the project area is primarily affected by vehicle emissions, and to a lesser extent by distant agricultural, industrial and natural sources. Much of the particulate emissions on Maui originate from area sources such as mineral products industry and agriculture. Sulfur oxides are emitted almost exclusively by point sources such as power plants and refineries. Nitrogen oxides emissions emanate predominantly from industrial point sources.

Carbon monoxide air pollution is typically a micro-scale problem usually caused by motor vehicular traffic congestion. Within the immediate area of the proposed corridor for the realigned highway and Keawe Street extension, there is no vehicular traffic occurring in this area since it is presently undeveloped agricultural land. Therefore, significant carbon monoxide emissions associated with vehicular traffic are not present within this project area.

#### **4.2.2. Probable Impacts and Mitigative Measures**

Short-term and long-term effects on ambient air quality are anticipated due to construction activities and operation of the realigned highway and Keawe Street extension. A discussion of probable impacts is provided.

##### **Short-Term Construction Impacts**

Short-term impacts on air quality from construction activities would predominantly be associated with fugitive dust emissions and exhaust emissions from on-site construction equipment. Fugitive dust emissions would generally arise from dirt moving activities associated with site clearing, grading, and ground preparation work. As a result, such effects would only be temporary and should not have a significant impact on air quality resulting in exceeding the State and federal ambient air quality standards.

Temporary on-site mobile and stationary construction equipment would emit air pollutants from engine exhausts. Nitrogen dioxide and carbon monoxide emissions from construction equipment should not violate State air quality standards since such emissions will be short-term, and Nitrogen dioxide standards are set on an annual basis. To limit potential air quality impacts, engine exhaust emissions from construction vehicles will be minimized through the proper operation and maintenance of all equipment.

State air pollution controls prescribed under the State Department of Health's Chapter 11-59, HAR "Ambient Air Quality Standards" and Chapter 11-60.1, HAR "Air Pollution Control" prohibit visible emissions of fugitive dust from construction activities at the property line. Therefore, a dust control plan will be prepared and implemented to ensure that the contractor complies with these regulations. Fugitive dust emissions associated with grading and dirt-moving activities are difficult to estimate accurately. However, an effective dust control plan for the project's construction will be implemented to minimize any short-term air quality impacts.

Fugitive dust can be controlled by watering active work areas, using wind screens, keeping adjacent paved roads clean, and covering open-bodied trucks. Other dust control measures may include limiting the disturbed area at any given time and/or mulching or chemically stabilizing inactive areas that have been worked. Open-bodied trucks will be covered at all times in motion if they are transporting materials that could blow away. Tire washing may also limit haul trucks tracking dirt onto paved streets from unpaved areas within the property. Paving of the roadway and/or the establishment of landscaping early in the construction schedule can also lower potential fugitive dust emissions.

## **Long-Term Impacts**

Use of the new highway and roadway facilities will result in motor vehicle traffic on these facilities and nearby roadways, potentially causing long-term impacts on ambient air quality in the project vicinity. Motor vehicles with gasoline-powered engines are sources of carbon monoxide and also emit nitrogen oxides and other contaminants. However, traffic generated along the new highway will alleviate existing and future traffic congestion along Honoapiilani Highway in the Lahaina area.

As a result, air quality should be improved over existing and projected conditions due to the reduction of traffic congestion and corresponding reduction in carbon monoxide emissions concentrated at intersections due to vehicles waiting idle in traffic. Therefore, air quality impacts due to vehicles traveling along the new highway are not expected to result in exceeding the State or federal air quality standards. Several of those pollutants monitored are also regional issues such as ozone, or monitored on an annual basis such as nitrogen dioxide. The project would thus have minimal effect on those pollutants and should not result in the State or federal standards being exceeded.

Federal air pollution control regulations also require new motor vehicles to be equipped with emission control devices that reduce emissions significantly compared to vehicles manufactured several years ago. Amendments to the Clean Air Act required further emission reductions which have been phased in since 1994. The added restrictions on emissions from new motor vehicles will further lower average emissions each year as older vehicles leave the County's roadways. Carbon monoxide emissions, for example, could go down by an average of about 30 to 40 percent per vehicle during the next 10 years due to the replacement of older vehicles with newer models.

### **4.3. NOISE**

#### **4.3.1. Noise Standards and Guidelines**

State and Federal agencies have established guidelines and standards for assessing environmental noise impacts and have set noise limits as a function of land use. Noise programs, goals, and policies administered by the State DOH, the Federal Highway Administration (FHWA), and the State DOT are described below.

#### **State DOH, Community Noise Control**

The State DOH, Environmental Health Services Division, Indoor and Radiological Health Branch implements the Community Noise Program. This program provides for the

enforcement of maximum permissible sound levels for stationary noise sources and the issuance of permits for agricultural, construction, and industrial activities.

Under Title 11, Chapter 46 (Community Noise Control), HAR, the State DOH defines three classes of zoning districts with corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, and equipment related to agricultural, construction, and industrial activities. These rules do not address most moving sources of noise such as vehicular traffic. The maximum permissible sound levels are enforced for any location at or beyond the property line and are not to be exceeded for more than 10 percent of the time during any 20-minute period, except by permit or variance. The zoning district classification and maximum permissible sound levels are summarized in Table 4-2 below.

### Federal Highways Administration Noise Standards

The U.S. Department of Transportation, FHWA administers the federal noise standard for highway traffic noise and construction noise, which is Title 23 of the Code of Federal Regulations, Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise (23 CFR 772). The purpose of the law is to provide procedures for noise studies and noise abatement measures to help protect the public health and welfare, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways.

<b>Table 4-2: State DOH Community Noise Level Classification of Zoning Districts and Maximum Permissible Sound Levels</b>		
<b>Zoning District</b>	<b>Maximum Permissible Sound Levels (dBA)</b>	
	<b>Daytime (7 a.m. to 10 p.m.)</b>	<b>Nighttime (10 p.m. to 7 a.m.)</b>
<b>Class A:</b> Includes all areas equivalent to lands zoned residential, conservation, preservation, public space, open space, or similar type.	55	45
<b>Class B:</b> Includes all areas equivalent to lands zoned for multi-family dwellings, apartment, business, commercial, hotel, resort, or similar type.	60	50
<b>Class C:</b> Includes all areas equivalent to lands zoned agriculture, country, industrial, or similar type.	70	70

Highway traffic noise is never constant. The noise level is always changing with the number, type, and speed of the vehicles which produce the noise. For practical purposes, data

for varying traffic noise levels is expressed using statistical descriptors. One of the most common statistical descriptors for traffic noise is  $L_{eq}$ .  $L_{eq}$  is the constant, average sound level, which over a period of time contains the same amount of sound energy as the varying levels of the traffic noise.

The FHWA defines four land use categories and assigns corresponding maximum hourly equivalent sound levels,  $L_{eq}(h)$ , for traffic noise exposure. Table 4-3 identifies these sound levels based upon activity categories. For example, Category B, defined as picnic and recreation areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals, has a corresponding maximum exterior  $L_{eq}$  of 67 dBA and a maximum interior  $L_{eq}$  of 52 dBA under Category E. These limits are viewed as design goals, and all projects meeting these limits are deemed in conformance with FHWA noise standards.

**State DOT Noise Analysis and Abatement Policy**

The State DOT has adopted FHWA’s design goals for traffic noise exposure in its noise analysis and abatement policy. According to the policy, a traffic noise impact occurs when the predicted traffic noise levels “approach” or exceed FHWA’s design goals or when the predicted traffic noise levels “substantially exceed the existing noise levels.” The policy also states that “approach” means at least 1 dB less than FHWA’s design goals and “substantially exceed the existing noise levels” means an increase of at least 15 dB.

<b>Table 4-3: FHWA Recommended Equivalent Hourly Sound Levels Based on Land Use</b>		
<b>Activity Category</b>	<b>Description of Activity Category</b>	<b>Hourly A-Weighted Sound Level – decibels (dBA)<sup>1</sup></b>
		<b><math>L_{eq}(h)</math></b>
A	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.	57 (Exterior)
B	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.	67 (Exterior)
C	Developed lands, properties, or activities not included in Categories A or B above.	72 (Exterior)
D	Undeveloped lands.	–
E	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.	52 (Interior)

Source: 23 CRF 772, Table 1.

### **4.3.2. Existing Acoustical Environment**

The project corridor consists of fallow agricultural land, and the immediate surrounding environmental similarly consists of agricultural and undeveloped lands. The southern end of the project corridor consists of the existing Kelaweia Subdivision comprised of single family residences along Ikena Avenue.

Existing ambient noise levels within and along the project corridor are primarily attributable to natural conditions, such as wind and movement of vegetation since the area is undeveloped. Given this existing surrounding environment, existing noise levels are likely to have a Leq in the range of about 45 dBA. Noise levels closer to the project corridor along Ikena Avenue are similarly expected to have a Leq in the range of about 45 dBA, with higher volumes approaching the Lahainaluna Road intersection. This can be attributed to low traffic volumes in this subdivision area, and other noise sources generated from residential activities such as voices, equipment (ex. washers), etc. Noise levels from the planned extension of Keawe Street should similarly be in the same Leq noise range because of low traffic volumes in this industrial subdivision area and business activities conducted within buildings.

Given the existing agricultural character of the project vicinity, there are no noise-sensitive uses immediately adjacent to the project corridor. At the southern end of the project corridor, there are existing residences along portions of Kanakea Loop, North Hakau Place, Hokeo Place, and Ikena Avenue. The nearest residence is situated approximately 50 feet from the southwest corner of the project corridor. As the project corridor and immediate surrounding area are designated within the Agricultural zone, the Class C classification under the State DOH's community noise regulations would apply. Thus, a permitted noise level of 70 dBA is permitted during both daytime and nighttime hours. Under the FHWA noise guidelines, the project would fall under Activity Category D (undeveloped lands) for which no Leq noise levels are specified.

### **4.3.3. Probable Impacts and Mitigative Measures**

Short-term and long-term noise impacts are anticipated due to the construction and operation of the proposed project. Probable impacts are described below.

#### **Short-Term Noise Impacts from Construction Activities**

Noise from construction activities is regulated under Title 11, Chapter 46 (Community Noise Control) of the State DOH's Administrative Rules. Construction activities will temporarily increase ambient noise levels within the vicinity of the work area. The project would involve excavation, grading, and construction of the new highway and supporting

infrastructure. Earthmoving equipment such as bulldozers and diesel-powered trucks would probably be the loudest equipment used during construction. Typical ranges of construction equipment noise vary between 70 and 95 dBA. Noise exposure due to construction activities at any point along the project corridor is not expected to be continuous over the entire duration of the construction period.

The project falls under the DOH Community Noise Class C zoning districts category which applies to properties zoned for agriculture and industrial types of land uses. As a result, the maximum permissible noise level for this site under Class C is 70 dBA at the property line during both daytime and nighttime hours. Construction activities for this project are not planned to be scheduled at night, so the nighttime noise level restriction should not be applicable. However, if night work is required for this project corridor, a noise variance will be applied for from the State DOH.

Construction activities are not expected to result in significant noise impacts because there are no noise sensitive land uses adjacent to the project corridor. Existing surrounding uses consist of undeveloped agricultural land that has been left fallow. However, actual noise levels produced will depend on the construction methods applied. Residences, which are noise-sensitive uses, are located in the vicinity of the project corridor along the northern portions of Kanakea Loop, North Hakau Place, and Hokeo Place. Noise control measures employed by the contractor to mitigate impacts may include the use of mufflers on power equipment and vehicles. Construction activities are expected to be limited to regular workday hours (7:00 a.m. to 3:30 p.m., Monday through Friday).

If necessary, a noise permit will be obtained from the State DOH. This permit includes restrictions to help mitigate the potential noise impacts resulting from short-term construction activities. Specific restrictions that may be imposed as conditions for construction activity noise permits include the following:

- No permit shall allow construction activities creating excessive noise before 7:00 a.m. and after 6:00 p.m. of the same day.
- No permit shall allow construction activities that create excessive noise before 9:00 a.m. and after 6:00 p.m. on Saturdays.
- No permit shall allow construction activities which exceed the allowable noise levels on Sundays and holidays.

### **Short-Term Vibration Impacts from Construction Activities**

Comments were received during the pre-assessment consultation process regarding possible impacts to an archaeological site (cemetery) located within SIHP 6277 above the

project corridor due to vibration from construction activities. Concerns were expressed on effects on a rock wall associated with this cemetery. This site is located about 450 feet away from the nearest right-of-way for the realigned highway corridor, and is about 80 feet higher in elevation than the highway. Construction of the new bridge crossing Kahoma Stream would involve heavy equipment and various noise generating activities. This stream area is about 800 feet away and about 130 feet lower in elevation from SIHP 6277.

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. The operation of construction equipment could cause ground vibrations that spread through the ground and diminish in strength with distance. Buildings founded on the soil in the vicinity of a construction site could respond to these vibrations, with varying results ranging from no perceptible effects at the lowest levels, low rumbling sounds and perceptible vibrations at moderate levels, and slight damage at the highest levels. However, ground vibrations from construction activities do not often reach the levels that can damage structures, but they can achieve the perceptible nuisance audible and feelable ranges in buildings very close to a construction site.

The construction activities that typically generate the most severe vibrations are blasting and impact pile-driving. Based upon Federal Transit Administration (FTA) guidelines for assessing vibration impacts, a pile driver is estimated to generate a peak particle velocity (PPV) in inches/second of 1.518 at a distance of 25 feet. A large bulldozer would generate 0.089 PPV at a distance of 25 feet. Construction vibration damage criteria have been established by the FTA guidelines for four building categories. The most sensitive is Category IV for buildings extremely susceptible to vibration damage with a guideline of 0.12 PPV. Thus, the guidelines provide that vibration effects should be less than that figure to minimize damages to buildings extremely susceptible to damage.

Blasting would not be required for the construction of this project. Although unlikely, pile driving may be conducted as part of the new bridge construction. The cemetery site is located about 800 feet away from the bridge location, and where pile driving activities are estimated to have a level of 0.0084 PPV which would be well below the lowest guideline vibration of 0.12 PPV. Large bulldozer activities from the closest point of the realigned highway right-of-way to the site was estimated to have a level of 0.0012 PPV which is also well below the lowest guideline vibration. Therefore, since SIHP 6277 is located a considerable distance from the project site, construction activities should not impact the cemetery site or damage walls.

### **Long-Term Noise Impacts from Operational Activities**

Vehicles traveling along the proposed highway realignment and Keawe Street extension will inevitably generate additional noise along these corridors and adjacent areas. However, there are no noise sensitive land uses present along the project corridor that will be impacted by the project. As a result, the project should not have a significant noise impact because existing surrounding uses consist of undeveloped fallow agricultural land.

When compared with the No Action Alternative consisting of implementing the current alignment of the Lahaina Bypass Road, the project should not result in a significant change to projected noise levels. Noise levels (Leq(h)) predicted for the original alignment ranged from about 63 to 67 dBA along the highway. The proposed realignment project should similarly have noise levels within that range although it may be slightly lower since the average speed along this realigned highway will be lower than the 50 mph initially planned.

The FHWA land use categories and corresponding maximum hourly equivalent sound levels for traffic noise exposure shown under Table 4-3 identifies this area as Activity Category D. Thus, there are no maximum exterior noise levels established as design goals for the project to meet. Consequently, no noise mitigation is needed for this realignment project.

Future development planned along this realigned highway and Keawe Street extension would occur after construction completion of the Phase 1A portion of the Lahaina Bypass Road. As a result, potential noise sensitive land uses developed along the project may be affected by traffic noise. The developer of these areas should consider more compatible land uses along the highway, appropriate setbacks, and other measures to implement as part of their development to mitigate noise concerns.

The operation of the proposed project will also result in a redistribution of future traffic volumes and associated traffic noise from the existing Honoapiilani highway to locations inland. This redistribution of traffic will subsequently have a beneficial impact by reducing traffic noise impacts to existing land uses along Honoapiilani Highway. Traffic volumes along Lahainaluna Road would also be redistributed to the extension of Keawe Street which should have a beneficial impact by reducing traffic noise for residences situated along that roadway.

#### **4.4. VISUAL RESOURCES**

This section addresses the proposed project's impact on visual resources in the Lahaina area. In order to examine the probable effects, existing important visual resources in the Lahaina area were identified. Visual resources consist of major land forms, open spaces,

viewing points, scenic drives, and other physical features that contribute to the visual quality of the area. The framework for assessing effects also includes County policies, guidelines, and regulations established to protect scenic resources that are of value and importance.

#### **4.4.1. Visual Resources of the Lahaina Area**

The *General Plan of the County of Maui* addresses the environment through various policies with the objective of preserving the County's unique and fragile environmental resources. The General Plan has a policy pertaining to visual resources to preserve Maui's scenic vistas and natural features. However, specific details on such resources are not provided.

The County's *West Maui Community Plan* emphasizes the public value of the region's southern shoreline areas and recommends maintaining the shoreline makai of Honoapiilani Highway in public open space and park usage for recreational and scenic purposes. Important to residents and visitors, the shoreline hugging the south coast of Maui provides special ocean views, sandy beaches, and shoreline parks which provide for ocean access and recreational activities. Because the Lahaina landscape gently slopes southeastward from the West Maui Mountains, visual resources in this area are generally dominated by views associated with the coastline and of the island of Lanai .

The *Maui Coastal Scenic Resources Study* focuses on preserving Maui's coastal visual resources. This document identifies urban scenic and open space coastal resources, identifies, evaluates, and summarizes relevant regulatory data and provides an inventory of the scenic and open space resources within targeted regions that includes Lahaina to Kapalua. The information from this study is consistent in implementing the objectives specified under the *West Maui Community Plan*, and will be used as the basis for the assessment of project effects.

The *Maui Coastal Scenic Resources Study* describes the Lahaina region as characterized by resort development, with most land mauka of Honoapiilani Highway in agriculture, and most development occurring makai of the coastal highway. Views of the West Maui Mountains and valleys dominate for long stretches. Public beach parks provide visual connection to the ocean. Sweeping ocean vistas, including views of the island of Lanai , are afforded in areas where the highway is in proximity to the shoreline. Driving south along the highway toward Lahaina, Mala Warf is visible from the area of Wahikuli Beach Park. Motorists also enjoy views of many boats moored offshore and occasional whales breaching or spouting in season. Natural visual resources along with significant viewing points are predominantly concentrated along the shoreline area. Figure 4-5 identifies these resources and Table 4-4 lists the distinctive and noteworthy visual resources in the Lahaina area.



Table 4-4: Visual Resources: Lahaina Area		
Coastal Land Forms	Distinctive	Noteworthy
Mala Wharf from Wahikuli Beach Park to Fleming Road		●
Hanakaoo Point–Fleming Road to Wahikuli Park		●
Coastal Views		
Wahikuli–Fleming Road to Kaanapali/Hanakaoo Park	●	
Island of Lanai Lanai from Puamana Park		●
Mauka Views		
West Maui Mountains from Puamana to Lahainaluna, and Kahoma Stream	●	
Important Open Spaces		
Cane Fields		●

Source: County of Maui Planning Department, *Maui Coastal Scenic Resources Study*, 1990.

#### 4.4.2. Visual Resources Affected by Project

The project corridor is located on the western slopes leading up to the West Maui Mountains. As a result, the principal aesthetic issues in this area based upon the visual resources identified in Table 4-4 pertain to mauka view planes of the West Maui Mountains and open spaces associated with former sugar cane agriculture. Other coastal views and landforms identified are more applicable to the shoreline area and existing highway. Thus, those coastal views and landforms would not be affected by the project.

The surrounding area along this project corridor is characterized largely by fallow agricultural lands formerly used for sugarcane cultivation as shown on Exhibit 4-1. Views looking in the southwest direction from the project corridor include undeveloped agricultural lands, and residential subdivisions and commercial areas toward Honoapiilani Highway.



Exhibit 4-1: South View of Fallow Agricultural Lands

The island of Lanai Lanai dominates views from existing highway along with the project corridor in all directions from northwest to southwest. Toward the northeast of the project corridor, views encompass undeveloped lands proceeding up the West Maui Mountains as shown on Exhibit 4-2.

Development of the project is not anticipated to create significant impacts on notable view planes from Honoapiilani Highway, nor adversely affect important public viewing points or visual resources. The project will create a new highway and County road running through the existing agricultural lands. However, as an at-grade highway facility, the project should not adversely affect the scenic and visual character of the open agricultural lands. Open space views of the cane fields were identified in the coastal scenic resources study as a “noteworthy” visual resource which suggests a scene that is significant but not distinctive in its visual impact.

The proposed project includes new bridge crossings at Kahoma Stream. These bridge crossings over Kahoma Stream would already be constructed under the original alignment (No Action Alternative) as well. To mitigate potential impacts on views toward the project corridor, low-profile components are incorporated in an inverted arch design to span the 400-foot stream crossing. The majority of the bridges’ visual mass will be below the grade of the roadway, with the inverted arch tie situated below the bridge deck and above the stream channel. The design does not utilize intermediate support structures with footings in the Kahoma Stream channel. No bridge components extend vertically above the guard rails. Open concrete post and beam railings will allow motorists crossing the bridge to take advantage of views of Kahoma Stream and the valley. Therefore, the design of this bridge is intended to minimize visual impacts on mauka views of the stream which has already been channelized, and should not have a significant visual impact.



Exhibit 4-3: West (Makai) View of Coastline from Project Corridor

Exhibit 4-3 is a photo example of new scenic views of the coastline that will likely result from the proposed project. As the project is situated at a higher elevation than the existing highway, potential views include the Lahaina coastline, the island of Lanai , and boats moored offshore.

#### 4.5. NATURAL HAZARDS

This section addresses those natural and urban-related hazards applicable to the project corridor. Of the potential natural hazards, earthquake, flooding, tsunami, and hurricane hazards are addressed. As the project corridor consists of former agriculture lands, there are

no known potential urban-related hazards applicable to the area, such as airport clear zones, nuisances, or other site safety issues associated with urban land uses.

#### **4.5.1. Earthquake Hazards**

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions resulting from the inflation or shrinkage of subsurface magma reservoirs which shift segments of the volcano. Earthquakes can pose a significant threat to communities and could potentially cause large economic losses on all islands. The island of Hawaii is one of the more seismically active places on Earth. Other Hawaiian Islands are not located in areas that experience high seismic activity.

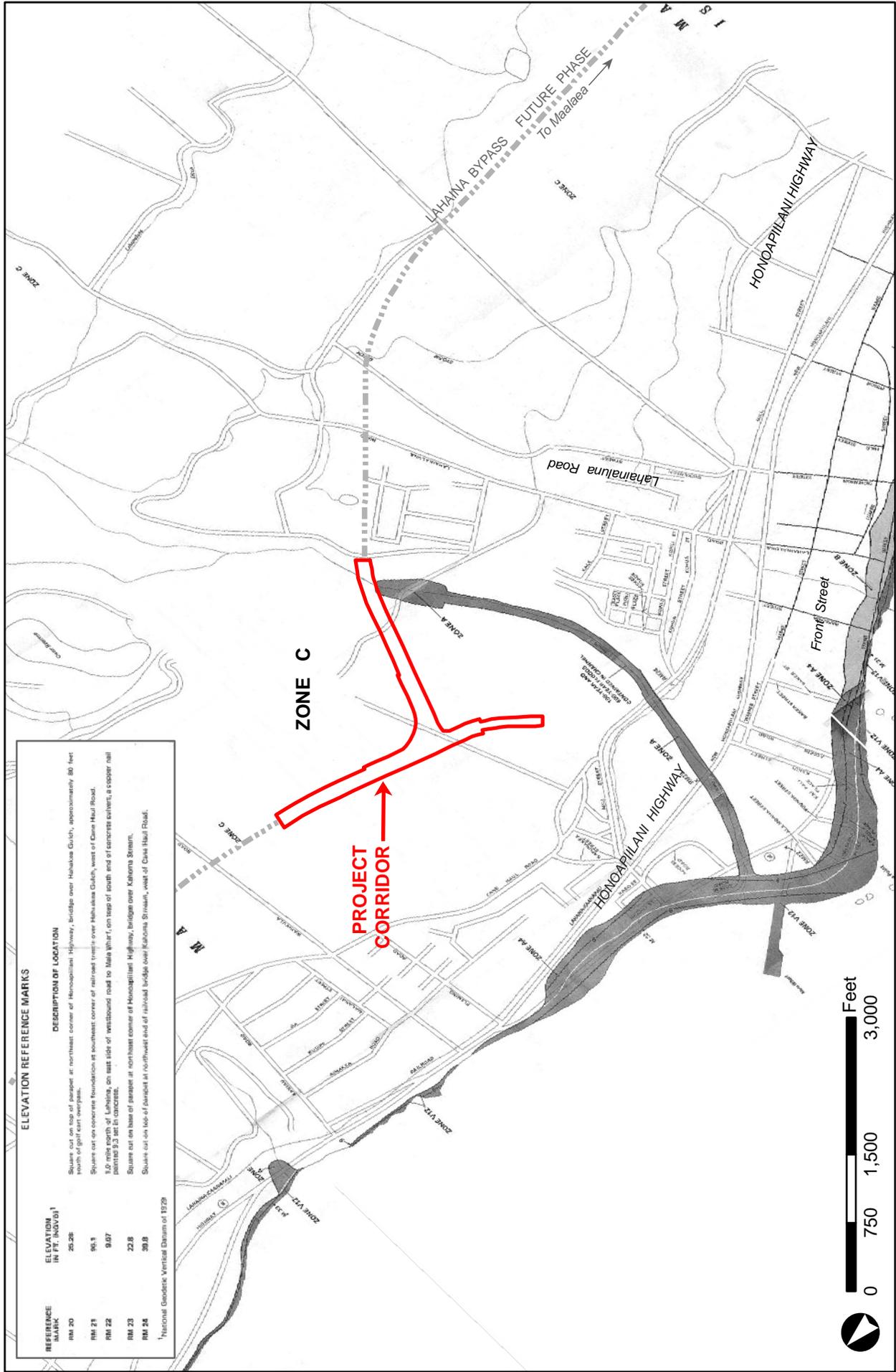
Available historical data indicates that the number of major earthquakes occurring on the island of Maui have generally been fewer and of lower magnitude than those on other islands such as Hawaii. Maui is periodically subject to episodes of seismic activity of varying intensity. However, earthquakes cannot be avoided or predicted with any degree of certainty, and an earthquake of sufficient magnitude could cause damage to the proposed project.

There is a possibility of future earthquakes occurring on the Island of Maui based upon past events, therefore, the proposed project may be subject to damage from an earthquake of sufficient magnitude occurring in the area. The proposed highway and roadway improvements along with other accessory structures (lighting, guardrails, etc.) will be designed and constructed in accordance with the State highway design requirements. Therefore, the project is no more susceptible to earthquake damage than other existing highway or roadway facilities present in the surrounding Lahaina area.

#### **4.5.2. Flooding and Tsunami Inundation**

##### **Flooding**

The Federal Emergency Management Agency (FEMA) designates flood zones according to varying levels of flood risk. According to FEMA's Flood Insurance Rate Map (FIRM), Community Panel Number 150003 0161 C (August 3, 1998), the project corridor is located primarily within areas designated as Zone C, with a small portion of the project corridor within areas designated as Zone A (see Figure 4-6). Zone C is a "moderate to low risk" flood zone and the designation indicates "areas of minimal flooding." Therefore, the project corridor is not located within any designated floodway or high risk area. The DLNR Engineering Division confirmed in a comment letter dated December 15, 2008 that the National Flood Insurance Program does not regulate developments within Zones A or C.



**ELEVATION REFERENCE MARKS**

REFERENCE MARK	ELEVATION IN FEET (MOUO) <sup>1</sup>	DESCRIPTION OF LOCATION
RM 20	25.26	Square cut on top of support at northeast corner of Honoapiilani Highway, bridge over Hahaione Gulch, approximately 80 feet south of sign overpass.
RM 21	96.1	Square cut on concrete foundations at southeast corner of railroad trestle over Hahaione Gulch, west of Cane Maui Road.
RM 22	9.07	3.0 mile north of Lahaina, on east side of westbound road to Maalea, on top of south end of concrete culvert, a copper nail pointed 3.3 feet in concrete.
RM 23	22.8	Square cut on base of parapet at northeast corner of Honoapiilani Highway, bridge over Kahoona Stream.
RM 24	30.8	Square cut on top of abutment at northwest end of railroad bridge over Kahoona Stream, west of Cane Maui Road.

<sup>1</sup>National Geodetic Vertical Datum of 1929



**FIGURE 4-6**  
**FLOOD INSURANCE RATE MAP**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



A portion of the bridge crossing Kahoma Stream at full build-out would also cross a small portion of the existing flood control project improvements. Under the FIRM, the improved portion of this stream is designated as Zone A. Bridge plans are planned to span this stream and be located outside of the 100-year flood levels. Appropriate coordination of design plans will be conducted with pertinent Federal, State, and County agencies.

Based upon the Zone C designation, the proposed project is unlikely to experience flooding as the project corridor is located outside of designated floodways and high risk areas. Appropriate drainage improvements will be provided in the project's design to address surface runoff from increased impervious surfaces created in compliance with the County's drainage standards. The proposed project will be constructed in compliance with State and FHWA design requirements and standards. This will include implementation of necessary site drainage improvements according to the County's drainage standards. Furthermore, plans will be submitted to pertinent County agencies for their review and approval. Therefore, the project should not significantly impact existing flood conditions in the area.

### **Tsunami Inundation**

The Hawaiian Islands have a history of destructive tsunamis. Since 1819, a total of 22 severe tsunamis have occurred, with wave heights at varying locations in Hawaii ranging from 4 to 60 feet. Four tsunamis have occurred in recent history in 1946, 1957, 1960, and 1964. Generally, the western shores of Maui nearest the project corridor have been sheltered from tsunamis by the island of Lanai. Among the four recent tsunamis to reach the islands, wave run-up heights along southwest Maui reached a maximum of 9 feet for the shoreline spanning between Maalaea and Kihei.

The project is not expected to be impacted by future tsunami inundations because the improvements are located at an elevation well above the historic run-up heights. On the island of Maui, the maximum run-up height was 9 feet from the shoreline. As discussed in a previous chapter, elevations associated with the project corridor range from 55 feet to 230 feet above msl. The highway realignment occurs at the higher elevation of 230 feet while the extension of Keawe Street starts from the 55-foot elevation. Roadway improvements would also be designed in accordance with State and County requirements to further minimize effects from such natural hazards.

### **4.5.3. Hurricane Hazards**

The major hazards associated with hurricanes are strong winds, heavy rainfall, large waves, and storm surges. A hazard mitigation report prepared by FEMA after Hurricane Iniki in 1992 determined that nine hurricanes approached within 300 nautical miles (about one

day's travel time) of the Hawaiian Island's coastlines between 1970 and 1992. Most hurricanes affecting the islands have impacted Kauai. According to FEMA, hurricane tracks since 1950 do not reveal any geographical or meteorological reasons why hurricanes tend to steer toward Kauai while bypassing other islands.

A hurricane of significant strength or high winds passing close to the island could damage the roadway improvements. However, underground utilities and roadway infrastructure improvements should not be affected from high winds since they could be located underground or at grade. However, above ground accessory facilities such as street lighting could be impacted by a hurricane of sufficient strength. To minimize potential damages, the improvements will be constructed with suitable materials and constructed in accordance with appropriate State highway design requirements and standards. Thus, the risk of potential damage from high winds should no more than other highway or roadway facilities in West Maui. Impacts to project improvements from heavy rainfall should be minimal and runoff will be accommodated by drainage improvements implemented for this project.

#### **4.6. HAZARDOUS MATERIALS ASSESMENT**

This section addresses issues related to hazardous materials that may be present within or applicable to the project corridor. The project corridor consists of former agriculture lands, and although there are no known releases of hazardous substances, pesticides may have been used during agricultural operations. An environmental site assessment of the project corridor was conducted which supplements a prior study conducted for the original Phase 1A alignment.

A November 2007 Environmental Survey was conducted by Masa Fujioka & Associates to investigate environmental concerns within the original Phase 1A alignment. The scope of work included an investigation of site history and regulatory records for indications of releases of hazardous substances; soil sampling for pesticides analysis; and obtaining samples of potential asbestos-containing materials and lead-based paint within the alignment corridor.

With the proposed realignment project, an assessment of environmental issues with the new alignment was conducted by Masa Fujioka & Associates in October 2008. The results from the November 2007 survey were used to help evaluate environmental concerns that may be associated with the proposed project. These reports are included in Appendix D of this document.

#### **4.6.1. Summary of 2007 Environmental Survey Report**

A summary of the results from the November 2007 environmental survey conducted is discussed to provide a framework for the assessment results associated with the proposed project.

##### **Site History Research**

Investigation of site history indicated that much of the project corridor had formerly been used for sugarcane cultivation. No record of releases of hazardous substances was found through a search of regulatory records. However, pesticides may have been used during the course of agricultural operations.

A preliminary historical, regulatory, and physical settings records review was conducted to identify concerns and/or recognized environmental conditions having the potential to negatively affect the environmental integrity of the project corridor. Information regarding past uses of the project corridor and the immediately adjoining land was obtained from the review of topographic and bathymetric maps, aerial photographs, and Maui County's online property tax records. Fire insurance maps are not available for this portion of Maui County.

An 1838 map shows a church on Lahainaluna Road, approximately at the present high school property, about 2,000 feet northeast of the proposed project. A 1951 aerial photograph shows no residential or other construction development visible along the Phase 1A corridor. The nearest residential area was located seaward of the proposed alignment, near the former mill and main highway. County property tax records indicate that two water tanks owned by Pioneer Mill Company were constructed in 1954 to the northeast of the project corridor.

By 1965, the project corridor was being used for agriculture. No buildings are visible in the vicinity of the project corridor in a 1965 aerial photograph. County property tax records indicate that houses along the northwest side of Ikena Avenue were constructed in the mid-1970s. Houses along the northeast side of Ikena Avenue were constructed in the 1980s.

By 1992, Kahoma Stream was realigned and a channel was constructed. Ikena Avenue, southwest-adjointing Kelaweia Mauka Park, and northeast/southwest-adjointing subdivisions are shown on a 1992 topographic map. Keawe Street extended to the northwest termination of the project corridor, and a road along the seaward end of Kahoma Stream branched northwest along contours immediately northeast of the project corridor. Other development is not indicated along the project corridor northwest of Kahoma Stream.

A color aerial photograph indicates that, by 1993, crops were cultivated along a portion of the northwest extension of the proposed alignment, and that several dirt roads and/or irrigation ditches traversed the cultivated area. The uppermost end of the Kahoma Stream realignment is visible at a location crossing on or near the project corridor. After 1993, several deeds were recorded for residences located along Ikena Avenue, with ownership transferred to the State of Hawaii.

By 2000, the project corridor appears in an aerial photograph to be vacant or unvegetated land, with roads and/or ditches still visible throughout the area. Some of the residences along Ikena Avenue appear to have been abandoned or demolished.

### **Regulatory Database Search**

A search of regulatory databases was conducted to review standard Federal and State government databases of known or potential sources of hazardous materials or waste. The standard sources for regulatory records review for use in Phase I Environmental Site Assessments was conducted.

Based upon the records review, no facilities or incidents were reported in the project corridor or on adjoining properties. No facilities or incidents were reported within one-quarter mile of the survey area. No incidents or reports of concern were identified within the standard search distances.

### **Pesticides in Soils Analysis**

Soil sampling was conducted for the original Phase 1A alignment along the corridor from Kahoma Stream north to the Keawe Street extension intersection to assess potential pesticide contamination. The majority of analytes tested were reported as not detected because the detection limits were less than applicable State DOH Environmental Action Levels (EAL).

Cadmium was reported at a concentration of 14.2 mg/kg which is slightly greater than, but in the same order of magnitude, as the State DOH EAL for cadmium in soil which is 12 mg/kg. Cadmium is not known as being associated with previous agricultural activities, however, the concentration was within the range of those known to naturally occur in Hawaiian soils. Further, the level reported is well below the EPS Region IX Preliminary Remediation Goals (PRG) for cadmium of 37 mg/kg for residential and 450 mg/kg for industrial soils.

Chromium was identified at a concentration of 347 mg/kg. Chromium is not known as being associated with previous agricultural activities and these concentrations were within the range known to naturally occur within Hawaii's soils. State DOH has a health-based direct exposure goal of 210 mg/kg, and the EPA PRG is also 210 mg/kg for residential soil and 450 mg/kg for industrial soil. Therefore, the chromium concentrations are not of significant concern because they are within the same order of magnitude as DOH EAL, and less than the EPA PRG for industrial soils.

Detected arsenic concentration was below regulatory action levels, and well within the range of concentrations that are known to occur naturally in Hawaii's soils. No semi-volatile organic compounds, free acid herbicides, or triazine pesticides were identified in the soil sample collected. Chlordane was identified, but at concentrations well below the DOH EAL. Several dioxins were detected, however, dioxins are recognized to be ubiquitous in nature and typically detected in most settings. The total toxic equivalency calculated was 31.29 parts per trillion (ppt) which is well below the State DOH Action Level of 42 ppt.

## **Test Findings**

Based upon the results, no historical or regulatory environmental concerns were identified that would require consideration during the construction of the original Phase 1A alignment from Kahoma Stream north to the Keawe Street intersection. Although the site was used for agriculture production, the soils tested for pesticides reported results in accordance with State DOH guidance. Therefore, no additional testing or mitigative measures regarding metals or pesticides were deemed necessary.

### **4.6.2. Environmental Survey Results for Project Area**

An assessment of environmental issues with the modified alignment was conducted by Masa Fujioka & Associates in October 2008. The realigned highway was estimated to be about 700 feet away from the previous sampling work completed under the November 2007 study. The land located in this general project area was similarly used for sugar cane agricultural production by the same company as that area within the original highway alignment. This similarly applies to areas associated with the realigned extension of Keawe Street and the bypass highway segment from the new Keawe Street intersection to the future Phase 1C highway corridor.

Therefore, it is reasonable to assume that soils in the project area were subjected to the same farming practices in terms of irrigation, pesticide application, and tillage. Because this

same farming practices occurred, there is no reason to suspect anything different will be found with regards to agricultural contaminants present in the soils. Soils within this project area are expected to have similar concentrations of pesticides which should be in accordance with State DOH guidance. No additional testing or mitigative measures regarding metals or pesticides should be deemed necessary for this project area.

An irrigation water treatment (chlorination) station was identified within the general project area in the vicinity of the bypass highway with Keawe Street intersection. There is no reason to believe any potential agricultural chemicals were used at this station, and soil sampling was performed in this area on October 15, 2008. Two samples were collected at this station site, and these samples were analyzed for similar pesticides and metals such as Arsenic, free acid herbicides, or triazine pesticides, etc. Based on the test results, there were no reportable concentrations of identified agricultural-related chemicals for this site. Results of the soils sampling were documented in a letter report dated December 3, 2008, included herein as Appendix D-1.

### **Construction Related Best Management Practices**

Construction of the project will require the use and storage of potentially hazardous materials in the form of solvents, fuel oil, lubricants, and other compounds used in construction or in the maintenance of construction equipment. It is anticipated that a temporary staging area will be designated for the storage of such materials, and materials will be removed from this area and used only by authorized individuals, with removals recorded by on-site personnel overseeing construction. All liquid storage areas would have secondary containment systems in place to reduce the risk of potential spillage. The storage of hazardous materials on-site during construction will be minimized or avoided where practicable (i.e., fuel oil for operational equipment will be transported to the site by fuel trucks).

Wastes considered hazardous that are generated during construction (e.g., fuel oils, lubricants, solvents, etc.) will be handled, stored, and disposed of in accordance with State and other applicable regulations. The amount of waste generated during construction would not be substantial and should pose no significant adverse impact on the ability or availability of waste handlers to collect and properly dispose of such wastes.

## 4.7. BOTANICAL RESOURCES

A botanical survey was conducted across the project corridor by Rana Productions, Ltd., and the results of this survey is summarized in a report dated September 2008 and included in Appendix E of this document.

Field work for the botanical survey of the project corridor was conducted using a wandering transect method that generally followed the project corridor. The survey was conducted early in the dry season and therefore a few plants typical of this site, especially annuals, might have completed their life cycle and been missed or gone dormant. The dominant herbaceous plant (buffelgrass) was still showing some green leaves, but had completed flowering and fruiting.

### 4.7.1. Botanical Survey Results

The survey yielded 36 flowering plant species and no ferns. Only two of the species are native (5.6%) and both of these, *ilima* (*Sida fallax*) and *uhaloa* (*Waltheria indica*) are common throughout the islands in lowland, leeward settings. The vegetation of the former sugar cane fields is now dominated by buffelgrass, scrubby *koa haole*, and smooth rattlepod (*Crotalaria pallida*). Common in our survey area is *uhaloa*. The remainders of the species were introduced plants and many ruderal weeds. A typical view of the vegetation in the project corridor is shown in Exhibit 4-4.



Exhibit 4-4: Typical Vegetation in Project Corridor  
(dominated by buffelgrass and scattered *koa haole* shrubs)

The results of the botanical survey are provided in Table 4-5. The table includes only plant species identified on June 26, 2008 with relative abundances. A number of species were seen only at the point where the proposed bypass crosses Kahoma Stream, and these are indicated by note (1).

Table 4-5: Botanical Checklist of the Species Within Project Area				
Species Listed By Family	Common Name	Status	Abundance	Notes
<i>FLOWERING PLANTS</i> DICOTYLEDONES				
AMARANTHACEAE				
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat.	U	(1)
ASCLEPIADACEAE				
<i>Calotropis gigantea</i> (L.) W. T. Aiton	crown flower	Orn.	R	
ASTERACEAE (COMPOSITAE)				
<i>Bidens pilosa</i> L.	---	Nat.	R	(1)
<i>Emilia fosbergii</i> Nicolson	<i>pualele</i>	Nat.	R	(1)
<i>Galinsoga parviflora</i> Cav.	---	Nat.	R	
<i>Tridax procumbens</i> L.	coat buttons	Nat.	U2	
BUDDLEIACEAE				
<i>Buddleia asiatica</i> Lour.	Dog tail	Nat.	R	(1)
CONVOLVULACEAE				
<i>Merremia aegyptia</i> (L.) Urb.	Hairy merremia	Nat.	O	
CUCURBITACEAE				
<i>Momordica charantia</i> L.	balsam pear	Nat.	R	
EUPHORBIACEAE				
<i>Chamaesyce hirta</i> (L.) Millsp.	Garden spurge	Nat.	U	
<i>Ricinus communis</i> L.	castor bean	Nat.	U2	
FABACEAE				
<i>Acacia farnesiana</i> (L.) Willd.	<i>Klu</i>	Nat.	R	
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	Nat.	A	
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat.	R3	
<i>Indigofera hendecaphylla</i> Jacq.	Creeping indigo	Nat.	R	
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>koa haole</i>	Nat.	A	
<i>Macroptilium lathyroides</i> (L.) Urb.	cow pea	Nat.	R	
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	<i>kiawe</i>	Nat.	U	
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod	Nat.	R	(1)
<i>Senna surattensis</i> (N.L. Burm.) H. Irwin & Barneby	<i>kolomona</i>	Nat.	R	(1)
LAMIACEAE				
<i>Leonotis nepetifolia</i> (L.) R. Br.	lion's ear	Nat.	O3	
MALVACEAE				
<i>Sida ciliaris</i> L.	---	Nat.	R2	
<i>Sida fallax</i> Walp.	<i>ilima</i>	Ind.	R	
MORINGACEAE				
<i>Moringa oleifera</i> Lam.	horseradish tree	Nat.	R	
MYRTACEAE				
<i>Psidium guajava</i> L.	common guava	Nat.	R	
<i>Syzygium cumini</i> (L.) Skeels	Java plum	Nat.	R	
NYCTAGINACEAE				
<i>Boerhavia coccinea</i> Mill.	false alena	Nat.	R	
STERCULIACEAE				
<i>Waltheria indica</i> L.	<i>uhaloa</i>	Ind.	C+	
VERBENACEAE				

<i>Verbena litoralis</i> Kunth	<i>owi</i>	Nat.	R	(1)
<b>Table 4-5: Botanical Checklist of the Species Within Project Area (Continued)</b>				
<b>Species Listed By Family</b>	<b>Common Name</b>	<b>Status</b>	<b>Abundance</b>	<b>Notes</b>
<i>FLOWERING PLANTS (Continued)</i> DICOTYLEDONES (Continued)				
AGAVACEAE				
<i>Furcraea foetida</i> (L.) Haw.	Mauritius hemp	Nat.	R	(1)
POACEAE				
<i>Cenchrus ciliaris</i> L.	buffelgrass	Nat.	AA	
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat.	U3	†
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Nat.	R3	†
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat.	R2	
<i>Saccharum officinarum</i> L.	sugar cane	Nat.	R2	†
<i>Urochloa maxima</i> (Jacq.) Webster	Guinea grass	Nat.	U+	

**Legend**

STATUS = distributional status for the Hawaiian Islands:

- ind. = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
- nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.

ABUNDANCE = occurrence ratings for plants by area:

- R – Rare - seen in only one or perhaps two locations.
- U – Uncommon - seen at most in several locations
- O – Occasional - seen with some regularity
- C - Common - observed numerous times during the survey
- A - Abundant - found in large numbers; may be locally dominant.
- AA - Very abundant - abundant and dominant; defining vegetation type.

Numbers following an occurrence rating indicate clusters within the survey area. The ratings above provide an estimate of the likelihood of encountering a species within the specified survey area; numbers modify this where abundance.

- 1 – several plants present
- 2 - many plants present
- 3 – locally abundant

- NOTES: (1) – Seen only in the riparian area for Kahoma Stream.  
(2) – Plant lacking key diagnostic characteristics (flower, fruit).  
† -- Seen only as dead plant matter.

**Prior Botanical Surveys**

The entire route of the Lahaina Bypass Road from Puamana to Kaanapali and Kaanapali to Honokowai was surveyed in 1998 by Winona Char as part of the 1990 Final EIS for the highway development. A 2008 survey by Whistler completed for the Villages of Leialii Housing Project corridor encompasses the project corridor. The latter survey encompassing 1,128 acres of similar landscape from the 90-foot elevation to the 800-foot elevation with somewhat more diverse environments yielded 155 species of vascular plants. Because the survey by Rana Productions, Ltd. undertaken for the proposed project corridor was limited in area, it was not appropriate to compare the floristic listings of these previous surveys with the current survey effort.

These previous surveys by Char and Whistler recognized several vegetation types: 1) Cane Fields, (2) Gulch Vegetation, and 3) Reservoir and Quarry Vegetation, which

Whistler interpreted (in the present survey area) as: 1) Buffel grass/Koa Haole Grassland, 2) Riparian Vegetation, and 3) Cinder Cone Vegetation. Only Buffelgrass/Koa Haole Grassland and Riparian Vegetation lie within the footprint of the project corridor. The cinder cone and reservoir are located upslope (mauka) of the project corridor. The Riparian Vegetation is limited to the narrow gulch of Kahoma Stream at the very south end of the project corridor. The remainder of the project corridor consists of vegetation (Buffelgrass/Koa Haole Grassland) growing on former sugar cane fields, which were under active cultivation according to the 1986 and 1988 surveys by Char.

The abundant species as observed in this general area by Whistler are buffelgrass, Natal redtop (*Melinus repens*), Guinea grass (*Urochloa maxima*), hairy merremia (*Merremia aegyptica*), koa haole, lion's ear (*Leonotis nepetifolia*), and *uhaloa*. Although, not all were judged by Rana Productions, Ltd. to be abundant along the project corridor, these species were either abundant, common, or regularly encountered in the area.

Species noted in the current survey effort and not recorded by Whistler include monkeypod (*Samanea saman*; a single tree observed along Kahoma Stream), *owi* (*Verbena littoralis*), dog tail (*Buddleia asiatica*), the latter two also seen very near the stream banks in Kahoma Gulch. It is difficult to compare the current survey with the earlier surveys by Char due to the long time period separating the surveys and the generally poor overlap in specific areas surveyed. For example, much of the project corridor was seen by Char as cultivated sugar cane with agricultural roads and irrigation ditches. However, Char's 1988 description of the road route crossing of Kahoma Stream included the following:

*Kahoma Gulch is densely vegetated especially on the gulch floor due to water from Kahoma Stream. The gulch bottom supports large stands of trees such as mango, Java plum, tamarind (Tamarindes indica), kiawe, and kukui (Aleurites moluccana).*

Whistler found no listed plant species anywhere in his survey of a much larger area, which encompasses the project corridor. The current survey also concluded the absence of any listed species in the project corridor.

#### **4.7.2. Probable Impacts on Botanical Resources**

It can be concluded based upon the current survey conducted by Rana Productions, Ltd. for this project that no significant botanical resources occur within the footprint of the project corridor. The botanical survey concluded that there is nothing unique about the project corridor or existing vegetation. There is abundant like habitat in, and around Lahaina. Therefore, no mitigative measures are necessary.

Native vegetation will be used for landscaping purposes.

#### **4.8. AVIFAUNA AND MAMMALIAN RESOURCES**

A Biological Survey was conducted for avifaunal and mammalian resources by Rana Productions, Ltd., and the results of this survey are summarized in a report dated September 2008 and included in Appendix E of this document.

##### **4.8.1. Avifaunal Survey**

Eight avian count stations were sited along linear transects running the length of the proposed roadway realignments. Count stations were placed at approximately 300-meter intervals equally spaced along these transects. Six-minute point counts were made at each of the eight count stations. Each station was counted once. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated in the early morning hours, traditionally the peak of daily bird activity. Time not spent counting was used to search the remainder of the project corridor for species and habitats that were not detected during count sessions.

##### **Avian Survey Results**

A total of 59 individual birds of nine different species, representing seven separate families, were recorded during station counts. Table 4-6 provides a listing of these species observed. All of the species recorded were considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened or proposed for listing under either Federal or State of Hawaii endangered species statutes was recorded during the course of the survey.

Avian diversity and densities observed in the project area were extremely low, although, in keeping with the location and the existing vegetation on the site. The most common avian species recorded was Common Myna (*Acridotheres tristis*), which accounted for slightly less than 36 percent of the total number of birds recorded during the course of this survey. An average of seven individual birds was recorded per station count.

Table 4-6: Avian Species Detected Within the Project Area			
Common Name	Scientific Name	STATUS	Relative Abundance
GALLIFORMES			
PHASIANIDAE - Pheasants & Partridges Phasianinae - Pheasants & Allies			
Gray Francolin	<i>Francolinus pondicerianus</i>	A	4.19
COLUMBIFORMES			
COLUMBIDAE - Pigeons & Doves			
Spotted Dove	<i>Streptopelia chinensis</i>	A	0.44
Zebra Dove	<i>Geopelia striata</i>	A	1.42
PASSERIFORMES			
ZOSTEROPIDAE - White-eyes			
Japanese White-eye	<i>Zosterops japonicus</i>	A	6.22
STURNIDAE - Starlings			
Common Myna	<i>Acridotheres tristis</i>	A	2.81
FRINGILLIDAE - Fringilline and Carduline Finches & Allies Carduelinae - Carduline Finches			
House Finch	<i>Carpodacus mexicanus</i>	A	5.58
PASSERIDAE - Old World Sparrows			
House Sparrow	<i>Passer domesticus</i>		0.89
ESTRILDIDAE - Estrildid Finches Estrildinae - Estrildine Finches			
African Silverbill	<i>Lonchura cantans</i>	A	0.69
Nutmeg Mannikin	<i>Lonchura punctulata</i>	A	0.92

KEY:

A Alien Species

Relative Abundance: Number of birds detected divided by the number of count stations (8)

### Probable Impacts on Avian Species

The findings of the avian survey are consistent with the location and habitat present within the proposed project corridor. The avian survey results are similar to the results of at least two other faunal surveys conducted on the subject property. The species list generated by this survey is lower than that generated during the Bruner and David surveys, which is not surprising since they surveyed the entire 1,128 acre site for the Villages of Leialii Housing Project, an affordable housing development proposed by the Hawaii Housing & Finance Development Corporation. Those surveys covered two reservoirs and irrigated areas under cultivation. The conditions encountered during the current survey are markedly different. The former plantation lands are now fallow and irrigation ceased years ago, resulting in remarkable xeric conditions and extremely depauperate or impoverished habitat.

All of the avian species detected during the course of this survey are considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened or proposed for listing under either federal or State of Hawaii endangered species statutes was recorded during the course of this survey.

No indigenous migratory species were recorded during the course of this survey. This is not surprising since the surveys were conducted in late June, a time of year when almost all of the regularly occurring indigenous migratory shorebird species normally encountered in Hawaii are not present. It is likely that several migratory shorebird species are present on the project corridor between late July and late April each year. The most likely species to be expected are Pacific Golden-Plover (*Pluvialis fulva*) and Ruddy Turnstone (*Arenaria interpres*). These two species are commonly encountered in Hawaii during the fall and winter months – both nest in the high Arctic, and spend the winter months in lower latitudes, including Hawaii and the Tropical Pacific.

Although not detected during this survey, both the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) may over-fly the project corridor between April and the end of November each year. Both species have been recorded flying inland south of Lahaina and at several other locations on Maui. Both of these pelagic seabird species nest high in the mountains in burrows excavated under thick vegetation, especially *uluhe* (*Dicranopteris linearis*) fern. There is no suitable nesting habitat for either of these seabird species on, or close to the project corridor.

The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawaii. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures. If they are not killed outright, the dazed or injured birds may become easy targets of opportunity for feral animals.

Construction of the project is not anticipated to impact Hawaiian Petrels and Newell's Shearwaters because such activities will be conducted primarily during the day. Minimal night work is anticipated. Exterior lighting will be shielded to mitigate possible impacts to seabirds.

The operation of the proposed project may impact Hawaiian Petrels and Newell's Shearwaters. There is potential increased threat that birds could be downed after becoming

disoriented by street lighting associated with the roadways. However, street lighting will be implemented along the Kahoma Stream mauka bridge, acceleration and deceleration lanes, and at the intersection of the modified alignment with Keawe Street. Street lights will be “cut-off” style lights that would prevent lights from shining upward. These lights will be shielded to reduce the potential for interactions of nocturnal flying Hawaiian Petrels and Newell’s Shearwaters with external lights and man-made structures. Therefore, the project is not expected to have a significant impact on these seabirds. The U.S. Fish and Wildlife Service (FWS) has been consulted pursuant to Section 7 of the Endangered Species Act. No further coordination is anticipated and, as such, the Section 7 consultation process is complete.

#### **4.8.2. Mammalian Survey**

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or opeapea as it is known locally, all terrestrial mammals currently found on the Island of Maui are alien species. Most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed, heard or detected by other means within the project corridor.

#### **Mammalian Survey Results**

Two mammalian species were detected during the course of this survey. Tracks, scat, and signs of dog (*Canis f. familiaris*) and cat (*Felis catus*) along the proposed alignments were encountered. Additionally, dogs were heard barking from within the Kelaweia Mauka subdivision located south of the study corridors. The findings of the mammalian survey were consistent with the location and the habitat present within the project corridor. The mammalian survey results are similar to the results of at least two other faunal surveys conducted on the subject property.

Hawaiian hoary bats were not detected during the course of the current survey nor during earlier surveys of the site. There have been very few bats documented from the general Lahaina area over the years. A 1989 survey of the site recorded one roof rat (*Rattus r. rattus*). The 2008 site survey recorded numerous European house mice (*Mus musculus domesticus*), as well as several unidentified rat skulls. It is to be expected that the four established muridae species present on the Island of Maui which are: 1) Roof Rat, 2) Norway rat (*Rattus norvegicus*), 3) Polynesian rat (*Rattus exulans hawaiiensis*), and 4) European house mouse use resources within the general project corridor on a seasonal basis. All of these introduced rodents are deleterious to remaining native ecosystems present in Hawaii and the native floral and faunal species that are dependant on them for their survival.

## **Critical Habitat**

There is no federally delineated Critical Habitat within or close to the project corridor, thus the construction and operation of the proposed project will not result in any impacts to federally designated Critical Habitat.

## **Probable Impacts on Mammalian Species**

The construction and operation of the proposed project is not expected to result in deleterious or significant impacts to native mammalian resources present within the general project corridor. The majority of mammals present in the area are introduced species such as rats, cats, and dogs which are detrimental to the remaining native ecosystems.

As aforementioned, the U.S. FWS was consulted pursuant to Section 7 of the Endangered Species Act. No further coordination is anticipated and, as such, the Section 7 consultation process is complete.

## **4.9. HYDROLOGICAL RESOURCES**

This section discusses the regional hydrology of the Lahaina area and the ground water and surface water resources in the vicinity of the project corridor. Impacts and mitigation measures are discussed as appropriate.

According to the USGS, water in the Lahaina area has been developed for several public and private sources of domestic and agricultural water supply for the island of Maui. Domestic water is supplied mainly from wells but includes some surface water. Agricultural water is mainly surface water that is occasionally augmented with ground water from wells. USGS, the State Commission on Water Resource Management (CWRM), and the Maui Department of Water Supply (DWS) monitor area pumpage, water-levels, chloride-concentrations, deep monitor wells, streamflow, and streamflow diversions for the Lahaina District. Monitoring activities provide information on resource availability and the impacts of source development and use.

### **4.9.1. Ground Water Resources**

Ground water occurs within portions of geologic formations called aquifers that are favorable for receiving, storing, and transporting water. Fresh ground water resources in the Lahaina area occur in dike-impounded systems and in a freshwater lens floating on saltwater. The dike-impounded water body is found in the mountainous interior part of the island. The freshwater-lens occurs within the dike-free volcanic rocks and also in minor coastal

sedimentary deposits. The general movement of fresh ground water in the Lahaina District is from the dike-impounded water body into the freshwater-lens system and then to the ocean.

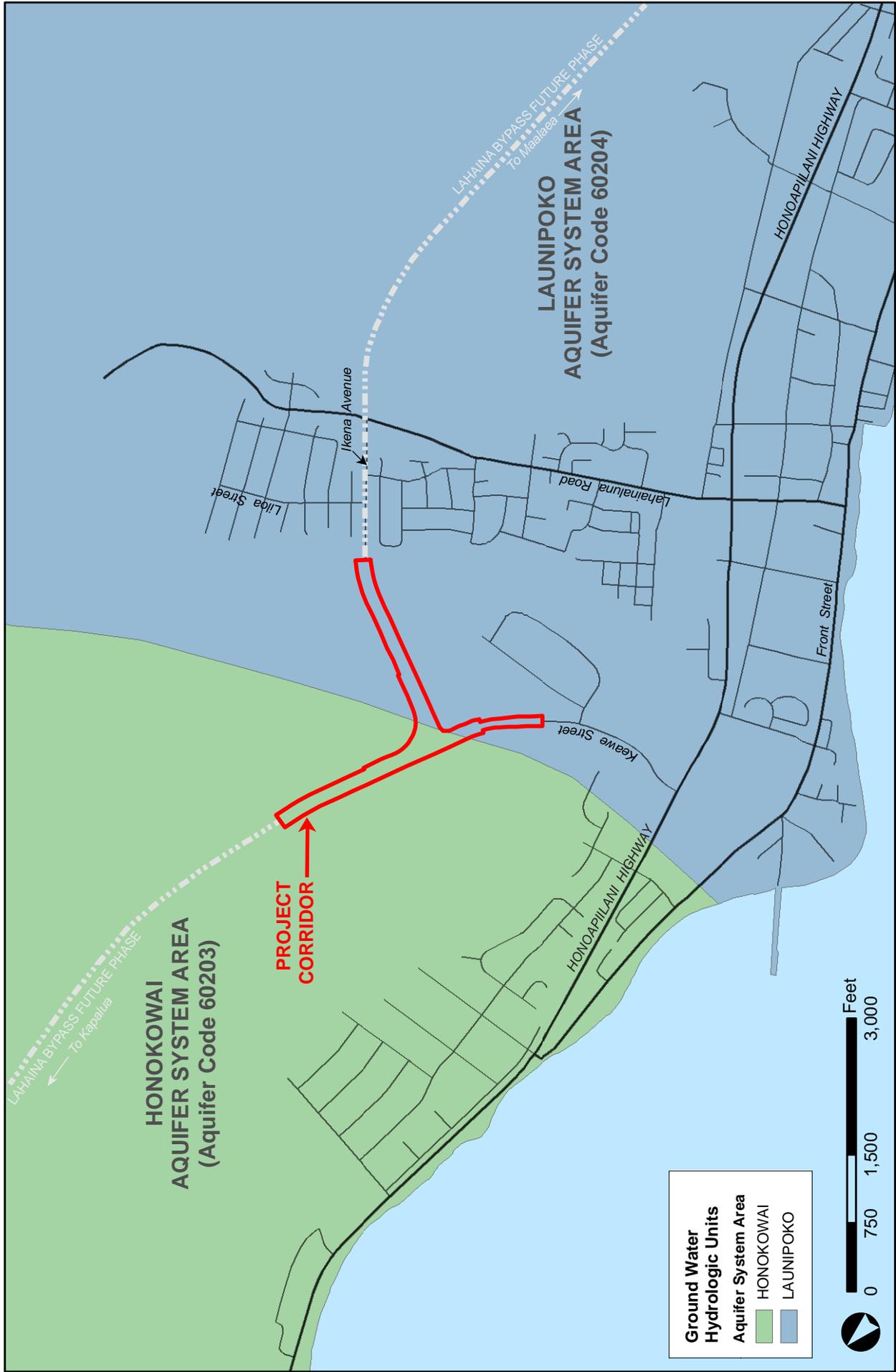
CWRM, under the authority of the State Water Code, Chapter 174C of the Hawaii Revised Statutes (HRS), has established ground water hydrologic units to provide a consistent basis for managing ground water aquifers. An aquifer coding system is used to reference and describe each ground water hydrologic unit. The coding system encourages public understanding of ground water hydrology by delineating areas that are related and exhibit similar characteristics.

According to the CWRM aquifer coding system, the Lahaina Aquifer Sector Area lies on the western flank of the West Maui Mountain and encompasses about 96 square miles. The area is characterized by a steep and mountainous region in the island's interior and an area of sloping alluvial and colluvial plains extending west and north from the mountains. This aquifer sector area consists of six aquifer system areas: Honokohau, Honolua, Honokowai, Launiupoko, Olowalu, and Ukumehame. The project corridor straddles the Honokowai Aquifer System Area (CWRM code 60203) and the Launipoko Aquifer System Area (CWRM code 60204). The aquifer system area boundaries are illustrated in Figure 4-7.

Sustainable yield is the maximum rate at which water may be withdrawn from a water source without impairing the utility or quality of the water source as determined by CWRM. The sustainable yields for the Honokowai and Launipoko Aquifer System Areas, as adopted by CWRM in August 2008, are 6 million gallons per day (mgd) and 7 mgd, respectively.

Wells in the Honokowai Aquifer System Area that report water pumpage to CWRM are operated by Hawaii Water Services Company, which serves 500 customers, including several large resorts and condominium complexes on the island of Maui. The 12-month moving average of reported pumping from the Honokowai Aquifer System Area as of March 2008 was 3.56 mgd, an increase of 0.50 mgd relative to the 12-month moving average from one year previous.

Wells in the Launipoko Aquifer System Area that report pumpage to CWRM are operated by the Maui DWS, the Puamana Community Association, and Maui Land and Pineapple Company, Inc. The 12-month moving average of reported pumping from the Launipoko Aquifer System Area as of March 2008 was 0.62 mgd, an increase of 0.02 mgd relative to the 12-month moving average from one year previous.



**FIGURE 4-7**  
**GROUND WATER HYDROLOGIC UNITS**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



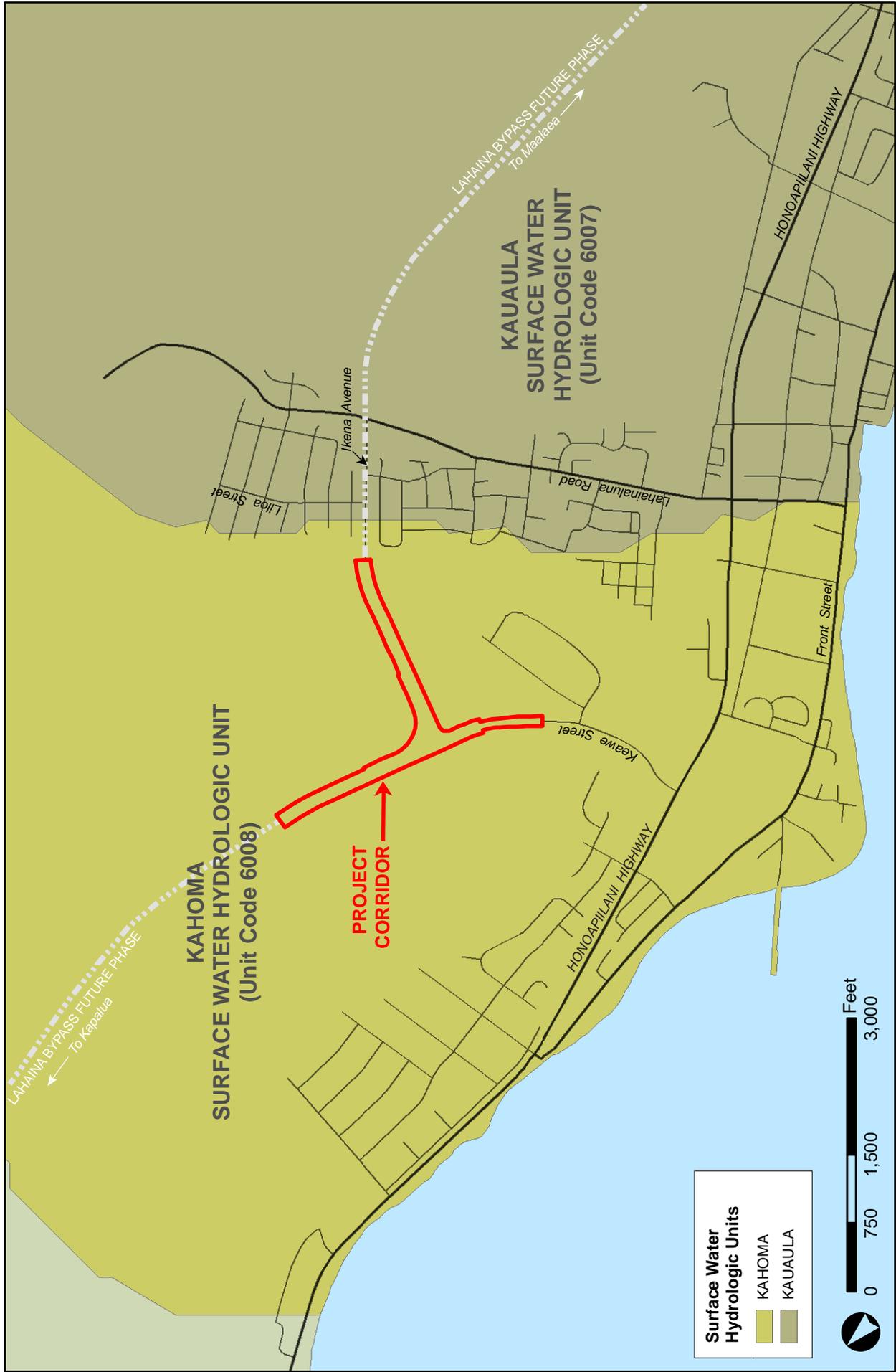
Reported ground water pumpage for both the Honokowai and Launipoko Aquifer System Areas is significantly below the average pumping rates prior to the close of Pioneer Mill Company. Since 1990 and the demise of sugarcane production, water has been pumped mainly for domestic use, most of which comes from the Honokowai and Honolua aquifer systems.

Levels in the Lahaina District have been monitored for various periods of time since 1935. The USGS measures water levels in the Alaeloa well (CWRM well no. 5840-01) near the northernmost end of the Lahaina District. For West Maui in general, the USGS found that water levels in the freshwater-lens system are typically less than 7 ft above sea level. In the Lahaina District, from February 1979 to 1980, simultaneous water levels were reported for 11 wells and ranged from 2.0 to 6.5 ft above mean sea level. Available data indicate that water levels in the Alaeloa well, which penetrates the freshwater lens system, respond mainly to changes in ocean level at the coast.

#### **4.9.2. Surface Water Resources**

The USGS describes streams in the Lahaina District as flowing from the wet interior of the West Maui mountains, where the water has cut deep valleys into the low-permeability volcanic dike compartments that impound ground-water to high altitudes. Ground water leaking from these breached dike compartments provides flow in the streams (base flow) even during prolonged periods of little or no rainfall. Downstream of the dike compartments, many of the streams are diverted and the water is transported by tunnels and ditches for agriculture and domestic uses. The stream diversion structures are designed to capture all of the low flow, and therefore, some streams are frequently dry in sections downstream of the diversions.

CWRM has established surface water hydrologic units to provide a consistent basis for managing surface water resources. A watershed coding system is used to reference and describe each surface water hydrologic unit. According to this coding system, the project corridor straddles the Kahoma (CWRM code 6008) and the Kauaula (CWRM code 6007) Surface Water Hydrologic Units. These watershed boundaries are illustrated in Figure 4-8.



**FIGURE 4-8**  
**SURFACE WATER HYDROLOGIC UNITS**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



Streamflow data is monitored cooperatively by USGS and CWRM. Historic streamflow and ditchflow data is available from several streams and diversion ditches in the Lahaina District, however, most of these gaging stations have very short periods of record and/or are partial record sites. In the vicinity of the project corridor, the Kahoma Stream at Lahaina gage (USGS gaging station 16638500) is located approximately 0.9 mile upstream from the mouth of Kahoma Stream and approximately 0.3 mile southwest of the project corridor. Annual statistics for stream flow from 1963 to 1989 show significant variations in average daily discharge from 0.066 cubic feet per second (cfs) in 1978 to 11.9 cfs in 1969. The average annual daily discharge for these 26 years of record is 3.595 cfs. Estimated peak streamflow data is available for most years from 1990 to 2007. During this period, the annual peak streamflow ranged from 110 cfs in 1997 to 2,100 cfs in 2004.

The makai portions of both the Kahoma and Kauaula Surface Water Hydrologic Units are crossed by ditches, flumes, and siphons that provided water from the many area reservoirs to the plantation fields. Some of this infrastructure is still in use. In general, there is very little information statewide on stream diversions and surface water use. In this area, some historical information is available from CWRM records. In 1989, water users declared surface water use (diverted stream water) to be 5.626 mgd in the Kahoma Surface Water Hydrologic Unit and 6.008 mgd in the Kauaula Surface Water Hydrologic Unit. This large volume of use can be attributed to the plantation agriculture which was still in operation at that time.

#### **4.9.3. Probable Impacts on Ground and Surface Water Resources**

The project is not anticipated to cause short-term or long-term impacts to ground water resources in the project corridor or in the project vicinity. Ground water infrastructure within 0.5 mile of the project corridor includes one abandoned well, six irrigation wells, and two municipal wells operated by Maui DWS. The two municipal wells, Waipuka 1 and 2 are located approximately 0.4 miles mauka and northeast of the project corridor (CWRM well nos. 5339-01 and 02). Construction and operation of the proposed project will not impact the function or utility of any area wells.

Dry wells may be used to supplement drainage improvements associated with this project. However, such wells are not expected to have a significant impact on this ground water infrastructure since they are located a considerable distance away. If utilized, necessary approvals from government agencies will be obtained.

### **New Bridge Effects on Kahoma Stream**

Temporary shoring towers in the Kahoma Stream channel will be required to support the construction of the proposed bridge crossing. The incremental construction of the bridge crossing and shoring towers will require the use of vehicles and equipment in the stream channel, including excavators, dump trucks, loaders, bulldozers, flat bed trucks, compactors, concrete trucks, concrete pump vehicles, mobile cranes, and pile drivers and/or drill rigs. . Based on consultation with the U.S. Army Corps of Engineers, a Department of the Army permit is not required as all work within the channel will occur above the Ordinary High Water Mark (OHWM). Erosion control measures will be installed as required by permitting agencies. The existing access road to the Kahoma Stream Flood Control project will be used to move vehicles and equipment in and out of the stream channel. The contractor will have an evacuation plan to be implemented in a flash flood event.

To construct the temporary shoring towers, the contractor will lay fill material to level the work area and install concrete footings with micropiles. The concrete footings and micropiles will be constructed above the OHWM. Cranes will be used to erect the steel shoring towers, as well as lift the precast bridge pieces into place. Upon completion of bridge construction, shoring towers will be disassembled and removed. The contractor will break apart the concrete tower footings, and cut the micropiles below grade and backfill to restore the surface elevation. The temporary gravel fill will be dug out and hauled away. All construction equipment and vehicles will be removed from the stream channel.

No long term impacts are anticipated to surface water resources. The proposed project will not alter drainage patterns associated with any perennial streams and will not impact surface water resources in the surrounding area. The proposed bridge design specifically avoids the use of permanent support columns or footings in the Kahoma Stream channel. The proposed project will also be appropriately designed to comply with federal, State, and County requirements to address drainage and stormwater runoff (see Chapter 6 for further discussion).

#### **4.10. AQUATIC RESOURCES AND WATER QUALITY**

A biological survey of aquatic biota and water quality for Kahoma and Kanaha Streams was conducted for the project by AECOS, Inc., and the results of this survey is summarized in a report dated October 2008 and included in Appendix F of this document.

In September 2008, biological surveys were conducted of Kahoma and Kanaha Streams. Water quality field measurements were taken, a water sample was collected for laboratory analyses, and aquatic biota present in the project waterways were identified. The survey area

included an approximately 1.5 mile (2,400 m) segment of the lower shoreline area and middle reach of Kahoma Stream near the project's bridge crossing.

It also included two upper middle reach segments (one each in Kahoma and Kanaha streams). The upper middle reach survey area of Kanaha Stream was located north of Lahainaluna High School. This survey area extended approximately 1,310 feet (400 m) from an elevation of 450 feet to an elevation of 650 feet. The upper middle reach survey area of Kahoma Stream was located southeast of the Crater (Kahoma) Reservoir and included a 820-foot long segment from an elevation of 400 feet to 500 feet msl.

#### 4.10.1. Existing Stream Conditions

The waters of Kahoma Stream, located on the western side of Maui, originate along the western slopes of Puu Kukui. This approximately 17.4-mile long stream is classified as a perennial stream by the Division of Aquatic Resources (DAR) and given the stream code of 6-1-005 although water does not always flow in downstream reaches. It should be noted that the most downstream portion of the stream channel has been hardened and channelized as part of a flood control project completed by the Army Corps of Engineers in 1990.

Kanaha, Halona, and two unnamed tributaries feed into Kahoma Stream in its 5.8-square mile watershed. Originating at an elevation of about 5,570 feet, Kahoma Stream flows due west before being joined by an unnamed tributary at an elevation of about 2,430 feet. Halona Stream, originating at an elevation of 3,200 feet, enters Kahoma Stream at the 1,050-foot elevation contour. Another small tributary joins at an elevation of approximately 900 feet before the streams confluence with Kanaha Stream at an elevation of 275 feet. Several ditches and flumes divert the waters of Kahoma and Kanaha Streams for agricultural use.

At the south end of the project corridor, Kahoma Stream has been modified into a 670 foot-long basin with concrete walls. At the downstream end of the structure, a concrete debris collector spans the gulch as shown on Exhibit 4-5. A service ramp is present along on the northern stream bank near the upstream end of the basin. Downstream of the debris basin, the gulch is channelized for about 1.1 miles before entering the



Exhibit 4-5: Photo of Concrete Lined Debris Basin at Kahoma Stream Near Project Area (Source: AECOS, Inc. October 2008)

Pacific Ocean just north of the Mala Wharf.

According to DAR, approximately 95 percent of land within the Kahoma watershed is undeveloped with forest, shrubland, and grassland comprising most of the land use in the area. The north end of Lahaina, which surrounds the lower and middle reaches of the stream, represents developed (urban) land uses within the watershed.

#### 4.10.2. Existing Water Quality Conditions

The only water present in the surveyed areas of Kahoma and Kanaha streams was that in a small pool located near the mouth of the Kahoma Stream at the shoreline. Exhibit 4-6 shows a photo of this pool. This turbid pool was separated from the ocean by a 50-foot-wide berm composed of gravel and sand. The 250-foot-long pool had an average depth of 1.0 feet. One water quality sample was collected from the center of this pool, and Table 4-7 shows the water quality characteristics from this sample.

Field salinity measurements showed salinity ranging from 50.1 ppt near the center of the pool to 40.1 ppt along the margins of the pool where small culverts trickled water into the pool. The high water temperature reflects the shallow depth of the pool. The dissolved oxygen concentration of 6.74 mg/l represents 120% saturation at the pool's temperature and salinity. Turbidity and total suspended solids (TSS) concentrations were high, reflecting the brown water color observed at the time of sampling. Elevated ammonia levels are typical in stagnant pools due to the accumulation of biological waste products. Total nitrogen and total phosphorus levels are also high in this sample.



Exhibit 4-6: Photo of Pool Located Near Mouth of Kahoma Stream (Source: AECOS, Inc. October 2008)

Kahoma Stream is also listed on the State DOH 2004 list of impaired waters in Hawaii. This listing indicates that the stream does not meet the Hawaii Water Quality Standards for certain parameters. Kahoma Stream is listed as impaired for turbidity based upon a visual assessment. The State DOH also reported that the stream is typically dry.

<b>Table 4-7: Water Quality Characteristics of Kahoma Stream (Sampled September 2008)</b>						
	<b>Temp.</b> (°C)	<b>DO</b> (mg/l)	<b>DO</b> (% Sat.)	<b>pH</b> (pH units)	<b>Salinity</b> (ppt)	<b>Turbidity</b> (ntu)
Estuary Upstream of Berm	33.7	6.74	120	7.83	48.7	74
	<b>TSS</b> (mg/l)	<b>Ammonia</b> (µg N/l)	<b>Nitrate +nitrite</b> (µg N/l)	<b>Total N</b> (µg N/l)	<b>Total P</b> (µg P/l)	<b>Chlorophyll</b> (µg /l)
Estuary Upstream of Berm	73.4	80	6	2550	152	16

Source: AECOS, Inc. (October 2008)

#### 4.10.3. Existing Aquatic Biota

The aquatic organisms observed or reported in Kahoma Stream from various recent surveys are shown in Table 4-8. Small *aholehole* (*Kuhlia sandvicensis*) were common throughout the pool. A few *oopu ohune* (*Bathygobius cocosensis*) were sighted along the margins of the pool in very shallow water. Another *oopu* was also sighted in the pool, but was small enough to avoid being caught for identification. No aquatic invertebrates, insects or algae were observed in the survey area.

#### 4.10.4. Probable Effects on Aquatic Biota and Water Quality

The project is not expected to have a significant impact on Kahoma Stream’s water quality or aquatic biota present in the stream. The proposed project corridor is located at the upper end of a highly modified (channelized) section of Kahoma Stream. The stream there is generally dry except during heavy rainfall events. The only water found was confined to a small hyper-saline pool separated from the ocean by a sand berm. The source of water in this pool is primarily seawater that enters the pool during spring tides or heavy surf conditions.

The water evaporates slowly between input events raising salinity within the pool. Though measured water quality parameters were within a range supportive of some aquatic life, water quality was generally poor. Nitrogen (total nitrogen), ammonia, phosphorus (total phosphorus), turbidity and chlorophyll levels were elevated with respect to State of Hawaii water quality standards for estuaries.

Table 4-8: Aquatic Biota Observed or Reported from Kahoma Stream					
FAMILY	Genus species	Common name	Abundance	Status	Source
<b>INVERTEBRATES</b>					
<b>ATYIDAE</b>					
	<i>Atyoida bisulcata</i>	<i>opaekalaole</i>	P	End.	2
<b>PALAEEMONIDAE</b>					
	<i>Macrobrachium grandimanus</i>	<i>opaeoehaa</i>	P	End.	1
<b>GRAPSIDAE</b>					
	indet.	<i>aama</i>	P	Ind.	1
<b>FISHES</b>					
<b>MUGILIDAE</b>					
	indet.	unid. mullet	P	Ind	1
<b>POECILIIDAE</b>					
	<i>Poecilia reticulata</i>	guppy	P	Nat.	1
<b>KUHLIDAE</b>					
	<i>Kuhlia sandvicensis</i>	<i>aholehole</i>	C	Ind.	1, 3
<b>CICHLIDAE</b>					
	<i>Tilapia sp.</i>	tilapia	P	Nat.	2
<b>GOBIIDAE</b>					
	<i>Bathygobius cocosensis</i>	<i>oopu ohune</i>	U	Ind.	3
	indet.	unid. goby; <i>oopu</i>	P		1, 2, 3

Source: AECOS, Inc. (October 2008)

**KEY TO TABLE SYMBOLS:**

Status:

- nat. - naturalized. An introduced or exotic species.
- ind. - indigenous. A native species also found elsewhere in the Pacific.
- end. - endemic - A native species found only in the Hawaiian Islands.

Abundance at survey location:

- P - present; not common, but unable to assess abundance.
- R - rare; only one or two individuals seen.
- U - uncommon; several individuals seen, in some habitat places visited.
- C - common; numerous individuals seen, or seen in most habitat places visited.
- A - abundant; numerous in most or all habitat places visited

Source:

- 1 - Army Corps of Engineers, 1974
- 2 - Division of Aquatic Resources, 2008
- 3 - observed during September 22, 2008 survey

Therefore, storm water runoff from the project area should not significantly impact the stream's water quality because it is normally dry, and generally has poor water quality. Furthermore, best management practices are being incorporated into the project's design via retention basins and possible dry wells to retain increased flows during storms. Such measures would minimize the water quality effects of runoff that enters the stream.

Only *aholehole*, *oopu ohune*, and an unidentified *oopu* were observed within the surveyed area of Kahoma Stream. Previous surveys conducted in Kahoma Stream indicated that native *oopu* species, *opaekalaole* (*Atyoida bisculata*), and *opaeoehaa* (*Macrobrachium grandimanus*) may utilize Kahoma Stream. No federally endangered or threatened species were encountered during the survey, and none is anticipated to utilize stream habitats in the project area.

The project should not have a significant impact on the aquatic biota present in the stream or their habitat because such biota were observed a considerable distance away near the mouth of Kahoma Stream. The source of water in the pool located near the stream mouth was primarily seawater that entered the pool during spring tides or heavy surf conditions, and was not associated with water flows from upstream since it is usually dry. The project would not impact federally endangered or threatened species since there are none in the immediate project area. Best Management Practices are also planned to be implemented during the project's construction to minimize discharges in compliance with regulatory and permit requirements.

#### **4.11. HISTORIC AND ARCHAEOLOGICAL RESOURCES**

An archaeological inventory survey was conducted for the project by Cultural Surveys Hawaii, Inc. (CSH), and the results of this survey is summarized in a report dated October 2008 and included in Appendix G of this document.

##### **4.11.1. Scope of Inventory Survey and Methods**

The scope of work and methods used by CSH in conducting the archaeological inventory survey was based upon an Archaeological Inventory Survey Plan approved by the State Historic Preservation Division (SHPD), Department of Land and Natural Resources. The methods used during fieldwork, laboratory analysis, and the preparation of the archaeological inventory survey report consisted of the following methods summarized below.

##### **Field Methods**

Field methods included the following major components: 1) pedestrian survey; and 2) subsurface testing of former sugar cane lands, agricultural push piles, and Kahoma Gulch. A complete ground survey (pedestrian survey) of the entire project area was undertaken for the purpose of historic property identification and documentation. The area covered included the proposed 150-foot right-of-way for the highway and Keawe Street corridors plus an additional 100 to 200 feet outside this right-of-way to account for possible grading activities needed.

The pedestrian inspection of the study area was accomplished through systematic sweeps, with four archaeologists generally spaced at 10-15 meter intervals. Historic properties identified within the project area were documented by way of: 1) a detailed written description and evaluation of function, interrelationships, and significance; 2) digital photographs; 3) drawings to scale; and 4) location information acquired using GPS survey equipment.

Subsurface testing was also conducted in an effort to identify any buried cultural deposits, and due to geologic and topographic considerations with the project area. The subsurface testing program within the project's area of potential effect (APE) occurred in three phases: 1) testing of former sugar cane lands; 2) testing of agricultural land clearing push piles; and 3) testing at the planned bridge location within Kahoma Gulch.

1. Testing of Former Sugar Cane Lands. Subsurface testing of former sugar cane lands within the project APE consisted of the mechanical excavation of 26 trenches averaging 20 feet long, using a 3-foot-wide backhoe bucket. The soil stratigraphy of each trench was drawn to scale and photographed. The location and orientation of each backhoe trench was recorded using GPS survey equipment.
2. Testing of Land Clearing Pushpiles. There were two agricultural pushpiles located within the APE, and approximately 25 percent of each was subject to mechanical testing. Testing was conducted using an excavator to remove rocks and facilitate subsurface inspection. Excavation was completed through the removal of 20-foot sections. Documentation of the results for this testing procedure included: drawings to scale, as well as digital photographs, written descriptions, and location information using GPS survey equipment.
3. Testing within Kahoma Gulch. Concerns were expressed during community consultations about the presence of subsurface burials located within the area where some of the temporary northern bridge shoring may be located. To address concerns, a program of non-destructive testing followed by subsurface verification was carried out according to the procedures described below.
  - a. Ground penetrating radar (GPR) testing scans were conducted at three foot intervals over an approximate 4,350 square foot area located at the turnaround for the northern maintenance road for Kahoma Stream Flood Control Project. Locations where geologic anomalies were identified were marked and followed up with subsurface verification.
  - b. Mechanical subsurface testing was conducted by cutting a concrete slab and removed with a concrete saw, jackhammer, and front end loader. Sediments

were excavated using a backhoe, and the soil stratigraphy of each test area was drawn to scale and photographed. The location and orientation of each backhoe test area was recorded using GPS survey equipment.

### **Document Review and GIS Methods**

Research was conducted at the SHPD, the Survey Office of the Department of Accounting and General Services (DAGS), the Lahaina Restoration Foundation Archives at the Hale Pa'i, the Maui County Planning Department, as well reference materials from private collections. Historic maps were georeferenced in GIS in relation to Maui Island tax map key data and the 1992 Lahaina Quadrangle. Coordinate data collected with GPS survey equipment was downloaded and exported to GIS to establish reference and working maps.

### **Consultation**

A community consultation effort was undertaken as a component of the Archaeological Inventory Survey investigation. The community consultation effort involved notifying interested organizations and individuals that a project could affect historic properties of interest to them; seeking their views on the identification, significance evaluations, and mitigation treatment of these properties; and considering their views in a good faith and appropriate manner during the review process. An effort was made to contact and consult with the families that have come forward as a part of the Section 106 process, as well as, Hawaiian cultural organizations and government agencies.

Additionally, as the historic properties identified within the current project area were associated with historic era commercial sugar agriculture, knowledgeable individuals regarding Pioneer Mill Co. plantation management and field production were also consulted.

#### **4.11.2. Background Summary**

The fertile and resource rich lower coastal plain of Lahaina was home to high ranking alii (ruling class) during the time period before western contact. It was later the seat of government for the Kingdom of Hawaii following the unification of seven of the eight major Hawaiian Islands in 1791. This information is based on the traditional knowledge and historic records researched for this study, as well as archaeological evidence and interpretations from previous archaeological studies in the area.

The abundant resources and alii residential compounds contribute to a rather large pre-contact and post-contact population along the lower reaches of the Lahaina region. Just as important as the coastal resources, the well watered stream valleys also provided a continuous

water source for successful agricultural pursuits from the headwaters to the seaward mouth of the stream as evidenced by kuleana claims for numerous loi and sweet potato patches. This history suggests a bimodal traditional settlement pattern where both recurrent and permanent habitation would be present within the stream valleys and along the coastal plain.

Archaeological features associated with stream valley settlement would have likely included habitation enclosures, terraces, and/or platforms, as well as features associated with diversified traditional agriculture (loi and kula) represented by agricultural terracing, agricultural mounds, and traditional water control features. Archaeological features associated with coastal habitation and marine exploitation would include habitation enclosures, terraces and/or platforms, and thick cultural material deposits, as well as smaller ceremonial structures, such as stacked-stoned fishing shrines, koa, and fishpond remnants.

It is also likely that human burials would have been placed in the coastal sand dunes and immediately back from the coast. Mauka-makai trails that would have connected the coastal settlement and resource areas with the more mauka stream valley settlement and resource areas seem to have followed the stream bed and cliff sides with crossings along the lower, more accessible points along the course of the stream.

The alluvial plains or intermediate zone, where the current project area lies, is rather narrow in this portion of Maui as compared to that along the flanks of Haleakala. While the traditional landscape of this region has been thoroughly altered by commercial sugar production from the early historic era through modern times, pre-contact features within this intermediate zone may have mirrored that of similar environments elsewhere on Maui Island. This may consist of dispersed, low-intensity, dry-land agricultural features, such as mounds and alignments, as well as temporary habitations and trail markers such as ahu (stone cairns).

Given that the project area is located in the transitional or barren settlement zone for this area of Maui, it is postulated that pre-contact historic properties representing temporary habitation or work area may be encountered within un-modified areas of the project area, in addition to mounds and/or small terraces related to small scale agriculture. It is also noted that pre-contact human burials have been identified beneath the plow-zone of former sugar cane fields. While usually identified in sandy deposits and/or lands that had been previously set aside as Kuleana lands during the Mahele, the possibility of encountering such features are not under-estimated in the present context.

Based on the historic literature and the development of the sugar industry in the Lahaina area and the immediate vicinity of the project area, historic properties associated with historic

era plantation agriculture and infrastructure (e.g. clearing mounds, water control features, and transportation features) are also probable.

#### 4.11.3. Archaeological Fieldwork Results

CSH completed the field effort for this archaeological inventory survey which first consisted of a pedestrian survey conducted on June 9-10, 2008. Mechanized subsurface testing of former cane lands and two historic to modern-era agricultural pushpiles was later conducted on June 19-27, 2008. Geophysical testing followed by mechanical exploration at the base of the northern embankment of the Kahoma Gulch area was conducted on July 7th and 9th, 2008. The results of their fieldwork are discussed.

#### Pedestrian Survey Findings

Vegetation of the project area consisted of ankle to knee high grass with small sections of exposed ground surface that resulted in good to moderate ground visibility. Over the course of the pedestrian survey, it was clear that the entire project area had been heavily modified by agricultural activities from the mid- to late-historic period (1890-1950) up until the modern era (see Exhibit 4-7). Numerous pushpiles from late-historic era field improvements were evident across the Wahikuli plains. Two pushpiles were located within the APE for this study. Additional modifications include overgrown and unimproved haul cane roads, abandoned unlined irrigation ditches, and remnant Driscoll and PVC pipe fragments from field irrigation systems.



Exhibit 4-7: Photo of Northbound View Near Keawe Street Intersection

Other modifications noted include alterations to the Kahoma Stream Channel resulting from the U.S. Army Corps of Engineers' Kahoma Stream Flood Control Project. These alterations widened the gulch along the northern cliff face to accommodate the redirection of the stream flow for Kahoma Stream, excavation for the construction of a drainage basin and weir at the top of the flood control project, and construction of a maintenance road along the northern cliff face near the top, or mauka, end of the drainage basin.

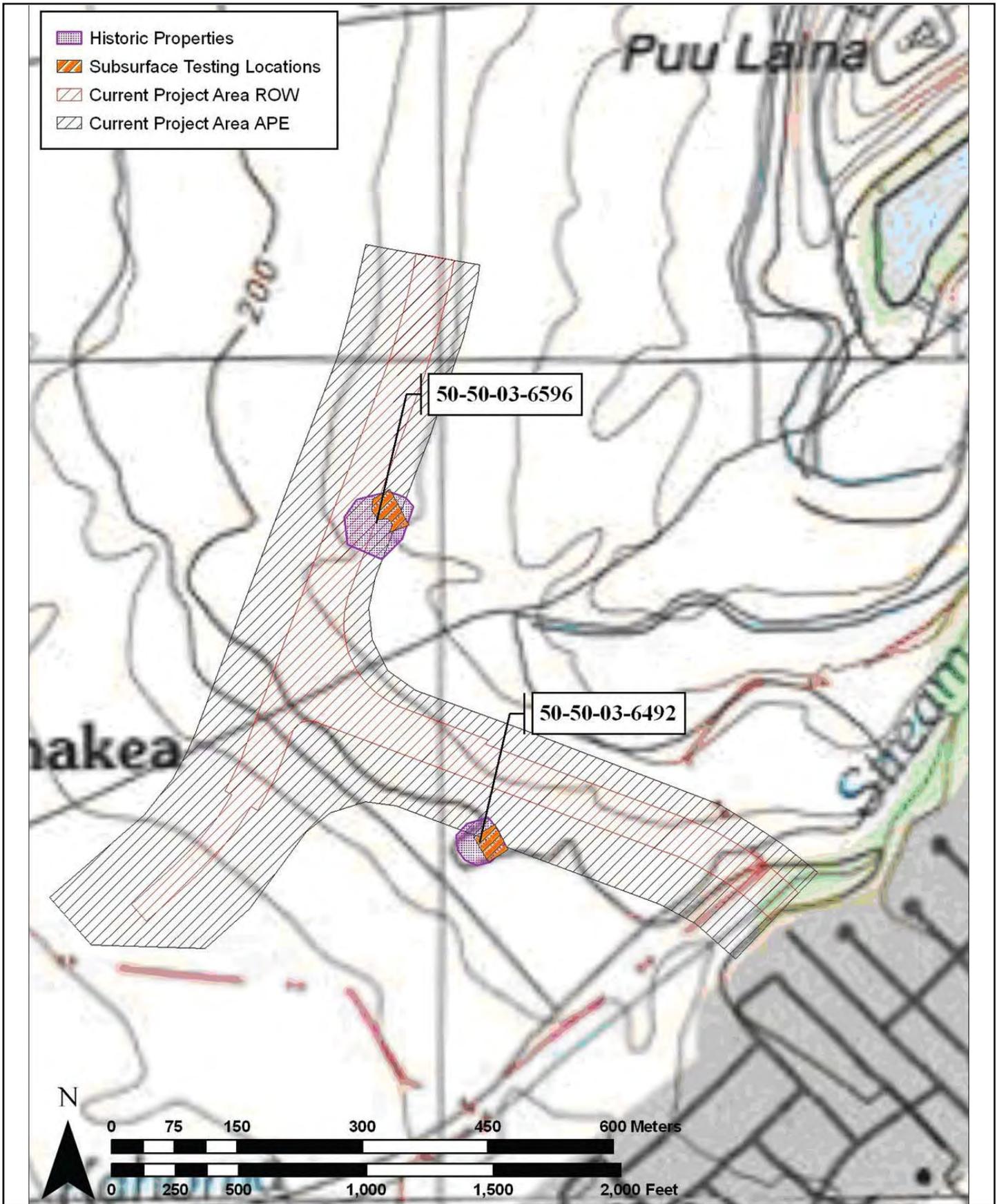
### Agricultural Pushpiles

Two historic properties were documented within the project APE. Both of these properties are late-historic era pushpiles associated with commercial sugar agriculture. Table 4-9 provides a summary of these pushpiles which were assigned State Inventory of Historic Properties (SIHP) numbers 50-50-03-6492 (SIHP 6492) and 50-50-03-6596 (SIHP 6596). SIHP 6492 is located near the southern extent of the project APE, while SIHP 6596 is located within a shallow drainage channel along the northern terminus of the project APE. Figure 4-9 shows the locations of these properties in relation to the project corridor and APE.

Temporary Field Number	SIHP (50-50-03-)	Site Type	Function	Age	Significance Criteria
CSH-1	6492	Irregularly-shaped pushpile	Agricultural: remnant of mechanized field improvement activity	Historic	D
CSH-2	6596	Irregularly-shaped pushpiles	Agricultural: remnant of mechanized field improvement activity	Historic	D

SIHP 6492 consists of a linear agricultural pushpile located within the southern section of the current project area. This agricultural pushpile measures about 147 feet wide (north-south direction) by 154 feet long, and is about 23 to 33 feet high. Figure 4-10 shows a plan view and photos of this pushpile. It is constructed of loosely sorted, small to very large subangular to angular basalt boulders intermixed with large basalt cobbles.

The loose construction of the boulders that comprises this historic property results in a fairly unstable surface across the top of the pushpile and the presence of ankle to knee-high grass resulted in moderate to poor surface visibility. Sparse fragments of white PVC pipe, rusted metal, and concrete were observed on the surface of this historic property. Young kiawe and koa haole trees, along with patches of uhaloa (*Waltheria indica*) and ilima (*Sida fallax*) were also present atop and directly adjacent to this historic property.

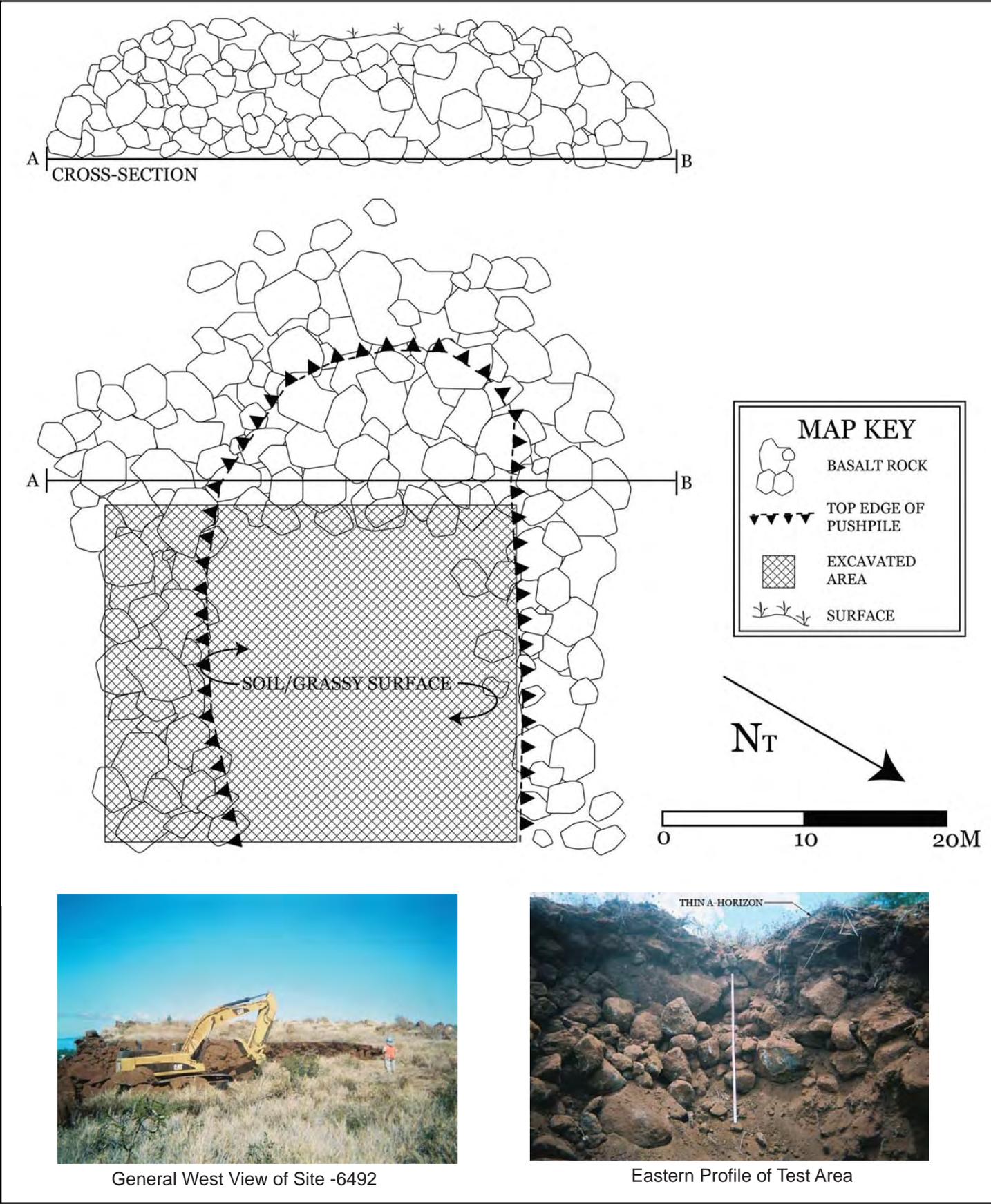


Source: Cultural Surveys Hawaii, Inc.

**FIGURE 4-9  
PUSHPILES LOCATION MAP**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division





Mechanical testing was conducted of this site by removing 20-foot sections of the rock and soil matrix to reach the original soil surface. The majority of the matrix that comprised the rock pile consisted entirely of large boulder fill while there was the presence of a thin A-horizon (1 to 2 feet thick) of loose silt loam. Bedrock was encountered approximately one to two feet below the original soil surface. Cultural materials present within the pushpile matrix included historic to modern era trash consisting of pieces of metal cable and sparse fragments of Driscoll pipe, PVC pipe, and concrete.

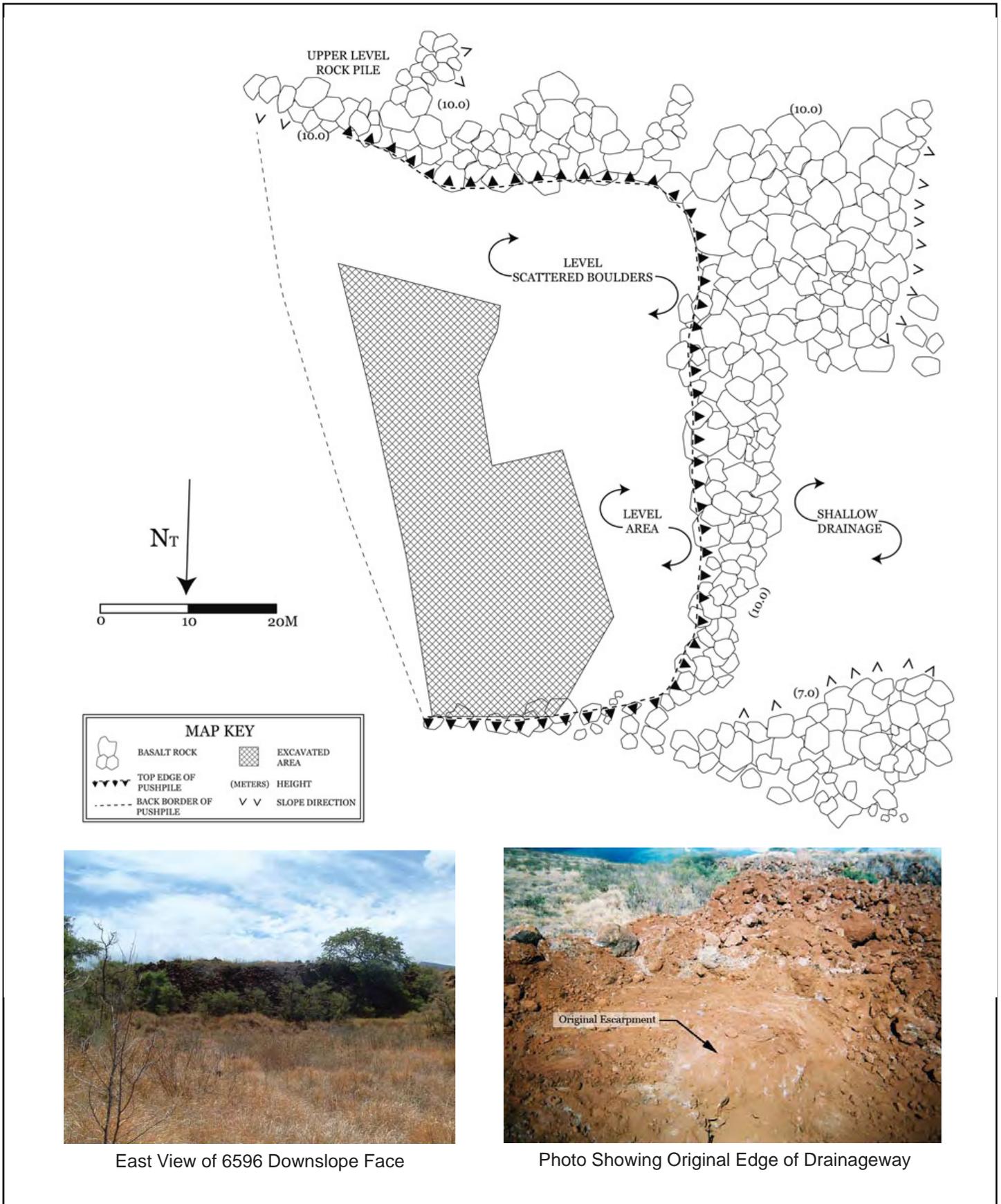
SIHP 6596 consists of an irregularly-shaped agricultural pushpile located within the northern segment of the project area, at the head of a shallow drainageway. This agricultural pushpile measures about 118 feet wide (east-west direction) by 174 feet long, and is about 33 feet high. Figure 4-11 shows a plan view and photos of this pushpile.

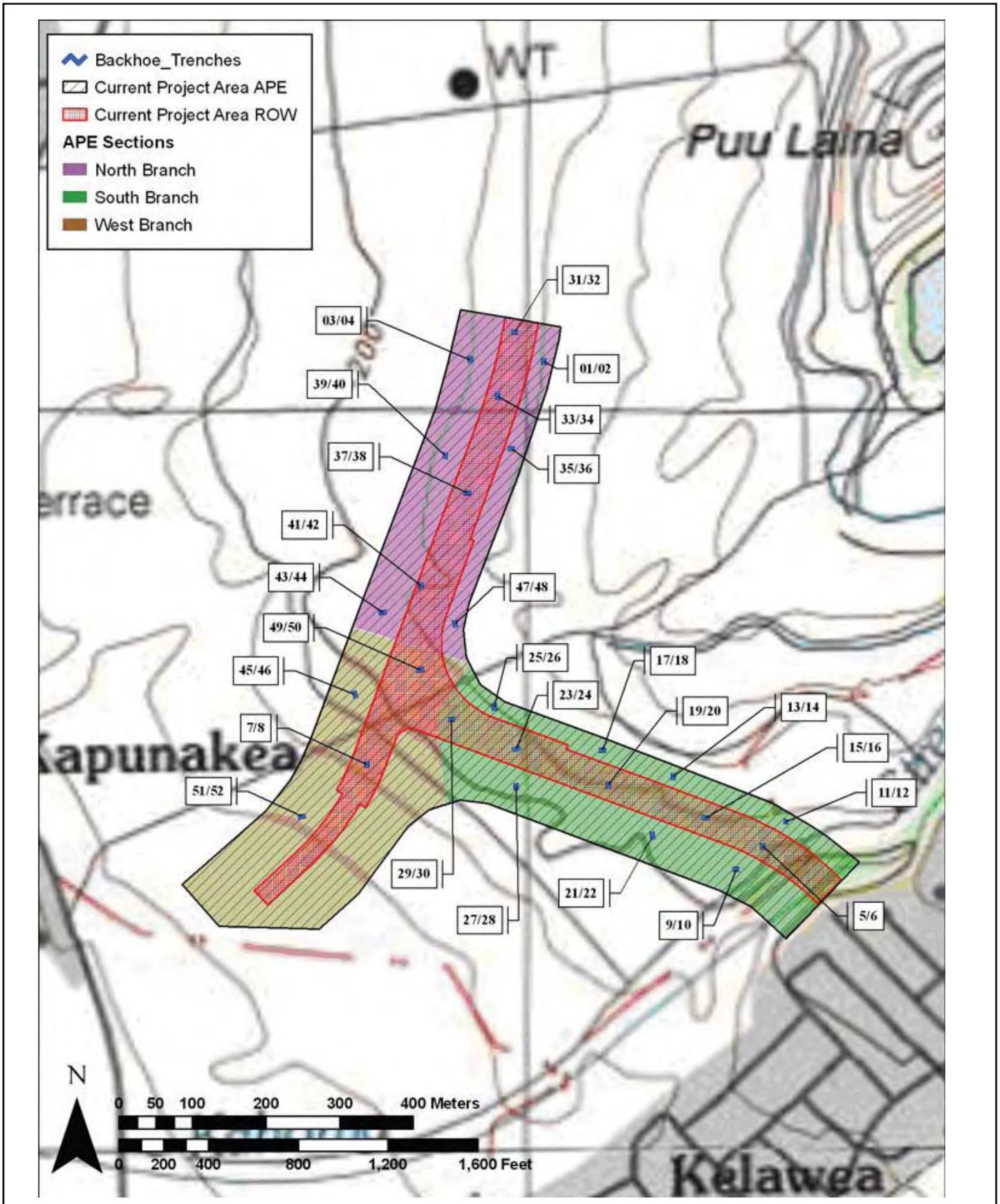
This agricultural pile is constructed of loosely sorted small to medium basalt boulders at the base of the pushpile with large to very large subangular to angular basalt boulders comprising the majority of construction. The sorted nature of the boulders indicates that initial construction of this pile was accomplished through manual stacking of the smaller boulders within the shallow drainage followed by mechanized push of the larger, overlying boulders.

Mechanical testing was conducted of this site starting in the easternmost portion of the pile. However, at 20 to 23 feet in depth, the excavator became unstable and further testing in the northeastern portion of the pile was halted due to safety concerns. Testing was moved to the southwest corner. Along the southwest corner, the original escarpment, or edge of the shallow drainage channel, was encountered at approximately 13 feet in depth and excavation proceeded to the northeast. In general, the construction of SIHP 6596 is like that of SIHP 6492 and consists of a loose network of medium to large boulders within a silt loam matrix underlying a thin A-horizon of loose silt loam. No cultural materials, modern or historic era, were observed during the course of excavation for this site.

### **Subsurface Testing Results of Former Sugar Cane Lands**

A total of 26 backhoe trenches were excavated throughout the current project area. Each trench was oriented in either a north-south or east-west direction in order to obtain the best representative overview of the soil stratigraphy in the area. Figure 4-12 shows the locations of these trench testing. All trenches averaged 30 feet long by 3 feet wide, and were excavated to either bedrock or C Horizon soils. Complete descriptions of all trenches are included in CSH's report in the appendix of this document.





**FIGURE 4-12**  
**SUBSURFACE TRENCH TESTING LOCATIONS**

LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



Source: Cultural Surveys Hawaii, Inc.



The agricultural soils within the proposed project area, with the exception of a few trenches along the northern branch of the modified extension, were fairly shallow and consistent with that of the soils described under the 1972 USDA soil survey report. A-horizon and Ap-horizon soils averaged between 1.0 to 1.5 feet deep and consisted primarily of silt and silt clay loam. Evidence of commercial agriculture was present within the A-horizon as the depth of the plow zone (Ap) was fairly clear, and remnant driscoll irrigation pipe was observed in nearly all trenches.

In 14 of 26 trenches, a developing B Horizon was observed between 1.5 to nearly 2.0 feet deep. In the northern branch, B-horizon soils were observed up to 5 feet deep in only two out of the 10 trenches. The remaining 12 trenches contained A-horizon or Ap-horizon soils directly overlying B/C horizon soils, or soils that were transitional between developing sediment and saprolite. Bedrock was encountered between 1.5 and 3 feet where the C-Horizon was thin. In general, the soils within the cane land portion of the project area were both very stony and compact in composition and consistent.

#### Subsurface Testing Results of Kahoma Stream North Embankment

Concerns regarding the possible presence of human burials in the area of the northern embankment where the proposed bridge crossing across the Kahoma Stream is located were raised at some community meetings. As a result, non-destructive testing was initiated due to the potentially sensitive nature of any possible finds. A ground penetrating radar (GPR) testing program was subsequently undertaken for this area on July 9th and 10th, 2008. Two areas of interest were identified during the course of scanning for subsurface anomalies as shown on Exhibit 4-8. The two areas were subsequently tested to verify the presence or absence of sensitive cultural resources.

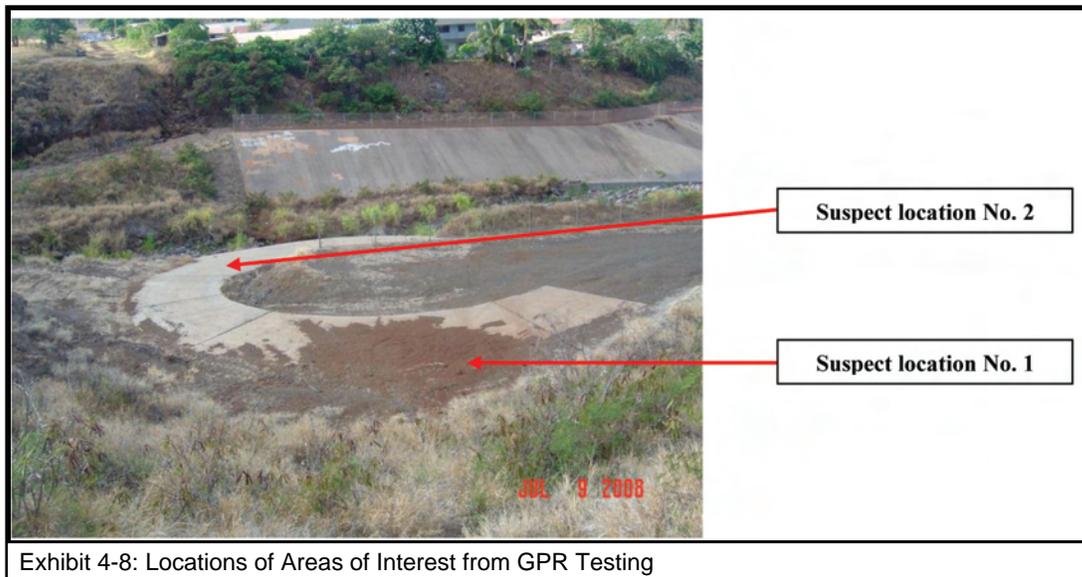


Exhibit 4-8: Locations of Areas of Interest from GPR Testing

Area of Interest 1 consisted of an approximately 6 feet by 11.5 feet area located near the base of the northern embankment of Kahoma Gulch within a maintenance road. Verification of the geophysical anomaly was accomplished through mechanical excavation of the area of interest to a maximum depth of 6.7 feet.

Sediments within the profile of reflected highly modified soil stratigraphy indicative of an area that had been previously backfilled following mass excavation that was likely associated with the construction of the Kahoma Stream Flood Control Project. Soil strata I through III were typical of sediments that were laid down in preparation for the placement of pavement and/or a roadway, while Stratum IV consisted of imported cinder that was likely brought from a cinder quarry. The underlying bedrock consisting of a large basalt “blue rock” boulder was initially encountered between 2.2 and 2.5 feet below the top of the concrete pavement. The results indicate that the suspect target identified during GPR scanning was associated with the abrupt change in the soil composition (i.e. the pocket of cinder) and the apparent shallow presence of the large boulder.

Area of Interest 2 consisted of an approximately 8 feet by 9 feet area located at the turn in the Kahoma Stream Flood Control Project maintenance road that leads into the stream channel. This area was excavated to a maximum of 3.3 feet.

Like Area of Interest 1, the sediments within the profile reflected a highly modified soil stratigraphy indicative of an area that had been previously leveled during activities likely associated with the Kahoma Stream Flood Control Project. However, there was no indication that this location was backfilled with imported cinder as only three strata were present. The three strata present were consistent with that of the first three strata of Area of Interest 1. Results of subsurface excavation work indicated that the suspect target identified during GPR scanning is associated with the presence of a large bedrock boulder.

As-built plans obtained for the Kahoma Stream Flood Control Project (included in CSH’s report) clearly illustrate that the construction of the top of the flood control project has significantly altered the original stream course and landforms within the current project area. Rock footings, interpreted in this report to mean the rock alignments of a Kahoma Terrace Complex that may have extended into the current project area, were either removed for the construction of the debris basin or covered over in the portions of the original stream alignment that was backfilled. The original gulch embankment on the north side of the portion of Kahoma Gulch within the current project area was cut back to accommodate the construction of the debris basin and maintenance road.

The plans showed that approximately 20 to 25 feet of sediment and bedrock was removed along the northern embankment, while 7 to 12 feet was removed from the area of the streambed itself. Consultation with a former operator for the construction company indicated that the area needed to be broken up with dynamite, and that the cinder that was used for construction fill was brought from the cinder quarry above the current project area.

The testing results are thus consistent with what would be expected when taking into account the construction of the Kahoma Stream Flood Control Project. If there were human burials present along the streambed within the current project area prior to the construction of the Kahoma Stream Flood Control Project, they have unfortunately been removed either prior to, or as a result of, the final build out and modifications to Kahoma Stream and are likely no longer present.

#### **4.11.4. Summary and Interpretation of Identified Historic Properties**

The pedestrian survey and subsequent subsurface testing program clearly shows that the traditional landscape of this region has been thoroughly altered by commercial sugar production from the early historic era through modern times, as well as by the redirection of the Kahoma Stream resulting from the Army Corps of Engineers' Kahoma Stream Flood Control Project.

No evidence of pre-contact habitation, agricultural use, or transit markers was identified within the current project area. Previous archaeological work identified a Kahoma Stream Terrace System (SIHP #50-50-03-1775) that may have extended into the current project area at the proposed bridge crossing for Phase IA. However, it is clear that construction of the debris basin from the Kahoma Stream Flood Control Project has either eliminated any remnant of the terrace system near the top of the flood control project or covered sites within the original stream course that was backfilled when water flow was redirected by the Army Corps of Engineers.

Two historic era historic properties were identified during this study which were SIHP 6492 and 6596. These features are associated with the Pioneer Mill Co. and late historic era sugar cultivation. These late-historic era agricultural pushpiles were associated with field clearing activities, and the systematic rock removal program that was initiated in 1947 and completed in 1951.

Prior to World War II, much of the sugar cultivation and harvesting within the fields of Lahaina was accomplished by hand and transport of the harvest was conducted by crane, flume, or manual transport to the waiting rail cars. During the war years, however, Pioneer Mill Co. lost a large portion of its unskilled, adult male laborers as many of them signed on to

fight in the war on behalf of the United States. As a result, by the end of 1944 almost 2,000 acres of previously hand cultivated lands were left fallow.

With improvements to the heavy equipment for large scale agriculture and the re-direction of company resources and methods into increased mechanization, Pioneer Mill Co. initiated a rock removal program to ease the reliance on hand labor and bring the fallow fields back into production. The Wahikuli fields appear to have been fallow until around 1950, a factor that indicates that the lands which comprise the proposed project area were likely among those lands that were left fallow with the onset of World War II and subsequently cleared through the rock removal program following the end of the war.

The clearance of rocks in the sugarcane fields from Ukumehame to Honokowai was accomplished through the use of bulldozers and cranes that pushed and lifted the rocky matrix of the fields into the discrete piles of rocks, of which SIHP -6492 and -6596 are examples. These pushpiles can be seen across the Lahaina landscape today. It is also possible that the relatively shallow condition of the soils within the project area may be a result of this activity and the push of rocks and soil into these piles.

#### **4.11.5. Archaeological Findings and Determination**

In accordance with the State DLNR Chapter 13-284, HAR, entitled “Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, HRS, Projects”; Chapter 13-284-6 entitled “Evaluation of Significance”, states:

- a. Once a historic property is identified, then an assessment of significance shall occur. The agency shall make this initial assessment, or delegate this assessment, in writing, to the SHPD. This information shall be submitted concurrently with the survey report, if historic properties are found in the survey.
- b. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:
  - A. Sites that are associated with events that have made a significant contribution to broad patterns of our history; or
  - B. Sites that are associated with the lives of persons significant in our past; or
  - C. Sites that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant or distinguishable entity, whose components may lack individual distinction; or

- D. Sites which have yielded, or may be likely to yield, information important in prehistory or history; or
- E. Sites which have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts- these associations being important to the groups' history and cultural identity.

SIHP -6492 and -6596 are considered significant under Criterion D because of the potential to yield information important for understanding the history of the region. As the Pioneer Mill Co. sought to intensify sugar cultivation in Lahaina by opening up more arable lands, advances in farming and agricultural technology following World War II paved the way for increased mechanization and automation. The increase in plantation mechanization made field preparation easier and less costly.

The pushpiles associated with SIHP-6492 and -6596 are the results the plantation's rock removal program where rocky fields, previously cultivated by hand, were successfully cleared. Large boulders that characterized the geology of the southern slopes of the West Maui Mountains were piled into large mounds across the lower and upper plains. Similar features of this type continue to dot the landscape from Ukumehame to Honokowai.

### **Project Effect Under State Regulations**

Under State historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are: 1) "no historic properties affected" and 2) "effect, with proposed mitigation commitments" (HAR Chapter 13-284-7). In the circumstance of the proposed project area, two historic to modern era pushpiles, SIHP -6492 and -6596 have been documented within the area of potential effect (APE) for the subject project.

These historic properties are recommended as significant only for its information content (Criterion D). The current inventory survey investigation has adequately recorded the information for SIHP -6492 and -6596, through literature research and oral testimony, as well as locational documentation, written descriptions, photographs, plan view maps to scale, and archaeological testing.

## Project Effect Under Section 106 Regulations

Under the Section 106 of the National Historic Preservation Act, the definition of a historic property is as follows (36 CFR PART 800 -- PROTECTION OF HISTORIC PROPERTIES [incorporating amendments effective August 5, 2004] § 800.16 Definitions):

*(l)(1) Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.*

The information that makes SIHP 6492 and -6596 significant has been well documented in the inventory survey report, and other resources cited throughout this report. In addition, further historic preservation mitigation or data recovery would not add to the body of information concerning these historic properties.

Therefore, significance Criterion D is no longer applicable and as such no longer eligible for the National Register of Historic Places. Consequently, a project specific effect of “no historic properties affected” was recommended. This recommendation is appropriate, despite the potential removal of SIHP -6492 and -6596 by the proposed project because the information that would have given these historic properties significance has been recorded.

Based on the above evaluation of effect, it was recommended that no further historic preservation work with regard to SIHP -6492 and -6596 is required. However, the project effect recommendation applies only to the constructed portions of SIHP6492 and -6596, and while no additional historic properties were identified in a subsurface context, the possibility of encountering sensitive cultural remains within or beneath these historic pushpiles should not be underestimated. Specific concerns regarding the possibility of burials near Kahoma Stream and within the pushpiles were expressed by the descendants of kuleana holders within the Kahoma and Kanaha stream valleys, as well as, Wahikuli Ahupuaa and the native Hawaiian community of Lahaina. Therefore, the following measures are recommended:

1. On-site archaeological monitoring is performed during all surface alteration and ground disturbing work: 1) along the northern embankment of Kahoma Stream, and 2) during pushpile deconstruction and removal of SIHP -6596. An archaeological monitoring plan will be submitted to SHPD for review and approval prior to performing monitoring work. No monitoring is anticipated for

- SIHP -6492 since the site is located outside the potential area of disturbance and will remain in place.
2. No further archaeological work is recommended for the remainder of the project corridor.
  3. In the event that significant pre-contact or historic deposits (i.e. subsurface concentrations of indigenous or historic era artifacts and or structural remnants) or human burials are exposed during construction, subsurface excavation work and/or surface grading should be halted in the immediate area and the SHPD staff archaeologist and cultural historian for Maui County should be contacted.

The SHPD has reviewed the archaeological inventory survey report prepared by CSH. Based upon their review, SHPD has concurred with the report's findings and project effect determination. It was concurred that both SIHP 6492 and -6596 were significant under Criterion D for their potential to yield information important to history or prehistory. Under Section 106 criteria, the project specific effect of "no historic properties affected" was acceptable.

Consequently, no further work with respect to these sites was warranted. However, implementation of the proposed archaeological monitoring as specified above was acceptable. A copy of SHPD's letter dated November 14, 2008 is enclosed in Appendix G of this document.

In a letter dated March 11, 2009, SHPD determined that the project will have "no adverse effect" on culturally significant historic or archaeological resources. SHPD also concurred with DOT's "finding of no significant impact" determination, contingent on implementation of the mitigation work. Therefore, consultation pursuant to Section 106 of the National Historic Preservation Act is complete. A copy of SHPD's determination letter is included in Appendix B.

#### **4.12. CULTURAL RESOURCES**

A cultural impact assessment (CIA) study was conducted for the project by Cultural Surveys Hawaii, Inc. (CSH), and the results of this survey is summarized in a report dated November 2008 and included in Appendix H of this document.

##### **4.12.1. Scope of Cultural Assessment and Methods**

This cultural impact assessment was performed in accordance with the guidelines for assessing cultural impacts as set forth by the State Office of Environmental Quality Control

(OEQC). The following scope of work served as the framework within which this cultural impact assessment study was conducted:

1. Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record;
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow reconstruction of traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the study area and identify present uses, if appropriate.;
3. Interviews or consultations which could include group meetings as well as formal and/or informal individual interviews;
4. Preparation of a report summarizing the information gathered related to traditional practices and land use, and assessing the impact of the proposed action on the cultural practices and features identified.

#### **4.12.2. Community Consultations**

CSH contacted numerous individuals and Hawaiian organizations requesting their input and guidance regarding knowledge of traditional cultural practices and cultural resources of the study area. A total of about 68 individuals and representatives of various organizations were consulted in this process. A listing of all community consultations conducted with kamaaina, Hawaiian cultural advisors and Hawaiian organizations is included in their study in Appendix H along with the input recorded from these consultations.

Scoping and community outreach efforts conducted included government agencies, advisory councils, and local community organizations in order to identify knowledgeable individuals with regard to the traditional cultural practices of the project area. Letters and project area maps showing the location of the proposed project were mailed out to parties consulted. Follow up was conducted with a combination of both phone calls and e-mail messages. At least three follow up calls/e-mails were made to each contact in efforts to consult with individuals.

Interviews were conducted in a group setting, informally via telephone, or as a part of a formal sit-down interview between researchers and participating individual. Handwritten notes of all consultations and interviews were made by the researchers, and with the permission of the participants, formal interviews were recorded. All consultation and

informal interview notes and formal interview transcriptions were reviewed by each participant for clarification and accuracy prior to inclusion in the study. Segments of interviews in which the interviewee chose to withdraw were documented in the study.

CSH responded to all inquiries, letters and e-mails as needed, and responses to formal inquiries were included in their study. When working with practitioners of traditional Hawaiian culture, it is important to note that there is a particular level of confidentiality and privacy that comes with traditional cultural practices and the ties that bind people to the land. There is also a relatively high level of mistrust of Western societal values and processes by some who were contacted as a part of this study. As a measure of respect for the participants, subject matter and shared information that was considered sensitive to the participants were either amended or omitted from interviews and notes as instructed by the person who shared that information.

### **Consultation with Lineal Descendants**

Based upon initial consultation efforts conducted by others as part of the project, several individuals with lineal ties to the lands within the current study area had come forward. An introductory letter was mailed to lineal descendants that was less formal in describing the current study, but also included a personal introduction of the researcher. Additionally, names of potential community contacts were also obtained from initial consultation efforts. Interviews were conducted with several of these individuals.

A meeting also took place at the Lahaina Recreational Center on August 1, 2008 with members of Pali, Haia and Kailihou Ohana of Kahoma as one large group consultation. The members of the Pali, Haia and Kailihou Ohana of Kahoma are cousin to one another and consider themselves part of a single ohana. A total of 21 individuals attended the meeting throughout the day.

### **Consultation with Agencies, Advisory Councils, and Organizations**

Various government agencies, advisory councils, and local community organizations that provide assistance for or strive to protect and perpetuate Hawaiian culture and cultural practices were contacted for consultation. In addition, local historical societies that might provide a perspective on traditional historic properties and/or landscapes were also contacted. These organizations were contacted in order to gather feedback and recommendations regarding the cultural resources and practices.

Two presentations were held in August 2008 to solicit input from these organizations. One presentation was to the Office of Hawaiian Affairs', Native Hawaiian Historic

Preservation Council (NHHPC) and the other was the Maui/Lana‘i Islands Burial Council (M/LIBC). Consultation also included the Executive Director of Friends of Moku‘ula and the Director of the Lahaina Restoration Foundation. Other agencies or organizations consulted included the SHPD, Hui Malama I Na Kupuna o Hawaii Nei, Maui County Cultural Resources Commission, Lahaina Hawaiian Civic Club, and Royal Order of Kamehameha.

#### **4.12.3. Historic Framework Shaping Perspectives**

Based upon the documents researched, Lahaina is steeped in traditional Hawaiian culture and has been the stage upon which significant events have influenced the trajectory of both history and the social order, from the traditional pre-contact era up until modern times. Prior to Western contact, Lahaina was desirable for its excellent fishing grounds and well watered streams. As high ranking aliialii called Lahaina home, warring chiefs sought to cripple this population center by drying up the streams from Kauaula to Kahoma and laying waste to the fertile and productive loi systems.

Lahaina would later serve as a source of provisions during Kamehameha’s conquest of the island chain. Just after Western contact, and the unification of the Hawaiian Islands from Oahu to Hawaii Island, Lahaina would become a government center for the Kingdom of Hawaii. It would also serve as a religious and educational center with the development of a missionary outpost and Lahainaluna Seminary.

As the rich soils and reliable water resources were desirable for traditional agriculture, they were also sought after for commercial agriculture following the division of lands during the Great Mahele. Sugar interests invested a significant amount of time and effort to develop the water resources that would ultimately irrigate previously uncultivated areas and acquire lands through lease, purchase, or other means. For many of the native Hawaiian participants in the CIA, the success of the sugar industry and their ability to tap water resources and divert most of the water into the cane fields resulted in the abandonment of traditional loi agriculture in Kahoma and Kanaha Valleys, and the loss of much of the cultural practices inherent in day-to-day living.

The events of the past still weigh heavy on the conscience of those consulted for the CIA study. Such events include their perceived disenfranchisement of the native Hawaiians of Lahaina at the hands of the missionaries and their descendants, the marginalization of the people through the actions, and in many of the views expressed in this study, theft perpetrated by the Pioneer Mill Co. It is these historic contexts which shapes their concerns, and are perhaps mirrored by others in the Hawaiian community that should come under consideration when proposing any project or undertaking in the greater Lahaina area.

#### 4.12.4. Effects on Traditional Cultural Practices

With the realignment of the Lahaina Bypass Phase 1A, there is an immediate impact to traditional cultural practices due to the direct effect of the highway cutting off present access to mauka lands. The traditional cultural landscape of the area has been altered to accommodate historic era development (ex. development of the field and water systems of the sugar industry), and modern needs (ex. the Kahoma Stream Flood Control Project).

Along with these changes, the routes in which access to mauka lands are maintained have also been altered. While no longer considered “traditional” in a historic context because the original course of the Kahoma Stream and geographic landmarks that once guided the way mauka is no longer present, access is still maintained via the unimproved haul cane roads through a series of locked gates.

#### Traditional Cultural Practices and Resources

The CIA found that Kahoma and Kanaha Valleys; as well as the mountains above, were previously accessed for the collection of medicinal and food resources, as well as resources that were necessary for maintaining the household. It was additionally noted that medicinal plants could also be found in and amongst the cane fields that once covered the Wahikuli Plains. As a result of large scale commercial agricultural modifications to the landscape, the dominant vegetation of the study area currently consists primarily of introduced plant and grass species.

Currently, wild patches of uhaloa and ilima (*Sida fallax*) that were collected were noted on lands within the area of the project corridor. With regard to the plains of pili grass that once covered the mid-elevations of Wahikuli, it is apparent that the area that was once thick with this traditionally used plant has been thoroughly altered by extensive modifications to the landscape during historic and modern times. While gathering of such plants were known to occur into the late historic time period, none of those interviewed for the CIA knew of extant gathering practices within the immediate footprint of the proposed project. There are no known traditional gathering practices within the project area.

There are also several known cemeteries and burial sites located in the greater Kahoma area. SIHP 50-50-03-2485 was recorded as an enclosure and more recently identified as the Pali family cemetery located above (mauka) the project area within SIHP 6277. SIHP 50-50-03-1776 is the Haia Terrace System which includes a cemetery located further inland. Several family members continue to visit the Haia cemetery in order to maintain it, clear weeds and brush, and pay their respects to their ancestors. Members of the Pali family also periodically visit their cemetery for similar reasons.

Many of the individuals consulted in the CIA described their access routes into the Kahoma and Kanaha Valleys. Individuals explained that they used to walk into the valleys weekly to work their taro fields following a combination of traditional trails, dirt roads, the streambed itself and cane haul roads. It is evident that the traditional landscape has been virtually wiped-out by historic and modern era land alteration, and landmarks and trails (e.g. the original stream course of Kahoma Stream and associated geologic and topographic markers prior to the Kahoma Stream Flood Control Project) that were once known are no longer present.

The families of the area have adapted to the changes, however, and currently use the unimproved cane haul roads that currently run perpendicular to the Phase 1A corridor in order to access their mauka lands. Figure 4-13 shows the general routes of cane haul roads believed to be used by family members to access mauka areas. These cane haul roads run through State-owned property presently under the jurisdiction of the State HHFDC and privately-owned property. Presently, the Kailihou Ohana has described encountering problems when trying to access their traditional family lands because private landowners have gated access routes for which attaining the keys are difficult.

#### **Effects on Access to Cultural Practices**

There is a concern expressed by those who participated in this study regarding continued access to their traditional gathering areas and resources located above the project area, and how the construction of the proposed project, both during and following its build out, might disrupt their ability to continue to have access. The proposed project is not expected to have a significant impact on traditional cultural practices or resources accessed by individuals. These resources and cultural sites are located further inland a considerable distance away from the project area. Thus, the proposed improvements would not impact these resources or cultural sites.

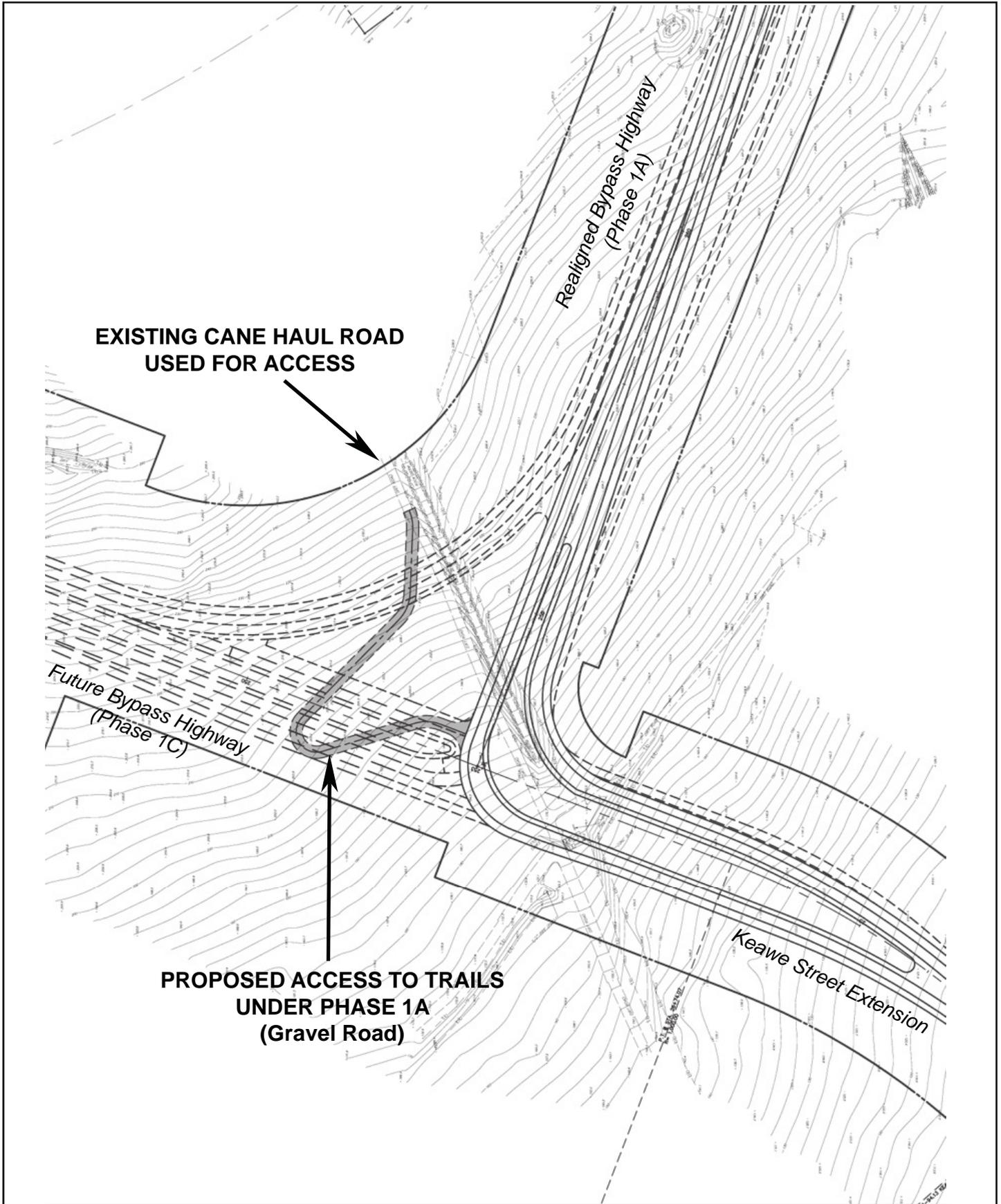
The realigned highway will avoid SIHP 6277, but it will cut off present access used along the existing cane haul roads in the area. To continue providing access to mauka areas for these individuals, access from the realigned highway will be provided. Figure 4-14 shows a proposed access from the highway that will be provided as part of the Phase 1A construction. The State DOT has coordinated providing this access with the State HHFDC since the property affected is under their jurisdiction. Thus, the project should not have a significant impact on access to mauka areas for traditional and cultural practices.



**FIGURE 4-13**  
**POSSIBLE TRAILS USED FOR MAUKA ACCESS**  
 LAHA'INA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

- LEGEND**
-  Realignment of Phase 1A Highway Corridor & Keawe Street
  -  Possible Routes of Modern Trails Used for Access to Mauka Areas





**FIGURE 4-14  
PROPOSED ACCESS FOR PHASE 1A**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division



This access will be situated at the intersection of the realigned highway with Keawe Street, and will include a graded gravel road leading from the intersection to the existing cane haul road presently used to access inland areas. A stub out will be provided for vehicles to safely pull off the highway and drive onto this path. Access to the path will be gated for security purposes, and keys for the gate will be provided to appropriate individuals in coordination with the State DOT. Therefore, individuals will continue to have access to inland areas with this project and should not be significantly impacted.

Alternative locations for providing access from the realigned highway were considered such as near the Kahoma Stream bridge or before the intersection with Keawe Street. However, those other locations were eliminated due to safety concerns along the highway associated with having proper sight distance, the number of vehicles along the highway, and traveling speeds. Thus, the location proposed at the intersection is more practicable and safer because cars will need to slow down at the intersection, and sight distance would be available.

In the future, a permanent location for access from this highway will need to be provided. With future construction of the Phase 1C segment extending from the Keawe Street intersection north to Honokowai, this presently planned access will need to be relocated. This permanent access may be relocated further north along the Phase 1C segment from the Keawe Street intersection. However, the specific location has not been confirmed at this time. The State DOT is committed to provide this permanent access from the highway, and will be coordinating plans for it with the State HHFDC in consultation with family members.

#### **4.12.5. Other Concerns Identified**

The consultations with individuals conducted as part of the CIA also raised other concerns. Some were not directly related to cultural resources or traditional cultural practices, however, they are identified and discussed in this section. Some of the concerns raised were not related to the proposed project because it involves regional issues beyond the scope of this project or past activities not related to this highway project.

#### **Effects on Aquatic Resources**

Freshwater resources along with marine resources used to supply the Hawaiian diet with a rich source of protein. Kahoma and Kanaha Streams as well as the Crater Reservoir provided fresh water food resources. *Opae* (*Halocaridina rubra*) and *o'opu* (*Gobiidae*) were collected prior to the diversion of the stream water by plantation agriculture. In addition to maintaining the traditional subsistence base, the streams also served as recreational resources for swimming and playing. In this leeward environment, ocean-based subsistence practices

also contributed to the food resources of the traditional diet. Traditional practices that occurred along the coastline included fishing, squidding, and the harvesting of limu.

With the exception of occasional flooding events from large storm events, the waters of Kahoma and Kanaha Stream no longer flow to the sea due to the diversion of water resources for the cultivation of sugar cane during the historic era and continued diversion for consumption today. As such, there are currently no known instances of traditional gathering of *oopu* and *opae* occurring in Kahoma Stream in the vicinity of the project. The results of the aquatic resources survey conducted and discussed earlier in this Chapter further confirms these results. Kahoma Stream also does not serve as a source for recreational resources because the stream is usually dry, however, flooding from occasional large storm events could be hazardous to individuals that may be present in the riparian area.

While coastal fishing practices and gathering of marine plant resources were identified along the coast of the overall study area, it is not known to what extent these practices continue to occur. There is, however, no doubt that the general public continues to fish along the shorelines in the area.

The primary concern expressed was related to the potential degradation of the marine ecosystem and potential adverse effects to the ocean resources that may result from construction runoff. The project's construction is not expected to have a significant impact on the marine ecosystem. Best management practices will be implemented by the contractor in compliance with NPDES permit requirements to minimize discharges of storm water during periods of heavy rain.

### **Construction Effects on Historic Sites**

Concerns were expressed of the potential for damage to historic properties located inland of the project area in the form of collapse of rock walls or other features caused by vibrations of heavy equipment and pile driving. These concerns with construction impacts relate to the Haia and Pali family cemeteries.

Construction of the project is not expected to have a significant impact on these family cemeteries as previously discussed in Section 4.3. The nearest of these sites to the project area is the Pali family cemetery located about 450 feet away from the nearest right-of-way for the realigned highway corridor, and about 80 feet higher in elevation than the highway. The Haia family cemetery is located a considerable distance further inland from the Pali cemetery near the confluence of the Kahoma and Kahana Streams.

As previously discussed, construction activities that typically generate the most severe vibrations are blasting and impact pile-driving. Blasting would not be required for the construction of this project, however, pile driving may be conducted as part of the new bridge construction. The cemetery site is located about 800 feet away from the bridge location, and should not impact this site based upon an assessment of vibration levels conducted. Large bulldozer activities would occur in the area closest to the site. However, vibration noise generated from these activities is lower than pile-driving and should not impact the cemetery site damaging walls or other structures because it is located a considerable distance away.

The potential for noise and visual pollution caused by the eventual use of the proposed project was also raised since it was felt it may disrupt the maintenance and sanctity of the family cemeteries. As discussed in Section 4.3, the project is not expected to have a significant noise impact. The family cemeteries are located a considerable distance away from the highway. Therefore, highway noise volumes, if audible, should not exceed State DOH community noise levels requirements or FHWA compatible land use noise limits.

Family members may feel current views from their private sites may be changed by the project, however, such personal interpretations need to be evaluated in relation to the overall public perspective. In terms of visual effects, the family cemeteries are not scenic viewing locations used by the general public nor are they important public scenic visual resources. As a result, the project is not expected to have a significant visual impact on these sites.

### **Ceded Lands**

The issue of ceded lands was raised by individuals consulted under the CIA, some of whom questioned the State's ownership of those lands. Portions of the project area run through State-owned property administered by the State HHFDC that is considered ceded lands.

Currently various State and County agencies, including the State DOT, administer ceded land. Since these lands will be used for public improvements and will serve the public, its use is consistent with the purposes established under the Public Land Trust.

With the project, HHFDC will convey the right-of-way area to the State DOT. Ownership of the right-of-way would, therefore, continue to remain with the State of Hawaii. Following the construction of the realigned Keawe Street Extension, the facility will fall under DOT's jurisdiction and ownership. It is DOT's intent, however, to ultimately convey the Keawe Street Extension right-of-way to the County of Maui.

No ceded lands would be transferred to private interests

## Regional Land Use Policy Concerns

A concern raised by interviewees is the perception that Lahaina Bypass may serve as a potential catalyst opening the door to major development from Lahaina to Kaanapali. Inherent in this thought is the continued alteration of the traditional landscape and viewplanes into Kahoma and Kanaha Valleys. Individuals were not comfortable with the change that this may bring to the character of West Maui. Some believe that further development of West Maui may negatively affect Hawaiian cultural identity, and believes that more of the Hawaiian people's history may be at stake.

This issue involves regional land use policy and decisions that regulate existing and future development permitted in the West Maui region. As a result, the County of Maui is primarily involved with and responsible for the land use decisions made in the region. The West Maui community plan and zoning district ordinances provide the main regulatory framework for establishing land use patterns and uses in the region. An update of the County General Plan is also occurring which includes preliminary planning to address future land use development patterns in West Maui. Policies from that update such as urban growth boundaries may be established to direct the desired manner of future growth in the region.

Therefore, the proposed project would not significantly impact the future land use pattern and development policies in the region. The Lahaina Bypass Road will provide an important transportation improvement serving the region that can help support vehicular access to approved developments occurring in the region. However, actual decisions approving and directing the type of developments occurring will be the responsibility of the County. Such regional land use policy issues should thus be more appropriately addressed as part of the County's long range planning process such as the present update of the General Plan and later the updates of the community plans.

Furthermore, this realignment project would not have a significant impact on land use policies in this region. The project is only intended to realign a short segment of the bypass highway to avoid a historic property. Future development and growth concerns associated with the overall Lahaina Bypass Road improvement were already addressed under prior EIS documents completed along with a ROD issued. Therefore, based upon those studies, a commitment was made by the State DOT to implement construction of the Lahaina Bypass Road after obtaining necessary funding. In addition, the Lahaina Bypass Road improvement is already included on the County's current West Maui community plan since it has been planned for since the early 1990s.

### **Input Supportive of Project**

While there was a strong Hawaiian voice among those consulted against the construction of the proposed project, there were also several voices that either did not have an issue with the proposed project or were strongly in favor of the project. Those who were proponents of the project do so with recognition of the on going changes in West Maui, and for the safety of the community at large.

While there is indeed recognition of the importance of perpetuating traditional cultural practices and advocacy of historic preservation, in their view, the safety of the community, particularly the children who attend the three schools located along Lahainaluna Road, should come first and foremost. To those in the native Hawaiian community who have voiced their concerns regarding safety and emergency issues, the proposed project will provide the relief that they believe is needed.

### **Suggestions for Addressing Other Issues**

There were no immediate answers from interviewees to the concerns being raised and suggestions provided were few. Nevertheless, some input was received from interviewees suggesting ways that some of the effects from project related or non-project related issues may be addressed. A summary of these suggestions is listed along a discussion of their feasibility and appropriateness.

1. Stewardship agreements with regard to the preservation of SIHP-2484 (Haia cemetery) and -6277 (agricultural complex) were brought up as a potential means to perpetuate and maintain the culture and history of the area in the face of oncoming development.

*With the project, SIHP 6277 would not be part of the State DOT's right-of-way and this agency would not have jurisdiction over the site and area. Site -6277 is partially located within both privately-owned property and State property under the jurisdiction of the State HHFDC. However, State DOT will coordinate with SHPD to address completion of an archaeological field report for work conducted in locating this site. State DOT can facilitate discussions with SHPD to address the feasibility of potential stewardship of this site. Such discussions of this would also be coordinated with the State HHFDC and owner of the private property. However, the implementation and the execution of any stewardship agreement would then need to be worked out with the State DLNR, property owners, SHPD, and pertinent lineal descendents as appropriate.*

*Site -2484 is located within privately-owned property. Therefore, the State DOT would not be involved in the establishment of any stewardship agreement for that site. However, the State DOT can notify the owner of such interest if desired by the Haia family. But negotiations for such an agreement would need to be addressed by the Haia family and property owner.*

2. A suggestion was put forward regarding a burial reinterment area for kupuna iwi that were disinterred during the U.S. Army Corps of Engineers Kahoma Stream Flood Control Project and reinterred at the Honokahua Burial Site. A location either within the original highway project corridor or near SIHP-2484 or -6277 was identified as a means of closure for those of the Kahoma/Kanaha area who were most affected.

*The State DOT was not involved in the Kahoma Stream Flood Control Project that occurred many years ago. Therefore, the U.S. Army Corps of Engineers, SHPD, or Maui/Lana'i Islands Burial Council would more appropriately need to be consulted with to address this suggestion. Reinterment within the original bypass highway alignment north of Kahoma Stream would need to be coordinated with the State HHFDC because the right-of-way for this corridor will be returned to that agency with the proposed project. However, the State DOT can notify these agencies of the suggestion made.*

3. A suggestion was made for maintenance of the agricultural land use designations in the area to maintain the rural feel of the area, and promote diversified agriculture and self-sustaining farming in the island's community.

*The State DOT would not be involved in maintaining agricultural land use designations for the area because such decisions are regulated by the County of Maui in coordination with the State Land Use Commission. Similarly, promoting diversified agriculture and self-sustaining farming would involve land use decisions that are more appropriate under the jurisdiction of the County of Maui. Participation by individuals in the County's General Plan update and other long range planning processes would provide a better opportunity and forum for these ideas to be discussed. However, the State DOT can notify the County Planning Department of this suggestion made.*

### **Other Considerations**

A consideration of other input received from interviewees is discussed here which involve larger regional or island-wide matters that are beyond the practicable scope of study

for the proposed project. Although there are no feasible or practicable solutions to these concerns because they involve broader diverse cultures, perspectives on society, and individual values, they are discussed here for informational purposes.

Traditional Hawaiian cultural practices ran from the mountain to the ocean, and Hawaiians have a cultural identity tied to the land. As a result, limiting an assessment of the immediate and long-term impacts of the project to the construction footprint under this framework would be difficult. Interviewees believe that any project that is centrally located between the two resource areas (mountain and ocean) should take into account the entire *ahupuaa*, including the unique configuration of the arrangement of the ahupuaa of Lahaina.

There is a belief that moving forward with the proposed project would impact the cultural practices of some of the individuals that participated in CIA, and the cumulative effect would negatively impact the Hawaiian culture as a whole. They believe Hawaiians have experienced what they consider disrespect and degradation of their lands brought on as a byproduct of development over the decades. This subject was a deeply emotional one to those consulted who would like to maintain their current traditions and revive others that have been abandoned through choices and events that were not of their making. The anticipated impacts to traditional Hawaiian cultural practices and identity thus bring forth strong opposition from the people who are the descendants of those that previously had maintained their cultural traditions from fishing to farming.

Thus, it is recognized that a conversation between large landowners, government agencies, and the native Hawaiian community is beyond the purview of State DOT in the context of the current proposed project. It is nonetheless a conversation that needs to happen. For those who were consulted as a part of this study, the continuation of the Hawaiian culture is believed to be at stake, and the need to find balance in the face of change is imperative. Therefore, the conversation needs to be followed by positive actions that benefit all that comprise the diverse community of this Lahaina district. Documentation of this input from interviewees in this environmental document thus provides a start for making these concerns known by reviewing agencies and the general public.

## **5. ECONOMIC AND SOCIAL FACTORS**

This chapter discusses the project's probable impact on economic and fiscal factors associated with the State and County, as well as social factors such as changes in resident population, housing, and character of the community.

### **5.1. EXISTING SOCIAL AND ECONOMIC CONTEXT**

#### **5.1.1. West Maui**

The population of West Maui is predominantly spread along the coastline. The West Maui mountains tower to the east and separates West Maui from the rest of the island. Previously, pineapple and sugar cane fields covered most of the gently-sloped flood plain between the mountains and the highway. The warm climate, sandy beaches, historic areas, and extensive visitor facilities all contribute to making West Maui a premier tourist destination. On a typical day, over half of the people in West Maui are visitors.

The main settlement areas include the former whaling town of Lahaina, and the coastal resort expanse stretching north from Kaanapali to Kapalua. Kaanapali has been planned and marketed as an integrated unit since the early 1960s. Complementing the resort area along the shoreline are planned residential communities mauka of the main highway. The newer developments around Kapalua have followed a similar strategy of master planning. Interspersed with the major resorts are pockets of older residential neighborhoods and villages. More recently, an agricultural subdivision in Launiupoko has expanded the settlement area south of Lahaina.

During the heyday of West Maui's sugar industry early this century, camps for the workers of Maui Land and Pineapple and the Pioneer Mill dotted the region. The plantation camps dwindled and ultimately disappeared as employment in the West Maui sugar industry dwindled.

With the development of Kaanapali, West Maui experienced major economic revival, and as the region's visitor industry grew throughout the 1970s and 1980s, the population mix significantly changed. Labor shortages in the visitor and construction industries attracted young workers, especially from the continental U.S., to the area. Retirees and investors also moved into the area and purchased upscale homes, often vacation units in planned communities developed around the Kaanapali and Kapalua golf courses.

### 5.1.2. Population and Housing Trends

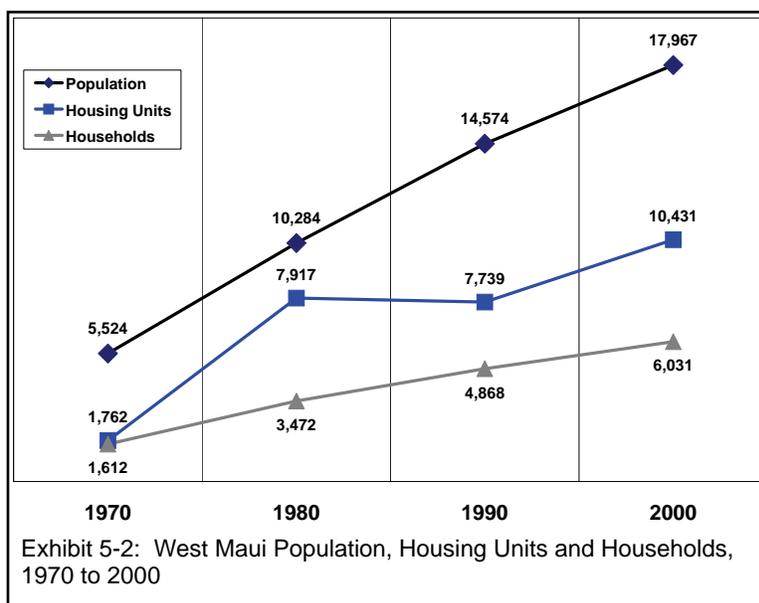
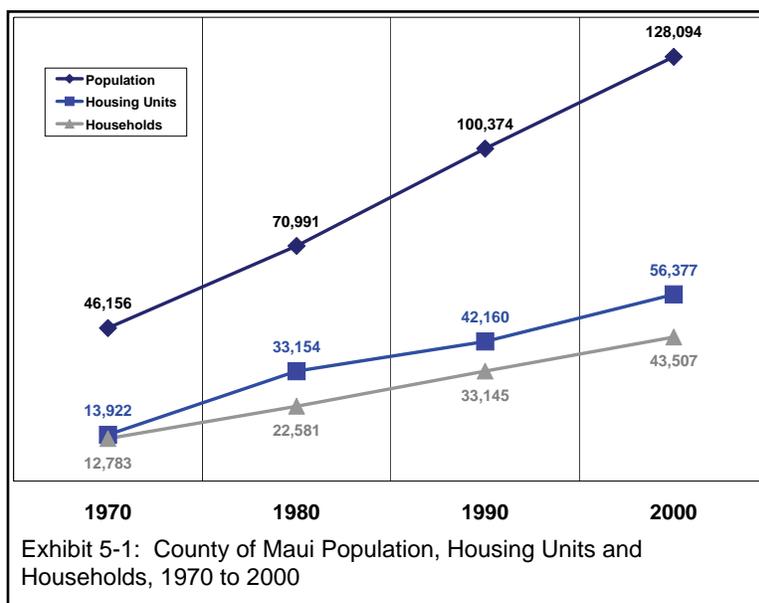
Between 1970 and 2000, both Maui County and West Maui experienced significant growth in population and housing units, and a related increase in households. In this 30-year period, Maui County’s population increased, from 46,156 persons to 128,094 persons. West Maui’s population significantly increased over three times, from 5,524 persons in 1970, to 17,967 persons in 2000.

Exhibits 5-1 and 5-2 illustrate the historic growth in population, housing and households in Maui County and West Maui from 1970 to 2000.

West Maui in particular has seen strong population and housing gains in the 1970s. Table 5-1 shows that the region’s population nearly doubled in the 1970s, from 5,500 persons in 1970 to 10,300 persons in 1980. This translates into an average annual growth rate of 6.4 percent for West Maui. At the same time, Maui County’s population grew at an average rate of 4.4 percent.

West Maui’s housing units quadrupled from 1,762 in 1970 to 7,917 units in 1980, which suggests an average annual increase of 16.2 percent over this ten-year period. In comparison, Maui County’s housing units increased at an average rate of 9.1 percent per year between 1970 and 1980. In the 1980s, population continued to increase in Maui County and West Maui, and both experienced an average annual growth rate of 3.5 percent in that decade.

In 1990, with a population of 14,574



persons, West Maui comprised 14 percent of Maui County’s population, up from 12 percent in 1980. The rate of growth slowed in the 1990s in Maui County and West Maui. West Maui’s population grew to 17,967, which represents an average annual growth rate of 2.1 percent. Maui County’s average annual growth rate was 2.5 percent between 1990 and 2000.

<b>Table 5-1: Population, Housing Units and Households in Maui County and West Maui, 1970 to 2000</b>										
<b>Maui County</b>										
	1970-1980				1980-1990			1990 - 2000		
	1970	1980	Percentage change	Average annual rate	1990	Percentage change	Average annual rate	2000	Percentage change	Average annual rate
Population	46,156	70,991	53.8%	4.4%	100,374	41.4%	3.5%	128,094	27.6%	2.5%
Housing Units	13,922	33,154	138.1%	9.1%	42,160	27.2%	2.4%	56,377	33.7%	2.9%
Households	12,783	22,581	76.6%	5.9%	33,145	46.8%	3.9%	43,507	31.3%	2.8%
<b>West Maui</b>										
Population	5,524	10,284	86.2%	6.4%	14,574	41.7%	3.5%	17,967	23.3%	2.1%
Housing Units	1,762	7,917	349.3%	16.2%	7,739	-2.2%	-0.2%	10,431	34.8%	3.0%
Households	1,612	3,472	115.4%	8.0%	4,868	40.2%	3.4%	6,031	23.9%	2.2%

### Recent Trends

According to the 2006 “Socio-Economic Forecast, The Economic Projections for the Maui County General Plan 2030” prepared by the Maui County Planning Department, in 2005, Maui County had an estimated projected resident population of about 140,000 persons, and West Maui had an estimated population of about 19,850 persons. This represents an average annual growth rate for Maui County since the year 2000 of about 1.8 percent, reflecting a slower growth trend from 1990 to 2000. Since 2000, West Maui had an average annual growth rate of about 2.1 percent, similar to its growth trend from 1990 to 2000.

Maui County had about 49,140 estimated projected households, and West Maui had about 6,900 estimated households. This represents an average annual growth rate for Maui County of about 2.6 percent since 2000 reflecting a slightly slower growth trend from 1990 to 2000. West Maui had an average annual growth rate since 2000 of about 2.9 percent that reflects a slightly higher growth trend from 1990 to 2000.

#### 5.1.3. Demographic Information

Table 5-2 shows most of the population growth in West Maui between 1990 and 2000 occurred in the Honokohua to Kaanapali Census Tract (CT) 315, where a 63 percent increase was experienced. In 2000, 8,766 persons lived in this area, accounting for 48 percent of West Maui’s population.

**Table 5-2: Selected Demographic Characteristics for Maui County and West Maui, 1990 to 2000**

	1990				2000					
	Maui County	Total West Maui	CT 314 North Lahaina - Papawai Point	CT 315 Honokohau - Kaanapali	Maui County	Total West Maui	CT 314.01 Lahaina Town	CT 314.02 North Lahaina	CT 314.03 Mauka Lahaina - Papawai Point	CT 315 Honokohau - Kaanapali
Population	100,374	14,574	9,189	5,385	128,094	17,967	2,492	2,433	4,276	8,766
<b>Age</b>										
Under 5 years	7.8%	7.1%	7.3%	6.9%	6.7%	6.8%	5.7%	5.7%	6.5%	7.6%
5 to 17 years	19.0%	15.1%	16.8%	12.2%	18.8%	15.3%	12.7%	15.5%	19.6%	13.9%
18 to 44 years	44.0%	50.5%	47.2%	56.2%	38.7%	43.8%	44.1%	44.6%	39.5%	45.7%
45 to 64 years	17.9%	17.3%	17.8%	16.4%	24.4%	23.8%	24.8%	23.5%	22.2%	24.5%
65 or older	11.3%	9.9%	10.8%	8.2%	11.4%	10.2%	12.7%	10.6%	12.2%	8.3%
Median Age	33.4	N/A	32.3	33.3	36.8	N/A	37.5	35.6	35.4	36.2
<b>Ethnicity</b>										
Caucasian*	39.6%	44.7%	31.8%	66.7%	33.9%	41.7%	47.7%	29.8%	12.5%	57.60%
Chinese*	2.2%	1.3%	1.4%	1.2%	0.9%	0.9%	1.1%	1.2%	0.7%	0.81%
Filipino*	20.3%	24.5%	32.9%	10.3%	17.0%	20.5%	7.1%	26.8%	46.3%	9.88%
Japanese*	17.0%	11.4%	14.4%	6.3%	10.1%	6.2%	9.0%	8.7%	8.4%	3.68%
Hawaiian*	15.8%	11.4%	13.0%	8.9%	8.9%	6.0%	8.0%	9.9%	5.4%	4.70%
Other**	5.1%	6.6%	6.6%	6.7%	29.1%	24.7%	27.2%	23.7%	26.5%	23.33%
<b>Households</b>										
Number	33,145	4,868	2,683	2,185	43,507	6,031	988	646	1,000	3,397
Average Size	2.99	N/A	3.38	2.39	2.91	N/A	2.51	3.77	4.28	2.58
<b>Housing Units</b>										
Number	42,160	7,739	3,013	4,726	56,377	10,431	1,363	691	1,029	7,348
Occupied	33,145	4,868	2,683	2,185	43,507	6,031	988	646	1,000	3,397
by owner	57.6%	47.3%	50.5%	43.4%	57.6%	51.4%	35.4%	61.3%	66.5%	49.7%
by renter	42.4%	52.7%	49.5%	56.6%	42.4%	48.6%	64.6%	38.7%	33.5%	50.3%
Vacant Seasonal, recreationalas	9,015	2,871	330	2,541	12,870	4,400	375	45	29	3,951
% of total vacant units	65.9%	76.5%	59.7%	78.7%	75.7%	84.1%	80.5%	46.7%	17.2%	85.3%

\* indicates that the 2000 numbers identify those who claim one race only  
\*\* indicates that the 2000 number identifies those who claim one or more races

Data Source: Census 1990, Summary Tape File 1A and Census 2000 Summary Tape File 1A

In North Lahaina to Papawai Point, which includes Lahaina Town and the communities mauka and south of Lahaina Town, the population remained stable. The combined 2000 population from CT 314.01 through 314.03 is only 12 persons more than the 1990 population for CT 314. In this area about 46.5 percent, or 4,276 persons, lived in Mauka Lahaina to Papawai Point in 2000. Twenty-seven (27) percent, or 2,492 persons, lived in Lahaina Town, and 26 percent, or 2,433 persons, lived in communities between Lahaina Town and Kaanapali in 2000. These figures show that, in the 1990s, there was a significant shift in population from the Lahaina area to the newer communities in Kaanapali and Kapalua. North Lahaina -

Papawai accounted for 63 percent of the West Maui population in 1990, but its proportion decreased to 51 percent in 2000.

### **Age**

In Maui County, the age of the overall population increased between 1990 and 2000. In that decade, the median age increased from 33.4 to 36.8 years with decreases in the 17 years and younger and 18 to 44 year population categories. At the same time, there was an increase in the 45 to 64 year population bracket. The elderly category of 65 years and older remained relatively stable.

West Maui generally followed this aging trend. The 17 years and younger category remained fairly stable between 1990 and 2000. The 18 to 44 years bracket experienced a decrease of 6.7 percent, and the 45 to 64 years category increased by 6.5 percent. The 65 years and older category remained relatively stable.

The significant population increase in the Honokohau to Kaanapali region contributed to these aging trends. The working age population aged, where there was a 10.5 percent decrease in the 18 to 44 age bracket and a 5.8 percent increase in the 45 to 64 year age bracket. Further, the 65 and older category increased by 3.9 percent.

### **Ethnicity**

In 1990, census respondents were required to select a single ethnic category. In 2000, multi-ethnic respondents were allowed to select the appropriate number of categories. Ethnicity statistics from these two periods are not comparable, and comparisons are confined to same year statistics.

In 1990, the largest ethnic category in both Maui County and West Maui was Caucasian. Caucasians accounted for 44.7 percent of the West Maui population, followed by those of Filipino ancestry at 24.5 percent. In 2000, the largest ethnic group in both Maui County and West Maui continued to be Caucasian as they accounted for 41.7 percent of West Maui's population. Within West Maui, the communities exhibited distinct ethnic characteristics in 2000, as follows:

- Honokohua – Kaanapali: Caucasians made up a significant 57.6 percent, followed by those of other and mixed ethnicity (23.3 percent) and of Filipino ancestry (9.9 percent).
- North Lahaina: Caucasians (29.8 percent) and Filipinos (26.8 percent) made up over half the population. Those of other and mixed ethnicity accounted for 23.7 percent of the population.

- Lahaina Town: Caucasians made up the largest ethnic group at 47.7 percent. Those of other and mixed ancestry came in second at 27.2 percent, followed by Japanese (nine percent), Hawaiians (eight percent), and Filipinos (7.1 percent).
- Mauka Lahaina – Papawai: The largest ethnic group included those of Filipino ancestry at 46.3 percent, followed by those of other mixed ancestry at 26.5 percent. This area had the smallest proportion of Caucasians at 12.5 percent.

#### **5.1.4. Households and Housing Units**

From 1990 to 2000, the number of households in Maui County increased by 10,362 units, or 31 percent, for a 2000 count of 43,507 households. At the same time, West Maui households increased by 1,163 households, or 23.9 percent, for a 2000 count of 6,031 households. Over half of West Maui’s households, or 56 percent, were in the Honokohua – Kaanapali area, with 3,397 households.

The average household size in West Maui decreased slightly from 2.99 persons in 1990 to 2.91 persons in 2000. In 2000, the largest households were located in Mauka Lahaina – Papawai Point, with an average of 4.28 persons per household. The smallest households were in Lahaina Town, with an average of 2.51 persons.

In terms of housing units, Maui County’s housing supply increased 31 percent from 1990 to 2000, for a 2000 supply of 56,377 housing units. At the same time, West Maui experienced a 35 percent increase for a 2000 supply of 10,431 housing units. The bulk of the new housing units were added in the Honokohua – Kaanapali region. In 2000, the region’s 7,348 units represented a 55 percent increase and accounted for 71 percent of West Maui’s housing supply.

In the West Maui region, the 2000 occupancy rate was significantly higher in North Lahaina (93.5 percent) and Mauka Lahaina – Papawai Point (97.2 percent). Housing occupancy was significantly lower in the Honokohua – Kaanapali area at 46.2 percent.

The number of units occupied by their owners remained the same for Maui County (57.6 percent), and increased in West Maui from 47.3 percent in 1990 to 51.4 percent in 2000. In the West Maui region in 2000, owner occupancy ranged from a high of 66.5 percent in Mauka Lahaina – Papawai Point to a low of 49.7 percent in Honokohua – Kaanapali.

The profile of vacant units in both Maui County and West Maui indicate a predominant presence of seasonal and recreational units. Maui County’s seasonal and recreational units increased from 66 percent to 75.7 percent between 1990 and 2000. At the same time, these types of units increased from 76.5 percent to 84.1 percent in West Maui. In the West Maui

region, vacant units held for seasonal and recreational use ranged from a high of 85.4 percent in the Honokohua – Kaanapali area to a significantly low of 17.2 percent in Mauka Lahaina – Papawai Point.

### **5.1.5. Economy**

Maui County has transformed over time from a plantation economy to a mixed one. With the closing of the Pioneer Mill Company in 1999, the economy is now largely dependent on the visitor industry and the numerous resorts that line the shores of West Maui. Tourism, diversified agriculture, construction, and local small businesses have replaced sugar and pineapple as the basis of the economy. Lahaina and the rest of West Maui are especially reliant on the visitor industry.

Most recent data on job growth comes from Maui County’s Socio-Economic forecast projections to 2005. The data is based on the 2000 census, plus new jobs that have been allocated in proportion to growth of households, visitor units, newly built space, and commercial and industrial space.

According to the forecast, there were 21,556 total civilian jobs in Lahaina (West Maui) in 2005. The services sector, namely hotels and other services, represented the largest percentage of these jobs, with a combined total of 8,665. The next largest included self-employed jobs (4,902), followed by trade (4,823), banking/finance (918), and government (891).

## **5.2. ECONOMIC AND FISCAL FACTORS**

This section discusses both the short and long-term effects of the project on both the County and State’s economic and fiscal factors. Development of the project will have different impacts in relation to Maui County and the State of Hawaii. Construction of the project will have a minor positive economic impact, mainly associated with the creation of short-term construction related jobs.

Upon completion of construction, there will no further long-term jobs generated or additional State or County agency positions created by this project. Maintenance of the project’s new roadway is expected to be accommodated by existing State and County personnel, and thus will not require additional government positions to be created.

### **Short-Term Construction-Related Jobs**

The estimated construction cost for this project is approximately \$110 million of which about half of this amount is associated with the realignment of the highway and the Keawe

Street extension. The remainder of the construction cost includes unchanged portion of the original Phase 1A alignment south of Kahoma Stream. As a result, this project will create construction jobs. In the discussions of jobs and income, three broad types are distinguished:

- Direct jobs are immediately involved with construction of a project or with its operations.
- Indirect jobs are created as businesses directly involved with a project purchase goods and services in the local economy.
- Induced jobs are created as workers spend their income for goods and services.

Construction of the project will have a positive economic impact associated with the creation of short-term construction related jobs. Direct construction jobs would typically consist of on-site laborers, tradesmen, mechanical operators, supervisors, etc. These new jobs created will also generate additional personal income for construction workers. Personal income is defined as the wages paid to the direct construction workers or operational employees associated with a development. It is anticipated that these construction jobs will likely be filled by residents from the Island of Maui employed within the construction industry.

Direct construction jobs created will also stimulate indirect and induced employment within other industries on the Island such as retail, restaurants, material distributors, and other related businesses supporting the construction industry.

### **Fiscal Factors**

Fiscal impacts associated with this project will predominantly be associated with short-term construction activities. Such effects mainly involve some additional tax revenue generated to the State. Tax revenue sources for the State government are composed primarily of general excise taxes (GET) on development costs and construction materials, along with corporate income tax, and personal income tax from construction workers and long-term permanent jobs. Construction-related tax revenues are one-time or short-term increases in revenue since they are only associated with construction activities.

The multi-million construction budget expended by the State DOT for construction of the project will therefore generate a moderate positive increase in tax revenues to the State. County revenues are primarily limited to tax revenues on privately-owned property and improvements. This project is therefore expected to have minimal effect on the current or future levels of County tax revenues being generated.

The improvements planned for the project will all occur within State-owned property, or private property acquired for rights-of-way. Thus, there would be no County property taxes generated from these lands. This project is not expected to generate any new in-migrant residents to the Island of Maui to fill short-term construction-related jobs. Thus, there will not be any impact on State and County operational expenditures for public services serving this community and surrounding areas.

### **5.3. SOCIAL IMPACT FACTORS**

The proposed project only involves the realignment of a short segment of the Phase 1A portion of the Lahaina Bypass Road. As a result, this realignment should not have a significant effect on the projected resident population growth and corresponding housing units planned for West Maui. The short highway realignment will not increase the number of housing units and population in the region since those land uses are regulated by the County of Maui. The environmental documents and ROD previously prepared for the entire Lahaina Bypass Corridor have addressed that improvement's impact on population and housing in West Maui. Thus, realigned portion of the bypass should not change the findings from those studies.

The project corridor is surrounded by land under the jurisdiction of the State HHFDC which is planning their Villages of Leialii master planned community. Coordination with HHFDC has been occurring and the project corridor is being incorporated into their development plans. Thus, the project is not expected to have a significant impact on their development plans or significantly change the amount of housing units incorporated within their master planned community. The actual development plans for this village will be finalized and constructed by a developer selected as part of HHFDC's request for proposal process in the future.

Future development in West Maui would be dictated by the County of Maui via their land use policies and entitlements process. The County's update of their General Plan and subsequent community plan for West Maui would therefore determine the areas designated for future growth, the type of land uses allowed in various areas, timeframes for development, and other various factors. Within this framework, guidelines on housing densities and population densities may be established.

The County's entitlement process and regulations, such as their zoning ordinance, would further regulate specific land uses for various parcels. Thus, decisions and approvals given for future developments are controlled by the County of Maui through this process. The project would provide an alternative access route for motorists to travel through this region, and travel to and from developments permitted in the area by the County. However, future

housing and subsequent population increases associated with such developments would be dictated by the County.

The project will not generate any new in-migrant residents to the Island of Maui which would affect the future projected population growth trends. The planned project improvements will not require the acquisition of existing homes and, therefore will not impact existing residents in the area. As discussed earlier in this document, the project area and surrounding adjacent area is presently undeveloped, consisting of fallow agricultural land formerly used for sugarcane production.

The project will not have a significant affect in influencing the relocation or in-migration of new persons to the Island from other islands within or outside the State. Although the project will provide an alternative transportation route through the West Maui corridor and improve existing traffic congestion, these factors should not significantly influence individual decisions to relocate or migrate to the Island from outside the State. Such decisions would more appropriately be based upon other economic factors such as job opportunities, economic conditions, or future developments permitted by the County of Maui.

The project will not result in a disproportionately high impact on minority populations or low-income populations in the study corridor or immediate surrounding area. This includes both short-term construction-related effects and long-term effects from the operation of the highway and Keawe Street. Since the project area and surrounding adjacent area presently consists of fallow agricultural land formerly used for sugarcane production, the project improvements will not require the acquisition or displacement of any existing homes.

The project is not expected to significantly impact the existing character of this Lahaina community. The improvements are intended to realign a short segment of the Phase 1A portion of the Lahaina Bypass Road to avoid an archaeological site. Therefore, the character of the project corridor and surrounding area will not be significantly altered from that already planned under the original bypass highway alignment. Impacts associated with the character of the community and West Maui were previously addressed under prior environmental documents completed for the entire Lahaina Bypass Road improvement.

## **5.4. SECONDARY AND CUMULATIVE IMPACTS**

### **5.4.1. Secondary Impacts**

Secondary effects, otherwise referred to as indirect effects, are described as those effects caused by a project, but occur later in time or farther removed in distance than direct impacts but are still reasonably foreseeable. Such effects may include impacts on environmental

resources or public facilities that occur as a result of the project's influence on land use. Secondary impact analyses are appropriately concerned with impacts that are sufficiently "likely" to occur and not with the speculation of any impact that can be conceived of or imagined.

The proposed project is expected to have minimal secondary impacts on resident population, land use patterns, public facilities and infrastructure, and the natural environment. The project only involves the realignment of a short section of the Phase 1A bypass highway along with Keawe Street from their original alignments already planned for by the State DOT and County, respectively. Thus, secondary issues associated with this project have already been addressed and studied in prior environmental documents completed. This realignment project will not significantly change the findings from these documents.

As discussed earlier in this chapter, changes to land use patterns and future development in the surrounding area as well as within West Maui falls under the jurisdiction and control of the County of Maui. The County's land use policies and entitlements process via the General Plan, West Maui Community Plan, and entitlement process under their zoning ordinance ultimately controls the developments that are permitted in the region. Thus, the realignment of a short segment of the highway is not expected to significantly cause secondary impacts altering County approved land uses and settlement patterns in the area.

Construction of the project is expected to generate moderate short-term impacts associated with these construction activities. Creation of short-term construction jobs is not expected to generate any in-migrating of workers to the Island of Maui to fill these jobs. It is anticipated that qualified local contractors on Maui or within the State of Hawaii would be used for the project's construction. Therefore, construction of the project should not contribute to significant secondary impacts associated with in-migration of workers.

The project will not have significant secondary impacts on infrastructure facilities since there are no existing facilities within the project corridor that will be affected. The project involves highway and roadway improvements that will not generate increased water, sewer, or solid waste that necessitate additional off-site infrastructure improvements. Similarly, the project will not have a significant impact on public facilities such as schools, medical facilities, and recreational facilities. The project will have a moderate positive effect for emergency service providers by creating an alternative route to use in the event of a traffic accident, natural hazard, or other emergency.

### **5.4.2. Cumulative Impacts**

Cumulative impacts are typically defined as the effects on the environment which result from the incremental impact of a project when added to past, present, and reasonably foreseeable future actions. The estimation of future impacts is important for cumulative impact analysis. However, the focus must be on “reasonably foreseeable” actions which are those that are likely to occur or probable, rather than those that are merely possible or subject to speculation. The prediction of reasonably foreseeable impacts thus requires judgment based on information obtained from reliable sources such as adopted plans and similar documents.

The discussion of impacts presented within this document has included the cumulative effects associated with the project and other reasonably foreseeable future actions being implemented. Completion of Phase 1A of the bypass highway, including the proposed realignment project, is planned for the year 2011. Within this timeframe, there are no other major developments in the immediate vicinity proposed or planned for completion. The State HHFDC is planning their Villages at Leialii development which includes land along the project corridor. However, based upon consultations with that agency, construction completion and occupation of phases of that development are not expected for several more years. HHFDC is working on the master plan and is planning to initiate environmental studies in 2009. Thereafter, they would need to obtain entitlements from the County for the project. Thus, occupancy of any homes within that project would be well beyond the 2011 timeframe.

With the build-out of the project, cumulative effects were previously addressed under the prior environmental documents and ROD completed for the overall Lahaina Bypass Corridor. Future 2020 traffic projections for the entire bypass road are still applicable for this realignment project based upon prior discussion in this document. Thus, the cumulative effects of the project in the long term would similarly be the same as that resulting under the original Phase 1A alignment. The project is not expected to significantly change the findings from those assessments conducted for environmental documents. Therefore, the project is not expected to result in significant cumulative impacts on the surrounding environment.

## **6. INFRASTRUCTURE, UTILITIES AND PUBLIC FACILITIES**

This chapter addresses the proposed project's probable impact on public facilities and utilities in the project vicinity.

### **6.1. WATER FACILITIES**

The County of Maui, Department of Water Supply (DWS) operates and maintains the municipal water systems of the County. Historically, the DWS has based its planning and accounting on the basis of five DWS districts: Central, Upcountry (sometimes referred to as the Makawao district), West Maui (sometimes referred to as the Lahaina district), Molokai, and East Maui (sometimes referred to as the Hana district). The project corridor is located within the DWS's West Maui district. One DWS water system services the entire West Maui district. DWS divides the West Maui district into four subdistricts as follows: 1) Alaeloa-Kahana, 2) Honokohau, 3) Honokowai, and 4) Lahaina.

Municipal water for the West Maui district is supplied from both ground and surface water sources. Water from wells is supplemented by treated surface water supplied by facilities near the Kapalua Airport and Lahainaluna High School. The Lahaina Water Treatment Facility, situated above the high school, is located in the project vicinity. Water from Kanaha Stream is treated to produce an average of about 1.6 million gallons a day (MGD).

DWS water storage facilities in the Lahaina area include a 1.5 million gallon (MG) storage tank above Wahikuli, a 1.0 MG tank next to the Lahaina Water Treatment Facility, and a 0.5 MG tank at the intersection of Lahainaluna Road with Ikena Avenue. Several miles of 12- and 16-inch lines, and two in-line booster stations convey municipal water to customers in Lahaina.

Private water systems also provide domestic water to some areas of West Maui. Private water purveyors include Hawaii Water Corporation and Kapalua Water Company. Other private purveyors provide non-potable irrigation water to agricultural users in the area. These private water systems are not located within the immediate project vicinity.

There are no existing municipal water lines or facilities located within the project corridor or immediate vicinity. The nearest water system infrastructure includes DWS waterlines serving the Kelawea Subdivision south of the project corridor and waterlines serving the industrial subdivision makai and west of the project corridor.

### **Probable Impacts on Water Facilities**

There are no existing domestic or municipal water facilities within or near the project corridor. No construction-related, short-term impacts to water facilities are anticipated. The project area consists of undeveloped agricultural land not served by domestic or municipal water systems. Construction activities will not impact the function or utility of any existing private or public water infrastructure. As discussed in Chapter 4, ground water infrastructure in the general area of the project includes one abandoned well, six irrigation wells, and two municipal wells operated by Maui DWS. The abandoned well and the six irrigation wells are located outside of the project corridor. The two municipal wells, Waipuka 1 and Waipuka 2, are located approximately 0.4 mile mauka and northeast of the project corridor.

No long-term impacts on water facilities are anticipated as a result of the operation of the project. Landscaping along the highway will be minimal and is not planned to be irrigated. The proposed transportation facility will not generate additional water demand or impact the DWS's water service area or system capacity.

### **6.2. WASTEWATER FACILITIES**

The County of Maui, Department of Environmental Management's Wastewater Reclamation Division provides sanitary sewer service for the West Maui region. Wastewater from the Lahaina area is treated at the County's Lahaina Wastewater Reclamation Facility (WRF) located approximately five miles north of the project corridor on the mauka side of Honoapiilani Highway. The Lahaina WRF provides R-1, tertiary-treated recycled water to the distribution system serving West Maui.

Due to limited recycled water storage capacity, the West Maui distribution system for recycled water is limited. The system does, however, serve the County's largest water reuse project, the Kaanapali Resort. Up to 1.2 million gallons of recycled water is utilized daily for golf course and landscape irrigation. There are plans to expand the distribution system to provide R-1 water to condominiums and hotels in the Kaanapali area.

The project corridor is located beyond the limits of the County's existing wastewater collection system. The existing wastewater collection system services the Kelaweia subdivision area and other developments concentrated along Honoapiilani Highway. There are no existing wastewater facilities or infrastructure within the project corridor, and there are no immediate plans by the County to extend service to the project corridor.

### **Probable Impacts on Wastewater Facilities**

As there are no existing wastewater collection or treatment facilities within the project corridor or immediate project vicinity, the proposed project is not expected to cause short- or long-term impacts to wastewater infrastructure. Short-term construction activities will not impact the function or utility of any existing wastewater facilities. The project involves transportation infrastructure improvements that will not generate additional wastewater flows or impact the County's service of the area. The long-term operation of the project will not generate additional demand for wastewater facilities.

### **6.3. DRAINAGE FACILITIES**

The project corridor straddles the Kahoma Watershed and the Kauaula Watershed (see Section 4.7 for description of watershed areas). The coastal area is relatively flat and has been developed with various residential, resort, industrial, and commercial uses. The area above the developed flatland to about the 1,400-foot elevation is gently sloping and was formerly used for growing sugar cane.

Runoff generated in the former sugar cane fields above Lahaina town sheet flows downstream into numerous small drainageways, then travels through culverts in Honoapiilani Highway to Lahaina town. The storm drain system in Lahaina town consists of short, limited capacity culverts that discharge to the ocean. Runoff also ponds in low spots, dissipating through infiltration or evaporation. The existing drainage tributary area affected by the project is estimated to be about 126 acres. This includes upstream off-site runoff that sheet flows across the project area. The estimated runoff is currently about 116 cubic feet per second (cfs).

There are no existing drainage facilities located within the project corridor. In the project vicinity, the County of Maui operates and maintains an underground storm drain system serving the Kelaweia subdivision. Drainage facilities situated along Ikena Avenue accept flows from upstream residences in the Kelaweia Mauka subdivision. The drainage system outlets to Kahoma Stream via an open ditch that extends along the undeveloped portion of the Ikena Avenue right-of-way.

The proposed project includes a bridge crossing mauka of the Kahoma Stream flood control channel. Completed in 1990, the Kahoma Stream flood control project consists of a 5,415 foot concrete channel, a debris basin, offshore rubble apron, and three pre-stressed concrete bridges to provide crossings for Front Street, Honoapiilani Highway, and Oil Road. The debris basin design volume is 54,000 cubic yards, with a flood level protection discharge of 15,200 cfs at the stream mouth.

### **Probable Impacts on Drainage Facilities**

The project is not expected to cause significant short-term impacts on existing drainage facilities or drainage conditions in the project area. No long term impacts are anticipated to drainage facilities or natural drainage ways. The proposed project will not significantly alter or adversely effect drainage patterns associated with any perennial streams and will not impact surface water resources in the surrounding area.

The project improvements will inevitably result in an estimated 32cfs increase in surface runoff due to the installation of impervious materials. Including the current runoff from the project area, the estimated total runoff is approximately 200 cfs. These changes are not expected to significantly impact existing drainage facilities or drainage conditions. The proposed project will comply with federal, State, and County requirements to address drainage and stormwater runoff.

The project design provides for an underground storm drain system to accommodate drainage flows from the proposed project. The highway will be sloped to drain water off the travelway and onto the highway's shoulders. Storm water will be collected via drainage inlets. Storm water will not be allowed to sheetflow over the side of the bridge to be constructed over Kahoma Stream. Surface runoff from the bridge will be directed to the project's underground storm drain system, which will outlet to Kahoma Stream at a point mauka of the bridge. Discharges into Kahoma Stream will decrease by approximately 16 cfs as a result of the proposed project. Drainage improvements installed along the northwestern portion of the project corridor will be integrated with the planned storm drain system for the Keawe Street extension. Design of drainage improvements will be completed in consultation with the County of Maui, Department of Public Works (DPW).

Near the proposed intersection of the modified alignment with Keawe Street, detention basin will be provided to store about 0.4 acre-feet of runoff. A second detention basin will be located near the current terminus of Keawe Street, and will be sized to store 0.2 acre-feet of runoff. Approximately 61 cfs will be released from the detention basins and will discharge directly into the existing storm drain system in Keawe Street.

The project will cause short-term construction-related impacts to the unchannelized portion of Kahoma Stream mauka of the Kahoma flood control project (see Chapter 4 for further discussion). Temporary shoring towers in the Kahoma Stream channel will be required to support the construction of the proposed bridge crossing. The design of the temporary shoring towers will be coordinated with the County DPW and the Department of Army, Corps of Engineers (ACOE). Preliminary jurisdictional determination has been

received from the ACOE regarding Department of the Army permit requirements. A permit from the ACOE will not be required for this project.

The incremental construction of the bridge crossing and shoring towers will require the use of vehicles and equipment in the stream channel, including excavators, dump trucks, loaders, bulldozers, flat bed trucks, compactors, concrete trucks, concrete pump vehicles, mobile cranes, and pile drivers and/or drill rigs. Erosion control measures will be installed as required. The existing access road to the Kahoma Stream Flood Control project will be used to move vehicles and equipment in and out of the stream channel. The contractor will have an evacuation plan to be implemented in a flash flood event.

At ultimate build-out of future phases of the Lahaina Bypass Road project, a second bridge crossing of Kahoma Stream will be installed in the project corridor. Design and construction of this second bridge will be coordinated with the appropriate agencies at that time.

#### **6.4. ELECTRICAL, TELEPHONE AND CATV SERVICE**

Electrical, telephone, and cable television (CATV) services for the West Maui region are provided by Maui Electric Company, Ltd. (MECO), Hawaiian Telcom, and Oceanic Time Warner Cable, respectively.

There are no existing electrical, telephone, and cable television lines within the project corridor. Such infrastructure is planned to the southwest of the project corridor in the vicinity of the Keawe Street extension

#### **Probable Impacts on Utilities**

The project should not have a significant impact on electrical, telephone, or cable services. There are no existing utilities requiring relocation from the project corridor. The project involves transportation infrastructure improvements that will not generate increased demand for telephone or cable television services.

The proposed project will require street lights along the mauka bridge at Kahoma Stream, acceleration and deceleration lanes, and the intersection of the modified alignment with the Keawe Street extension. Street lighting will conform with DOT highway design standards. Electrical power for street lighting will be provided by MECO, and design plan review will be coordinated with the utility company. The additional electrical demand generated for street lighting is not expected to have a significant impact on MECO's existing infrastructure or capacity.

## 6.5. TRANSPORTATION FACILITIES

This section addresses transportation infrastructure in the project corridor and the project vicinity. An assessment of traffic operations was conducted for the new intersection of the realigned bypass highway with Keawe Street to determine future operational conditions in the year 2011 with completion of the Phase 1A portion and at ultimate build-out. With the project, the intersections of Honoapiilani Highway with Lahainaluna Road and Keawe Street would provide the main access routes to the bypass highway project corridor. Discussion of these intersections with the build-out of the highway to four lanes is provided based upon available 2020 projections and traffic analysis conducted for a Record of Decision document issued for the Final Supplemental EIS for the Lahaina Bypass.

The highway capacity analysis for the project was based upon procedures presented in the *“Highway Capacity Manual”*, Transportation Research Board, 2000, and utilizes the “Synchro” software, developed by Trafficware. The analysis was based on the concept of Level of Service (LOS). LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS “A” through “F”. LOS “A” represents ideal or free-flow traffic operating conditions and LOS “F” unacceptable or potentially congested traffic operating conditions.

### 6.5.1. Existing Transportation Facilities

There are no existing public roadways within the project corridor. The public roadway system in the vicinity of the project includes both State and County roadway facilities. Honoapiilani Highway serves as a major collector roadway through central Maui and along the northwest coast of the island from its origin in Wailuku to its terminus near the north shore of Maui. This arterial highway is the only improved roadway linking West Maui with the rest of the island. Limited access around the north coast of the island to Waihee is possible via an unimproved segment of highway.

In the vicinity of the project corridor, Honoapiilani Highway is generally linked to east-west (mauka-makai) roadways that serve the surrounding residences, resort areas, agricultural lands, and commercial areas. County roadways near the project corridor that provide access to residential and commercial uses in the area include Kapunakea Street, Keawe Street, Papalaua Street and Lahainaluna Road. Other nearby roadways includes the residential streets serving the Kelawea Subdivision to the south of the project corridor. Figure 6-1 includes a graphic showing the surrounding roadways and intersections.

## Area Roadway System

In the vicinity of the proposed project, Honoapiilani Highway is primarily a two-way, four-lane, undivided State of Hawaii highway generally oriented in the north-south direction. At the signalized intersection with Kapunakea Street on the northern end of the project area, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane.

Kapunakea Street is generally a two-lane, two-way County roadway that originates near the coast at Front Street and continues northeast past the intersection with the highway to its terminus at Nahale Place. At the intersection with Honoapiilani Highway, the westbound approach of Kapunakea Street has an exclusive left-turn lane and a shared through and right-turn lane while the eastbound approach includes a shared left-turn and through lane, and an exclusive right-turn lane.

South of the intersection with Kapunakea Street, Honoapiilani Highway intersects Keawe Street and the Lahaina Cannery Mall driveway. At this signalized intersection, the northbound approach of the highway has exclusive turning lanes and two through lanes while the southbound approach has an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Keawe Street is generally a two-lane, two-way County roadway that provides access to an adjacent industrial area. At the intersection with the highway, the Keawe Street approach has an exclusive right-turn lane and a shared left-turn and through lane. The eastbound approach of this intersection is comprised of the Lahaina Cannery Mall driveway which has an exclusive right-turn lane and a shared left-turn and through lane.

At the southern end of the project study area, Honoapiilani Highway intersects Lahainaluna Road. At this signalized intersection, both approaches of the highway have an exclusive left-turn lane, one through lane, and a shared through and right-turn lane. Lahainaluna Road is a predominately two-lane, two-way County roadway generally oriented in the east-west (mauka-makai) direction between its origin at Front Street and its terminus near Lahainaluna High School. At the intersection with the highway, the westbound approach has exclusive turning lanes and one through lane while the eastbound approach has an exclusive left-turn lane and a shared through and right-turn lane.



### Existing Traffic Volumes

Manual intersection turning movement count surveys and field observations of traffic conditions in the vicinity taken in September 2007 were available, and provide information on existing traffic conditions. The following intersections are discussed:

- Honoapiilani Highway, Keawe Street, Lahaina Cannery Mall Driveway
- Honoapiilani Highway and Lahainaluna Road

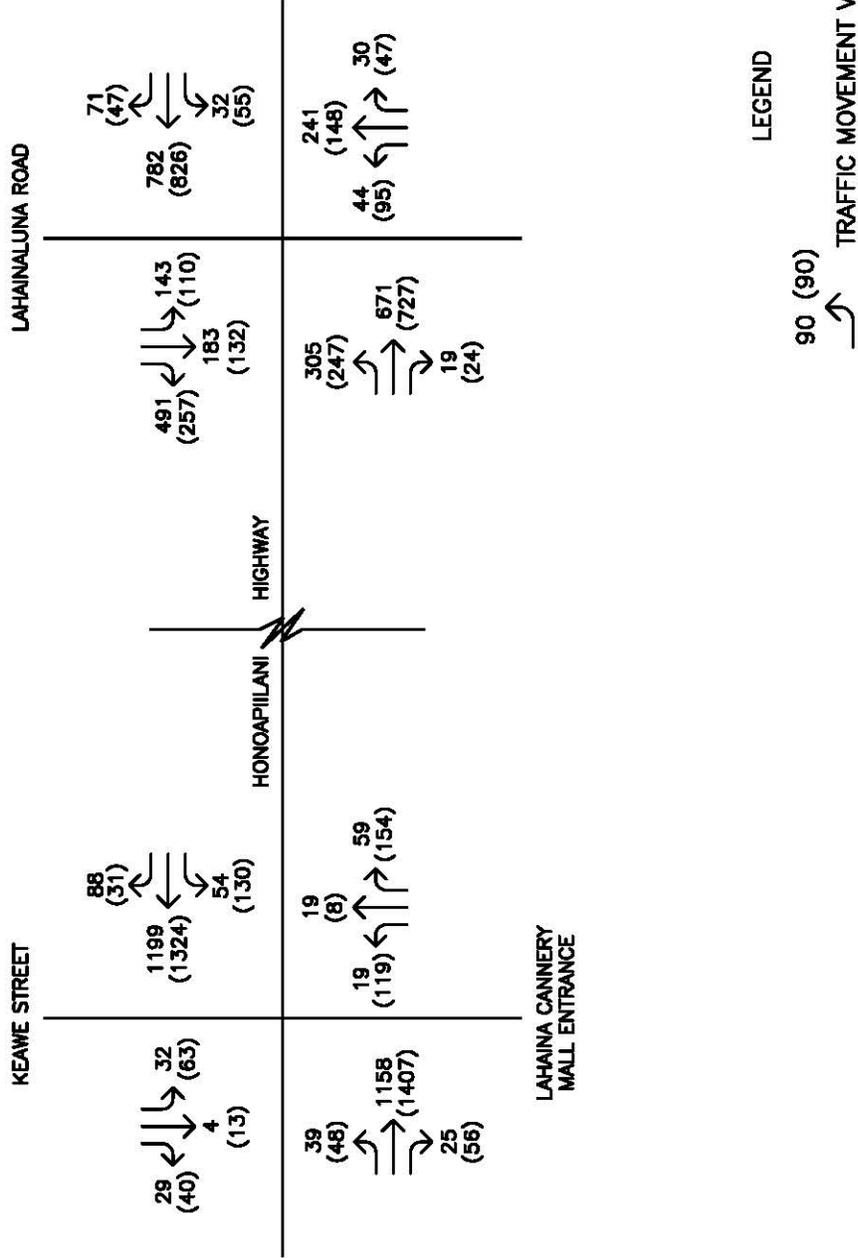
The morning peak hour of traffic generally occurs between 7:00 AM and 8:00 AM in the project vicinity and represents commuter, as well as, school-related traffic. In the afternoon, the peak hour of traffic generally occurs between the hours of 3:00 PM and 4:00 PM in the project vicinity. Although the peak hours of traffic generally occur around the same time periods at each of the study intersections, the absolute commuter peak hour time periods for each intersection may differ slightly as shown in Table 6-1. Figure 6.2 shows the existing peak hour volumes at these intersections.

<b>Intersection</b>	<b>AM Peak</b>	<b>PM Peak</b>
Honoapiilani Hwy/ Keawe St/Lahaina Cannery Mall Dwy	7:00 AM-8:00 AM	3:15 PM-4:15 PM
Honoapiilani Hwy/ Lahainaluna Rd	7:00 AM-8:00 AM	3:00 PM-4:00 PM

### Honoapiilani Highway with Keawe Street / Lahaina Cannery Mall Driveway

At the intersection with Keawe Street and the Lahaina Cannery Mall driveway, Honoapiilani Highway carries 1,341 vehicles northbound and 1,222 vehicles southbound during the AM peak period. During the PM peak period, traffic volumes are higher with 1,485 vehicles traveling northbound and 1,511 vehicles traveling southbound.

The critical movements on the highway approaches of the intersection are the northbound left-turn and southbound through and right-turn traffic movements which operates at LOS “D” during both peak periods of traffic. Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 8 to 10 vehicles were observed on both approaches during this peak period. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.



**FIGURE 6-2**  
**EXISTING TRAFFIC VOLUMES**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



The Keawe Street approach of the intersection carries 65 and 116 vehicles westbound during the AM and PM peak periods, respectively. The traffic movements on the Keawe Street approach operate at LOS “D” during both peak periods of traffic. Traffic queues periodically formed on the Keawe Street approach of the intersection with average queue lengths of 1 to 2 vehicles observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

The eastbound approach of the intersection is comprised of the Lahaina Cannery Mall driveway which carries 97 vehicles and 281 vehicles eastbound during the AM and PM peak periods, respectively. The traffic movements on the driveway approach of the intersection also operate at LOS “D” during both peak periods. Traffic queues periodically formed on the driveway approach of the intersection with average queue lengths of 3 to 5 vehicles were observed during the AM and PM peak hours of traffic. These queues were observed to clear the intersection after each traffic signal cycle change during both peak hours of traffic.

### **Honoapiilani Highway with Lahainaluna Road**

At the intersection with Lahainaluna Road, Honoapiilani Highway carries 885 vehicles northbound and 995 vehicles southbound during the AM peak period. During the PM peak period, the overall traffic volume is slightly higher with 928 vehicles traveling northbound and 998 vehicles traveling southbound. The critical movements on the highway approaches of the intersection are the northbound through and right-turn traffic movement and the southbound left-turn traffic movement which operate at LOS “D” during both peak periods.

Traffic queues periodically formed on the highway approaches of the intersection with the most significant queuing occurring on the southbound approach of the intersection. Average queue lengths of 8 to 10 vehicles were observed on this approach during both peak periods with queues occasionally extending through the upstream intersection with Papalaua Street. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Lahainaluna Road approaches of the intersection carry 315 vehicles eastbound and 817 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is less with 290 vehicles traveling eastbound and 499 vehicles traveling westbound. The critical movements of the Lahainaluna Road approaches are the westbound left-turn and right-turn traffic movements which operate at LOS “D” during both peak periods.

Traffic queues periodically formed on the Lahainaluna Road approaches of the intersection with average queue lengths of 5 to 7 vehicles observed on both approaches during the AM and PM peak hours of traffic. Most of these queues cleared the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

### **6.5.2. Projected Traffic Conditions**

A discussion of projected traffic conditions is provided below, assuming the completion of Phase 1A of the Lahaina Bypass project by 2011. Projected traffic conditions assuming year 2020 completion of the ultimate build-out of the Lahaina Bypass are also discussed.

#### **Phase 1A Projected Traffic**

Phase 1A of the Lahaina Bypass project is intended to provide an alternate route for vehicles traveling to and from the Kelawea residential subdivision and schools located up the slopes mauka of Honoapiilani Highway. This project would thereby divert some local trips from the intersection of Honoapiilani Highway with Lahainaluna Road to the highway's intersection with Keawe Street. As such, a portion of the trips currently utilizing Honoapiilani Highway and Lahainaluna Road in the vicinity of the project were assumed to divert to Keawe Street with the project.

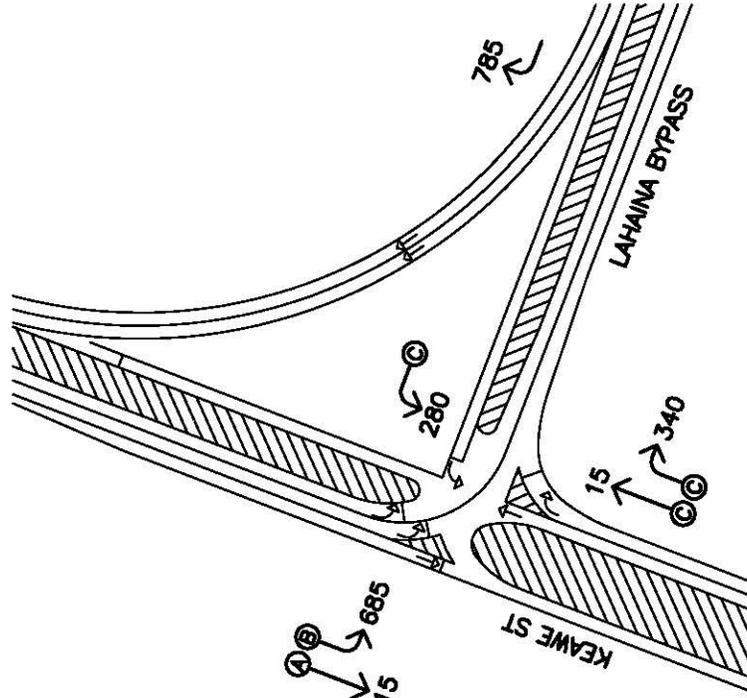
Utilizing available traffic count data in the vicinity collected in September 2007 and an assumed conservative annual growth of traffic of 2.0 percent per year, Phase 1A of the bypass is estimated to carry approximately 405 vehicles during the AM peak period upon completion of the project, 273 vehicles traveling northbound and 132 vehicles traveling southbound. During the PM peak period, the roadway is expected to carry approximately 266 vehicles, 159 vehicles traveling northbound and 107 vehicles traveling southbound.

#### **Lahaina Bypass Build-Out Projected Traffic**

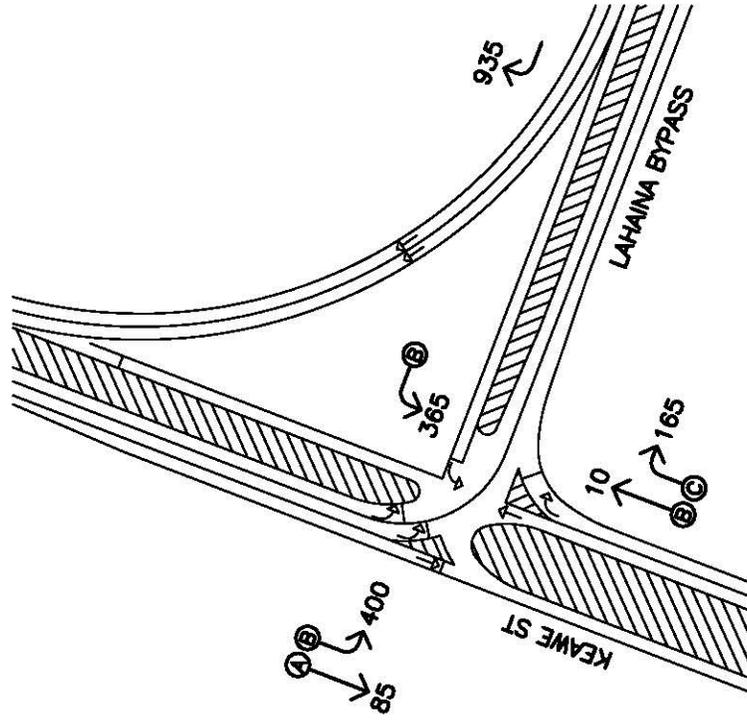
Upon build-out of the highway, year 2020 traffic projections for the Lahaina Bypass Road project developed under the Final Supplemental EIS and Record of Decision issued would be applicable to the intersections in the project area. The project only involves the realignment of a section of the highway to avoid a historic site. Therefore, year 2020 projected traffic volumes developed for the original bypass highway alignment, Honoapiilani Highway, and County roadways of Lahainaluna Road and Keawe Street should generally remain the same under the proposed realignment project. Figure 6-3 shows the projected volumes at this intersection by turning movements for the study year of 2020.



PM PEAK PERIOD



AM PEAK PERIOD



LEGEND

- 90 ↘ TRAFFIC MOVEMENT VOLUME (VPH)
- ↗ LANE USAGE
- Ⓐ LANE GROUP LEVEL OF SERVICE



**FIGURE 6-3**  
**PROJECTED 2020 TRAFFIC VOLUMES**

LAHAINA BYPASS MODIFIED ALIGNMENT  
State Department of Transportation, Highways Division



The completed bypass near Keawe Street is expected to carry approximately 1,785 vehicles during the AM peak period with 1,300 vehicles traveling northbound and 485 vehicles traveling southbound. During the PM peak period, the highway is expected to carry approximately 2,065 vehicles, 1,065 vehicles traveling northbound and 1,000 vehicles traveling southbound (ATA, September 2003).

Honoapiilani Highway at the Keawe Street intersection is estimated to carry approximately 1,940 vehicles during the AM peak period with 1,080 vehicles traveling northbound and 860 vehicles traveling southbound. During the PM peak period, the highway is expected to carry approximately 2,770 vehicles, 1,190 vehicles traveling northbound and 1,580 vehicles traveling southbound.

Keawe Street is estimated to carry approximately 625 vehicles during the AM peak period with 175 vehicles traveling eastbound (mauka) and 450 vehicles traveling westbound (makai). During the PM peak period, the County roadway is expected to carry approximately 750 vehicles, 355 vehicles traveling mauka and 395 vehicles traveling makai.

Lahainaluna Road is estimated to carry approximately 1,045 vehicles during the AM peak period with 575 vehicles traveling eastbound (mauka) and 470 vehicles traveling westbound (makai). During the PM peak period, the County roadway is expected to carry approximately 1,125 vehicles, 495 vehicles traveling mauka and 630 vehicles traveling makai (ATA, September 2003).

### **6.5.3. Probable Traffic Impacts**

#### **Traffic Impacts with Phase 1A Implemented**

The original alignment of Phase 1A of the bypass required northbound vehicles along this highway segment to turn left onto Keawe Street at its northern terminus. This highway would only have two lanes (one in each direction). Similarly, vehicles along the two-laned Keawe Street would have been required to turn right to access the bypass highway before traveling southbound toward Launiupoko. However, these turning movements would be unhindered since an opposing stream of traffic is not expected until further segments of the bypass (Phase 1C) are completed in the future.

Although the realignment of Phase 1A of the bypass is expected to relocate the intersection with Keawe Street further west, traffic operations at the intersection are expected to remain similar to that with the original intersection alignment since vehicles would still be allowed to freely execute their turning movements at the intersection. As such, the proposed

realignment is not expected to have a significant impact on traffic operations at the new T-intersection of the bypass highway with Keawe Street under the Phase 1A development.

**Traffic Impacts with Highway Build-Out**

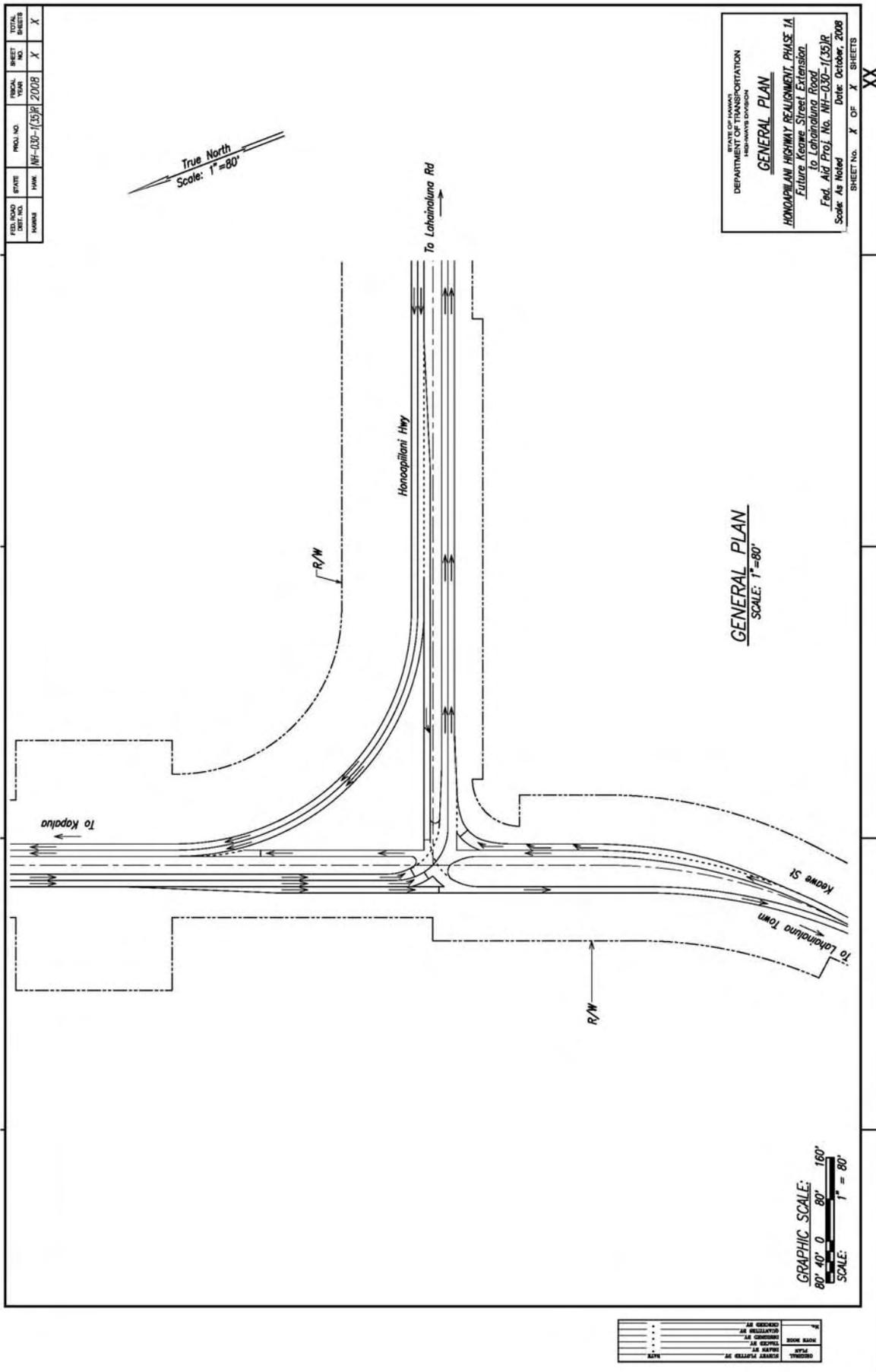
An assessment of the intersection of the bypass highway with Keawe Street was conducted utilizing the projected traffic volumes for that intersection from the prior Final Supplemental EIS and Record of Decision to determine if the proposed realignment project would result in any additional impacts. The realigned intersection is expected to be a signalized T-intersection with the bypass highway comprising the south and east legs of the intersection and Keawe Street comprising the western leg of the intersection. The northbound approach of the bypass is expected to have an exclusive left-turn lane and two exclusive right-turn lanes while the westbound approach is expected to have two exclusive left-turn lanes (toward Launiupoko) and one through lane (to Keawe Street). The Keawe Street approach is expected to have one through lane (to highway) and an exclusive right-turn lane. Figure 6-4 shows the conceptual layout of this intersection.

The projected Year 2020 AM and PM peak hour traffic operating conditions at the intersection of the bypass with Keawe Street are summarized in Table 6-2. The levels of service under the original intersection configuration are provided for comparison purposes.

Lane Group For Original Highway Alignment	Lane Group For Realigned Highway Alignment	AM Peak		PM Peak	
		Original LOS	Realigned LOS	Original LOS	Realigned LOS
Bypass Highway					
Northbound (LT)	Northbound (LT)	B	B	C	C
Northbound (TH)	Northbound (RT)	A	A	A	A
Southbound (TH/RT)	Southwest (LT)	C	B	C	B
	Southwest (TH)		A		A
Keawe Street					
Eastbound (LT)	Eastbound (TH)	C	B	C	C
Eastbound (RT)	Eastbound (RT)	A	C	B	C
Overall		B	A	B	B



**FIGURE 6-4**  
**BYPASS HIGHWAY INTERSECTION WITH KEAWE STREET**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



DESIGNED BY	AS SHOWN
CHECKED BY	AS SHOWN
IN CHARGE	AS SHOWN
DATE	AS SHOWN



At the intersection of the bypass highway with Keawe Street, traffic operations with the proposed realignment are expected to be similar to those with the original highway alignment and intersection configuration as shown on Table 6-2. The northbound approach of the bypass is expected to operate at LOS “B” or better during the AM peak period and LOS “C” or better during the PM peak period while the southwest bound (formerly southbound) approach is expected to operate at LOS “B” or better during both peak periods. Similarly, the eastbound approach of Keawe Street is expected to operate at LOS “C” or better during both peak periods. Overall, the intersection is expected to operate at LOS “A” and LOS “B” during the AM and PM peak periods, respectively, with the proposed realignment. Therefore, the realignment project would have minimal impact on traffic conditions.

Traffic operations at other intersections in 2020 should operate with the same levels-of-service as assessed under the prior Final Supplemental EIS and Record of Decision issued for the entire Lahaina Bypass Road in 2003. Since the project only involves a realignment of a section of the bypass road, the projected traffic volumes using the new highway and existing Honoapi‘ilani Highway should generally remain the same. A traffic study conducted as part of the Record of Decision document indicated the intersection of Honoapi‘ilani Highway with Keawe Street would operate at LOS C during the AM and LOS D during the PM (ATA, September 2003). Therefore, the realignment project should have minimal impacts on the traffic operations of these other intersections.

## **6.6. SOLID WASTE**

The County of Maui operates the 55-acre Central Maui Landfill which is located four miles southeast of Kahului Airport. The landfill accepts residential solid waste collected by County crews and commercial waste collected by private companies. The County of Maui provides solid waste collection services to single-family residences on a twice-a-week basis.

The West Maui district is served by a refuse transfer station located approximately eight miles south of the project corridor in Olowalu. The transfer station accepts household refuse green waste, and used oil. Commercial waste is not accepted at this facility. Waste from the transfer station is transported to the Central Maui Landfill by a private contractor.

### **Probable Impacts on Solid Waste Facilities**

Construction will include grading activities (cut and fill). Excavated material will generally consist of vegetation, rocks, and other debris encountered during clearing and grubbing of the project corridor. Soil and rock material will be used as fill material elsewhere in the project corridor to the extent possible. It is estimated from design plans that the project will result in an excess of excavated material. This excess material will be stored in

designated areas of the project corridor for possible future use in the construction of other phases of the Lahaina Bypass Road. The contractor would be responsible for the maintenance of these designated storage areas.

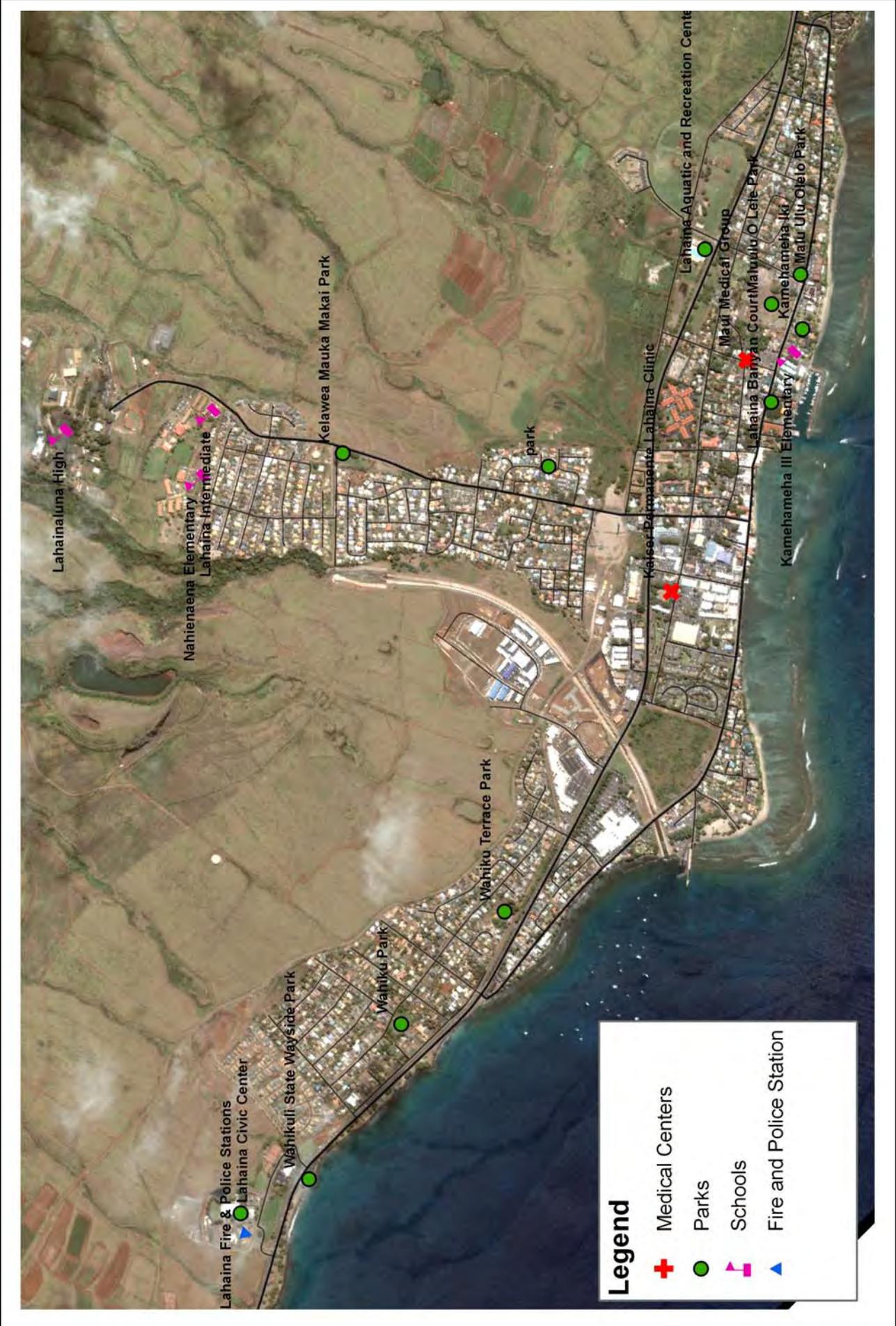
To a limited extent, short-term construction-related impacts to County solid waste facilities are anticipated. The contractor will be required to remove and properly dispose of all construction waste and debris from the project corridor. A minimal volume of solid waste is expected to require disposal at the County landfill. A National Pollutant Discharge Elimination System (NPDES) Permit for Construction Stormwater Activities will be obtained for the project; as a condition of the NPDES Permit, the contractor will be required to submit a Solid Waste Disclosure Form for Construction Sites to address solid waste disposal.

Long-term impacts to County solid waste disposal facilities are not expected to result from the proposed project. The operation of the proposed transportation facility will not generate additional residential or commercial solid waste. The project will not affect the County's waste collection service area or roadways used for access by County crews.

## **6.7. MEDICAL FACILITIES**

The only major medical facility on the island is Maui Memorial Medical Center, located midway between Wailuku and Kahului, approximately 22 miles driving distance from the project corridor. This 231-bed facility provides general, acute, and emergency care services. All critical care cases, including those from West Maui, are directed to this facility. The Maui Memorial Medical Center is administered by the Hawaii Health Systems Corporation. The center is staffed by over 1,000 employees, with 200 attending physicians. The center is partially funded by non-profit organizations.

Private medical care services available in West Maui include Kaiser Permanente Lahaina Clinic and the Maui Medical Group. The Kaiser Permanente Lahaina Clinic is located on Wainee Street, makai of Honoapiilani Highway, approximately 1 mile from the project corridor. This clinic offers a wide range of family, specialty and diagnostic services. It does not provide acute or emergency care. The Lahaina clinic of the Maui Medical Group is located on Prison Street, makai of Honoapiilani Highway. The Lahaina Clinic offers physician services for internal medicine, family practice, dermatology, hematology, neurology, obstetrics and gynecology, occupational medicine, oncology, pediatrics, and podiatry. It also does not provide acute or emergency care. Figure 6-5 identifies the location of these medical facilities in the vicinity along with other public facilities in the area.



**FIGURE 6-5**  
**PUBLIC FACILITIES MAP**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



There are plans to construct a West Maui Hospital and Medical Center on 14.9 acres of land adjacent to the Lahaina Civic Center, approximately 1,000 feet north of the existing Lahaina Civic Center Complex. The West Maui Hospital and Medical Center site is located approximately two miles north of the project corridor. The land for the facility was planned to be donated by Kaanapali Land Development Corporation. The proposed facility would be a 25 bed critical care hospital, also with 40-bed skilled intermediate care and 40 assisted living units. Notice of the project's Final Environmental Assessment (HRS Chapter 343) and Finding of No Significant Impact was published in the September 23, 2007 issue of The State DOH Office of Environmental Quality Control's periodic bulleting *The Environmental Notice*. In February 2008, project proponents filed a Certificate of Need with the State Health Planning Development Agency of Hawaii.

### **Probable Impacts on Medical Facilities**

Construction of the project is not expected to have any short-term impact on existing medical facilities. Area medical facilities are not located in the project vicinity. Therefore, construction activities and related noise and fugitive dust are not anticipated to impact facility services or access.

The project will provide improved vehicular access and circulation within the Lahaina district by alleviating traffic congestion. The project will have a positive long-term benefit to medical facilities and emergency services because it will improve traffic conditions and facilitate emergency vehicle access. Emergency vehicle access to the Kelaweā subdivision and schools mauka of these homes will be improved. Improved access is also important for transporting critical care cases to Maui Memorial Medical Center.

## **6.8. RECREATIONAL FACILITIES**

Recreation facilities in the vicinity of the project corridor include several parks, an aquatic center, and the Lahaina Civic Center. Figure 6-5 graphically identifies the location of pertinent recreational facilities in the Lahaina area. There are no existing recreational facilities within the project corridor or in the immediate vicinity. Recreational facilities within two miles of the project corridor are described below:

- Kelaweā Mauka Makai Park: This park is located on a triangular shaped parcel located at the corner of Lahainaluna Road and Ikena Avenue. The park consists of 3.4 acres with one 20-foot by 250-foot multi-purpose field.
- Paunau Park: This small community park of 0.3 acres is located within the lower Kelaweā subdivision. The park consists of a picnic area, children's swings, and a multi-purpose field.

- Kamehameha Iki: This is a 1.8 acre park on Front Street consisting primarily of grassy lawn. The park provides access to the ocean for swimming. It also includes one locked canoe club workshop and a sand-pit volleyball court.
- Lahaina Banyan Court: Also located on Front Street, this 1.94 acre park is home of the oldest banyan tree on Maui. It serves as the venue for Lahaina arts and craft fairs.
- Lahaina Aquatic and Recreation Centers: This large facility includes over 22 acres located mauka of Honoapiilani Highway, accessible via Shaw Street. Facilities include a 50-meter competition pool with scoreboard, multi-purpose community building and youth center, two ball fields, one regulation size soccer field, one multi-purpose field, basketball court, gateball court, picnic areas, and children's playground.
- Malu Ulu Olelo Park: This 4.7 acre park accessible from Front Street includes a baseball/multi-purpose field, four tennis courts and one basketball court.
- Lahaina Civic Center: This 3.8 acre complex includes a gymnasium, social hall, amphitheater, and tennis courts.
- Wahikuli Terrace Park: Located in the Wahikuli subdivision to the north of the project corridor, this 2.2 acre park includes a basketball court, multi-purposed field, and sand pit playground set.
- Wahikuli Wayside Park: This is an 8.3 acre shoreline park located makai of the Lahaina Civic Center providing access to swimming and snorkeling. Park facilities include 26 covered picnic pavilions, 12 barbecue grills, restrooms, and showers.

### **Probable Impacts on Recreational Facilities**

The construction and operation of the proposed project should have minimal or no impact on any existing recreational facilities in the surrounding vicinity or activities conducted at those facilities. The proposed project is a transportation project and is not anticipated to generate additional demand for recreational resources or impact recreational opportunities available at existing facilities. The project corridor consists of former sugarcane fields with no history of recreation use.

The nearest recreational facility to the project corridor is Kelaweia Mauka Makai Park, located on Ikena Avenue at the intersection with Lahainaluna Road. This park is situated a considerable distance away from the project's construction area. As a result, construction noise and fugitive dust generated from such activities should not significantly impact that park, its facilities, or recreational activities occurring at the park. Construction activities will be scheduled during normal weekday business hours (ex. 8:00 a.m. to 4:00 p.m.) and will cause minimal disruptions to most recreational activities at the park, which likely occur during after-school hours and on weekends.

## 6.9. EDUCATIONAL FACILITIES

The State Department of Education (DOE) groups schools into complexes consisting of a high school, middle schools, and elementary schools. The Lahaina complex has four member schools which serve all of West Maui. This complex includes: 1) Lahainaluna High School, 2) Lahaina Intermediate School, 3) Princess Nahienaena Elementary School, and 4) Kamehameha III Elementary School.

All four of these schools are located in the Lahaina area within the general vicinity of the proposed project. Figure 6-5 graphically identified the location of these schools. Lahainaluna High School, Lahaina Intermediate School, and Princess Nahienaena Elementary School are located approximately 2,000 feet northeast (mauka) of the project corridor above the Kelaweia Mauka Subdivision area. Vehicular access to these schools is only available from Lahainaluna Road. Kamehameha III Elementary School is located on Front Street, makai of Honoapiilani Highway.

Combined enrollment for the 2007-2008 school year at the three schools situated mauka of Kelaweia Mauka Subdivision, was 2,235 students. Enrollment for these three schools is projected by the DOE to increase to 2,289 by the year 2013. Table 6-3 shows the actual and projected enrollments for the Lahaina Complex.

School	Actual Enrollment		Projected Enrollment				
	School Year 2007-08	School Year 2008-09	School Year 2009-10	School Year 2010-11	School Year 2011-12	School Year 2012-13	School Year 2013-14
Lahainaluna High School	996	997	987	988	986	999	998
Lahaina Intermediate	615	683	671	680	684	686	688
Princess Nahienaena Elementary	624	643	618	615	612	608	603
Kamehameha III Elementary	701	689	740	752	729	763	762
Total Enrollment	2,936	3012	3,016	3,035	3,011	3,056	3,051

Source: Department of Education, 2008.

### Probable Impacts on Educational Facilities

Construction of the proposed project is expected to have minimal impact on educational facilities, staff, and school operations. The distance of the project corridor from the campuses and school buildings should be sufficient to avoid significant disturbances from construction

noise and fugitive dust emissions. The contractor will comply with applicable State DOH noise regulations and requirements, and best management practices will be implemented to minimize fugitive dust emissions from the construction area.

Additional vehicles from construction workers will temporarily create additional trips along Lahainaluna Road, however, these added vehicles to the roadway are not expected to significantly impact vehicular access to and from these schools during the morning commuter period. In the afternoon, construction activities will continue beyond school hours; therefore, afternoon school traffic should not be affected.

Additional demand for educational facilities will not be generated by the proposed transportation project. The project will not place additional demands on school faculty or impact school facilities and activities.

The project is expected to alleviate existing and future traffic congestion along Honoapiilani Highway and Lahainaluna Road, which are the only roadways providing vehicular access to schools located above the Kelawea subdivision. The project will benefit the public by improving access to and from these schools, particularly during the morning commuter period. Parents and faculty will be able to access schools via Keawe Street and the new bypass highway. Furthermore, in the event of a flood, wildland fire, or other emergency, the project will provide an alternative route to safely evacuate students from the schools.

#### **6.10. POLICE PROTECTION**

The County of Maui Police Department Headquarters is located in Wailuku. The Police Department maintains a substation in the Lahaina Civic Center complex at Wahikuli, approximately two miles to the north of the project corridor. The Lahaina Patrol includes 54 full-time personnel, including management-level officers and field police officers. Additional personnel consist of public safety aides and administrative support staff.

#### **Probable Impacts on Police Protection**

The proposed project is not expected to have a significant impact on the Police Department's ability to provide protective services for area residents and the general public. Construction of project improvements is expected to have minimal impact on the department's facilities, staff, and police protection capabilities in the area. Construction activities may involve the hiring of off-duty police personnel on a temporary basis for traffic control. However, these services are not expected to significantly impact the department's overall operations.

The transportation project is expected to alleviate existing and future traffic congestion along Honoapiilani Highway, Lahainaluna Road, and other roadways in the project vicinity. The project will benefit the public by improving vehicular access throughout the area. The project will also provide alternate routes for police and emergency service vehicles to safely and quickly access the Kelaweā subdivision and schools located above. Improved access will help decrease police and other emergency vehicle response times to area residences and facilities.

### **6.11. FIRE PROTECTION**

Fire protection services are provided by the Maui County Fire Department. The Lahaina area is served by the Lahaina Fire Station, located in the Lahaina Civic Center complex, and the Napili Fire Station, located about nine miles to the north of the project corridor. The Lahaina Fire Station includes an engine and a ladder company and is staffed by approximately 30 full-time personnel. The Napili Fire Station consists of an engine company, including approximately 15 full-time fire-fighting personnel.

#### **Probable Impacts on Fire Protection**

The proposed project is not expected to have a significant impact on the Fire Department's ability to provide protective services for area residents and the general public. Construction of project improvements is expected to have minimal impact on the department's facilities, staff, and fire protection capabilities in the area.

The transportation project is expected to alleviate existing and future traffic congestion along Honoapiilani Highway, Lahainaluna Road, and other roadways in the project vicinity. The project will benefit the public by improving vehicular access throughout the area. The project will also provide alternate routes for fire personnel and other emergency service vehicles to safely and quickly access the Kelaweā subdivision and schools located above. Improved access will help decrease fire and other emergency vehicle response times to area residences and facilities. Consultation with Fire Department staff, along with other emergency services providers, indicated support for the proposed project because it will improve emergency access to the upper Kelaweā subdivision and area schools.

## **7. CONFORMANCE WITH PLANS AND POLICIES**

This chapter discusses the project's consistency with relevant State and County land use plans and policies. State and County transportation plans are also discussed.

### **7.1. STATE LAND USE DISTRICT**

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect and encourage the development of lands in the State for uses that are best suited to the public health and welfare of Hawaii's people. The State Land Use Commission (LUC) classifies all lands in the State of Hawaii into four land use districts: Urban, Rural, Agricultural, and Conservation. The boundaries of these districts are shown on maps referred to as State Land Use District Boundary Maps.

The LUC's Land Use District Boundary Map for the Lahaina area indicates that the project area is located within the State "Agricultural District" (see Figure 7-1). Permitted uses within the State Agricultural District are prescribed under Title 13, Chapter 205 (Land Use Commission), HRS, and the State Land Use Commission's Administrative Rules prescribed under Title 15, Subtitle 3, Chapter 15, HAR.

Under §15-15-25, HAR, permissible uses within land classified by the Land Study Bureau's detailed land classification as overall productivity rating class A or B shall be those uses set forth in section 205-4.5, HRS. Permissible uses within land classified as overall productivity rating class of C, D, E, and U shall be those uses permitted in A and B lands as set forth in section 205-4.5, HRS, and also those uses set forth in section 205-2(d), HRS.

Under the Land Study Bureau's detailed land classification for the project area, the majority of the project corridor has a soil productivity rating of "U," indicating lands designated for urban use. A section of the project corridor includes lands rated "E," indicating land very poorly suited for agricultural production. Therefore, permitted uses within these classified lands are those uses permitted under A and B lands as set forth in section 205-4.5, HRS, and also those uses set forth in section 205-2(d), HRS.

Under Chapter 205-4.5, HRS, permitted uses consist of "Public, private, and quasi-public utility lines and roadways, transformer stations, communications equipment buildings, solid waste transfer stations, major water storage tanks, and appurtenant small buildings such as booster pumping stations, but not including offices or yards for equipment, material, vehicle storage, repair or maintenance, or treatment plants, or corporation yards, or other like structures" (§205-4.5(a)(7), HRS). Therefore, the proposed project is a permitted use within the Agricultural District because public roadways are permitted under Chapter 205-4.5.



**FIGURE 7-1**  
**STATE LAND USE DISTRICT MAP**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division



## 7.2. CHAPTER 344, STATE ENVIRONMENTAL POLICY

The purpose of Chapter 344, HRS, State Environmental Policy is “to establish a state policy which will encourage productive and enjoyable harmony between people and their environment, promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii.” This section discusses the project’s consistency with the pertinent goals, policies, and guidelines described under Chapter 344, HRS.

*§344-3 Environmental policy. It shall be the policy of the State, through its programs, authorities, and resources to:*

- (1) Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.*

**Discussion:** The proposed project has been identified on State and County plans as beneficial to the general welfare of the West Maui community. The project is consistent with this environmental policy as it will conserve the natural resources of Maui, including visual and scenic resources. The project will not have an adverse impact on natural resources or the environment, as discussed in previous sections of this document. The project is designed to minimize impacts on the land, and best management practices (BMP) will be implemented during construction to control pollution and preserve natural resources.

- 2. Enhance the quality of life by:*
  - (A) Setting population limits so that the interaction between the natural and artificial environments and the population is mutually beneficial;*
  - (B) Creating opportunities for the residents of Hawaii to improve their quality of life through diverse economic activities which are stable and in balance with the physical and social environments;*
  - (C) Establishing communities which provide a sense of identity, wise use of land, efficient transportation, and aesthetic and social satisfaction in harmony with the natural environment which is uniquely Hawaiian; and*

*(D) Establishing a commitment on the part of each person to protect and enhance Hawaii's environment and reduce the drain on nonrenewable resources.*

**Discussion:** The proposed project is consistent with the above policies regarding quality of life. The proposed project is a transportation project designed to increase highway capacity and is not anticipated to generate population growth or create additional demand for public facilities or use of natural resources. The project does not involve the construction of any new homes or visitor units. The project will improve traffic conditions in the Lahaina area by providing additional access to Honoapiilani Highway via Keawe Street, and improving traffic flow through the vicinity, shortening commute times, and improving emergency access. Short-term construction jobs are expected to be filled by Hawaii residents and will not result in any in-migration. Additional short-term jobs and indirect benefits are anticipated in retail and construction-related industries and businesses.

*§344-4 Guidelines. In pursuance of the state policy to conserve the natural resources and enhance the quality of life, all agencies, in the development of programs, shall, insofar as practicable, consider the following guidelines:*

*1. Population.*

- (A) Recognize population impact as a major factor in environmental degradation and adopt guidelines to alleviate this impact and minimize future degradation;*
- (B) Recognize optimum population levels for counties and districts within the State, keeping in mind that these will change with technology and circumstance, and adopt guidelines to limit population to the levels determined.*

**Discussion:** The proposed project is intended to increase highway capacity and will not affect the existing or future resident population or cause the establishment of new communities. The project does not involve the construction of dwelling units, hotel or short-term accommodations, or other permanent or temporary housing. Future population growth within the West Maui district is guided by the West Maui Community Plan's designation of two areas major master planned affordable housing developments: Villages at Leialii and Puukolii Village. Short-term construction jobs and construction-related jobs are expected to be filled by Hawaii residents and will not cause in-migration.

2. *Land, water, mineral, visual, air, and other natural resources.*
  - (A) *Encourage management practices which conserve and fully utilize all natural resources;*
  - (D) *Encourage management practices which conserve and protect watersheds and water sources, forest, and open space areas;*
  - (E) *Establish and maintain natural area preserves, wildlife preserves, forest reserves, marine preserves, and unique ecological preserves;*

**Discussion:** The project is consistent with the above guidelines to conserve natural resources. The proposed improvements will not impact watersheds, water sources, forest reserves, open space areas, wildlife preserves, or unique ecological preserves. The project corridor is currently undeveloped and is not considered important for open space preservation. Appropriate measures are incorporated into the project design to minimize erosion and address drainage requirements.

3. *Flora and fauna.*
  - (A) *Protect endangered species of indigenous plants and animals and introduce new plants or animals only upon assurance of negligible ecological hazard;*
  - (B) *Foster the planting of native as well as other trees, shrubs, and flowering plants compatible to the enhancement of our environment.*

**Discussion:** The project is consistent with the above guidelines as it does not impact valuable floral or faunal resources. None of the plant or animal species identified within the study corridor are threatened or endangered, or are a species of concern, and all can be found in similar environments throughout the island. There is no federally delineated Critical Habitat within or close to the project corridor, thus the construction and operation of the proposed project will not result in any impacts to federally designated Critical Habitat. Native vegetation will be used for landscaping purposes.

4. *Parks, recreation and open space.*
  - (A) *Establish, preserve and maintain scenic, historic, cultural, park and recreation areas, including the shorelines, for public recreational, educational, and scientific uses;*
  - (B) *Protect the shorelines of the State from encroachment of artificial improvements, structures, and activities;*
  - (C) *Promote open space in view of its natural beauty not only as a natural resource but as an ennobling, living environment for its people.*

**Discussion:** The proposed project is consistent with the above guidelines as the alignment of the project corridor was modified specifically to minimize or avoid impacts to archaeological, cultural, recreational, and shoreline resources, as discussed in previous sections of this document. The proposed project will not encroach upon the shoreline and has been designed to minimize impact to visual resources.

5. *Economic Development.*

(A) *Encourage industries in Hawaii which would be in harmony with our environment;*

(C) *Encourage federal activities in Hawaii to protect the environment;*

(D) *Encourage all industries including the fishing, aquaculture, oceanography, recreation, and forest products industries to protect the environment;*

**Discussion:** The proposed project is a transportation project designed to increase highway capacity and will not affect the existing or future resident population or cause the establishment of new communities. Additional demands on public facilities, public services, or natural resources are not anticipated as a result of the proposed project. The project is designed to minimize impacts on the land, and BMP will be implemented during construction to control pollution and preserve natural resources. Short-term construction jobs and construction-related jobs are expected to be filled by Hawaii residents. The proposed project will benefit the region's long-term economic development by providing for the efficient movement of people, goods, and services.

6. *Transportation.*

(A) *Encourage transportation systems in harmony with the lifestyle of the people and environment of the State;*

(B) *Adopt guidelines to alleviate environmental degradation caused by motor vehicles;*

(C) *Encourage public and private vehicles and transportation systems to conserve energy, reduce pollution emission, including noise, and provide safe and convenient accommodations for their users.*

**Discussion:** The proposed project is consistent with the above guidelines as it is designed to improve the transportation system to better support the lifestyle of West Maui residents. Honoapiilani Highway is currently the only transportation link to the West Maui region. The existing highway does not provide sufficient capacity, and levels of service are expected to continue to degrade. The proposed project is intended to address the current capacity deficiency.

7. *Energy.*

(A) *Encourage the efficient use of energy resources.*

**Discussion:** The proposed project is consistent with the above guideline in that it provides for more efficient movement of vehicular traffic. The project will allow for more efficient energy use by improving traffic flow. The fuel consumption and environmental pollution associated with slow moving or idling vehicles will be reduced with improved commuting times.

8. *Community life and housing.*

(A) *Foster lifestyles compatible with the environment; preserve the variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods which reflect the culture and mores of the community;*

(B) *Develop communities which provide a sense of identity and social satisfaction in harmony with the environment and provide internal opportunities for shopping, employment, education, and recreation;*

(C) *Encourage the reduction of environmental pollution which may degrade a community;*

(D) *Foster safe, sanitary, and decent homes;*

(E) *Recognize community appearances as major economic and aesthetic assets of the counties and the State; encourage green belts, plantings, and landscape plans and designs in urban areas; and preserve and promote mountain-to-ocean vistas.*

**Discussion:** The proposed project has been identified on State and County plans as beneficial to the general welfare of the West Maui community. The project is intended to increase highway capacity and will not affect the existing or future resident population or cause the establishment of new communities. Future population growth within the West Maui district is guided by the West Maui Community Plan's designation of two areas for major master planned affordable housing developments: Villages at Leialii and Puukolii Village. The proposed project will benefit Lahaina residents by providing for the efficient movement of people, goods, and emergency service vehicles.

9. *Education and culture.*

(A) *Foster culture and the arts and promote their linkage to the enhancement of the environment;*

(B) *Encourage both formal and informal environmental education to all age groups.*

**Discussion:** The proposed project is consistent with the above guidelines as the alignment of the project corridor was modified specifically to minimize or avoid impacts to archaeological, cultural, recreational, and shoreline resources, as discussed in previous sections of this document. As the proposed project will not encroach upon these resources, opportunities for future cultural study and education are preserved.

*10. Citizen participation.*

- (A) Encourage all individuals in the State to adopt a moral ethic to respect the natural environment; to reduce waste and excessive consumption; and to fulfill the responsibility as trustees of the environment for the present and succeeding generations; and*
- (B) Provide for expanding citizen participation in the decision making process so it continually embraces more citizens and more issues.*

**Discussion:** Citizen participation was critical to the development of the proposed project as described in this EA. Extensive outreach was conducted to gather input from public agencies, community organizations, and individuals in the project area. In addition, the environmental review process allows for public and government agency input and provides a formal process for documenting comments associated with the project. Such opportunities include pre-assessment consultation and the public review and comment period for the Draft EA. Therefore, the project is consistent with the above guidelines.

### **7.3. HAWAII COASTAL ZONE MANAGEMENT PROGRAM**

The National Coastal Zone Management Program was created through passage of the Coastal Zone Management Act of 1972. Hawaii's Coastal Zone Management (CZM) program, adopted in 1977 as Chapter 205A, HRS, provides a basis for protecting, restoring, and responsibly developing coastal communities and resources. The Hawaii CZM area includes all lands within the state and the areas seaward to the extent of the State's management jurisdiction.

A discussion of the project's consistency with the objectives and policies of the CZM program is provided below.

(1) Recreational Resources

Objective:

*Provide coastal recreational opportunities accessible to the public.*

Policies:

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

**Discussion:** The project corridor is located more than half a mile from the coastline at its westernmost point and more than one mile from the coastline over the majority of the project corridor. The proposed project will implement BMP to mitigate the potential for construction-related water quality impacts. A National Pollutant

Discharge Elimination System (NPDES) General Permit was approved by the State of Hawaii Department of Health in December 2008. In conjunction with the NPDES Permit, a BMP Plan was included for DOH's review and approval. No other project-related impacts are anticipated on coastal resources, coastal recreational opportunities, or public access to the shoreline.

(2) Historic resources

Objective:

*Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

- (A) *Identify and analyze significant archaeological resources;*
- (B) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) *Support state goals for protection, restoration, interpretation, and display of historic resources.*

**Discussion:** The proposed project has been designed to avoid or minimize impacts to archaeological resources in the project vicinity. As discussed in other sections of this document, SIHP 6277, an historic site consisting of historic era agricultural terraces, was inadvertently discovered within the original highway alignment during the construction phase of the project. As a result, a portion of the highway alignment was modified to avoid this site. Extensive archaeological research, analysis, and documentation were conducted for SIHP 6277. The modification will also avoid a separate, previously identified archaeological site (SIHP 2484). Mitigative data recovery work was completed for this site. A comprehensive archaeological inventory survey was conducted for the proposed project. Two additional archaeological sites described as historic era agricultural pushpiles were designated as SIHP 6492 and 6596. Both sites were extensively analyzed and documented. All archaeological work was conducted by Cultural Surveys Hawaii. The results of the survey work were discussed in Chapter 4 of this document, and the survey indicated that no other significant historic properties are expected to be impacted by the project. Therefore, the project is consistent with these policies by identifying archaeological resources and proposing to preserve this site.

(3) Scenic and open space resources

Objective:

*Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

- (A) *Identify valued scenic resources in the coastal zone management area;*
- (B) *Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
- (C) *Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
- (D) *Encourage those developments which are not coastal dependent to locate in inland areas.*

**Discussion:** The proposed project is not anticipated to have a significant impact on open space or scenic resources. The proposed project is designed to be compatible with surrounding landscape to the extent possible. Measures to minimize the visual impact on views from above and below the highway have been incorporated into the project's design.

(4) Coastal ecosystems

Objective:

*Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Policies:

- (A) *Improve the technical basis for natural resource management;*
- (B) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
- (C) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*
- (D) *Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.*

**Discussion:** The proposed project is not expected to adversely impact coastal ecosystems. Drainage improvements associated with the project will comply with

applicable regulatory standards to ensure there is no adverse effect on downstream properties. The proposed project will implement BMP to mitigate the potential for construction-related water quality impacts. A National Pollutant Discharge Elimination System (NPDES) General Permit was approved by the State of Hawaii Department of Health in December 2008. In conjunction with the NPDES Permit, a BMP Plan was included for DOH's review and approval.

(5) Economic Uses

Objective:

*Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies:

- (A) *Concentrate coastal dependent development in appropriate areas;*
- (B) *Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
- (C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
  - (i) *Use of presently designated locations is not feasible;*
  - (ii) *Adverse environmental effects are minimized; and*
  - (iii) *The development is important to the State's economy.*

**Discussion:** The proposed project is appropriately situated inland of the coast and is intended to serve the established community of Lahaina. The project provides the necessary infrastructure to increase highway capacity and will promote the efficient movement of people, goods and services important to the State's economy. The project will provide direct construction and operational jobs and will also have beneficial secondary economic benefits by promoting the procurement of materials and supplies from local vendors.

(6) *Coastal hazards*

Objective:

*Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.*

Policies:

- (A) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- (B) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;*
- (C) *Ensure that developments comply with requirements of the Federal Flood Insurance Program;*
- (D) *Prevent coastal flooding from inland projects; and*
- (E) *Develop a coastal point and nonpoint source pollution control program.*

**Discussion:** The project corridor is located within areas designated as Zones A and C on the FEMA Flood Insurance Rate Map, Community Panel Number 150003 0161 C (August 3, 1998). Zone C is a “moderate to low risk” flood zone and the designation indicates “areas of minimal flooding.” The project corridor is not located within any designated floodway or high risk area. During construction, appropriate technical measures will be designed to address stormwater management requirements. The project will be implemented in accordance with the Drainage Standards of the County of Maui, as applicable, to ensure that the project will not adversely affect downstream and adjoining properties.

(7) Managing Development

Objective:

*Improve the development review process, communication and public participation in the management of coastal resource and hazards.*

Policies:

- (A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms*

*understandable to the public to facilitate public participation in the planning and review process.*

**Discussion:** The Hawaii State environmental review process, HRS 343, requires project review by government agencies and affords the public the opportunity to provide comments on the proposed project. Applicable State and County requirements will be adhered to in the design and construction of the project.

(8) Public participation

Objective:

*Stimulate public awareness, education, and participation in coastal management.*

Policies:

- (A) *Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

**Discussion:** Public and private entities have been provided multiple opportunities to comment on the proposed project, as discussed in previous sections of this document. Government agencies, community organizations, and other interested parties have been consulted through meetings and through the pre-assessment consultation process. The public comment period for the Draft EA also provided an opportunity for agency and public input.

(9) Beach Protection

Objective:

*Protect beaches for public use and recreation.*

Policies:

- (A) *Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;*

- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

**Discussion:** The project corridor is located more than half a mile from the coastline at its westernmost point and more than one mile from the coastline over the majority of the project corridor. The project will not adversely affect coastal resources, coastal recreational opportunities, or public access to the shoreline.

(10) Marine Resources

Objective:

*Implement the State's ocean resources management plan.*

Policies:

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) *Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (C) *Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;*
- (D) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- (E) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- (F) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

**Discussion:** The project is located inland and is not anticipated to have any impacts on marine or coastal resources. Appropriate BMP will be employed during construction to properly control project-related stormwater runoff.

#### 7.4. SPECIAL MANAGEMENT AREA DESIGNATION

Pursuant to the Hawaii CZM program, Chapter 205A, HRS, the counties have enacted ordinances establishing Special Management Areas (SMAs). Within the County of Maui, SMA Use Permits are processed by the County Planning Department. Through the SMA permit system, the County assesses and regulates development proposed for areas located within the SMA. Proposed developments are evaluated for compliance with the CZM objectives and policies and SMA guidelines set forth in Chapter 205A, HRS.

The SMA boundary in the vicinity of the project corridor encompasses all lands makai of the existing Honoapiilani Highway. The project corridor is located outside of the County SMA boundary. Therefore, an SMA Use permit is not required for this project.

#### 7.5. COUNTY OF MAUI GENERAL PLAN

Maui County's *General Plan* was adopted under Ordinance No. 1052, effective June 24, 1980. As indicated by the Maui County Charter, the purpose of the *General Plan* shall be to:

*“... indicate desired population and physical development patterns for each island within the county; shall address the unique problems and needs of each island and region within the county; shall explain the opportunities and the social, economic, and environmental consequences related to potential developments; and shall set forth the desired sequence, patterns, and characteristics of future developments. The general plan shall identify objectives to be achieved, and priorities, policies and implementing actions to be pursued with respect to population density, land use maps, land use regulations, transportation systems, public and community facility locations, water and sewage systems, visitor destinations, urban design, and other matters related to development.”*

Maui County is currently updating the *General Plan*, with a planning horizon of 2030. As part of the *2030 General Plan Update*, the County issued a *Draft Countywide Policy Plan* in January 2008. Until the *2030 General Plan Update* is completed and adopted, the 1990 *General Plan* remains in effect. The 1990 plan establishes broad objectives and policies to guide the long-range development of the County. The 1990 *General Plan* emphasizes five (5) major themes that focus on the overall goals of the plan. The proposed project relates to the following themes:

***Theme Number 2: Prepare a Directed and Managed Growth Plan***

*Amendments to the General Plan will preserve a desired quality of life where areas of urban settlement must be managed and directed within a framework that consistently and concurrently balances growth demands against human service needs and physical infrastructure supply.*

***Theme Number 4: Maintain a Viable Economy that Offers Diverse Employment Opportunities for Residents***

*Amendments to the General Plan recognize the need to maintain a healthy economy and broaden our economic base so that we are not so dependent on tourism.*

The proposed action is consistent with the following *General Plan* objectives and policies relating to economic activity and transportation:

***II. Economic Activity***

***A. General***

***Objective***

- 1. To provide an economic climate which will encourage controlled expansion and diversification of the County's economic base.*

*Policy:*

- (a) Maintain a diversified economic environment compatible with acceptable and consistent employment.*

***Objective***

- 2. To provide a balance between visitor industry employment and non-visitor employment for a broader range of employment choices for the County's residents.*

*Policy:*

- (a) Encourage industries that will utilize the human resources available from within Maui County rather than having to import workers.*

***Objective***

- 3. Utilize an equitable growth management program which will guide the economic well-being of the community.*

*Policy:*

- (a) Encourage a sustainable rate of economic development which is linked to the carrying capacity of the infrastructure systems and the fiscal ability of the County to maintain those systems.*

#### ***IV. Transportation***

##### ***A. Transportation***

###### ***Objective***

- 2. To develop a program for anticipating and enlarging the local street and highway systems in a timely response to planned growth.*

###### ***Policy:***

- (b) Ensure that transportation facilities are anticipated and programmed for construction in order to support planned growth.*

#### **7.6. WEST MAUI COMMUNITY PLAN**

Within Maui County, there are nine community planning regions: Hana, Kahoolawe, Kihei-Makena, Lanai, Makawao-Pukalani-Kula, Molokai, Paia-Haiku, Wailuku-Kahului, West Maui. The proposed project is located within the West Maui Community Plan region. A community plan has been adopted for each region to set forth desired land use patterns, goals, objectives, policies, and implementation actions for a number of functional areas, including land use, environment, economic activity, cultural resources, housing, urban design, infrastructure, social infrastructure, and government.

The West Maui Community Plan, first adopted in 1982 as the Lahaina Community Plan, was updated in 1992-93. As a part of the update, the plan was renamed the West Maui Community Plan in order to reinforce the regional nature of the plan. The current West Maui Community Plan was adopted by Ordinance No. 2476 and became effective on February 27, 1996. The Lahaina Bypass project is included on the Community Plan's Land Use Map as depicted on Figure 7-2. The general alignment for the extension of Keawe Street to the bypass highway is also shown on this land use map.

Based upon this community plan land use map, the proposed project is consistent with the community plan. Discussion of the project's consistency with pertinent objectives and policies from this West Maui Community Plan is provided.



## **INFRASTRUCTURE**

### ***Goal***

*Timely and environmentally sound planning, development, and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters, and visitors through the provision of clean water, effective waste disposal, and efficient transportation systems which meet the needs of the community.*

### **Transportation**

#### ***Objectives and Policies***

- 1. Support construction of the planned Lahaina Bypass Road in such a way as to promote safe, efficient travel across the region without encouraging further urbanization or impeding agricultural operations.*

**Discussion:** The proposed project has been identified on State and County plans as beneficial to the general welfare of the West Maui community. The project is intended to increase highway capacity and will not affect the existing or future resident population or cause the establishment of new communities. The project does not involve the construction of dwelling units, hotel or short-term accommodations, or other permanent or temporary housing. Future population growth within the West Maui district is guided by the West Maui Community Plan's designation of two areas for major master planned affordable housing developments: Villages at Leialii and Puukoolii Village.

#### ***Implementing Actions***

- 9. Discourage at-grade intersections along the planned Lahaina Bypass Road, in order to maintain safe and efficient traffic flow without traffic signals. When and where appropriate, provide for the safe under passage of agricultural equipment and vehicles, such as via stream crossings.*

**Discussion:** Although an at-grade intersection with traffic signal is necessary at the intersection with Keawe Street, the project has been designed with a dedicated northbound travel lane to provide for unimpeded traffic flow on the bypass past this intersection. Dedicated travel lanes are also provided for vehicles turning west off the bypass to Keawe Street and for vehicles traveling north onto the bypass. The project will not affect agricultural equipment or vehicles. Bridges spanning over Kahoma Stream is also planned to minimize impacts and the placing of obstructions within this stream.

## 7.7. COUNTY ZONING DISTRICT

According to the County Planning Department's *Land Zoning Map No. 8 Showing Lahaina and Surrounding Areas*, the project corridor is zoned "Agriculture" (see Figure 7-3). Permitted uses and performance standards are set forth by Title 19 of the Maui County Code relating to zoning.

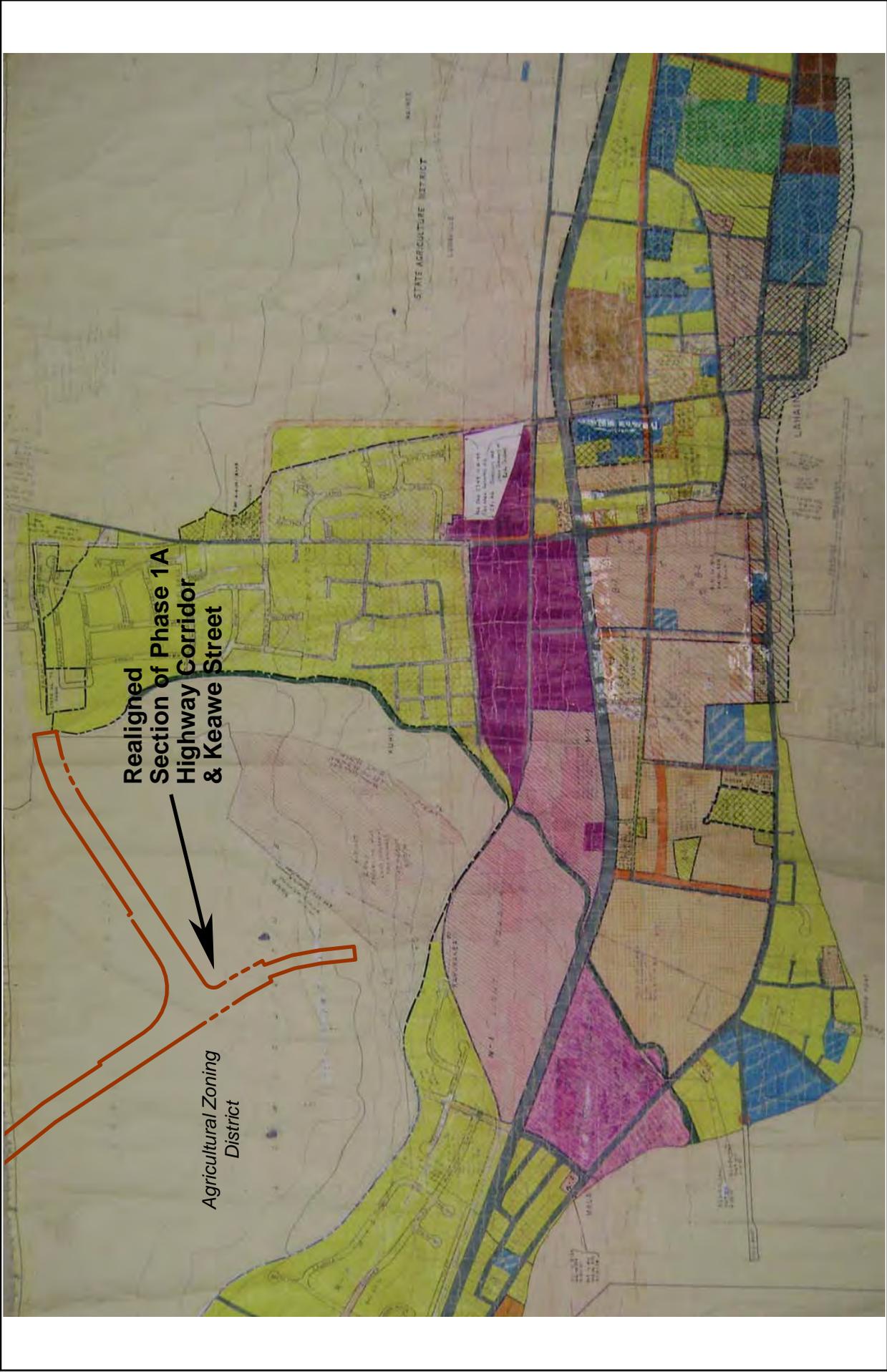
Roadways, such as the proposed project, are considered an incidental use that is permitted in each of the County's zoning districts. Inasmuch as the proposed alignment falls within existing and designated State and County rights-of-way, there are no specific zoning standards or requirements which would require discretionary review from the Maui Planning Commission or the Maui County Council.

## 7.8. PALI TO PUAMANA PARKWAY MASTER PLAN

The County Planning Department's 2005 *Pali to Puamana Parkway Master Plan* proposes the realignment of Honoapiilani Highway within an approximately eight-mile transportation corridor in West Maui. The project area is between the pali at Papalaua Park and Puamana Park. At Launiupoko, the highway realignment proposed in the Master Plan is shown to join with the southern terminus of the proposed Lahaina Bypass route.

The purpose of the Master Plan is "to serve as a foundation for a public policy promoting responsible land preservation and development in the coastal zone." The objectives of the plan are: 1) to recommend a proposed realignment of the Honoapiilani Highway from Papalaua Park to Puamana Park; 2) to recommend a proposed open space preserve and to protect the shoreline environment; 3) to increase roadway capacity; 4) to protect public health and safety by getting the highway out of the tsunami inundation zone; and 5) to recommend methods of accommodating new land uses for the area through the implementation of the West Maui Community Plan.

The highway realignment proposed in the *Pali to Puamana Parkway Master Plan* is intended to enhance the region by relocating the existing Honoapiilani Highway mauka of the coastline to accommodate and recognize coastal processes, such as beach erosion and accretion, and seasonal fluctuations involving heavy surf which affect the shoreline. The Master Plan acknowledges the alignment of the southernmost portion of the Lahaina Bypass project from Puamana to Launiupoko.



**FIGURE 7-3**  
**COUNTY ZONING MAP**  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 State Department of Transportation, Highways Division

Source: County of Maui, Department of Planning



In a March 14, 2005 letter transmitting the final *Pali to Puamana Parkway Master Plan* to the Mayor and members of the County Council, the Planning Director clarified that that Master Plan map shows the adopted route of the Lahaina Bypass project north of Launiupoko Park and the recommended connection between the Lahaina Bypass project and the Master Plan's Pali to Puamana highway realignment. Therefore, the proposed project is not in conflict with the *Pali to Puamana Parkway Master Plan*.

## **7.9. MAUI LONG-RANGE LAND TRANSPORTATION PLAN**

The 1997 *Final Report, Maui Long-Range Land Transportation Plan* documents the results of the County-wide Transportation Planning Process for the County of Maui – a joint, long-range transportation planning study conducted by the State DOT and the County of Maui. The Plan serves as a guide for the development of the major surface transportation facilities and programs to be implemented within the County of Maui, including highway, transit, and bikeway elements.

An inventory and assessment of the existing roadway system and operating conditions is provided, as well as information on existing land use and socio-economic conditions on Maui. The Plan identifies long-range (to the year 2020) strategies and actions for the development of an integrated inter-modal transportation system that facilitates the efficient movement of people and goods.

Chapter VIII of the Plan presents the Recommended Improvement Plan, which includes new highways, bypass highways, roadway extensions, roadway widenings, and improvements to intersections. Table 33 of the Plan provides a prioritized listing of the projects recommended for implementation.

The Lahaina Bypass improvement is identified in this table for implementation by the State. Therefore, the proposed construction and operation of the project is consistent with the *Maui Long Range Transportation Plan* because it implements the recommended Lahaina Bypass Road improvement. The project is only implementing a portion of the overall Lahaina Bypass Road, however, other phases of this improvement are being implemented by the State DOT subject to available funding.

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## 8. REQUIRED PERMITS AND APPROVALS

The following is a list of permits, approvals, and reviews that may be required prior to construction and operation of the proposed project.

### **Federal Permits and Approvals**

Department of Transportation Act

- Section 4(f) Consultation

National Historic Preservation Act

- Section 106 Consultation (completed)

Endangered Species Act

- Section 7 Consultation (completed)

National Environmental Policy Act

- Categorical Exclusion

### **State of Hawaii Permits and Approvals**

Department of Health

- National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Associated with Construction Activity
- NPDES Permit for Dewatering
- NPDES Permit for Hydrotesting
- Noise Variance
- Air Quality Permit
- Underground Injection Control (UIC) Permit

Department of Land and Natural Resources

- Chapter 6E, HRS Historic Preservation Review (completed)
- Stream Channel Alteration Permit

Office of Planning

- Coastal Zone Management (CZM) Program Consistency Determination

### **County of Maui Permits and Approvals**

Department of Public Works

- Road Permit
- Grading/Grubbing Permit
- Building Permit
- Excavation Permit
- Drainage Plan Approval

Department of Water

- Water and Water System Requirements
- Water Connection Approval

Utility Companies

- Utility Service Agreements

## 9. CONSULTATION

Various community groups and individuals were consulted as part of the pre-assessment consultation process to identify project-related issues that should be addressed in the Draft EA. Consultation efforts included several meetings with the community. Such efforts also included consultation with pertinent government agencies. A distribution of letters with informational packages soliciting comments from public agencies, elected officials, and community organizations was conducted. A public informational meeting was conducted by the State DOT as part of the planning and consultation effort. Consultation with native Hawaiian organizations and the public was also conducted as part of the Section 106 consultation process.

Copies of the Draft EA pre-assessment comment letters along with a summary memo of the public informational meeting conducted are included in Appendix A of this document.

### 9.1. COMMUNITY CONSULTATIONS

#### 9.1.1. Consultation with Lineal Descendants

Consultation in the form of meetings and telephone calls was conducted with the kanaka maoli (first families or descendants with lineal ties) to three ahupuaa including, Wahikuli, Paunau, and Kelaweia. Four meetings were conducted by HDOT, WOC and CSH in Lahaina on October 15, 2007, December 1, 2007, January 17, 2008, and February 13, 2008. Attendance by the various descendants at each meeting ranged from several to an estimated 50 members.

The meetings were conducted to:

- Introduce the project team and descendants
- Apprise the descendants about the status of the project;
- Confirm archaeological and cultural information obtained to date;
- Identify additional archaeological and cultural resources of potential concern;
- Identify and invite other kanaka maoli to participate in the consultation process; and
- Present and obtain feedback on the preliminary alternatives to avoid Site 6277.

A site visit of the existing right-of-way was conducted with several family members on the morning of December 1, 2007 to familiarize the family members and facilitate discussions.

### 9.1.2. **Consultation with Hawaiian Cultural Agencies and Organizations**

Information briefings were provided to Hawaiian cultural and kupuna organizations as follows:

- Office of Hawaiian Affairs', Native Hawaiian Historic Preservation Council - October 22, 2007 and March 24, 2008 in Honolulu and Waialua, respectively
- Maui/Lanai Islands Burial Council - October 25, 2007 and March 27, 2008 in Lahaina and Kahului, respectively
- County of Maui Cultural Resources Commission – April 3, 2008 in Kahului
- Lahaina Hawaiian Civic Club and Lahaina-Honolua Senior Citizens Club - January 17, 2008, in Lahaina

The purpose of the briefing was to: 1) Provide an update of the project; 2) Present and obtain feedback on the preliminary alternatives to avoid Site 6277; 3) Confirm known archaeological and cultural sites; and 4) Request feedback on additional archaeological and cultural resources of potential concern.

### 9.1.3. **Consultation with Other Agencies and Organizations**

Several meetings were conducted with the Department of Land and Natural Resources Historic Preservation Division and County of Maui Planning Department. A meeting was also conducted with emergency service providers including the Maui Police Department, Maui Fire Department, State Civil Defense, Maui Memorial Hospital, and AMR Ambulance on April 21, 2008. In addition, information briefings were provided to community organizations including Lahaina Bypass Now and West Maui Tax Payers Association on January 17, 2008 in Lahaina. The purpose of the meetings and briefings was to provide an update of the project, present preliminary alternatives to avoid Site 6277, and obtain feedback on the alternatives.

## 9.2. PUBLIC INFORMATIONAL MEETINGS

### 9.2.1. Public Informational Meeting – April 30, 2008

A public informational meeting was held by the State DOT on April 30, 2008 at 5:00 p.m at the Lahaina Civic Center Community Meeting Room. The purpose of the meeting was to apprise the community about the status of the project, provide information on archaeological sites found within the project vicinity, and discuss alternative alignments to avoid Site -6277 that were considered and eliminated. This meeting was also held to allow for consultation pursuant to Section 106 of the National Historic Preservation Act of 1966.

Public notice of the meeting was published in the April 17, 2008 issue of The Maui News. Flyers providing notice of the meeting were also mailed to approximately 6,448 homes and businesses in the Lahaina area. A summary of the comments received at this informational meeting, as well as written comments on the meeting received by DOT, are summarized below with discussion addressing them.

#### Summary of Comments:

##### 1. Procedural Comments:

- Questioned that Section 106 of the NHPA of 1966 was invalid and has been superseded by PL 89-665, amended by PL 96-515, which means the (meeting) notice was falsely advertised.
- Commented the (project area) is not in the USA, but in Moku O Maui.
- Commented that all (government agency) leaders were liable in their individual capacities to protect the Native Hawaiian rights under Article 12, Section 7 of the State Constitution.
- The land affected by the road is ceded land and, until that issue is resolved, none of this construction or planning should take place.

**Response:** *Pursuant to the provisions of Section 106 of the NHPA, the meeting notice is valid. PL 89-665 refers to the National Historic Preservation Act of 1966, and PL 96-515 reflects a 1980 amendment to the Act that directs the Secretary in cooperation with the American Folklife Center of the Library of Congress to explore ways to preserve and conserve intangible elements of the cultural heritage and to encourage continuation of diverse cultural tradition.*

*Article 12, Section 7 of the State Constitution concerns traditional and customary rights. Under this, the State would protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778. The State DOT is making a good faith effort in carrying out its duties to address traditional and customary rights of native Hawaiians.*

*Currently, various State and County agencies, including the State DOT, use ceded lands. Since the lands to be used for the project corridor will be for public improvements, its use is consistent with the purposes established under the Public Land Trust.*

2. Funding Questions:

- Is the money for this project protected so that they will not disappear back into the general fund?
- What is the cost of Phase 1A construction and how much will it cost the public if the project goes over budget?
- The modification of the Phase 1A alignment will affect the County's proposed Keawe Street Extension project. Will this decrease the County's fiscal contribution to Phase 1A?

**Response:** *The funds for this project are dedicated and will not lapse. The construction cost for Phase 1A as originally designed is \$48 million. Additional cost associated with the proposed modifications to the project will be funded through DOT's program, which includes both State and Federal funds. Funding for the project is provided by capital improvement funds appropriated by the Legislature along with Federal funds. Therefore, additional project costs will not affect the public such as in increased property taxes which are collected by the County and not the State.*

*The modified alignment will require realignment of the previously proposed route for the Keawe Street extension, which will be included as part of the proposed project. However, this realignment extension will use federal funds. The County's share from the original Keawe Street extension will be transferred to State DOT. After construction is completed, DOT will dedicate the Keawe Street Extension to the County.*

3. Traffic and Transportation System Comments:

- The need for the Lahaina Bypass was recognized 30 years ago and must be built now, or future West Maui residents will regret not being able to work out the problems and get the project implemented.
- Believes the old plantation cane haul road should be the preferred alternative.

**Response:** *The State DOT is implementing construction of the Lahaina Bypass starting with Phase 1A and working to address this realignment issue to minimize further delays. The cane haul road alignment alternative was discussed at the informational meeting and explained that it was eliminated from further consideration because it would not meet the project's need and would involve considerably more environmental impacts than the proposed realignment project. Chapter 3 of this document provides greater discussion explaining this.*

- People who live in the Lahainaluna area will have access to two ways of coming in and out of the area. This will benefit everyone, including students, school staff, visitors, delivery trucks, and emergency personnel.
- Commented that the Napili area still bottlenecks into one single lane and should be fixed first so those in Lahaina can benefit. Believes the project is not going to resolve the problem of Lahainaluna Road.

**Response:** *The Phase 1A project with the extension of Keawe Street will provide the alternative access route up to the Kelawea subdivision and schools. The Lahaina Bypass Project was recognized and planned back in 1990 with the environmental documents published, and would provide greater transportation relief for West Maui while addressing future conditions.*

- The bypass is crucial to increasing the quality of life in West Maui. It will immediately relieve traffic congestion along Lahainaluna Road and will be a lifeline in medical emergencies.
- The Mayor's representative indicated her support for the Phase 1A project.
- Supports project and developing public transportation since continued use of the car will make traffic worse.
- The stop and go traffic is bad for gas mileage, and the project will help the situation.

**Response:** *The State DOT believes the Lahaina Bypass is important for addressing transportation infrastructure in West Maui along with providing additional routes for emergency vehicles which will improve the quality of life for residents and visitors. State DOT is appreciative of the Mayor's support for this realignment project. The County of Maui is responsible for public transportation services in Maui and is working to develop and expand these services. The project should assist in providing improved transportation facilities to support the County's efforts. The project would help relieve traffic congestion and reduce travel times and delays for motorists which should improve gas consumption.*

#### 4. Archaeology and Historic Properties:

- Questioned whether archaeological studies were completed for the whole Lahaina Bypass corridor, and what happens if other archaeological resources are discovered and the associated costs.
- Commented the archaeological Site 6277 should be avoided, and believes the proposed realignment project is a viable option.

**Response:** *The EIS for the Lahaina Bypass corridor included an archaeological inventory survey of the entire alignment. Because an inadvertent find was identified in the Phase 1A segment, additional archaeological fieldwork are planned to be executed for future phases. If other sites are identified, they will be either avoided, mitigated, or removed depending upon their significance. The costs for additional field work would be dependent upon on the extent and significance of the area surveyed, thus, such costs are not determined at this time.*

*The proposed project will realign the highway segment away from Site 6277 and thus avoid impacting that site.*

- The Lahaina Hawaiian Civic Club was grateful that the DOT is seeking alternatives to the destruction of Site 6277. They would like this process to be completed as soon as possible, and that consultations with the Hawaiian community continue especially with lineal descendants of the area.
- Commented on concerns with presently not being able to access cultural sites in mauka areas of Kahoma due to cane haul gates being locked.

**Response:** *The project involves an alternative route to avoid Site 6277 and necessary planning work is being conducted to complete this review process and comply with applicable regulations. Extensive consultations have occurred with the Hawaiian community and lineal descendants. Consultations will continue through this review process. The State DOT acknowledges concerns regarding access to cultural sites, but does not have control over the cane haul roads and gates. However, this project will provide both a temporary and permanent access from the realigned highway for lineal descendants to access mauka areas. Coordination with the State HHFDC would also be conducted to address this access.*

- Concerns were expressed for respecting iwi kupuna (bones of ancestors) that may be within the project area, and to avoid impacts to these burials.
- Commented that prior construction activities in the region came across a lot of burials, and to respect (the burials), they were reinterred to other places. Believes in the role of the burial council to make such determinations.
- Kuleana Kuikahi LLC requested that all work related to this project be placed on hold until the families retrieve the iwi kupuna that was taken from the burial area in Kahoma from the flood control project, and see them reinterred where they belong. Requested obtaining all letters, memorandums, and any information from the County of Maui, SHPD, and other agencies that may have been consultant to the Kahoma Stream flood control project.

**Response:** *An archaeological inventory survey was conducted for this project to determine whether burials may be present within the corridor, and such efforts included input received from the community and lineal descendants. Testing also incorporated methods in efforts to be sensitive to such possible sites as discussed in Chapter 4. To date, no burials were identified within the corridor, however, archaeological monitoring will be conducted at Kahoma Stream and at pushpiles affected. The State DOT respects the concerns with burials and will comply with regulations and requirements to address them if encountered. This includes coordinating with the Maui/Lana'i Islands Burial Council as appropriate.*

*The State DOT acknowledges concerns regarding the disposition of iwi kupuna associated with the U.S. Corps of Engineers (COE) Kahoma Flood Control project, but was not involved with that project. However, Cultural Surveys Hawaii, Inc., with the support of the State DOT, has made information available to*

*lineal descendants regarding the efforts to trace the history and location of the iwi kupuna. Any additional communications regarding this issue should be coordinated with the COE or State Historic Preservation Division.*

5. Section 106 Comment:

- What Native Hawaiian groups were contacted under Section 106?

**Response:** *The native Hawaiian groups of Na Kupuna O Maui, Lahaina Hawaiian Civic Club, State Office of Hawaiian Affairs, Native Hawaiian Historic Preservation Council, the Maui-Lanai Island Burial Council, and the State Historic Preservation Division were contacted. In addition, consultations with lineal descendents of the area have been conducted, and a public informational meeting was held to provide other individuals along with the general public an opportunity to be consulted.*

6. Construction Question:

- Questioned how quickly construction can get started once the Phase 1A realignment is approved

**Response:** *If the EA process is completed within the anticipated timeframe, construction of the project corridor is anticipated to begin in mid-2009. Construction on the southern portion of the Phase 1A project from Lahainaluna Road to Kahoma Stream is anticipated to start in December 2008, contingent on approvals. The southern portion of the project is unchanged, is within State DOT's existing right-of-way and, therefore, is not subject to this EA.*

7. Emergency Access and Public Facility Comments:

- Commented the children's safety should be the first concern. It is a current problem with no other exit beside Lahainaluna Road during an emergency. The cane haul road alternative is too makai and would not help because those three schools are well above (mauka of) the cane road.
- Commented that DOT is making an effort to properly address this project and address the community's concerns given all the alternatives presented. Wants to make sure that 3,000 students at the schools aren't going to be trapped during a fire, flood, or other emergency.
- Lahaina Intermediate School has experienced a bomb scare and bad weather closures in the past, and the fear and anxiety experienced by all during those times are real. Children's safety should be a top priority, and DOT's willingness to seek an agreement among all parties is commendable.
- Commented that it is very difficult to travel up and down Lahainaluna Road on weekday mornings and afternoons. An ambulance would have a difficult time traveling on that road during those times of the day and an alternate way out is needed.

**Response:** DOT recognizes the need for an alternative route to and from area schools in the event of an emergency for the safety of children, staff, and residents in the area. As a result, the Phase 1A portion of the Lahaina Bypass Road will provide an immediate relief and alternative for motorist and emergency service providers. The cane haul road alignment was determined to not be an acceptable solution for the project. The process conducted thus far for the project has included extensive community outreach to consult with the community and keep them informed. The information obtained from this environmental document and community consultations will be used by DOT in evaluating the proposed realignment project and making an informed decision. Based upon input received from emergency service providers, the need for an alternate access to the schools and area residents is important. Implementation of this project would thus help alleviate traffic congestion on Lahainaluna Road and provide needed alternative routes for emergency service providers.

8. Growth and Development Comments:

- Commented the traffic problem is caused by corporate business, politicians, and committees of the past that allowed overdevelopment without requiring construction of proper infrastructure.
- Believes this bypass road is going to benefit the development companies and is concerned with the changes urban development is going to bring.

**Response:** The mission of the State DOT is to provide a safe, and efficient and accessible highway system for the public. Therefore, the proposed project and construction of Phase 1A of the Lahaina Bypass Road is being implemented to address existing traffic issues and future conditions. The project is not being implemented to benefit development companies but to serve the general public which includes residents and visitors of West Maui.

- Commented that land use and population growth pressure is increasing everywhere, and the community needs to learn to deal with it.
- Commented that they were not against development, but against developers that do not care about the land.

**Response:** Future development and population growth within the West Maui district is guided by the West Maui Community Plan and County General Plan. Thus, such concerns are associated with land use policy decisions that should be more appropriately consulted with the County of Maui. Participation in the County's update of the General Plan and subsequent West Maui Community Plan would be more appropriate forums for addressing such concerns. Such concerns can be shared with the County to help them make developers more sensitive to the land and other community issues.

### 9.2.2. Public Informational Meeting – December 10, 2008

A public informational meeting was conducted by the State DOT on December 10, 2008 at 5:30 pm at the Lahaina Civic Center Community Meeting Room. The purpose of the meeting was to notify the community about the availability of the Draft Environmental Assessment (EA) for public review and comment and update information regarding archaeological sites found within the project vicinity, which includes the area from Kahoma Stream to the northern terminus, and up to and including the Keawe Street Extension (referred to as the Northern Portion). In addition, the meeting was conducted to notify the public of the start of construction for a portion of the Lahaina Bypass Phase 1A from Lahainaluna Road to Kahoma Stream (referred to as the Southern Portion). The Southern Portion was not included as part of the EA.

Two separate agendas were prepared for the meeting to discuss the Draft EA for the Northern Portion and pre-construction for the Southern Portion. A summary of only the Draft EA portion of the meeting is included below. However, comments and questions pertaining to the pre-construction portion are not included in the summary minutes below as the southern portion is outside the scope of the EA

The meeting was also held to allow for consultation pursuant to Section 106 of the National Historic Preservation Act of 1966. Public notice of the meeting was published in the November 30, 2008 issue of The Maui News and The Honolulu Advertiser. Flyers providing notice of the meeting were also mailed as an insert to The Lahaina News to more than 10,000 homes, businesses and post office boxes in the Lahaina area. Notice of availability of the Draft EA was published in the December 8, 2008 issue of the Office of Environmental Quality Control's (OEQC) The Environmental Notice.

#### **Summary of Comments:**

##### 1. Emergency Access and Safety:

- Commented that there is a total population of about 2,500 (2,300 student and 200 staff) at the Lahainaluna School Complex from Monday through Friday. Lahainaluna Road is the only access to and from the Complex, especially during emergencies. A safe and alternative exit is needed.
- Commented that although it's important to honor all archaeological sites he is not willing to sacrifice the life of even one moopuna (child) for all the archaeological sites. Childrens' safety is more important
- Commented that Lahainaluna Road is very congested, which has resulted in safety issues. A second way out is needed especially during emergencies.

- Commented that the Bypass would make it safer and faster during emergencies.
- Expressed concern about for the safety of the students and staff at Lahainaluna School Complex in the event of a brush fire.

2. Traffic and Transportation Facilities:

- Supports the bypass and DOT's plan to realign the road. Commented that the Lahaina Bypass is important to many people and will provide residents and visitors ease of travel and will help local and regional traffic. The road was needed 20 years ago and will be a welcome and long awaited relief for traffic issues on West Maui.
- Supports the project. Challenged decision makers to learn from past generations and consider future generations. Commented that the road is important to working commuters.
- The Mayor's representative indicated her support for the project.
- Commented that the community has overwhelmingly supported the project for over 25 years.
- Commented that they support the project to relieve the school traffic.
- Opposed to the bypass because it will create more businesses, traffic, and vandalism.

**Response:** *When completed, the Lahaina Bypass Corridor will benefit all residents, businesses, commuters, and visitors of the West Maui area. The need for relief along Honoapiilani Highway is well-established based on comments and complaints we have received from the Lahaina community over a period of years. Many Lahaina residents travel Honoapiilani Highway on a daily basis, and have expressed frustration about heavy traffic congestion and road closures. The highway project will help to address the comments and concerns we have received from the public, and to relieve existing and future projected traffic congestion along the existing Honoapiilani Highway.*

*State DOT is appreciative of the Mayor's support for this realignment project.*

*The proposed project would not significantly impact the future land use pattern and development policies in the region. The Lahaina Bypass Road will provide an important transportation improvement serving the region that can help support vehicular access to approved developments occurring in the region. However, actual decisions approving and directing the type of developments occurring will be the responsibility of the County. Such regional land use policy issues should be more appropriately addressed as part of the County's long range planning process such as the present update of the General Plan and later the updates of the community plans.*

*Furthermore, this realignment project would not have a significant impact on land use policies in this region. The project is only intended to realign a short segment of the bypass highway to avoid an inadvertently discovered historic property. Future development and growth concerns associated with the overall Lahaina Bypass Road improvement were already addressed under prior EIS documents completed along with a ROD issued. Therefore, based upon those studies, a commitment was made by the State DOT to implement construction of the Lahaina Bypass Road after obtaining necessary funding. In addition, the Lahaina Bypass Road improvement is already included on the County's current West Maui community plan since it has been planned for since the early 1990s.*

3. Archaeological Resources:

- Supports improving the environment for schools, but not at the expense of historic properties. Concerned about the impacts to historic properties and iwi kupuna. Sees great benefit to the public community, but concern is for the kupuna and future generations.
- Concerned about returning iwi kupuna to Kahoma. Location is known, but it's a separate issue to get them back. Appreciates the work conducted by the project team in addressing the issue of iwi kupuna at Kahoma.
- Concerned that remnants and iwi will be unearthed during construction. Commented that an archaeologist should be on-site for the entire project. Does not want to be responsible for accidents that should have been corrected from the beginning.

**Response:** *DOT thoughtfully considered and acted upon the concerns expressed by family members regarding the possibility of iwi kupuna in proximity to the proposed Kahoma Bridge. It was specifically in response to their concerns that extensive research and subsurface testing was conducted at the northern embankment near the proposed location of the Kahoma Bridge crossing. Due to the sensitivity of the area, a very cautious approach was used to detect the presence or absence of iwi.*

*First, extensive consultation was conducted with family members, as well as individuals, organizations and agencies affiliated with the mill operations and construction of the Kahoma Stream Flood Control Project. Throughout the consultation process, detailed research and review was also conducted of documents and maps pertaining to the historic character, agricultural practices, construction of the Flood Control Project, and disposition of the iwi kupuna. Results of the research indicated that the iwi kupuna were not likely to be present in the northern embankment area.*

*In April 2008, results of the research were provided to family members, including Kuleana Kuikahi LLC. The results included information regarding the past reburial of iwi kupuna outside of Kahoma Valley. It was noted that DOT was not involved in the design or construction of the Flood Control Project. However, in consideration of and sensitivity to family members, DOT supported the research efforts to assist the family's understanding of the disposition of their iwi kupuna. Family members were directed to*

*the DLNR SHPD or the U.S. Department of the Army Corps of Engineers for any additional questions or information.*

*Second, a non-invasive subsurface testing method, referred to as ground-penetrating radar (GPR) was employed. Subsequently, subsurface testing was carefully conducted in consultation with the SHPD. Results confirmed that iwi kupuna were not present in the test areas. Despite test results, however, the potential for subsurface burials is acknowledged. Therefore, voluntary archaeological monitoring will be conducted during construction of the bridge along the northern embankment. Information regarding the testing procedures and results is included in Section 4.11 and Appendix F of this Final EA.*

4. Land Ownership:

- Commented that ceded lands should not be transferred or sold until the issues are resolved.

**Response:** *The acquisition of land for the implementation of the project will be in accordance with all current regulatory requirements. Currently, various State and County agencies, including the State DOT, administer ceded land. Since these lands will be used for public improvements and will serve the public, its use is consistent with the purposes established under the Public Land Trust.*

5. Procedural Comments:

- Supported the efforts of DOT's consultants which have been done diligently with an open heart and open mind
- Impressed by the respectfulness and thoroughness of DOT's consultant and it's reflective in the Draft EA. Endorsed the construction of the road.
- Acknowledged the dedication and sensitivity to all the issues and appreciated the extra work and time.
- Expressed the need to continue the dialogue and be sensitive, and the need to move forward.

**Response:** *DOT appreciates the community's recognition of the project team, which includes DOT engineers and our consultants, Hawaiian Dredging Construction Company, Wilson Okamoto Corporation and Cultural Surveys Hawaii. In compliance with regulatory requirements, extensive time and effort have been invested to thoughtfully consider possible alternative alignments and to thoroughly evaluate the potential impacts to all environmental and community resources associated with each alternative. DOT acknowledges the interest and participation of all agencies, community organizations and individuals who have participated in the planning and consultation process for the project.*

### 9.3. EA CONSULTATION

#### 9.3.1. Pre-Assessment Consultation

The following agencies, organizations, and individuals were consulted during the preparation of the Draft EA. Consultation was conducted to solicit comments from public agencies, elected officials, and community organizations regarding their concerns and agency requirements. A pre-assessment consultation package consisting of a letter with informational material was distributed to these consulted parties. Those who formally replied to the pre-assessment consultation package are indicated by an asterisk (\*). Copies of all written comments received along with responses to them are reproduced and included in Appendix A.

#### **Federal Agencies**

- U.S. Geological Survey
- U.S. Federal Highways Administration
- U.S. Fish & Wildlife Service
- U.S. Army Corps of Engineers

#### **State Agencies**

- Department of Agriculture
- Department of Business, Economic Development and Tourism (DBEDT)
- \* Department of Business, Economic Development and Tourism (DBEDT), Strategic Industries Division
- \* DBEDT, Hawaii Housing Finance & Development Corporation
- Department of Education (DOE), Princess Nahienaena Elementary School
- DOE, Lahaina Intermediate School
- DOE, Lahinaluna High School
- \* Department of Hawaiian Home Lands
- Department of Health (DOH)
- DOH, Environmental Management Division
- DOH, Office of Environmental Quality Control
- Department of Land and Natural Resources (DLNR)
- \* DLNR, Land Division
- \* DLNR, Engineering Division
- \* DLNR, Division of Aquatic Resources
- \* DLNR, Division of Forestry & Wildlife
- DLNR, Historic Preservation Division
- DLNR, Historic Preservation Division, Maui Office
- \* DLNR, Commission on Water Resource Management
- DLNR, Maui/Lanai Islands Burial Council
- \* Office of Hawaiian Affairs (OHA)
- OHA, Native Hawaiian Rights & Culture
- OHA, Native Hawaiian Historic Preservation Council

University of Hawaii (UH), Water Resources Research Center  
UH, Environmental Center  
Senator Rosalyn Baker  
Representative Angus McKelvey

**County Agencies**

Civil Defense Agency  
Cultural Resources Commission  
Department of Environmental Management  
Department of Fire Control  
\* Department of Housing and Human Concerns  
\* Department of Parks & Recreation  
\* Department of Planning  
\* Department of Public Works  
\* Department of Transportation  
\* Department of Water Supply  
Maui County Council  
Police Department  
Office of the Mayor

**Organizations**

Kaanapali Development Corporation  
\* Kahoma Land LLC  
Kamehameha Schools  
Kuleana Kuikahi LLC  
\* Lahaina Bypass Now  
Lahaina Hawaiian Civic Club  
Lahaina-Honolua Senior Citizens Club  
Lahaina Restoration Foundation  
Lahaina Town Action Committee  
Maui Cultural Lands  
West Maui Improvement Association  
\* West Maui Taxpayers Association

**Interested Parties**

Darryl Aiwohi  
Foster Ampong  
Clayton Baybayan  
Albert Dizan  
Yoland Dizan  
Brian Haia  
Charles Haia Jr.  
\* Louella Haia  
James Haia Jr.

**Interested Parties (continued)**

Nameaaea Hoshino  
M/M Glen Ii  
Phillip Jaentsch  
Mabel Kailihou  
Wayne Kalani  
Donnalyn Kalei  
Kalani Kapu  
M/M Kekai Kapu  
Uilani Kapu  
Qualani Kapu-White  
Jonah Keahi  
Ululani Keahi  
Tom Kekona  
Josephine Keliipio  
Leona Nahooikaika  
Andrew Naleieha  
Lillian Suter  
Hervey Takitani

**9.3.2. PARTIES CONSULTED DURING THE DRAFT EA REVIEW PERIOD**

Copies of the Draft EA were transmitted to the following agencies, organizations, and individuals for comment during the public review period. Notice of availability of the Draft EA was published in the December 8, 2008 issue of The Environmental Notice. Consultation was conducted to solicit comments from public agencies, elected officials, and community organizations regarding their concerns and agency requirements. Those who formally replied to the Draft EA are indicated by an asterisk (\*). Copies of all written comments received along with responses to them are reproduced and included in Appendix B.

**Federal Agencies**

- \* U.S. Geological Survey  
U.S. Federal Highways Administration
- \* U.S. Fish & Wildlife Service  
U.S. Army Corps of Engineers

**State Agencies**

- \* Department of Business, Economic Development and Tourism (DBEDT),  
Strategic Industries Division
- \* DBEDT, Hawaii Housing Finance & Development Corporation  
Department of Education (DOE), Princess Nahienaena Elementary School

**State Agencies (continued)**

DOE, Lahaina Intermediate School  
DOE, Lahinaluna High School  
Department of Hawaiian Home Lands  
Department of Health (DOH)  
DOH, Office of Environmental Quality Control  
Department of Land and Natural Resources (DLNR)  
\* Land Division  
\* Engineering Division  
\* Division of Aquatic Resources  
Division of Forestry & Wildlife  
\* Historic Preservation Division  
Historic Preservation Division, Maui Office  
\* Commission on Water Resource Management  
Maui/Lanai Islands Burial Council  
Office of Hawaiian Affairs (OHA)  
Native Hawaiian Rights & Culture  
Native Hawaiian Historic Preservation Council  
Senator Rosalyn Baker  
Representative Angus McKelvey

**County Agencies**

Cultural Resources Commission  
\* Department of Environmental Management  
\* Department of Housing and Human Concerns  
\* Department of Parks & Recreation  
Department of Planning  
\* Department of Public Works  
\* Department of Transportation  
Department of Water Supply  
Maui County Council  
\* Office of the Mayor

**Organizations**

Kaanapali Development Corporation  
\* Kahoma Land LLC  
Kamehameha Schools  
\* Kuleana Kuikahi LLC  
\* Lahaina Bypass Now  
\* Lahaina Hawaiian Civic Club  
Lahaina-Honolua Senior Citizens Club  
Lahaina Restoration Foundation

**Organizations (continued)**

- Lahaina Town Action Committee
- \* Maui Cultural Lands
- West Maui Improvement Association
- \* West Maui Taxpayers Association

**Individuals**

- \* Foster Ampong
- Louella Haia
- \* Keeaumoku and Uilani Kapu
- \* Josephine Keliipio

Other respondents who provided written comments during the public review period included: Maui Hotel and Lodging Association; Jim Hentz; Mr. and Mrs. Chuck and Paula Loewen; Ms. Claire Paishon; Maui Unite; TJ Restaurants; Mr. Edwin Lindsey; and Mr. Mitch Jenkins. Copies of their comment and response letters also included in Appendix B.

**9.4. SECTION 106 CONSULTATION**

This environmental document was prepared pursuant to State environmental review requirements prescribed under Chapter 343, HRS, and Title 11, Chapter 200, HAR. However, since this project is Federally-funded, it is considered a Federal Action subject to Section 106 consultation under the National Historic Preservation Act, as amended (NHPA) (16 U.S.C. 470(f)) and the Advisory Council on Historic Preservation's implementation procedures prescribed by 36 CFR, Part 800 (ACHP, 2004). The "Agency Official" responsible for this consultation is the FHWA, and this consultation effort has been integrated and documented in this environmental assessment.

Section 106 consultation requires Federal agencies to take into account the effects of their undertakings on historic properties. The environmental review process was thus used to facilitate consultation efforts with consulting parties in identifying the presence of historic properties and assessing the project's impact on historic properties. Consultation was also conducted with the SHPD in coordination with the State Historic Preservation Officer. The information provided in this Draft EA is being used to facilitate consultation efforts with the SHPD, consulting parties, and the public in reviewing the proposed determination of effect for the project.

**Summary of Effect Determination**

Based upon the results of an extensive archaeological inventory survey conducted for the project and discussed in Chapter 4, only two historic era historic properties were identified which were SIHP 50-50-03-6492 and -6596. These features consisted of late-historic era agricultural pushpiles associated with the Pioneer Mill Co. and late historic era sugar cultivation.

These sites were recommended as significant only for its information content (Criterion D), and the information that made these two sites significant has been well documented in the inventory survey report. Therefore, significance Criterion D is no longer applicable and these sites are no longer eligible for the National Register of Historic Places. Consequently, a project specific effect of “no historic properties affected” was recommended.

A letter received from the SHPD based upon their review of the inventory survey report preliminarily concurred with the findings and significance recommendation subject to minor revisions needed to the survey report. Therefore, this environmental document is being used to help facilitate the SHPD’s review for final concurrence with this determination under Section 106. In a letter dated March 11, 2009, SHPD determined that the project will have “no adverse effect” on culturally significant historic or archaeological resources. SHPD also concurred with DOT’s “finding of no significant impact” determination, contingent on implementation of the mitigation work. Therefore, consultation pursuant to Section 106 of the National Historic Preservation Act is complete.

#### 9.4.1. Consultation

The Section 106 consultation process conducted has consisted of multiple methods to outreach and consult with various agencies, several Hawaiian organizations, lineal descendants of the area, and the general public. Consultation efforts have also included meetings and coordination with the SHPD. A summary of these consultations efforts is discussed.

Numerous individuals and Hawaiian organizations were contacted requesting their input and knowledge of historic properties and cultural resources that may be present within the project area. Based upon initial outreach efforts conducted, several individuals with lineal ties to the lands within the project area had come forward, and additional names of potential community contacts were also obtained from these efforts.

Extensive consultation has occurred with representatives of organizations and various individuals resulting from these outreach efforts. Four meetings were conducted on October 15, 2007, December 1, 2007, January 17, 2008, and February 13, 2008 with various kanaka maoli or descendants with lineal ties to the ahupuaa within which the project corridor lies. Lineal descendants were also consulted via telephone. The December 1, 2007 meeting included a site visit of the project area and subsequent meeting to discuss the project and concerns with several lineal descendants. The February 13, 2008 meeting was attended by an estimated 50 lineal descendants, State DOT and consultants. In addition, meetings were conducted with the Lahaina Hawaiian Civic Club and Lahaina-Honolua Senior Citizens Club on January 17, 2008.

Other consultation efforts included presentations to various native Hawaiian organizations which include: 1) the Office of Hawaiian Affairs', Native Hawaiian Historic Preservation Council, 2) Maui/Lana'i Islands Burial Council, and 3) County Cultural Resources Commission. Consultation was also conducted with the County Planning Department. Pre-assessment consultation letters and information were also distributed to agencies, organizations, and individuals. Finally, a public informational meeting was conducted on April 30, 2008 to provide an opportunity for further consultation.

Consultation meetings have been held with the SHPD as part of the Section 106 process as identified below:

1. A January 16, 2007 meeting was held to brief the SHPD on the status of the project and archaeological work conducted, and to discuss additional agency requirements and work tasks that should be conducted associated with this project.
2. A September 23, 2008 meeting was held to update SHPD on the status of the project and discuss the findings from the archaeological inventory survey field work completed.

The consultation conducted assisted in providing information that was used to evaluate the potential for finding historic properties in the project corridor. Information identified potential areas that may be more sensitive such as near Kahoma Stream. This information was used to help better develop the scope of work conducted under the archaeological inventory survey.

#### 9.4.2. **Identification of Historic Properties**

As discussed under Chapter 4, an archaeological inventory survey was conducted for the project which surveyed the project corridor along with additional areas outside the proposed right-of-way varying from 100 to 200 additional feet. Based upon the survey, two historic properties were documented within the project area of potential effect. Both of these properties were late-historic era pushpiles associated with commercial sugar agriculture which were assigned State Inventory of Historic Properties (SIHP) numbers 50-50-03-6492 and 50-50-03-6596.

SIHP 6492 and -6596 were considered significant under Criterion D because of the potential to yield information important for understanding the history of the region. As the Pioneer Mill Co. sought to intensify sugar cultivation in Lahaina by opening up more arable lands, advances in farming and agricultural technology following World War II paved the way for increased mechanization and automation. The pushpiles associated with SIHP-6492

and -6596 were the results the plantation's rock removal program where rocky fields were successfully cleared.

#### 9.4.3. **No Historic Properties Affected Determination**

Information regarding the significance of SIHP 6492 and 6596 has been well documented in the inventory survey report. Further historic preservation mitigation or data recovery would not add to the body of information concerning these historic properties. Therefore, significance Criterion D is no longer applicable and as such no longer eligible for the National Register of Historic Places.

Therefore, a project specific effect of "no historic properties affected" was recommended, and is appropriate because the information that would have given these historic properties significance has been recorded. A letter received from the SHPD based upon their review of the inventory survey report preliminarily concurred with these findings and significance recommendation subject to minor revisions needed to finalize the survey report.

In a letter dated March 11, 2009, SHPD determined that the project will have "no adverse effect" on culturally significant historic or archaeological resources. SHPD also concurred with DOT's "finding of no significant impact" determination, contingent on implementation of the mitigation work. Therefore, consultation pursuant to Section 106 of the National Historic Preservation Act is complete.

## 10. DETERMINATION

To determine whether a proposed action would likely have a significant effect on the environment, the State Approving Agency needs to consider every phase of the action, the expected primary and secondary consequences, cumulative effect, and the short- and long-term effects. The Approving Agency's review and evaluation of the proposed action's effect on the environment would result in a determination either: 1) the action would have a significant effect on the environment, and an Environmental Impact Statement Preparation Notice should be issued, or 2) the action would not have a significant effect warranting a Finding of No Significant Impact (FONSI) also referred to as a Negative Declaration under §11-200, HAR.

A FONSI determination is warranted for the proposed project based upon the information provided in this Final EA document, including the various agency and public review comments received. The project is not anticipated to have a significant environmental impact.

The preliminary findings supporting this anticipated determination are based upon assessment of the project's effects on the environment in relation to the 13 Significance Criteria prescribed under the State Department of Health's Title 11, Chapter 200, HAR. The purpose of this assessment is to consider the "significance" of likely environmental effects, which include the sum of effects on the quality of the environment along with the overall and cumulative effects. A discussion of the assessment with respect to each criterion is provided below.

***1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;***

The proposed project has been designed to avoid impacts to archaeological resources in the project vicinity. An historic site consisting of historic era agricultural terraces (SIHP 6277) was inadvertently discovered within the original highway alignment during the construction phase of the project. As a result, highway alignment was modified to avoid impact to this site. Extensive archaeological research, analysis, and documentation were conducted for SIHP 6277. The modification will also avoid a separate, previously identified archaeological site (SIHP 2484). Mitigative data recovery work was completed for this site. A comprehensive archaeological inventory survey was conducted for the proposed project. Two additional archaeological sites described as historic era agricultural pushpiles were designated as SIHP 6492 and 6596. Both sites were extensively analyzed and documented. All archaeological work was conducted by Cultural Surveys Hawaii. Mitigative measures in

the form of archaeological monitoring during construction will be implemented to further minimize impacts on SIHP 6596. In a letter dated March 11, 2009, SHPD determined that the project will have “no adverse effect” on culturally significant historic or archaeological resources. SHPD also concurred with DOT’s “finding of no significant impact” determination, contingent on implementation of the mitigation work. Therefore, consultation pursuant to Section 106 of the National Historic Preservation Act is complete.

There will be no destruction or loss of any significant, endangered, or threatened botanical, faunal, geological, or other natural resources. None of the plant or animal species identified within the project site are threatened or endangered, or are a species of concern, and all can be found in similar environments throughout the island. There is no federally delineated Critical Habitat within or close to the project corridor, thus the construction and operation of the proposed project will not result in any impacts to federally designated Critical Habitat. The U.S. Fish and Wildlife Service (FWS) has been consulted pursuant to Section 7 of the Endangered Species Act. No further coordination is anticipated and, as such, the Section 7 consultation process is complete.2) ***Curtails the range of beneficial uses of the environment;***

The project will not curtail the range of beneficial uses of the surrounding environment. The project corridor and immediate surrounding area consists of undeveloped fallow agricultural lands formerly used for sugar cane cultivation. The majority of properties affected consist of State property under the jurisdiction of the Hawaii Housing Finance and Development Corporation (HHFDC) and is planned for future development. However, coordination with the HHFDC has occurred on the planning of the realigned highway, and the project has been incorporated into their master plans. Therefore, the project will not adversely impact those development plans.

3) ***Conflicts with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 344 HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;***

As discussed in this Final EA, the proposed project is consistent with the State’s applicable long-term environmental policies and goals set forth in Chapter 344, HRS. This document addresses the probable environmental impacts associated with the project, which would be associated with short-term construction activities, for which necessary mitigative measures have been identified. The project is designed to minimize impacts on the land, and best management practices will be implemented during construction to control pollution and preserve natural resources. The project is consistent with conserving natural resources in the area, and enhancing the quality of life for residents in West Maui by improving transportation

infrastructure in the region. It will also improve public safety and access for emergency vehicles, including County police and fire protection. The project is identified on State and County land use plans since it is viewed as an important infrastructure improvement for the West Maui community.

**4) *Substantially affects the economic, social welfare, or cultural practices of the community or State.*<sup>1</sup>**

This project involves the realignment of a short segment of the Phase 1A portion of the overall Lahaina Bypass Road, for which prior EIS documents have been completed to address impacts associated with that overall bypass road. As discussed in this document, the modified alignment will not have any significant negative impacts on the local economy, or the social welfare of the West Maui community or County of Maui. In the short-term, the project will confer some moderate positive economic benefits in the local area due to the additional construction expenditures associated with the modified alignment. Direct economic benefits will result both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities. However, these additional economic benefits would not substantially affect the economic community of West Maui. The modified alignment would not substantially impact known cultural practices occurring in the area. As discussed in this document, mitigative measures will be implemented to provide continued access across the highway for residents conducting cultural practices in mauka areas.

**5) *Substantially affects public health;***

The proposed project will provide a critical alternative access route for many residents, school personnel, students, and emergency service personnel. The proposed project is not anticipated to adversely affect public health. In the long-term, no significant air quality or noise impacts are anticipated from the operation of the proposed project. Construction-related effects will be temporary, and best management practices will be implemented by the contractor in compliance with pertinent regulatory requirements to minimize disturbances to surrounding areas. There are no hazardous materials known to be present within the project corridor.

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<sup>1</sup> This significance criteria was modified to reflect the recent change to Chapter 343, HRS approved by the Governor as Act 50 on April 26, 2000. This Act added “cultural practices” as part of the factors considered in determining the significance of an effect.

**6) *Involves substantial secondary impacts, such as population changes or effects on public facilities;***

The project will not involve substantial secondary impacts such as population changes or adverse effects on public facilities. Prior EIS documents have already been completed to address such impacts associated with that overall bypass road. Therefore, as a segment of the overall bypass road, any secondary impacts of the proposed project have been addressed. Furthermore, land use changes in the surrounding vicinity are controlled by the County of Maui through their community plan process and zoning district regulations. The project is intended to avoid a historic site and will not significantly impact other existing infrastructure facilities or public facilities in the immediate area. Construction of the project is anticipated to involve the hiring of workers from Maui and will not contribute to in-migration of residents from other islands or out of State.

**7) *Involves a substantial degradation of environmental quality;***

The proposed project is not anticipated to involve a substantial degradation of environmental quality. Construction activities associated with the project are anticipated to result in short-term impacts to noise and air quality in the immediate vicinity, and for which best management practices will be implemented to mitigate these impacts. As discussed in this document, the project will not have significant adverse impacts on natural resources or the immediate environment.

**8) *Is individually limited but cumulatively has a considerable effect upon the environment or involves a commitment for larger actions;***

The Lahaina Bypass project was initiated by the State DOT to relieve existing and future projected traffic congestion along Honoapiilani Highway between the areas of Launiupoko and Honokowai. The project responds to requests from the residents of the County of Maui, many of whom lived and/or worked in the West Maui district, and who wanted relief from increasing traffic congestion along this corridor. Other requests for improvements were received from school officials, County agencies, and emergency response officials. This led to the completion of the 1990 Final EIS for the Lahaina Bypass. Subsequently, the State DOT completed a Supplemental Final EIS in 2002 to extend the Lahaina Bypass Road improvement to Launiupoko and revise proposed connector road locations.

The need for the Lahaina Bypass was previously established through proper planning, preliminary engineering work, and completion of prior EISs which addressed its cumulative impacts. Likewise, the commitment to construct the overall Lahaina Bypass Road was

established and addressed through those prior EISs. Hence, the proposed project does not involve a commitment to any larger actions. Direct and cumulative impacts limited to the proposed project are addressed in this document, and mainly involve effects associated with construction activities. It has been determined that the project will not have a considerable or adverse effect on the environment.

**9) *Substantially affects a rare, threatened or endangered species, or its habitat;***

No significant impacts to flora or fauna are anticipated from the construction and operation of the proposed project. No species of special interest, or species listed as threatened or endangered were recorded during the botanical, avian, and mammalian surveys. The botanical, avian, and mammalian survey report concludes that there is nothing unique about the project corridor or existing vegetation. The construction and operation of the proposed project is not expected to result in deleterious impacts to native avian or mammalian resources present within project area. There is no federally delineated Critical Habitat within or close to the project corridor, thus the construction and operation of the proposed project will not result in any impacts to federally designated Critical Habitat. Shielded street lights will be installed along limited portions of the project corridor to mitigate the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures.

**10) *Detrimentially affects air or water quality or ambient noise levels;***

The project is not expected to have a significant detrimental impact on air, water quality, or ambient noise levels. Construction of the proposed project will create some short-term impacts such as temporary unavoidable noise and fugitive dust emissions in the vicinity of the project. The surrounding area consists of residences and fallow agricultural land formerly used for sugar cane cultivation. Construction noise effects will be mitigated by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control. Best management practices will be implemented by the contractor to minimize nuisances caused by construction activities.

Potential water quality impacts to the near shore coastal waters during construction of the project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity administered by the State DOH will be required to control storm water discharges. Construction of the project improvements will also be in compliance with County regulations and permit requirements.

Mitigation measures will incorporate appropriate structural and/or non-structural BMPs, as required by permitting agencies

The project is not expected to have a significant impact on noise levels or air quality resulting from the operation of the transportation facility as discussed in this document.

Development of the proposed project will not induce adverse effects from storm runoff to the adjacent coastal waters and adjacent properties. The project is not anticipated to significantly impact area drainage patterns, and appropriate storm drain system improvements will be installed along the project corridor and integrated with the County system.

- 11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;***

The project corridor is not located within an environmentally sensitive area, nor is it situated within a geologically hazardous area. According to FEMA's Flood Insurance Rate Map (FIRM), Community Panel Number 150003 0161 C (August 3, 1998), the project corridor is located within areas designated as Zones A and C. Zone C is a "moderate to low risk" flood zone and the designation indicates "areas of minimal flooding." The project corridor is not located within any designated floodway or high risk area. The proposed project will be constructed in compliance with Building Code requirements and standards. This project will also include necessary site drainage improvements in compliance with the County's drainage standards. Plans will be submitted with the building permit application for ministerial agencies review.

There are no estuaries or significant fresh water resources in the immediate vicinity of the project. Thus, the project should not impact such resources. Potential water quality impacts to near shore coastal waters during construction of the project will be mitigated by adherence to State water quality regulations. A NPDES General Permit for Storm Water Associated with Construction Activity will be obtained. Compliance with the permit will mitigate potential adverse impacts to coastal waters.

- 12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;***

The proposed project is not anticipated to have significant impacts on notable view planes towards the project corridor, nor adversely affect important public viewing points or visual resources. As an at-grade roadway facility, the proposed project will not adversely affect the scenic and visual character of the surrounding and open agricultural lands. The

project corridor is located mauka and east of existing urbanized areas and does not encroach into scenic coastal view corridors.

The majority of important visual resources and viewing points identified in the *Maui Coastal Scenic Resources Study* and the *Lahaina Community Plan* are situated along the coastline and involve views beyond the project vicinity. The project will not have an effect on these views or resources. Residences located at higher elevations which have coastline views are not expected to have their view planes significantly impacted by the project.

**13) *Requires substantial energy consumption;***

Construction and operation of the proposed project will not require substantial energy consumption. The proposed transportation project will not create energy demands beyond that typical of highway infrastructure.

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# Appendix A

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Summary Meeting Notes for Public Information Meeting on

April 30, 2008

And

Pre-Assessment Consultation Letters



**SUMMARY MEETING NOTES**

**PUBLIC INFORMATION MEETING  
LAHAINA BYPASS - PHASE 1A HONOAPIILANI HIGHWAY REALIGNMENT  
FUTURE KEAWE STREET EXTENSION TO LAHAINALUNA ROAD  
FEDERAL AID PROJECT NO. HN-030-1(35)R**

**MEETING**

**DATE:** April 30, 2008  
5:00 p.m. open house; 6:00 p.m. presentation; 8:00 p.m. adjourn

**MEETING**

**LOCATION:** Lahaina Civic Center Community Meeting Room

**PERSONS**

**PRESENT:** Approximately 250 people (refer to attached meeting sign-in sheets), including:

- Members of the Public
- DOT Representatives
- Cultural Surveys Hawaii Archaeologists
- Wilson Okamoto Corporation Engineers and Planners
- Hawaiian Dredging Representatives

**PURPOSE:**

The purpose of the meeting was to apprise the community about the status of the project, including information on archaeological sites found within the project vicinity and two alternative alignments being considered to avoid the sites. This meeting was also held to allow for consultation pursuant to Section 106 of the National Historic Preservation Act of 1966. Public notice of the meeting was published in the April 17, 2008 issue of The Maui News. Flyers providing notice of the meeting were mailed to approximately 6,448 homes and businesses in the Lahaina Area.

**INFORMATION ITEMS:**

The meeting format included an "open house" session from 5:00 p.m., followed at 6:00 p.m. by an informational presentation on the project, question and answer session, and public comments. During the open house, attendees were provided the opportunity to ask questions and talk with DOT staff and consultants. Wall-mounted maps depicting the Phase IA project in relation to the surrounding geography and land uses were provided to aid discussion. The map displays were divided among three information stations: 1) Archaeological investigation of Site 2484 and Site 6277; 2) Overview of the entire Lahaina bypass project corridor from Launiupoko to Honokawai ; and 3) Alternatives to the original Phase IA road alignment that were evaluated and assessed to avoid impact to Site 2484.

At 6:00 pm, DOT opened the meeting with introductory comments. Consultant Wilson Okamoto Corporation (WOC) conducted an informational slide presentation. The presentation began with background information on the entire corridor to provide context for the Phase 1A project. Construction of Phase 1A had originally been scheduled to

commence in August 2007, prior to the May 2007 discovery of Site 2484 within the delineated road corridor. The presentation also discussed the inadvertent find of adjacent Site 6277, including the requirements of Section 106 and Section 4(f) regulations that must be addressed.

WOC summarized the archaeological work to date, consultation with agencies, organizations, and individuals to date, and the various alternative road alignments that were evaluated and eliminated. WOC described the two remaining alternatives under consideration and described the selection criteria for a preferred alternative. An environmental assessment (EA) would be prepared to assess the impacts associated with the preferred alternative. The presentation concluded with an overview of the EA process to be undertaken by the project team. The floor was opened for questions from the audience. Following the question and answer session, the floor was opened for comments on the project. To assure all interested parties a chance to participate, individuals who had signed up to provide comments were taken in order of sign-up, followed by individuals who decided to make impromptu comments. A total of 33 people signed up to provide comments.

Questions and comments are summarized below by topic area. Copies of the meeting sign-in sheets and the comment sign-up sheets are attached.

### **Summary of Questions:**

#### Procedure:

1. What Native Hawaiian groups were contacted under Section 106?

**Response:** *Na Kupuna O Maui, Lahaina Hawaiian Civic Club, OHA, Native Hawaiian Historic Preservation Council, and the Maui-Lanai Burial Council were contacted.*

#### Funding:

2. Is the money for this project protected so that they will not disappear back into the general fund?

**Response:** *The funds for this project are dedicated and will not lapse.*

3. What is the cost of Phase 1A construction and how much will it cost the public if the project goes over budget?

**Response:** *Phase 1A is programmed for \$47 million. Cost overruns will be paid through DOT's program. DOT does not have authority to increase taxes.*

4. The modification of the Phase 1A alignment will affect the County's proposed Keawe Street Extension project. Will this decrease the County's fiscal contribution to Phase 1A?

**Response:** *The modified Phase 1A alignment will reduce the scope of the County's Keawe Street Extension project. DOT and the County are considering*

*completing the Keawe Street Extension project as part of the Phase 1A construction, using County and Federal monies. After construction is completed, DOT would dedicate the Keawe Street Extension to the County.*

Construction:

5. *If Phase 1A is approved, how quickly can it get started? It took 40 minutes to pick up my wife at Lahainaluna tonight and bring her here. It would be a 10 minute drive if we had Phase 1A completed.*

**Response:** If the EA process is completed within the anticipated timeframe, we expect to begin construction in January 2009.

Archaeological Resources:

6. Is it true that the archaeological sites are probably around 70 to 75 years old?

**Response:** *Evidence at Site 6277 points to early historic era, hand-cultivated agriculture activities from the late 1800s to 1930s/1940s.*

7. Were archaeological studies completed for the whole Lahaina Bypass corridor? What happens if other archaeological resources are discovered and what are the associated costs?

**Response:** *The EIS for the Lahaina Bypass corridor included archaeological assessment of the entire alignment. Because inadvertent finds were made in the Phase 1A segment, additional archaeological surveys are being executed for Phases 1B, 1C, and 1D.*

**Summary of Oral Comments:**

Proceedure:

1. Section 106 of the NHPA of 1966 is quite invalid and has been superseded by PL 89-665, amended by 96-515, which means the (meeting) notice was falsely advertised. The (project area) is not in the USA, but in Moku O Maui.
2. Thanks to DOT and their consultant team for this public meeting, for their outreach to the community, and for their willingness to collect input from the public.
3. The State is to be commended for organizing this meeting and being sensitive to the cultural issues and public concerns.
4. All (government agency) leaders here tonight are liable in your individual capacities to protect the Native Hawaiian rights under Article 12, Section 7 of the State Constitution.
5. The land affected by the road is ceded land and, until that issue is resolved, none of this construction or planning should take place.

Archaeological Resources:

6. Our (Hawaiian) culture and the iwi (bones) of our kupuna is our life, what we live for. The bypass is going to encounter iwi. It's desecration.
7. The Lahaina Hawaiian Civic Club is grateful that the DOT is seeking alternatives to the destruction of cultural sites. We ask that this be completed as soon as possible and that you continue to talk with the Hawaiian community, especially the direct descendants of the kupuna who live on the offended lands.
8. The bypass may be necessary to provide a safer environment for tomorrow, but the first priority is to respect the iwi kupuna of the area. In the GPAC plan, 10,000 homes are planned once the bypass is completed. Money (revenue from development) is the issue, but our iwi kupuna is not for sale.
9. My grandfather carried his tutu's dead body up to Kahoma for burial. We cannot access the grave because it's gated. I disagree with this project.
10. Kuleana Kuikahi LLC would like to request that all work related to this project be placed on hold until the families retrieve the iwi kupuna that was taken from the burial area in Kahoma and see them reinterred where they belong. We are requesting all letters, memorandums, and any information from the County of Maui, SHPD, and other agencies that may have been consultant to the Kahoma Stream flood control project.
11. I am a construction worker who supports the bypass. We came across a lot of burials (in the past) and to respect (the burials), we moved them to other places. I believe in the burial council with their place set aside for our kupuna.
12. I think the archaeological area must be avoided, and what the DOT has done to avoid the site is the only option.

Traffic and Transportation Systems:

13. This bridge – I am against it. Napili still bottlenecks into one single lane. This project is not going to resolve the problem of Lahainaluna Road. Fix Napili first, then everybody that lives on the other side of Lahaina can benefit first.
14. I am for the bypass. People who live in the Lahainaluna area will have access to two ways of coming in and out of the area. This will benefit everyone, including students, school staff, visitors, delivery trucks, and emergency personnel.
15. The need for the Lahaina Bypass was recognized 30 years ago and must be built now, or future West Maui residents will regret we were not able to work out our problems and get this project going.
16. Either alternative is agreeable. Let's just choose one and get started.
17. The Mayor supports the Phase 1A project.

18. The old plantation cane haul road should be the preferred alternative.
19. The stop and go traffic is bad for gas mileage, and the bypass will help the situation.
20. The bypass is crucial to increasing the quality of life in West Maui. It will relieve traffic congestion and will be a lifeline in medical emergencies.
21. Phase 1A will immediately relieve traffic going to the other side, to South Maui, and up and down Lahainaluna.
22. I'm in favor of the bypass as well as the public transportation that is only now developing. Continued use of the individual car will only make things worse.
23. I love traffic and I'll sit in traffic the rest of my life rather than see something like this go forward.

Emergency Access and Public Facilities:

24. The children should be our first concern. It is a problem is that there is no other exit beside Lahainaluna Road during an emergency. The cane haul road alternative is too low (too far makai) because those three schools are above (mauka of) the cane road.
25. With all the alternatives considered, I don't see the DOT trying to ignore everyone's concerns and ram this project through. I'm Hawaiian too, and I would be the last one to sign off on any project that is going to endanger anything cultural. But I want to make sure that 3,000 students aren't going to be trapped during a fire, flood, or other emergency.
26. Lahaina Intermediate School has experienced a bomb scare and bad weather closures in the past, and the fear and anxiety experienced during these times is real. Children's safety is a top priority. DOT's willingness to seek an agreement among all parties is commendable.
27. Weekday mornings and afternoons, it is very difficult to travel up and down Lahainaluna Road. To have an ambulance travel on this road at those times of day is near impossible. We just need an alternate way out.

Growth and Development:

28. We're not against development; we're against developers that do not care about the land. We're going to kill this place and make it like Honolulu.
29. The traffic problem is caused by corporate business, politicians, committees of the past that allowed overdevelopment without requiring construction of proper infrastructure.

7338-05  
May 30, 2008

30. Everyone agrees and is in favor of preserving archaeological resources. However, land use and population pressure is increasing everywhere you go, and we have got to learn to deal with it.
31. This bypass is going to benefit the development companies. I feel anger because of the changes (urban development) this is going to bring.



DEPARTMENT OF  
**HOUSING AND HUMAN CONCERNS**  
COUNTY OF MAUI

CHARMAINE TAVARES  
Mayor  
VANESSA A. MEDEIROS  
Director  
LORI TSUBAKO  
Deputy Director

200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • PHONE: (808) 270-7805 • FAX: (808) 270-7165 • EMAIL: director.hhc@mauicounty.gov

July 28, 2008



Ronald A. Sato, AICP  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Sato:

**SUBJECT: Realignment of a Section of Honoopiilani Highway,  
Phase 1A (Lahaina Bypass)  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1 (35) R  
Pre-Assessment Consultation for Draft Environmental  
Assessment  
Lahaina District, Maui Island, Hawaii  
TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels**

We have reviewed the Draft Environmental Assessment (EA) Pre-Assessment Consultation Project Summary for the above subject project and wish to inform you that this Department has no comment to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

*Vanessa A. Medeiros*

VANESSA A. MEDEIROS  
Director of Housing and Human Concerns

xc: Housing Division

TO SUPPORT AND EMPOWER OUR COMMUNITY TO REACH ITS FULLEST POTENTIAL  
FOR PERSONAL WELL-BEING AND SELF-RELIANCE.

7338-05  
November 24, 2008



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Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Ms. Vanessa A. Medeiros, Director  
Housing and Human Concerns  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022**

Dear Ms. Medeiros:

Thank you for your letter dated July 28, 2008. We acknowledge that you have no comments to offer at this time.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

*Ronald A. Sato*

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation



CHARMAINE TAVARES  
Mayor

TAMARA HORCAJO  
Director  
ZACHARY Z. HELM  
Deputy Director  
(808) 270-7230  
Fax (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

July 25, 2008

Wilson Okamoto Corporation  
**Attention: Ronald A. Sato, AICP**  
1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826

**RECEIVED**  
AUG 01 2008  
WILSON OKAMOTO CORPORATION

**SUBJECT: Realignment of a Section of Honoapiilani Highway, Phase 1A**  
(Lahaina Bypass)  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1(35)R  
Pre-Assessment Consultation, Draft Environmental Assessment  
Lahaina District, Maui Island, Hawai'i  
TMK (2)4-5-021, 010, 015, and 031: Multiple Parcels

Dear Mr. Sato:

The Department of Parks and Recreation has no comments at this time. We will continue to work with you to ensure that there are no impacts to Parks property or operations.

Thank you for the opportunity to review and comment on this matter. Please feel free to contact me or Mr. Patrick Matsui, Chief of Parks Planning and Development, at 270-7387 should you have any other questions.

Sincerely,  
  
TAMARA HORCAJO  
Director

cc: Patrick Matsui, Chief of Parks Planning & Development  
Baron Sumida, CIP Coordinator Parks Planning & Development



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Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
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Fax: 808.946.2253  
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7338-05  
November 24, 2008

Ms. Tamara Horcajo, Director  
Department of Parks & Recreation  
County of Maui  
700 Halia Nakoa Street, Unit 2  
Wailuku, Hawaii 96793

**SUBJECT: Lahaina Bypass Modified Alignment**  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Dear Ms. Horcajo:

Thank you for your letter dated July 25, 2008. We acknowledge that you have no comments to offer at this time, and will continue to coordinate with your department to address any impacts on park facilities and operations.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,  
  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

CHARMAINE TAVARES  
Mayor  
JEFFREY S. HUNT  
Director  
COLLEEN M. SUYAMA  
Deputy Director



COUNTY OF MAUI  
**DEPARTMENT OF PLANNING**

August 5, 2008

**RECEIVED**  
SEP 08 2008  
WILSON OKAMOTO CORPORATION

Mr. Ronald Sato, AICP  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Sato:

**SUBJECT: PRE-CONSULTATION COMMENTS IN PREPARATION OF A DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED REALIGNMENT OF A SECTION OF HONOAPILANI HIGHWAY, PHASE 1A (LAHAINA BYPASS) AT MULTIPLE TIKI'S, LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII (EAC 2008/0036)**

The Maui Department of Planning (Department) is in receipt of the above-referenced document for the proposed Realignment of a Section of Honoapiilani Highway Phase 1A (Lahaina Bypass). The Department understands the proposed action includes the following:

- The applicant is the State Department of Transportation (SDOT) Highways Division;
- The proposed realignment of Phase 1A of the Honoapiilani Highway (Lahaina Bypass) is comprised of Ikena Avenue and Keawe Street;
- The proposed realignment is required due to the inadvertent discovery of an archaeological site identified as a large complex of agricultural terraces approximately 30 acres in size. Approximately two (2) acres of this site is located within the Phase 1A Right-of-Way;
- The Ikena Avenue extension will be aligned in the makai direction for approximately 2100 feet and connecting to a new T-intersection with Keawe Street;
- Also part of the Ikena Avenue extension is the construction of a single-span bridge crossing Kahoma Stream. This bridge will provide two-lane, two-way travel lanes; and

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
MAIN LINE (808) 270-7735; FACSIMILE (808) 270-7634  
CURRENT DIVISION (808) 270-8606; LONG RANGE DIVISION (808) 270-7214; ZONING DIVISION (808) 270-7253

Mr. Ronald Sato, AICP  
August 5, 2008  
Page 2

- Keawe Street will be realigned in the mauka direction for approximately 950 feet to intersection with a new T-intersection with Ikena Avenue. This portion.

Based on the foregoing, the Department provides the following comments in preparation of the Draft EA:

1. The land use designations for the project area are as follows:

- a. State Land Use – Agricultural
- b. Community Plan – Agricultural
- c. County Zoning – Agricultural
- d. Other – Located outside of the Special Management Area

2. The Department supports the intent of the proposed realignment to avoid cultural resources. However, it is requested that the Draft EA include a discussion on alternatives that would provide a free-flowing right turn for one and two lanes, in order to facilitate traffic flow.

3. The Draft EA should include a thorough discussion on how the proposed project meets the goals and objectives of the Maui County General Plan as well as the West Maui Community Plan.

Thank you for the opportunity to comment. Please include the Department on the distribution list for the Draft EA. Should you require further clarification, please contact Staff Planner Robyn Loudermilk, at [robyn.loudermilk@mauicounty.gov](mailto:robyn.loudermilk@mauicounty.gov) or at 270-7180.

Sincerely,

JEFFREY S. HUNT, AICP  
Planning Director

xc: Robyn L. Loudermilk, Staff Planner  
Kathleen Aoki, Staff Planner  
Mark King, GIS Analyst  
Joe Kruger, DPW  
General File

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K:\WP\DOCS\PLANNING\EAC\2008\0036\_LahainaBPR\RealignPhase\A\Comments.DOC

7338-05  
November 24, 2008



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Artesian Plaza, Suite 400  
Honolulu, Hawaii 96828 USA  
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Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Jeffrey S. Hunt, AICP, Planning Director  
Department of Planning  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahona Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Hunt:

Thank you for your letter dated August 5, 2008. We confirm the land use designation information provided for this project.

We acknowledge the Department's support for the proposed realignment to avoid the archaeological site. The project plans do include a northbound free-flowing right-turn at the intersection with Keawe Street to facilitate the movement of vehicles past this intersection. The Draft Environmental Assessment (EA) will include more information associated with this.

A discussion of the project's consistency with pertinent land use plans and policies will be provided in the Draft EA. This discussion will include the County's General Plan and West Maui Community Plan.

We appreciate your participation in the Draft EA pre-assessment consultation process. If you have any questions, please contact me at 946-2277.

Sincerely,

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

CHARMAINE TAVARES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director



COUNTY OF MAUI  
DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793

July 30, 2008

Telephone: (808) 270-7745  
Fax: (808) 270-7975

Mr. Ronald A. Sato, A.I.C.P.  
Wilson Okamoto Corporation  
1907 S. Beretania Street Suite 400  
Honolulu, Hawaii 96826



**SUBJECT: REALIGNMENT OF A SECTION OF HONOAPILANI HIGHWAY, PHASE 1A  
(LAHAINA BY-PASS)  
FUTURE KEAWE STREET EXTENSION TO LAHAINALUNA ROAD  
FEDERAL AID PROJECT NO. NH-030-1(35)R  
PRE-ASSESSMENT CONSULTATION FOR DRAFT ENVIRONMENTAL  
ASSESSMENT  
LAHAINA, HAWAII  
TMK: (2) 4-5-021, 010, 015 AND 031: MULTIPLE PARCELS**

Dear Mr. Sato:

We have reviewed your letter dated July 21, 2008, concerning pre-consultation comments for the future Lahaina By-Pass project.

The Department has no comments to offer at this point since the Keawe Street segment is under consideration by the State Department of Transportation to be included in the scope of the Lahaina By-Pass project.

If you have any questions regarding this matter, please call Cary Yamashita at 270-7745.

Sincerely,

MILTON M. ARAKAWA, A.I.C.P.  
Director of Public Works

CY:ncc(ED08-492)  
S:ENGALL\Cary\Misc Letters\2008\dealahainaby-pass.wpd

7338-05  
November 24, 2008



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Mr. Milton M. Arakawa, Director  
Department of Public Works  
Engineering Division  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015: portion of 010 & 888; 4-05-021: portion of  
003 and 022

Dear Mr. Arakawa:

Thank you for your letter dated July 30, 2008. We acknowledge that you have no comments to offer at this time, and confirm that the realignment of the Keawe Street extension will be included under this project and addressed in the Draft Environmental Assessment (EA).

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

CHARMAINE TAVARES  
Mayor



JEFFREY K. ENG  
Director  
ERIC H. YAMASHIGE, P.E., L.S.  
Deputy Director

**DEPARTMENT OF WATER SUPPLY**  
COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793-2155  
www.mauiwater.org

July 28, 2008

Mr. Ronald A. Sato, AICP  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96826

Dear Mr. Sato:

**Subject: Realignment of a Section of Honoapiilani Highway, Phase 1A  
(Lahaina Bypass)  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental  
Assessment  
Lahaina District, Maui, Hawaii  
TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels**

Thank you for requesting comments from the Department of Water Supply (DWS) for the subject pre-assessment consultation. The DWS has no comments at this time.

Sincerely,

  
JEFFREY K. ENG  
Director

xc: DWS Engineering Division

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JUL 30 2008  
WILSON OKAMOTO CORPORATION

"By Water All Things Find Life"

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November 24, 2008



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Mr. Jeffrey K. Eng, Director  
Department of Water Supply  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahama Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Eng:

Thank you for your letter dated July 28, 2008. We acknowledge that you have no comments to offer at this time.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

LINDA LINGLE  
GOVERNOR



KAREN SEDDON  
EXECUTIVE DIRECTOR

**STATE OF HAWAII**

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM  
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION  
677 QUEEN STREET, SUITE 300  
Honolulu, Hawaii 96813  
FAX: (808) 587-0600

EXECUTIVE ASSISTANT  
IN REPLY REFER TO:  
08:DEV/0191

August 4, 2008

RECEIVED  
AUG 06 2008  
WILSON OKAMOTO CORPORATION

Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826  
Attention: Mr. Ronald A. Sato, Project Manager

Dear Mr. Sato:

**Subject:** Realignment of a Section of Honoapiʻilani Highway, Phase 1A  
Lahaina By-Pass Highway  
Lahaina, Maui, Hawaii

The Hawaii Housing Finance and Development Corporation (HHFDC) acknowledges receipt of your letter dated July 18, 2008 requesting pre-assessment consultation comments. We understand that you are seeking agency input to assist with your preparation of the Draft Environmental Assessment, pursuant to Chapter 34-3, Hawaii Revised Statutes, of the realignment of a portion of the Lahaina By-Pass Highway to avoid an archaeological site.

The proposed realignment occurs within HHFDC's master planned Villages of Leialii residential project in Lahaina, Maui, Hawaii, TMK (2) 4-5-21: 3, por. 4, 13, 21, por. 22; 4-5-28: 70. Our comments are as follows:

1. The proposed realignment would not permit HHFDC to connect with the By-Pass Highway at its new intersection with the Keawe Street extension, and therefore prevents HHFDC from adequately accessing its lands mauka of the By-Pass Highway. To mitigate this, it is our understanding that the State of Hawaii Department of Transportation (DOT) has agreed to permit our project to have two intersections with the By-Pass Highway: one at the Leialii Parkway (north intersection) and another at a mid-point between Leialii Parkway and the new realigned By-Pass Highway and Keawe Street Extension (south intersection). This impact and mitigation should be described in the Draft EA.

Wilson Okamoto Corporation  
Attn: Mr. Ronald A. Sato, Project Manager  
August 4, 2008  
Page 2

2. The proposed realignment requires that the 56' right-of-way accesses to our properties on both sides of Keawe Street need to be approximately 750' south of the intersection of the By-Pass Highway and the Keawe Street extension. This is less than the County of Maui's distance requirements of 800' to 1,000' for a residential street and 1,800' for an arterial street. Please confirm that our access locations off of Keawe Street, as required by the proposed realignment, will be permitted by DOT and the County, or provide an acceptable location. Please include the location in the Draft EA.

3. We recommend that the widened portion of Keawe Street extend from the intersection of the By-Pass Highway and Keawe Street extension to our proposed access locations and also be included in the Draft EA.

Should there be any questions or comments regarding this matter, please contact Stan S. Fujimoto, Project Manager, at 587-0541.

Sincerely,



Karen Seddon  
Executive Director

c: Janice Takahashi, HHFDC Chief Planner  
Sue Sakai, Belt Collins Hawaii Ltd.

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96828 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
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Ms. Karen Seddon, Executive Director  
Hawaii Housing Finance & Development Corporation  
Department of Business, Economic Development & Tourism  
State of Hawaii  
677 Queen Street, Suite 300  
Honolulu, Hawaii 96813

SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Dear Ms. Seddon:

Thank you for your letter dated August 4, 2008. We confirm that the proposed realignment of the Phase 1A of the Lahaina Bypass Road will occur within a portion of the Hawaii Housing Finance & Development Corporation's (HHFDC) master planned Villages of Leialii project. We offer the following responses in the respective order of your comments:

We confirm that the realigned bypass highway segment would create a T-intersection with the planned extension of Keawe Street, and that direct access to this intersection will not be provided for HHFDC's Villages of Leialii development. Because the re-aligned T-intersection prevents an access from the Villages of Leialii's mauka lands at that location, we understand the State DOT has agreed to a relocation of an access to the bypass highway as described in your letter.

State DOT will provide two connectors within HHFDC's Villages of Leialii to the bypass highway as included in the State DOT's prior Final Supplemental Environmental Impact Statement (SEIS) in 2002. Impacts associated with the connectors would need to be addressed under environmental documents prepared for the Villages of Leialii development. Future plans for these connector roads should be coordinated with the State DOT.

Regarding a connection with Keawe Street for the Villages of Leialii development, our discussions with the County of Maui, Department of Public Works indicated that such a connection would be allowed. The State DOT will not have jurisdiction over this County roadway. Thus, coordination with the County of Maui by your department should be conducted at the appropriate time to determine its location and other design requirements. The State DOT would participate in this coordination, as necessary, to address location requirements from the bypass highway intersection.

7338-05  
November 24, 2008



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The Keawe Street extension is planned to be a two-laned County roadway at this time. This is consistent with County's proposed roadway plans as described in their environmental assessment document prepared for the Keawe Street extension before the proposed realignment of the bypass highway. Therefore, any future widening plans for Keawe Street resulting from your development should be more appropriately coordinated with the County of Maui.

We appreciate your participation in the Draft EA pre-assessment consultation process, and the State DOT will continue to coordinate the highway plans with your department. If you have any questions, please contact me at 946-2277.

Sincerely,

*Ronald A. Sato*  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation



## DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

STRATEGIC INDUSTRIES DIVISION  
235 South Beretania Street, Leleopapa A Kamehameha Bldg., 5<sup>th</sup> Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

LINDA LINGLE  
GOVERNOR  
THEODORE E. LIU  
LIEUTENANT GOVERNOR  
MARK K. ANDERSON  
DEPUTY DIRECTOR

Telephone: (808) 597-3807  
Fax: (808) 596-2536  
Web site: www.hawaii.gov/dbedt

July 25, 2008

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IN JUL 31 2008  
WILSON OKAMOTO CORPORATION

Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826  
Attention: Mr. Ronald A. Sato, Project Manager

Subject: Realignment of a Section of Honoapi'ilani Highway, Phase 1A  
(Lahaina Bypass)  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Maui Island, Hawaii  
TMK: (2) 4-5-021, 010, 015, and 031 Multiple Parcels

Dear Mr. Sato:

Thank you for the opportunity to participate in the pre-assessment consultation for the Draft Environmental Assessment for the Lahaina Bypass. We have no comments, recommendations, or requirements for this project.

Sincerely,

*Elizabeth Corbin*  
Elizabeth Corbin  
Acting Administrator

c: OEQC  
State DOT, Highways Division

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Ms. Elizabeth Corbin, Acting Administrator  
Strategic Industries Division  
Department of Business, Economic Development & Tourism  
State of Hawaii  
P.O. Box 2359  
Honolulu, Hawaii 96804

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahama Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Ms. Corbin:

Thank you for your letter dated July 25, 2008. We acknowledge that you have no comments, recommendations, or requirements to offer at this time.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

*Ronald A. Sato*  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

LINDA LINGLE  
GOVERNOR  
STATE OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879  
HONOLULU, HAWAII 96805

August 1, 2008

Mr. Ronald A. Sato  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Dear Mr. Sato:

Thank you for the opportunity to provide comments in the early consultation process of your anticipated Draft Environmental Assessment report on the realignment of a section of Honoopi'iiani Highway also known as "Lahaina Bypass" project located in Lahaina, Maui. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 620-9480.

Aloha and mahalo,

*Micah A. Kaue*  
Micah A. Kaue, Chairman  
Hawaiian Homes Commission

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AUG 04 2008  
WILSON OKAMOTO CORPORATION

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Micah A. Kane, Chairman  
Hawaiian Homes Commission  
Department of Hawaiian Home Lands  
State of Hawaii  
P.O. Box 1879  
Honolulu, Hawaii 96805

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahama Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Kane:

Thank you for your letter dated August 1, 2008. We acknowledge that you have no comments to offer at this time.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

*Ru a SA*  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

August 11, 2008

Wilson Okamoto Corporation  
1907 South Beretania Street Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Ronald A. Sato, Project Manager

Gentlemen:

Subject: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A, Lahaina, Maui

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Atta*  
Morris M. Atta  
Administrator

LAURA H. THELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSIONER OF WATER RESOURCES MANAGEMENT

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AUG 13 2008  
WILSON OKAMOTO CORPORATION



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 631  
HONOLULU, HAWAII 96809

July 28, 2008

MEMORANDUM

- TO:
- DLNR Agencies:
  - Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division - Maui District

FROM: Morris M. Alta  
 SUBJECT: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A  
 LOCATION: Lahaina, Maui, TMK: (2) 4-5-21, 10, 15, 31  
 APPLICANT: Wilson Okamoto on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 10, 2008.  
 If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

- Attachments
- We have no objections.
  - We have no comments.
  - Comments are attached.

Signed: *Eric T. Hirono*  
 Date: 8/6/08

RECEIVED  
LAND DIVISION

2008 AUG -b P 2: 20

DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

LA/MorrisAlta  
 Ref.: PreassesRealignHonoapiilaniPhaseI  
 Maui.427

COMMENTS

- We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone \_\_\_\_\_.
  - Please take note that based on the maps provided it appears that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones C and A4. The Flood Insurance Program does not have any regulations for developments within Flood Zone C however; it does regulate developments within Zone A4 as indicated in bold letters below. Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is \_\_\_\_\_.
  - Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.
- Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:
- Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
  - Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
  - Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
  - Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

- The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
- The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

Additional Comments: \_\_\_\_\_  
 Other: \_\_\_\_\_

Should you have any questions, please call Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed: *Eric T. Hirono*  
 ERIC T. HIRONO, CHIEF ENGINEER  
 Date: 8/6/08



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

RECEIVED  
AUG 15 2008  
WILSON OKAMOTO CORPORATION

August 13, 2008

Wilson Okamoto Corporation  
1907 South Beretania Street Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Ronald A. Sato, project manager

Gentlemen:

Subject: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A, Lahaina, Maui

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, Division of Aquatic Resources, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Atta*  
Morris M. Atta  
Administrator



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

RECEIVED  
LAND DIVISION

2008 AUG 12 A 10:31

STATE OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII

July 28, 2008

MEMORANDUM

TO:

- DLNR Agencies:
- Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division - Maui District

FP:

TP:

FROM: Morris M. Atta

SUBJECT: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A

LOCATION: Lahaina, Maui, TMK: (2) 4-5-21, 10, 15, 31

APPLICANT: Wilson Okamoto on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 10, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: \_\_\_\_\_  
Date: \_\_\_\_\_

RECEIVED  
AUG 28 P2: 05

LINDA LINGLE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
HONOLULU, HAWAII 96809

August 11, 2008

RECEIVED  
AUG 13 2008  
WILSON UJUMAKU CONSULTATION

Mr. Ronald A. Sato, AICP  
Wilson Okamoto Corporation  
1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, HI 96826

Dear Mr. Sato:

**SUBJECT:** Realignment of a Section of Honoapiʻiani Highway, Phase 1A (Lahaina Bypass)  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Maui, TMK: (2)-4-5-021, 010, 015 and 031; Multiple Parcels

**FILE NO.:** Federal Aid Project No. NH-030-1(35)R

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at [www.hawaii.gov/dlnr/cwrm/forms.htm](http://www.hawaii.gov/dlnr/cwrm/forms.htm).

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

DRF-GN 03/02/2006

Mr. Ronald A. Sato, AICP  
Page 2  
August 11, 2008

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

If there are any questions, please contact Ed Sakoda at 587-0234.

Sincerely,

KEN C. KAWAHARA, P.E.  
Deputy Director

DRF-GN 03/02/2006

1755

RS- AM

RECEIVED LAND DIVISION 2008 AUG 12 A 0:32



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION HONOLULU, HAWAII 96819



July 28, 2008

MEMORANDUM

- TO: DLNR Agencies:
- Div. of Aquatic Resources
  - Div. of Boating & Ocean Recreation
  - Engineering Division
  - Div. of Forestry & Wildlife
  - Div. of State Parks
  - Commission on Water Resource Management
  - Office of Conservation & Coastal Lands
  - Land Division - Maui District

FROM: Morris M. Alta

SUBJECT: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A

LOCATION: Lahaina, Maui, TMK: (2) 4-5-21, 10, 15, 31

APPLICANT: Wilson Okamoto on behalf of Department of Transportation

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by August 10, 2008.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*

Date: 10 Aug. 08



DIVISION OF AQUATIC RESOURCES - MAUI  
 DEPARTMENT OF LAND & NATURAL RESOURCES  
 130 Mahaloani Street  
 Wailuku, Hawaii 96793  
 August 11, 2008

To: Alton Miyasaka, Aquatic Biologist  
 Richard Skberry, Aquatic Biologist

From: *[Signature]*  
 Skippy Hau, Aquatic Biologist

Subject: Pre-assessment consultation for Realignment of a Section of Honoapiʻilani Highway, Phase 1A  
 TMK: (2) 4-5-21, 10, 15, 31 (DAR1755)  
 Comments due Morris Alta August 10, 2008

We agree with the proposed realignment away from the identified sites. These sites include terraces that were irrigated next to Kahomba Stream. These areas may also indicate low areas that could be susceptible to occasional flooding and natural drainage courses.

LINDA LINGLE  
GOVERNOR OF HAWAII



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

## Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

August 18, 2008

### MEMORANDUM

TO: Morris M. Atta, Administrator  
Land Division

FROM: Paul J. Conry, Administrator  
Division of Forestry and Wildlife

SUBJECT: Request for Comments: Pre-assessment consultation for Realignment of a Section of Honoapi'ilani Highway, Phase 1A, Lahaina, Maui  
TMK: 4-5-21: 10,15, 31 by Wilson Okamoto on behalf of State Department of Transportation.

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Division of Forestry & Wildlife for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Atta*  
for  
Morris M. Atta  
Administrator

Cc: Office of Planning

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LAND DIVISION

2008 AUG 19 P 2:13

DEPT. OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

*Paul J. Conry*

DOFAW has reviewed the subject project request for comments and provide the following for your consideration. Nene an endangered bird frequents this area in the fields and general vicinity of this project. Nene nesting season is between October to April. DOFAW request that the work is done between May and September to avoid impacts to nene nesting areas. Mitigating the potential impacts of seabird's attraction to exterior lights will require review by Maui Wildlife DOFAW staff for downed seabirds. Please use the suggested recommended prescriptions to mitigate this problem in the following website: <http://www.state.hi.us/dlnr/dofaw/fbrp/shearwaterlights.htm>. Please call Fern Duvall, (808) 873-3502 and John Medeiros (808) 873-3510 for questions regarding our review of this project. Thank you for the opportunity to address these issues.

C: John Cumming, Maui Branch Manager  
Fern Duvall, Wildlife Biologist, Maui DOFAW  
John Medeiros, Wildlife Biologist, Maui DOFAW

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96828 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Morris M. Atta Administrator  
Land Division  
Department of Land & Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Atta:

Thank you for the department's letters dated August 11, 2008, August 13, 2008, and August 20, 2008. We offer the following responses to the comments offered by your divisions:

**Engineering Division**

1. We acknowledge that the proposed project is located in Flood Zones C and the ultimate build-out of the proposed bridge will cross over a small portion of the flood control improvements implemented for Kahoma Stream (A4). Preliminary plans indicated the bridge would be above the 100 year flood elevations. However, the Draft EA will discuss this further.
2. We acknowledge that the proposed project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (CFR), whenever development is proposed within a Special Flood Hazard Area. Appropriate coordination with the County will also be conducted to address design issues.

**Commission on Water Resource Management**

1. Preliminary bridge design plans have been prepared and further design plans are being developed. If required based upon those design plans, a Stream Alteration Permit will be obtained for the proposed project.

**Division of Aquatic Resources**

1. We acknowledge the division's support for the proposed realignment away from the agricultural terraces identified as Site -6277. Impacts on flooding and drainage associated with the project area will be discussed in the upcoming Draft EA.

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96828 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

**Division of Forestry**

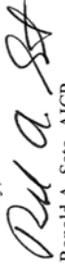
1. An avifauna and mammal survey will be conducted for the project area to identify resources and habitat that may be present in the area. However, we don't believe Nene may be present within the project area due to the probable lack of suitable habitat and presence of predators. Nene may be present in areas south of the project area in mauka lands near the high school above the Kelauea subdivision.

Construction of the project would need to occur during the nesting season from October to April due to the length of timeframe needed for construction activities. If necessary, a Nene nesting survey could be done at the appropriate time to prevent impacts to nests that are present.

2. Street lighting is planned to only be provided at the intersection area of the bypass highway with the Keawe Street extension. Street lights will be designed to comply with the recommendations identified to mitigate effects on seabirds.

We appreciate your participation in the Draft EA pre-assessment consultation process. If you have any questions, please contact me at 946-2277.

Sincerely,

  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

PHONE (808) 594-1888



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPIOLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

FAX (808) 594-1865

RECEIVED  
AUG 15 2008  
WILSON OKAMOTO CORPORATION

HRD08/1672D

August 11, 2008

Ronald Sato  
Wilson Okamoto Corporation  
1907 South Beretania St., Suite 400  
Honolulu, Hawaii 96826

**RE: Request for comments and pre-assessment consultation for draft environmental assessment (DEA), proposed re-alignment Lahaina bypass, Maui, TMK: 4-5-021, 010, 015, and 031; multiple parcels.**

Aloha e Ronald Sato,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated July 21, 2008. OHA has reviewed the project and offers the following comments.

OHA is pleased that the Department of Transportation is mindful of the negative effects that their original proposal will have on the inadvertent archeological find and have proposed a re-design. OHA is currently preparing comments for the cultural impacts survey being done by Cultural Surveys Hawai'i. Otherwise, we look forward to the DEA.

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold at (808) 594-0263 or e-mail him at [grantia@oha.org](mailto:grantia@oha.org).

'O wau iho no me ka 'oia i'ou,

*Clyde W. Nāmu'o*

Clyde W. Nāmu'o  
Administrator

C: Maui CRC

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Clyde Namuo Administrator  
Office of Hawaiian Affairs  
State of Hawaii  
711 Kapiolani Boulevard, Suite 500  
Honolulu, Hawaii 96813

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Dear Mr. Namuo:

Thank you for your letter dated August 11, 2008. We look forward to your comments on the cultural impacts assessment being prepared by Cultural Surveys Hawai'i.

We appreciate your participation in the Draft EA pre-assessment consultation process. If you have any questions, please contact me at 946-2277.

Sincerely,

*Ronald A. Sato*

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

CHARMAINE TAVARES  
MAYOR



DON A. MEDEIROS  
Director  
WAYNE A. BOTTELHO  
Deputy Director  
Telephone (808) 270-7511  
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Wailuku, Hawaii, USA 96793-2155

August 1, 2008

Mr. Ronald A. Sato  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Subject: Realignment of a Section of Honoapi'iiani Highway, Phase 1A

Dear Mr. Sato,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Don Medeiros  
Director

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Don Medeiros, Director  
Department of Transportation  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Medeiros:

Thank you for your letter dated August 1, 2008. We acknowledge that you have no comments to offer at this time.

We appreciate your participation in the Draft EA pre-assessment consultation process. Your letter along with this response, will be reproduced in the forthcoming Draft EA. If you have any questions, please contact me at 946-2277.

Sincerely,

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

# Lahaina Bypass Now



August 5, 2008  
Ronald Sato  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Subject: Realignment of a Section of Honoapiʻilani Highway, Phase 1A (Lahaina Bypass)  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Maui Island, Hawaii  
TMK: (2) 4-5-021, 010, 015 and 031; Multiple Parcels

Dear Mr. Sato:

Lahaina Bypass Now (LBN) thanks you for this opportunity to offer pre-assessment consultation on the realignment of Phase 1A. As you are aware, LBN has been a committed partner with DOT on the Lahaina Bypass project.

LBN along with the West Maui Community was disappointed at the halt of the long awaited construction start of Phase 1A in August 2007. At the same time, LBN completely understands and supports the process that the DOT has taken in order to mitigate the inadvertent archeological discovery.

During the archeological discovery and subsequent alternative route evaluation, Wilson Okamoto has taken great care in providing information to LBN which disseminates the information to the community via newsletters. In addition, Wilson Okamoto has continuously sought LBN's feedback on each step of the process. LBN has been very appreciative of Wilson Okamoto's "open-book" approach.

In addition, LBN is supportive of the chosen alternative route which will avoid the agricultural terraces (SHP #6277). Wilson Okamoto had presented over 9 different alternatives to LBN which would avoid, minimize or mitigate the impacts to the agricultural terraces. LBN supports the chosen alternative as it would still provide an alternative roadway system to West Maui and avoid the agricultural terraces. This alternative provides the best compromise to continue to build the bypass now.

505 Front Street, Suite 202 • Lahaina, HI 96761  
Telephone: 808-667-2516 • Fax: 808-661-2058  
[www.lahainabypassnow.com](http://www.lahainabypassnow.com) • [info@lahainabypassnow.com](mailto:info@lahainabypassnow.com)

Mr. Ronald Sato  
Pre-Assessment Consultation for Draft EA, Lahaina Bypass  
August 5, 2008

Page 2

Again, thank you for this opportunity to provide our supportive comments to DOT's process and chosen alternative. And, please let us know if there is anything that LBN can do to help expedite the process in order to start construction.

Sincerely,

Lahaina Bypass Now

cc: Laura Mau, Wilson Okamoto  
Brennon Morioka, State of Hawaii Department of Transportation

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Ms. Leilani Pulmano, Interim Executive Director  
Lahaina Bypass Now  
505 Front Street, Suite 202  
Lahaina, Hawaii 96761

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Ms. Pulmano:

Thank you for your letter dated August 5, 2008, in support of the proposed project. We acknowledge that Lahaina Bypass Now (LBN) supports the proposed alternative which would avoid the agricultural terraces and provide an alternative roadway to West Maui. We look forward to continuing to work with you.

We appreciate your participation in the Draft EA pre-assessment consultation process, as well as your commitment to this project. If you have any questions, please contact me at 946-2277.

Sincerely,

  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation



## West Maui Taxpayers Association

P.O. Box 40338, Lahaina, HI 96761 – Office (808) 661-7990 – Fax (808) 661-7992 – [wmta@maui.net](mailto:wmta@maui.net)

TO: Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 1 96826  
Attention: Mr. Ronald A Sato, Project Manager

**RECEIVED**  
AUG 07 2008  
WILSON OKAMOTO CORPORATION

Subject: Realignment of a Section of Honoapiilani Highway, Phase 1A  
Pre-assessment Consultation for Draft Environmental Assessment  
ALOHA,

Thank you for affording the West Maui Taxpayers Association (WMTA) an opportunity to review the alternative realignment of Phase 1A. We commend the Department of Transportation (DOT) for previously making so much information available on the issues surrounding the newly discovered archaeological site and the impact on Phase 1A, especially the special problems presented by the topography in that area.

After careful review of the alternative realignment proposed, the WMTA Board of Directors, representing the interests of over 3,000 WMTA members, strongly supports the proposed realignment. The Lahaina Bypass has been a priority for WMTA for many years, and our Board members and general membership have testified at many hearings and participated in countless briefings and discussions to show that support. We also urge the DOT to commence construction of this critical element in West Maui traffic abatement as soon as possible.

Completion of Phase 1A will immediately relieve congestion at the intersection of Lahainaluna Road and Honoapiilani Highway in the center of Lahaina Town. Of even greater importance, Phase 1A will provide an alternative outlet for the three schools on Lahainaluna Road in case of an emergency.

We thank DOT and their consultants for their measured and sensitive approach to the challenges presented by the archaeological site and the strong feelings of some in the Lahaina community. WMTA is convinced that Phase 1A will bring great benefits to our community. We especially appreciate your flexibility and your ability to adapt to changing conditions. WMTA believes that the proposed alternative is deserving of strong community support and that construction should proceed immediately.

Thank you again for the opportunity to comment on this issue.

  
Donald E. Lehman, President, West Maui Taxpayers Association

cc Breman Morioka, Director, Hawaii State Department of Transportation

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. Donald E. Lehman, President  
West Maui Taxpayers Association  
P.O. Box 10338  
Lahaina, Hawaii 96761

SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Lehman:

Thank you for your letter in support of the proposed project. The State DOT appreciates that the information provided to the community has been helpful in keeping you informed on the project.

We acknowledge your organizations support for the proposed realignment configuration. The completion of Phase IA will help alleviate traffic congestion and provide an alternative route for West Maui along with access to the schools and Kelawea subdivision area.

We appreciate your participation in the Draft EA pre-assessment consultation process, as well as your commitment to this project. If you have any questions, please contact me at 946-2277.

Sincerely,

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

## KAHOMA LAND LLC

33 Lono Avenue • Suite 450  
Kahului, HI • 96732

Phone 808 • 877-4202

Fax 808 • 877-9409

August 6, 2008

Mr. Ronald A. Sato, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96826

Re: *Realignment of a Section of Honoapiʻilani Highway, Phase 1A (Lahaina Bypass);  
Future Keawe Street Extension to Lahainaluna Road  
Federal Aid Project No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Maui Island, Hawaii*  
TMK: (2) 4-5-021, 010, 015, and 031; Multiple Parcels

Dear Mr. Sato,

Thank you for the opportunity to comment regarding the alternative realignment of the Phase 1A Lahaina Bypass project.

Kahoma Land LLC has lands mauka of the "Lahaina Bypass" and has discussed the need to have access to our mauka properties. State Department of Transportation, Highways Division officials had previously agreed to "establish a point of access to the Bypass for the mauka properties (Tax Map Key Nos. (2) 4-5-21-2 and 24) at the Keawe Street intersection." (Ref: #HW-R 3.85432)

In light of this proposed alternative realignment which affects the Keawe Street intersection, Kahoma Land LLC requests discussion to determine alternate point(s) of access to our mauka properties.

Thank you for the opportunity to review and comment on the proposed realignment. We look forward to working with you towards completing the long-awaited "Lahaina Bypass" to help address some of the traffic concerns of our community.

Sincerely,  
KAHOMA LAND LLC

James Riley, Member

Cc: B. Morioka, SDOT  
D. Yogi, SDOT  
M. Mimura, SDOT  
E. Suiffert, SDOT

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RECEIVED  
AUG 6 8 2008  
WILSON OKAMOTO CORPORATION

7338-05  
November 24, 2008



1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

Mr. James Riley  
Kahoma Land LLC  
33 Lono Avenue, Suite 450  
Kahului, Hawaii 96732

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of  
003 and 022

Dear Mr. Riley:

Thank you for your letter dated August 6, 2008. We note your company has lands located mauka of the bypass highway corridor, and there have been previous discussions with the State Department of Transportation (DOT) to establish an access point. The State DOT would continue coordinating with your company to address access for your mauka properties.

We appreciate your participation in the Draft EA pre-assessment consultation process. If you have any questions, please contact me at 946-2277.

Sincerely,

  
Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

## Verified Notice of Acceptance for Value

Notice by: Louella L., family of Haia,  
Sovereign, Title Principal, Secured  
Party, Lien Holder/Owner  
Of HAIA, PILI KEKAI, V.  
KAMAMALU, KAUIHI, WAHIE ©™

c/o 377-C Lahainaluna Road  
at Lahaina, Maui, at Ko Hawai'i Pae 'Aina

Notice date: August 19, A.D. 2008

Notice for: Cultural Surveys of Hawaii, Inc.  
1993 Main Street  
Waihuku, Hawaii 96793

Notice for: WILSON OKAMOTO CORP  
1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826

**RECEIVED**  
JUL SEP 04 2008  
WILSON OKAMOTO CORPORATION

### Verified Notice of Acceptance for Value

The above is made explicitly Under Reserve and without Recourse.

**In the matter of:** Your Offer of Contract, dated July 7<sup>th</sup>, A.D. 2008, Cultural Impact Assessment for the Honoopi 'Ihoni Highway Realignment Phase 1A, Future Keawe Street Extension to Lahainaluna Road, Alternative Alignment, Kelaewa, Paohi, and Waihukui Ahupua'a, Lahaina District, Maui Island, and,

**In the matter of:** Your Offer of Contract, dated August 11<sup>th</sup>, A.D. 2008 regarding Honoopi 'Ihoni highway Realignment Phase 1a, Federal Aid Project no. NH-030-1 (35), (Lahaina Bypass), future Keawe Street Extension to Lahainaluna Road, and,

In the name of God, amen, I, me addressee: Louella L., family of Haia, a sovereign, Titled Principal, Secured Party, without the UNITED STATES, hereby gives notice, to Colleen Dagan, d/b/a, COLLEEN DAGAN /PUBLIC SERVANT for Cultural Surveys of Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC. /PUBLIC SERVANT, and Wilson Okamoto Corp., d/b/a, WILSON OKAMOTO CORP. /PUBLIC SERVANTS, of my acceptance for value of your offer of contract, I am a belligerent claimant of all of my rights, I deny I am a corporation. I deny I am a beneficiary of the Trust known as "THE STATE OF HAWAII". Notice to the Agent is notice to the Principal. Notice to the Principal is Notice to the Agent.

Staying in honor, I Louella L., family of Haia, hereby and herein accept for value your presentation, i.e., offer of contract, dated July 7<sup>th</sup>, A.D. 2008, by to Colleen Dagan, d/b/a, COLLEEN DAGAN /PUBLIC SERVANT for Cultural Surveys of Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC. /PUBLIC SERVANT and Wilson Okamoto Corp., d/b/a, WILSON OKAMOTO CORP. /PUBLIC SERVANTS, dated, August 11<sup>th</sup>, A.D. 2008. However, after having given careful consideration to your offer, and the terms stated therein, I have decided that I do not wish to contract with you, for the following

Verified Notice of Acceptance for Value

Page 1 of 2

7338-05  
November 24, 2008



1007 South Kawili Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826 USA  
Phone: 808.946.2277  
Fax: 808.946.2253  
www.wilsonokamoto.com

**Verified Notice of Acceptance for Value**

reason(s), that (1) you have failed to state a claim upon which relief can be granted, and (2) you have not given us proof of the whereabouts of our Kupuana Iwi (\$).

For the record, I hereby and herein claim my right to common law jurisdiction and refuse statutory jurisdiction, and/or admiralty jurisdiction.

The foregoing is an instrument under contract law, and I hereby and herein explicitly reserve all of my rights without recourse. Failure to respond, nihil dicti, within three business days of receipt establishes your unconditional acceptance of the foregoing.

You have been notified.

Verification: I verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, Executed with honor, in good faith, with clean hands and at arm's length, on this date, 11/24/08, A.D., 2008, at Lahaina, on Maui, in Ko Hawaii'i Pe'e Aina.

Endorsement:

By: Louella L. Haia Seal  
Principal, Secured Party, Creditor, Respondent  
Secured Party's Exemption/Birth Certificate:  
#151-55-06577

Witness: By: Charles K. Haia  
Witness: By: Charles K. Haia

Ms. Louella L. Haia  
377-C Lahainaluna Road  
Lahaina, Hawaii 96767

SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Project Aid No. NH-030-1(35)R  
Pre-Assessment Consultation for Draft Environmental Assessment  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Dear Ms. Haia:

Thank you for your August 19, 2008 letter acknowledging receipt of the subject pre-assessment consultation package. We are uncertain, however, as to your intent. Your letter indicates that you are providing "Verified Notice of Acceptance for Value" for an "Offer of Contract, dated August 11th, A.D. 2008." It is our understanding that no "offer of contract" was made. We would like to clarify that the purpose of the August 11, 2008 pre-assessment consultation package was to request your input on the Lahaina Bypass Modified Alignment project.

We understand that Cultural Surveys Hawaii, Inc., with the support of the State DOT, has made information available to you regarding the efforts to trace the history and location of *Iwi Kupuana* associated with the U.S. Corps of Engineers (COE) Kahoma Flood Control project. We are unclear as to what is meant by your statement that "you have failed to state a claim upon which relief can be granted." Any future communications regarding this issue should be directed to the COE or State Historic Preservation Division.

We note your statement that you "hereby and herein claim [your] right to common law jurisdiction and refuse statutory jurisdiction and/or admiralty jurisdiction." It appears from this statement that you may not wish to be consulted further on this project. We would like to express our appreciation for your comments on the project thus far, and we remain interested in your input on the Lahaina Bypass Modified Extension project. We welcome your participation, should you decide to take part in the public review of the forthcoming Draft EA.

Sincerely,

Ronald A. Sato, AICP  
Project Manager

cc: Ms. Misako Mimura, State Department of Transportation

# Appendix B

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Summary Meeting Notes for Public Information Meeting on  
December 10, 2008

And

Draft Environmental Assessment Consultation Letters



SUMMARY MEETING NOTES

PUBLIC INFORMATION MEETING  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO KEAWE STREET EXTENSION

Meeting Date: Wednesday, December 10, 2008  
5:30 pm Open House  
6:15 pm Briefing and Discussion on the Draft Environmental Assessment  
for the Lahaina Bypass Modified Alignment - Northern Portion  
From Kahoma Stream to Keawe Street Extension  
7:00 pm Briefing and Discussion on the Pre-Construction Notification for  
Lahaina Bypass Phase 1A - Southern Portion From  
Lahainaluna Road to Kahoma Stream

Meeting Location: Lahaina Civic Center Community Meeting Room

Persons Present: Approximately 200 people, including:  
Members of the Public  
Elected Officials  
DOT Representatives  
Design Build Team Representatives  
- Hawaiian Dredging Construction Company  
- Wilson Okamoto Corporation  
- Cultural Surveys Hawaii

Purpose: The purpose of the meeting was to notify the community about the availability of the Draft Environmental Assessment (EA) for public review and comment and update information regarding archaeological sites found within the project vicinity, which includes the area from Kahoma Stream to the northern terminus, and up to and including the Keawe Street Extension (referred to as the Northern Portion). In addition, the meeting was conducted to notify the public of the start of construction for a portion of the Lahaina Bypass Phase 1A from Lahainaluna Road to Kahoma Stream (referred to as the Southern Portion). We note that the Southern Portion is outside the scope of the EA.

Two separate agendas were prepared for the meeting to discuss the Draft EA for the Northern Portion and pre-construction for the Southern Portion. The summary of only the Draft EA portion of the meeting is included below. However, comments and questions pertaining to the pre-construction portion are excluded from the summary minutes below as the southern portion was not part of the EA.

This meeting was also held to allow for consultation pursuant to Section 106 of the National Historic Preservation Act of 1966. Public notice of the meeting was published in the November 30, 2008 issue of *The Maui News* and *The Honolulu Advertiser*. Flyers providing notice of the meeting were

also mailed as an insert to *The Lahaina News* to more than 10,000 homes, businesses and post office boxes in the Lahaina area. Notice of availability of the Draft EA was published in the December 8, 2008 issue of the Office of Environmental Quality Control's (OEQC) *The Environmental Notice*.

### **INFORMATION ITEMS:**

The meeting format included an open house session from 5:30 pm, followed at 6:15 pm by a briefing and discussion on the project, question and answer session, and public comment period. During the open house, attendees were provided the opportunity to ask questions and talk with DOT personnel and consultants.

At 6:00 pm, DOT opened the meeting with introductory comments. Consultant Wilson Okamoto Corporation (WOC) provided an informational slide presentation of the Draft EA and updated archaeological information. The Draft EA included a comprehensive assessment of environmental and biological topics including, climate, topography and soils, air quality, noise, visual resources, natural hazards, botanical resources, avifauna and mammalian resources, hydrological resources, ground and surface water resources, aquatic resources and water quality, historic and archaeological resources, and cultural resources. Also included in the Draft EA was an assessment of social and economic contexts, infrastructure, utilities and public facilities, project compliance with regulatory plans and policies, and the consultation process. Supporting studies included a Biological Survey, Aquatic Biological and Water Quality Survey, Hazardous Materials Assessment, Archaeological Inventory Survey, and Cultural Impact Assessment. Based on the results of the work completed for the Draft EA, the DOT anticipated a Finding of No Significant Impact (FONSI) as outlined in the Anticipated Determination chapter of the report.

It was reported that the 30-day Draft EA public review period commenced on December 8, 2008, the date of publication in OEQC's *The Environmental Notice*, and will end on January 7, 2009. Written comments could be submitted at the meeting, mailed (post-marked by January 7, 2009), or submitted via facsimile. The public was further informed that all written comments and responses will be included in the Final EA. CDs of the Draft EA were made available at the meeting. A weblink was also provided for a downloadable pdf of the Draft EA via the OEQC's website: <http://www/hawaii.gov/help/environmental/oeqc>.

The floor was opened for questions and comments on the presentation. To ensure all interested parties a chance to participate, individuals who signed up to provide comments were called upon in sequential order. A total of thirteen people signed up to provide comments. Questions and comments received on the Draft EA are summarized below by topic area.

### **SUMMARY OF QUESTIONS:**

#### **Push Piles:**

What is a pushpile?

**Response:** A pushpile refers to a large pile of rocks associated with agricultural land clearing activities

When the pushpiles are disturbed, what is the plan to address possible archaeological findings?

**Response:** Two pushpiles were documented within and in proximity to the project site. Archaeological testing determined that both are late-historic era pushpiles associated with commercial sugar agriculture, and assigned State Inventory of Historic Properties (SIHP) numbers 50-50-03-6492 (SIHP 6492) and 50-50-03-6596 (SIHP 6596). Archaeological monitoring will be conducted during pushpile deconstruction and removal of SIHP 6596. An archaeological monitoring plan will be submitted to the State Historic Preservation Division (SHPD) for review and approval prior to performing monitoring work. No monitoring is anticipated for SIHP -6492 since the site is located outside the potential area of disturbance and will remain in place. In the event that significant pre-contact or historic deposits or human burials are exposed during construction, subsurface excavation work and/or surface grading will be halted in the immediate area and the SHPD staff archaeologist and cultural historian for Maui County will be contacted

#### **Keawe Street:**

Will there be a stop sign at the intersection of Keawe Street with the modified alignment?

**Response:** No, the intersection will be free-flowing. Upon completion of Phase 1C, however, the intersection will be signalized. A flow-through lane will also be constructed to allow north-bound travelers to bypass the signalized intersection.

Once the intersection is signalized, will the dominant movement be in favor of the bypass?

**Response:** It is anticipated that the signalization will be in favor of the bypass. Upon construction completion, however, DOT will conduct traffic counts and studies to evaluate the intersection and determine the dominant flow patterns.

#### **Funding:**

When will we see an improvement and what funds are being spent on this project versus the widening of the existing Honoapiilani Highway?

**Response:** To date, funds are committed for the construction of Phase 1A. The design of Phase 1B1 will be completed at the end of 2009, the project will be bid in 2010. An additional widening project along the existing Honoapiilani Highway is currently out to bid.

#### **SUMMARY OF COMMENTS:**

##### **Emergency Access and Safety:**

1. I've been a teacher at Lahainaluna High School for 16 years and have lived in the area behind the school complex for 16 years. Sixteen years ago, population at the Lahainaluna

School Complex was under 1,000 students. Currently, there are about 2,300 students and 200 staff, a total population of about 2,500 from Monday through Friday. Most are children. Times have changed and the schools are not as safe as they used to be. There have been two bomb threats over the past few years, and students are evacuated by physically walking to safety further up the hill. Lahainaluna Road provides the only access to and from the Complex, and is not an efficient way to get children and community members off the hill. During a graduation ceremony a couple of years ago, a student stepped on a red ant hill and required emergency attention. The area was too crowded, and the ambulance refused to come up the hill. The student's Mom had to drive him down the hill. Please give our children a safe and alternative way out.

2. I was born and raised in Lahaina. Not all archaeological sites are pre-Cook, but it's important to honor all sites. Sites give testimony to the intellect and spirituality of our kupuna. Our kupuna came here at the height of the Roman Empire. They represent us – the Kanaka Maoli. I support the project because of the bad planning that put all the schools at the top of hill. I'm not willing to sacrifice the life of one moopuna (child) for all the archaeological sites. Our moopuna are worth more than that.
3. I live in Launiupoko and I'm an eighth grader at Lahainaluna Intermediate School and I support the project. Often school traffic is really nuts. It used to be easy to get every where. We have emergency drills, but it would be best to have a second way out. A friend of mine was hit by a motorist and killed. If we hadn't had so much traffic, it would not have happened.
4. I am a student at Lahainaluna Intermediate School. The Bypass would make it safer and faster during emergencies. It may persuade people to build more homes and neighborhoods, but it would be cool to have our own Costco and Target so we wouldn't have to go to Kahului.
5. DOT's consultant met with Lahaina Hawaiian Civic Club (LHCC) and had a good discussion. LHCC has been speaking with many ohana and friends about many issues, specifically Hawaiian issues. One of the issues that really moved us was the safety of 2,245 children plus staff at Lahainaluna. They were concerned about the possibility of a brushfire and how to get everyone out.

#### **Traffic and Transportation Facilities:**

6. The Maui Hotel and Lodging Association membership consists of hotels, condos, timeshares and businesses. Collectively employ over 10,000 residents. We are in favor of this bypass and support DOT's plan to realign the road. The Lahaina Bypass is important to many people. It will provide residents and visitors ease of travel and help local and regional traffic. Visitors have averaged 30,000 to 40,000 per day, many of whom stay in or visit the west side. New residents also contribute to traffic. Project has been on the books for many years. The road was needed 20 yrs. ago. The Lahaina Bypass will be a welcome and long awaited relief for traffic issues on West Maui.

7. Lahaina is my hometown. My heart hurts to see our community divided. But I know that times change, so we need to change our methods on how to do things. I fear that I see more changes than my mom, grandmother, and greatgrandmother. I challenge the decision makers to think as Hawaiians do – seven generations back and forward. We can learn a lot from that. I'm also a daily commuter from Kihei and speak on behalf of many employees who need the road to come to work. I joined Lahaina Bypass Now, because I wanted to be a part of the solution. LBN volunteers our time to try to come up with solutions to get people off the road. We accomplished this with the commuter bus system that resulted in 500 cars off the road. Please show DOT that we support this. The majority of audience members responded by raising their hands.
8. The Mayor supports the project.
9. The West Maui Taxpayers Association (WMTA) has held community meetings for the last 30 years and the main issues have always been health and safety first, the bypass, and affordable housing. WMTA and the community have overwhelmingly supported the project for over 25 years.
10. We are eighth graders at Lahainaluna Intermediate School and we support it.
11. I am an eighth grader at Lahainaluna Intermediate School and I am against the bypass because more businesses, traffic, and vandalism will occur.

**Archaeological Resources:**

12. Everyone knows my position, I don't like it. I served on the Cultural Resources Commission, and currently on the Maui/Lanai Island Burial Council and the Native Hawaiian Historic Preservation Council of the Office of Hawaiian Affairs. I am representing myself and Kuleana Kuihahi LLC. I like the idea of creating a better environment for the schools, but why does it have to compromise historic properties? Consider myself to be a small minority in this town. The place has been run by corporations too long and we don't have the voice that we did before. My concerns rely heavily on the impacts to historic properties and iwi kupuna. As the project moves to the south side of the river it will be in our jurisdiction/kuleana; our ahupuaa (referring to the future phase of the Lahaina Bypass). I see great things for the benefit of the public community, and the forces here tonight but I speak for the kupuna and opio that are not yet born today.
13. I represent Kuleana Kuikahi LLC. We are trying to get iwi kupuna back to Kahoma. The issue is still not resolved. We have found their location now, but it's a separate issue to get them back. This whole place and scope of Kahoma has been addressed and I thank these people (project team) that have worked hard. We had so many meetings in regards to these historical sites and iwi kupuna. Our Kupuna lived here, so you are going to find remnants and iwi as digging goes along. An archaeologist should be on-site every inch of the way. This area was a habitat. We should have respect for them. If this highway gets built, we don't want to be responsible for accidents that should have been corrected from the beginning. Their voices have spoken since 2005.

**Land Ownership:**

14. There are problems with land acquisition, condemnation and quit claim deeds for ceded lands. These lands should not be transferred or sold until the issues are resolved. There should be no connectors to any projects on the west side. If there are, then those people should pay for it not us tax payers.

**Procedural Comments:**

15. Expressed support for the efforts of DOT's consultants which have been done diligently with an open heart and open mind. Commented that a coordinated community effort will result in a better project. I hope everyone can get together. When we have all our manao together, we will have a better project.
16. LHCC was impressed by the respectfulness and thoroughness of DOT's consultant and it's reflective in the Draft EA. Based on the report, LHCC endorses the construction of the road.
17. WMTA acknowledged the dedication and sensitivity to all the issues and we are very appreciative of the extra hard work and time.
18. We need to continue the dialogue and be sensitive, but we need to move forward.

The meeting to discuss the Draft EA was closed by 7:00 pm



United States Department of the Interior

U.S. GEOLOGICAL SURVEY  
Pacific Islands Water Science Center  
677 Ala Moana Blvd., Suite 415  
Honolulu, HI 96813  
Phone: (808) 587-2400/Fax: (808) 587-2401

December 12, 2008

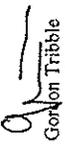
Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Attn: Ms. Misako Mimura  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

Dear Mr. Morioka:

Subject: Draft Environmental Assessment, Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension, Federal Aid Project No. NH-030-1(35)R, Lahaina District, Island of Maui, Hawaii, Tax Map Keys: 4-05-015; portion of 010, and 4-05-021; portion of 003 and 022

Thank you for forwarding the subject Petition for Amendment for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,  
  
Gordon Tribble  
Center Director

cc: Mr. Ronald Sato, AICP, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Ms. Katherine Puana Kealoha, Director  
State of Hawaii, Department of Health  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

7338-05  
December 4, 2008

Mr. Gordon Tribble, District Chief  
U.S. Department of the Interior  
Geological Survey  
677 Ala Moana Boulevard, Room 415  
Honolulu, Hawaii 96813-5412

Subject: Draft Environmental Assessment  
Lahaina Bypass Modified Alignment  
Kahoma Stream to Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010, and 4-05-021; portion of 003 and 022

Dear Mr. Tribble:

On behalf of the State of Hawaii, Department of Transportation, Highways Division, enclosed for your review is a copy of the Draft Environmental Assessment (EA) for the proposed Lahaina Bypass Modified Alignment, Kahoma Stream to Future Keawe Street Extension. The Draft EA has been prepared pursuant to Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Department of Health Administrative Rules. As part of the review process, we are soliciting any comments you may have on the proposed project. Please send your original comments to:

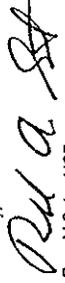
Mr. Brennon Morioka, Director  
State of Hawaii Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707  
Attn: Ms. Misako Mimura  
Facsimile: (808) 692-7555

Please send copies of your comments to the following:

Mr. Ronald Sato, AICP, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826  
Facsimile: (808) 946-2253

Ms. Katherine Puana Kealoha, Director  
State of Hawaii, Department of Health  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813  
Facsimile: (808) 586-4186

A notice of availability will be published in the December 8, 2008 issue of *The Environmental Notice*. In order for your comments to be considered in the forthcoming Final Environmental Assessment, they must be received or postmarked or faxed by January 7, 2009. We appreciate your participation in the environmental review process.

Sincerely,  
  
Ronald Sato, AICP  
Project Manager

Enclosure

cc: Misako Mimura, State Department of Transportation  
Katherine Puana Kealoha, Office of Environmental Quality Control



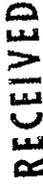
1907 South Beretania Street  
Aiea, Hawaii 96826 USA  
Phone: 808 946 2253  
Fax: 808 946 2253  
www.wilsonokamoto.com



WILSON OKAMOTO CORPORATION  
DEC 15 2008

U.S. GEOLOGICAL SURVEY  
PWSC  
HONOLULU, HAWAII

DEC 05 2008



LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5037

MAR 25 2009

Mr. Gordon Tribble, Center Director  
United States Department of the Interior  
U.S. Geological Survey  
Pacific Islands Fish and Wildlife Office  
677 Ala Moana Boulevard, Suite 415  
Honolulu, Hawaii 96813

Dear Mr. Tribble:

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 12, 2008 indicating that you will not be able to comment on the subject Draft Environmental Assessment. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

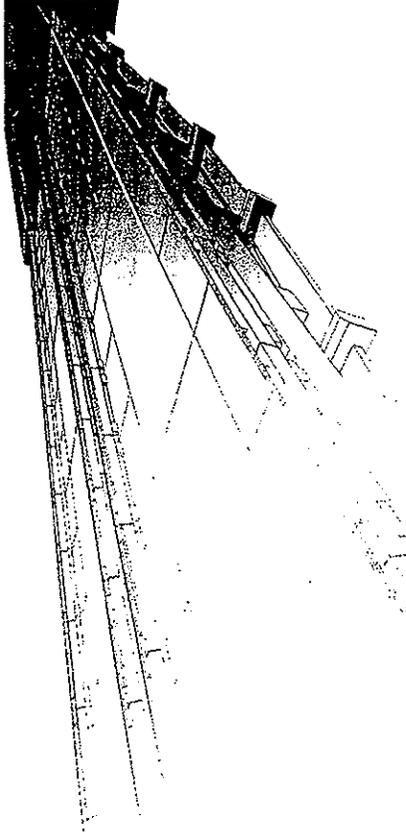
BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation



## Lahaina Bypass Modified Alignment

### Kahoma Stream to Keawe Street Extension

### District of Lahaina, Island of Maui



**Prepared for:**  
State of Hawaii  
Department of Transportation  
Highways Division

**Prepared by:**  
Wilson Okamoto Corporation

**November 2008**

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORNBY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUCHI  
JROA SUWADA

IN REPLY REFER TO  
HWY-DS 2,0621



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850



In Reply Refer To:
2009-TA-0058

JAN 07 2009

Mr. Brennon Morioka
State of Hawaii Department of Transportation
601 Kamokila Boulevard, Room 688
Kapolei, Hawaii 96707

Subject: Technical Assistance for Draft Environmental Assessment for Lahaina Bypass
Modified Alignment, Honoapiilani Highway, Lanuiupoko to Honokowai Project,
Maui, Hawaii

Dear Mr. Morioka:

As requested in a December 4, 2008, letter we received from Mr. Ronald Sato, Project Director
at Wilson Okamoto Corporation, we have reviewed the November 2008 "Draft Environmental
Assessment / Anticipated Finding of No Significant Impact for the Lahaina Bypass Modified
Alignment" (Draft Environmental Assessment) with regard to potential project impacts to listed
species. The project entails the realignment of approximately 1.06 miles of roadway within
Phase 1A (the initial phase) of the State of Hawaii Department of Transportation Honoapiilani
Highway, Lanuiupoko to Honokowai project (Federal Aid Project No. NH-030-1(35), commonly
known as the Lahaina Bypass, in West Maui, Hawaii. According to the Draft Environmental
Assessment an Environmental Impact Statement (DEIS) was completed for the remainder of the
Lahaina Bypass project in 1990.

The proposed project is located on the dry leeward side of West Maui, where wildland fires
interdependent with the action may affect endangered species and critical habitat. The proposed
section of road would, in conjunction with the remainder of the Lahaina Bypass project, increase
access for development, which may also result in an increased fire risk. We have reviewed the
information you provided and pertinent information in our files, including data compiled by the
Hawaii Biodiversity and Mapping Program, the Hawaii Geographic Analysis Program, and
Hawaii Department of Land and Natural Resources (DLNR) wildland fire history. According to
Glen Shishido (DLNR Staff) fuel load has increased within the project area where agricultural
land is fallow and our understanding of local fire behavior has advanced significantly since 1990.
We drafted a preliminary project action area to delineate the extent of the area which may be
impacted by wildland fires associated with the proposed roadway may impact resources
protected under the Endangered Species Act of 1973 (16 U.S.C. 1531-1544), as amended (ESA)
(Figure 1). The draft action area contains six listed animal species, seven listed plant species
(Table 1), and designated critical habitat for 19 plant species (Table 2). With the exception of
one plant species, all plants and critical habitat occurring within the drafted action area were



Mr. Brennon Morioka

listed or designated after 1990, when, according to Draft Environmental Assessment, the
Environmental Impact Statement for the Lahaina Bypass was completed.

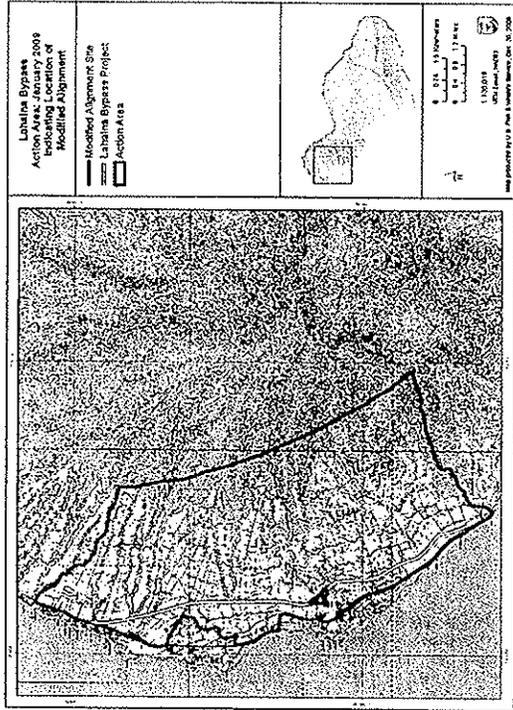


Figure 1. Lahaina Bypass modified alignment project action area.

Table 1. Threatened and endangered species occurring within action area.

Table with 4 columns: Scientific Name, Common Name, Status, Year Listed. Rows include Mammals (Lasius cinereus semotus), Birds (Branta sandvicensis, Galimula chloropus sandvicensis, Himantopus mexicanus knudseni, Pterodroma phaeopygia sandvicensis, Puffinus auricularis newelli), and Plants (Alectryon macrococcus, Colabrina oppositifolia, Creנית squamigera, Gauania hillebrandii, Remya mauiensis, Spermolepis hawaiiensis, Tetramolopium capillare).

Table 2. Critical habitat units occurring within the action area.

Scientific Name	Common Name	# of Units	Yr. Designated
<i>Alectryon macrococcus</i>	alaalahuu, mahoe	two	2003
<i>Colubrina oppositifolia</i>	kauiia	two	2003
<i>Ctenitis squamigera</i>	pauoa	three	2003
<i>Cyanea glabra</i>	haha	one	2003
<i>Cyanea lobata</i>	haha	one	2003
<i>Cyrtandra munroi</i>	haiwale	one	2003
<i>Dubautila plantaginea ssp. humilis</i>	naena'e	one	2003
<i>Gouania hillebrandii</i>	no common name	four	1984
<i>Gouania vitifolia</i>	no common name	one	2003
<i>Headyotis mannii</i>	pilo	one	2003
<i>Hesperomannia arbuscula</i>	no common name	one	2003
<i>Hibiscus brackenridgei</i>	mao hau hele	two	2003
<i>Isodendrion pyrifolium</i>	kula wahine noho	one	2003
<i>Lysimachia lydegatei</i>	no common name	two	2003
<i>Remya mauiensis</i>	Mauu remya	one	2003
<i>Neraudia sericea</i>	maaloa, maoloa	one	2003
<i>Phlegmariurus mannii</i>	wawae tole	one	2003
<i>Remya mauiensis</i>	no common name	two	2003
<i>Tetramolopium capillare</i>	no common name	one	2003

We recommend you address potential project impacts to these listed species and include measures to minimize adverse impacts to these resources in your environmental assessment. We also recommend you update the 1990 DEIS, addressing the entire Lahaina Bypass project, to incorporate changes in landscape-scale fire risk and potential project impacts to recently listed species. We provide the following recommendations to assist you in developing your planning documents:

- Construction equipment, signs, poles, and other structures associated with the project could pose a flight obstacle to the night-flying Hawaiian petrel and Newell's shearwater (collectively referred to as seabirds) during the breeding season. Any outdoor lighting, particularly during each year's peak fallow period (September 15 through December 15), could result in seabird disorientation, fallout, and injury or mortality. To avoid impacts to seabirds, the Draft Environmental Assessment indicates construction activities will not occur at night. Potential impacts to seabirds could be further minimized by shielding outdoor lights associated with the completed roadway. Street and roadway lights should be shielded so the bulb can be seen only from below.
- To avoid impacts to the endangered Hawaiian hoary bat, woody plants suitable for bat roosting should not be removed or trimmed during the bat birthing and pup rearing season (April to August) and use of barbed wire in fences should be prohibited. If this avoidance measure can not be implemented, surveys designed specifically for bats, are recommended in areas where tree cutting or fence construction is planned.

- The endangered Hawaiian goose may be attracted to ditches and mowed grass areas in the project area, increasing their vulnerability to collision with vehicles and exposure to domesticated animal predators. We recommend you coordinate with our office to address potential impacts to this species.

- A number of recent human-caused fires have escaped containment by the available interagency initial attack fire suppression forces, resulting in significant impacts to listed species and critical habitat in West Maui. The Maui Wildland Fire Coordinating Group is partnering with our office to coordinate the development of fuelbreaks, water sources for firefighting, fire prevention projects, and an increased fire suppression response to minimize the impact of human-caused wildfires to listed plants, animals, and critical habitat on Maui. We recommend you coordinate with Maui County Department of Fire and Public Safety, DLNR, and our office to ensure any wildland fire risk, interdependent with the proposed development, is minimized.

- We recommend the use of native plants for landscaping purposes in order to reduce the spread of non-native invasive species. If native plants do not meet your landscaping objectives, we recommend that you choose species that are thought to have a low risk of becoming invasive. The following websites are good resources to use when choosing landscaping plants: Pacific Island Ecosystems at Risk (<http://www.hear.org/PICR/>), Hawaii-Pacific Weed Risk Assessment ([http://www.botany.hawaii.edu/faculty/daehler/vrta/full\\_table.asp](http://www.botany.hawaii.edu/faculty/daehler/vrta/full_table.asp)) and Global Compendium of Weeds ([www.hear.org/gcv/](http://www.hear.org/gcv/)).

- To minimize erosion, sedimentation, and other adverse impacts to aquatic fish and wildlife resources and nearby coral reef ecosystems, we recommend that applicable measures identified in the enclosed list of Standard Best Management Practices for aquatic resources be incorporated into the project's plan.

If, you determine the proposed project may adversely impact federally listed species, please contact our office for further assistance. If a Federal agency is involved in funding or permitting the proposed project, then you and the Federal agency should begin coordination with our office pursuant to section 7(a)2 of the ESA. If a Federal agency is not involved with the proposed project and endangered or threatened species may be taken, an "Incidental Take Permit" should be obtained pursuant to section 10(a)(1)(B) of the ESA. If you have questions or would like additional information, please contact Dawn Greenlee, Fish and Wildlife Biologist (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,



Patrick Leonard  
Field Supervisor

Enclosure

LINDA LINGLE  
GOVERNOR

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUICH  
JROA P. SUWAGA



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
959 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IF REFERRED TO:  
HWY-DS 2.1312

MAR 25 2009

Dr. Patrick Leonard, Ph.D., Field Supervisor  
U.S. Department of the Interior  
Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Box 50888  
Honolulu, HI 96850

Dear Dr. Leonard:

Subject: Lahaina Bypass Modified Alignment  
Kahama Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated January 7, 2009 commenting on the subject Draft Environmental Assessment. On March 4, 2009, a meeting was conducted to discuss the comments raised in your letter. The meeting was attended by Ms. Dawn Greenlee of your office, Mr. Pat Phung of the Federal Highway Administration, Mr. Ed Sniffen and Ms. Misako Mimura of the Department of Transportation, and Ms. Laura Mau of Wilson Okamoto Corporation. Pursuant to discussions at the meeting, we offer the following responses to your comments:

We acknowledge your concern that the proposed project may increase the potential for fire risk in the region by increasing access for development. Based on our meeting, we understand that the USFWS is currently preparing a Draft Fuels Management and Fire Suppression Preparedness Plan. We look forward to reviewing the Draft Plan and coordinating with your office as may be appropriate. When the plan is finalized, we will consider mitigation measures that could be strongly recommended to responsible parties to address the potential for fire risk.

We have performed extensive consultation with the first responders, including the Maui Fire Department, during the consultation process of the DEA. They have agreed that the proposed project will improve emergency access for all first responders. Currently, Lahainaluna Road is the only access between Honouliuli Highway and the existing mauka developments, which include the residential subdivision of Kolawen Mauka, the Lahainaluna complex of schools, Kolawen Mauka Park, and two water reservoirs. The proposed project addresses the critical need to provide an alternative emergency exit for the thousands of residents, students, and school personnel that live and work in these areas. Moreover, the proposed highway itself will also serve as a fire break impeding fires from spreading between makai and mauka areas.

Enclosure

### U.S. Fish and Wildlife Service Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service recommends that the following measures be incorporated into projects to minimize the degradation of water quality and impacts to aquatic fish and wildlife resources:

- a. Turbidity and siltation from project-related work will be minimized and contained to within the vicinity of the site through the appropriate use of effective silt containment devices and the curtailment of work during adverse weather conditions;
- b. Dredging and filling in the aquatic environment will be designed to avoid or minimize the loss special aquatic site habitat (pool/niffle areas, wetlands, etc.) and the unavoidable loss of such habitat will be compensated for;
- c. All project-related materials and equipment (dredges, barges, backhoes, etc.) to be placed in the water will be cleaned of pollutants prior to use;
- d. No project-related materials (fill, revetment rock, pipe, etc.) will be stockpiled in the water (stream channels, wetlands, etc.);
- e. All debris removed from the aquatic environment will be disposed of at an approved upland or ocean dumping site;
- f. No contamination (trash or debris disposal, alien species introductions, etc.) of adjacent aquatic environments (stream channels, wetlands, etc.) will result from project-related activities;
- g. Fueling of project-related vehicles and equipment should take place away from the water and a contingency plan to control petroleum products accidentally spilled during the project will be developed. Absorbent pads and containment booms will be stored on-site, if appropriate, to facilitate the clean-up of accidental petroleum releases;
- h. Any under-layer fills used in the project will be protected from erosion with (rock, core-loc units, etc.) as soon after placement as practicable; and
- i. Any soil exposed near water as part of the project will be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.).

**MAR 25 2009**

A biological survey was conducted in conjunction with the DEA for the proposed project. Excerpts from the biological survey report are included in Sections 4.7 and 4.8 of the DEA, and the report in its entirety is included as Appendix D. No flora or fauna species currently listed as endangered, threatened or proposed for listing under either Federal or State of Hawaii endangered species statutes were recorded during the survey. Neither was any federally delineated Critical Habitat noted within or in proximity to the project site. In addition, no suitable roosting habitat for the Hawaiian Hoary Bat was identified.

As discussed during the meeting, the previous 1990 Environmental Impact Statement (EIS) and 2002 Supplemental EIS were prepared to evaluate the overall Lahaina Bypass Corridor, which spans from Launitupoko to the south toward Honokowai to the north. The subject DEA was prepared to evaluate only the modified portion within Phase 1A of the overall Lahaina Bypass Corridor. Therefore, the previous EIS documents will not be updated. We will be including mitigation measures to protect the endangered seabirds during implementation of the project, such as shielding lights. The Hawaiian Goose was not identified during the biological survey. However, if any are sighted in the project area during the construction period, we will contact your office to address potential impacts to this species.

We are planning to use native vegetation for landscaping purposes.

In December 2008, a National Pollutant Discharge Elimination System (NPDES) General Permit was approved by the State of Hawaii Department of Health. In conjunction with the NPDES Permit, a Best Management Practices (BMP) Plan was included for DOH's review and approval.

It is our understanding that the March 4, 2008 meeting concludes the Section 7 consultation process for the proposed project. We thank Ms. Greenlee for her time in meeting with us.

This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Msisako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

STRATEGIC INDUSTRIES DIVISION  
235 South Beretania Street, Laloopua A Kamahelema Bldg., 5<sup>th</sup> Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

LINDA LINGLE  
GOVERNOR

THEODORE E. LIU  
DIRECTOR

MARK K. JENSEN  
DEPT. DIRECTOR

Telephone: (808) 587-3087  
Fax: (808) 584-2634  
Web Site: www.hawaii.gov/ebdt



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO  
HWY-DS 2.1283

MAR 25 2009

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DEPT. OF TRANSPORTATION

December 12, 2008

Brennon Morioka, Director  
State of Hawaii Department of Transportation  
601 Kamohila Boulevard, Room 688  
Kapolei, Hawaii 96707

Attn: Ms. Misako Mimura

Re: Draft Environmental Assessment (EA)  
Lahaina Bypass Modified Alignment  
Kahona Stream to Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 and 4-05-021; portion of 003 and 022

In response to your December 4, 2008, notice, thank you for the opportunity to provide comments on the Draft Environmental Assessment (EA) for the Lahaina Bypass Modified Alignment. We have no comments at this time.

Sincerely,

Theodore Peck  
Administrator

c: OEQC  
Ronald Sato  
Katherine Puana Kealoha

TO: THE HONORABLE TED LIU, DIRECTOR  
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

ATTN: THEODORE PECK, ADMINISTRATOR  
STRATEGIC INDUSTRIES DIVISION

FROM: BRENNON T. MORIOKA, Ph.D., P.E.  
DIRECTOR OF TRANSPORTATION

SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHONA STREAM TO FUTURE KEAWE STREET EXTENSION  
FEDERAL AID PROJECT NO. NH-030-1(35)R  
DRAFT ENVIRONMENTAL ASSESSMENT  
LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII  
TAX MAP KEYS: 4-05-015; PORTION OF 010 & 888; 4-05-021;  
PORTION OF 003 AND 022

We have received your letter dated December 12, 2008 indicating that you have no comments on the subject DEA. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

LAURA R. THRELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT  
**RECEIVED**  
LAND DIVISION  
DEC 15 P 3:27  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

LAURA R. THRELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

**RECEIVED**

JAN 07 2009

TECHNICAL DESIGN SVCS. DEPT  
DEPT. OF TRANSPORTATION



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

LAURA R. THRELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT



January 5, 2009

Department of Transportation  
Highways Division  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

Attention: Ms. Misako Mimura

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Land Division-Maui District, Engineering Division, Commission on Water Resource Management, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Atta*

Morris M. Atta  
Administrator

Cc: OEQC  
Wilson Okamoto Corporation

MEMORANDUM

TO: DLNR Agencies:  
 Div. of Aquatic Resources  
 ~~Div. of Boating & Ocean Recreation~~  
 ~~Engineering Division~~  
 ~~Div. of Forestry & Wildlife~~  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division - Maui District

FROM: Morris M. Atta *M. Atta*

SUBJECT: Draft environmental assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension  
LOCATION: Lahaina, Maui, TMK: (2) 4-5-15:por 10 & 4-5-21:por 3 and 22  
APPLICANT: State Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 2, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Morris M. Atta*  
Date: 1/15/09

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08 DEC 8 P 4: 18

COMMISSION ON WATER  
RESOURCES MANAGEMENT

RECEIVED  
LAND DIVISION  
2008 DEC 31 A 9 47  
DEPT. OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

December 5, 2008

LINDA LINDLE  
CHAIRPERSON  
COMMISSION ON WATER RESOURCES MANAGEMENT



MEMORANDUM

- TO:
- DLNR Agencies:
    - Div. of Aquatic Resources
    - Div. of Boating & Ocean Recreation
    - Engineering Division
    - Div. of Forestry & Wildlife
    - Div. of State Parks
    - Commission on Water Resource Management
    - Office of Conservation & Coastal Lands
    - Land Division - Maui District

FROM: Morris M. Atta *M. Atta*

SUBJECT: Draft environmental assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawc Street Extension  
LOCATION: Lahaina, Maui, TMK: (2) 4-5-15:por 10 & 4-5-21:por 3 and 22  
APPLICANT: State Department of Transportation, Highways Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 2, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *Eric T. Hirano*  
Date: 12/23/08

Attachments

FILE ID: PD 20776  
DOC ID: 2591 ✓

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION

LD/Morris Atta  
Ref: DEA for Lahaina Bypass Modified Alignment Kahoma Stream to Keawc Street Extension  
Maui 002

COMMENTS

(X) We confirm that part of the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone A. The National Flood Insurance Program does regulate developments within Zone A as indicated in bold letters below.

We also confirm that the remainder of the project site according to the Flood Insurance Rate Map (FIRM), is located in Flood Zones C. The National Flood Insurance Program (NFIP) does not regulate developments within Zone C.

- Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is also located in Zone \_\_\_\_\_.
- Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is \_\_\_\_\_.
- (X) Please note that the project site must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Benn, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Mr. Robert Shimamoto at (808) 523-4254 or Mr. Mario Shi Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
- Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
- (X) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter. The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

Additional Comments: \_\_\_\_\_  
Other: \_\_\_\_\_

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: *Eric T. Hirano*  
ERIC T. HIRANO, CHIEF ENGINEER

Date: 12/15/08



LAURA L. THIELER  
DIRECTOR

LAURA L. THIELER  
DIRECTOR  
MICHELE J. CHING  
JAMES A. FRAZER  
HEAL S. FUJIMURA  
DANIEL K. HIRATA  
DANIEL K. HIRATA  
LAWRENCE K. MIKE, M.D., J.D.  
KEN C. MAWAMANDA, P.E.  
ADMINISTRATOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

P.O. BOX 521  
HONOLULU, HAWAII 96809

December 23, 2008

REF: RFD.2097.6

TO: Morris Atta, Administrator  
Land Division

FROM: Ken C. Kawahara, P.E. Deputy Director  
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment for Lahaina By-Pass Modified Alignment

FILE NO.: RFD.2097.6  
TMK NO.: (2) 4-5-015:010, (2) 4-5-021:003 and 022

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the internet at <http://www.hawaii.gov/dlnr/cwrmt>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. We recommend coordination with the Hawaii Department of Agriculture (HDOA) to incorporate the reclassification of agricultural zoned land and the redistribution of agricultural resources into the State's Agricultural Water Use and Development Plan (AWUDP). Please contact the HDOA for more information.
- 4. We recommend that water efficient fixtures be installed and water efficient practices implemented throughout the development to reduce the increased demand on the area's freshwater resources. Reducing the water usage of a home or building may earn credit towards Leadership in Energy and Environmental Design (LEED) certification. More information on LEED certification is available at <http://www.usgbc.org/leed>. A listing of fixtures certified by the EPA as having high water efficiency can be found at <http://www.epa.gov/watersense/epafixindex.htm>.
- 5. We recommend the use of best management practices (BMP) for stormwater management to minimize the impact of the project to the existing area's hydrology while maintaining on-site infiltration and preventing polluted runoff from storm events. Stormwater management BMPs may earn credit toward LEED certification. More information on stormwater BMPs can be found at <http://hawaii.gov/dbedt/czrm/initiative/id.ppt>.

Morris Atta, Administrator  
Page 2  
December 23, 2008

- 6. We recommend the use of alternative water sources, wherever practicable.
- 7. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM:

Additional information and forms are available at [http://hawaii.gov/dlnr/cwrmt/resources\\_permits.htm](http://hawaii.gov/dlnr/cwrmt/resources_permits.htm).

- 8. The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit is required prior to use of water.
- 9. A Well Construction Permit(s) is (are) required any well construction work begins.
- 10. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
- 11. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 12. Ground water withdrawals from this project may affect streamflows, which may require an in-stream flow standard amendment.
- 13. A Stream Channel Alteration Permit(s) is (are) required before any alteration(s) can be made to the bed and/or banks of a stream channel.
- 14. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is (are) constructed or altered.
- 15. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 16. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.

OTHER:

If there are any questions, please contact Robert Chong at 597-0266.

LINDA LINGGLE  
GOVERNOR OF HAWAII



LINDA H. THIELER  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
CO-ORDINATOR OF WATER RESOURCES MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

December 5, 2008

RECEIVED  
MAUI DISTRICT  
LAND DIVISION  
2008 DEC -9 PM 1:46

LINDA LINGGLE  
GOVERNOR OF HAWAII



LINDA H. THIELER  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
CO-ORDINATOR OF WATER RESOURCES MANAGEMENT

RECEIVED

JAN 2 2009

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

January 23, 2009

MEMORANDUM

TO:

- DLNR Agencies:
- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Maui District

FROM:

Morris M. Atta

SUBJECT:

Draft environmental assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension

LOCATION: Lahaina, Maui, TMK: (2) 4-5-15:por 10 & 4-5-21:por 3 and 22

APPLICANT: State Department of Transportation, Highways Division

Department of Transportation  
Highways Division  
691 Kamokila Boulevard Room 688  
Kapolei, Hawaii 96707

Attention: Ms. Misako Mimura

Ladies and Gentlemen:

Subject: Draft Environmental Assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR), Land Division distributed or made available a copy of your report pertaining to the subject matter to Division of Aquatic Resources for their review and comment.

The Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

*Morris M. Atta*  
Morris M. Atta  
Administrator

cc: OEQC  
Wilson Okamoto Corporation

Attachments

- ( ) We have no objections.
- ( ) We have no comments.
- ( ) Comments are attached.

Signed: *MMA*

Date: 12/24/08

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 2, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

BRENNON T. MORIOKA  
DIRECTOR  
Deputy Directors  
MICHAEL D. FOWLER  
FRANCIS PAUL KEENO  
BRANKY SEKIGUCHI  
JIRD A. SAKAIA

IN REPLY REFER TO  
HWY-DS 2.1282



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5697

MAR 25 2009

LINDA LINGLE  
GOVERNOR

TO: THE HONORABLE LAURA THIELEN, CHAIRPERSON  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: MORRIS M. ATTA, ADMINISTRATOR  
LAND DIVISION

FROM: BRENNON T. MORIOKA, Ph.D., P.E., DIRECTOR  
DEPARTMENT OF TRANSPORTATION

SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEA WE STREET EXTENSION  
FEDERAL AID PROJECT NO. NH-030-1(35)R  
DRAFT ENVIRONMENTAL ASSESSMENT  
LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII  
TAX MAP KEYS: 4-05-015; PORTION OF 010 & 888; 4-05-021;  
PORTION OF 003 AND 022

Thank you for the Department's letters dated December 15, 23, 24, and 29, 2008, and January 12, 2009. We offer the following responses to the comments provided by your divisions:

Engineering Division

1. Thank you for your confirmation that the proposed project is located in Flood Zones A and C as indicated in Section 4.5.2 in the DEA. Based on your letter, we understand that developments within these zones are not regulated by the National Flood Insurance Program. We note, however, that the proposed Kahoma Stream Bridge will be above the 100 year flood elevations.
2. We acknowledge that the proposed project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (CFR), whenever development is proposed within a Special Flood Hazard Area. Appropriate coordination with the County will also be conducted to address design issues.

Land Division - Maui District

We acknowledge that you have no comments.

LAURA B. WELLS  
GOVERNOR  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED  
LAND DIVISION

STATE OF HAWAII JAN 21 P 3 34  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION  
POST OFFICE BOX 60  
HONOLULU, HAWAII 96813-0060  
DEPT. OF LAND & NATURAL RESOURCES  
STATE OF HAWAII

December 5, 2008

MEMORANDUM

- TO: **DLNR Agencies:**  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division - Maui District

FROM: Morris M. Atta  
SUBJECT: Draft environmental assessment for Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension  
LOCATION: Lahaina, Maui, TMK: (2) 4-5-15;por 10 & 4-5-21;por 3 and 22  
APPLICANT: State Department of Transportation, Highways Division

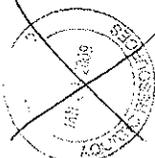
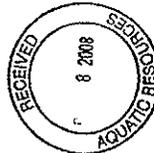
Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by January 2, 2009.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- ( ) We have no objections.
- (X) We have no comments.
- ( ) Comments are attached.

Signed: *[Signature]*  
Date: 12 Jan 09



MAR 25 2009

**Commission on Water Resource Management**

If required based upon design plans, a Stream Alteration Permit will be obtained for the proposed project.

**Division of Aquatic Resources**

We acknowledge that you have no comments.

This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).



LINDA LINGLE  
GOVERNOR

**STATE OF HAWAII**

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM  
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION  
677 QUEEN STREET, SUITE 300  
Honolulu, Hawaii 96813  
FAX: (808) 587-0600

KAREN SEEDON  
EXECUTIVE DIRECTOR

IN REPLY REFER TO:  
08/DEV/0251

December 19, 2008

Mr. Brennon T. Morioka, Director  
State of Hawaii Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707  
Attn: Ms. Misako Mimura

Dear Mr. Morioka:

**Subject:** Draft Environmental Assessment  
Lahaina Bypass Modified Alignment  
Kahoma Stream to Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Lahaina District, Island of Maui, Hawaii  
TMK: (2) 4-5-015: portion of 010  
(2) 4-5-021: portion of 003 and 022

The Hawaii Housing Finance and Development Corporation (HHFDC) acknowledges receipt of the above subject Draft Environmental Assessment, Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension, Lahaina, Maui, Hawaii, dated November 2008, for review and comment.

The Lahaina Bypass Modified Alignment discussed in the Environmental Assessment is within HHFDC's proposed Villages of Lei'ai'i master planned residential community, and we offer the following comments:

1. The landowners of the applicable portions of TMK (2) 4-5-021: 003 and 022 mentioned in Table 1-1, Project Summary, Section 1.3, Project Location and Vicinity, and Section 2.5.2, Property Ownership are as follows:
  - a. The Hawaii Housing Finance and Development Corporation is the fee simple owner of TMK (2) 4-5-021: 003;

Mr. Brennon Morioka, Director  
December 19, 2008  
Page 2

- b. The State of Hawaii, Department of Land and Natural Resources is the fee simple owner of TMK (2) 4-5-021: 022. HHFDC is the master developer of the Villages of Lei'ai'i project, which includes the portion of TMK parcel 022 under discussion in the Environmental Assessment.

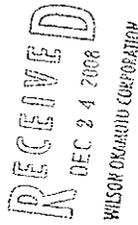
2. We request a copy of the archaeological survey report describing the location and scope of archaeological site #6277.

Thank you for the opportunity to provide comments to Draft Environmental Assessment for the Lahaina Bypass Modified Alignment.

Sincerely,

Karen Seeton  
Executive Director

- c. ✓ Ronald Sato, AICP, Project Manager, Wilson Okamoto Corporation  
Katherine Puana Kealoha, Director, Office of Environmental Quality Control  
Janice N. Takahashi, HHFDC Chief Planner



LINDA LINGLE  
GOVERNOR



BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORNEY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUCHI  
JIRO A. SUMIDA

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
860 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

IN REPLY REFER TO:  
HWY-DS 2.1284

TO: THE HONORABLE TED LIU, DIRECTOR  
DEPARTMENT OF BUSINESS ECONOMIC DEVELOPMENT & TOURISM

ATTN: KAREN SEDDON, EXECUTIVE DIRECTOR  
HAWAII HOUSING FINANCE AND DEVELOPMENT CORPORATION

FROM: BRENNON T. MORIOKA, Ph.D., P.E. *BT*  
DIRECTOR OF TRANSPORTATION

SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOA STREAM TO FUTURE KEA WE STREET EXTENSION  
FEDERAL AID PROJECT NO. NH-030-1(35)R  
DRAFT ENVIRONMENTAL ASSESSMENT  
LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII  
TAX MAP KEYS: 4-05-015; PORTION OF 010 & 888; 4-05-021;  
PORTION OF 003 AND 022

We have received your letter dated December 19, 2008 commenting on the subject DEA. Thank you for clarifying the land ownership of Tax Map Keys (2) 4-5-021; 003 and 022. Table 1-1, and Sections 1.3 and 2.5.2 have been revised accordingly. As requested, we will forward a copy of the archaeological report of Archaeological Site State Inventory of Historic Places No. 50-50-10-6277 upon availability. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).



LINDA LINGLE  
GOVERNOR



BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORBARY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUCHI  
JIRO A. SUMADA

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5007

IN REPLY REFER TO:  
HWY-DS 2.1285

MAR 2 5 2009

TO: THE HONORABLE LAURA THIELEN, CHAIRPERSON  
DEPARTMENT OF LAND AND NATURAL RESOURCES

ATTN: NANCY MCMAHON, DEPUTY SHPO/STATE ARCHAEOLOGIST  
STATE HISTORIC PRESERVATION DIVISION

FROM: BRENNON T. MORIOKA, Ph.D., P.E., DIRECTOR  
DEPARTMENT OF TRANSPORTATION

SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION  
FEDERAL PROJECT AID NO. NH-030-I(35)R  
DRAFT ENVIRONMENTAL ASSESSMENT  
LAHAINA DISTRICT, ISLAND OF MAUI, HAWAII  
TAX MAP KEYS: 4-05-015: PORTION OF 010 & 888; 4-05-021:  
PORTION OF 003 AND 022

We have received your letter dated March 11, 2009 with your determination of no adverse effect on culturally significant historic or archaeological properties. We acknowledge that your concurrence is based on compliance with the accepted archaeological mitigation work which will be completed as required. As described on page 4-78 and Figure 4-14 of the DEA, cultural access to lands located mauka of the project will be via a graded gravel road situated at the intersection of the realigned highway with Keawe Street. The gravel road will connect to an existing cane haul road that is presently used to access mauka areas. We will continue to coordinate with cultural practitioners and lineal descendants of the area to ensure mauka access within DOT's right-of-way.

This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We very much appreciate SHPD's time and participation during the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

CHARMAINE TAVARES  
MAYOR



DON A. MEDEIROS  
Director  
WAYNE A. DOTEILHO  
Deputy Director  
Telephone (808) 270-7511  
Facsimile (808) 270-7505

DEPARTMENT OF TRANSPORTATION

COUNTY OF MAUI  
200 South High Street  
Waikuku, Hawaii, USA 96793-2155

December 15, 2008

Mr. Brennon Morioka  
Director  
State of Hawaii Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

Subject: Draft EA Lahaina Bypass Modified Alignment

Dear Mr. Morioka,

Thank you for the opportunity to comment on this project. We have no comments to make at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Don Medeiros  
Director

Xc: Mr. Ronald Sato, AICP  
Ms. Katherine Puana Kealoha

LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5037

MAR 25 2009

Mr. Don Medeiros, Director  
County of Maui  
Department of Transportation  
200 South High Street  
Waikuku, Hawaii 96793

Dear Mr. Medeiros:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NFF-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 15, 2008 indicating that you have no comments on the subject DEA. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

RECEIVED

DEC 19 2008

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

BRENNON T. MORIOKA  
DIRECTOR  
Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENE  
RYAN H. SERKUGUE  
JIRO A. SUBAGA

IN REPLY REFER TO:  
HWY-15 2,0622

CHARMAINE TAVARES  
Mayor



**DEPARTMENT OF PARKS & RECREATION**

700 Halia Nekoa Street, Unit 2, Wailuku, Hawaii 96793

December 16, 2008

Brennon Morioka, Director  
State of Hawaii - Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

RE: Draft Environmental Assessment - Lahaina Bypass Modified Alignment  
Kahoma Stream to Keawe Street Extension - Federal Aid Project No. NH-030-1(35)R  
Lahaina District, Island of Maui, Hawaii  
TMK: (2) 4-5-015; por. of 010 and (2) 4-5-021; por. of 003 and 022

Dear Mr. Morioka:

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension, Federal Aid Project No. NH-030-1(35)R, Lahaina District, Island of Maui, Hawaii, at TMK: (2) 4-5-015; por. of 010 and (2) 4-5-021; por. of 003 and 022.

After review of the submitted Draft Environmental Assessment packet, we have no additional comment to offer concerning this portion of the overall project.

Should you have any questions or need of additional information from our Department, please feel free to contact me, or Patrick Matsui, Chief of Parks Planning & Development at 808-270-7931.

Sincerely,

Tamara Horcajo  
Director

c: Patrick Matsui, Chief of Parks Planning & Development  
Ronald Sato, Project Manager, Wilson Okamoto Corporation  
Katherine Puana Kealoha, Director, O.E.Q.C.  
Misako Mimura, State of Hawaii, Department of Transportation

LINDA LINGLE  
GOVERNOR

TAMARA HORCAJO  
Director  
ZACHARY Z. HELM  
Deputy Director

(808) 270-7230  
Fax (808) 270-7934



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Ms. Tamara Horcajo, Director  
County of Maui  
Department of Parks & Recreation  
700 Halia Nekoa Street, Unit 2  
Wailuku, Hawaii 96793

Dear Ms. Horcajo:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 16, 2008 indicating that you have no additional comments on the subject DEA. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENE  
BRIAN N. SENGUCHI  
JIRO A. SUHADA

IN REPLY REFER TO  
HWY-DS 2.1279

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORNEY  
FRANKS PAUL REEVE  
BRYAN H. SENOUCHE  
JURO A. SHIMADA

IN REPLY, REFER TO  
HWY-DS 2.0623



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
889 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

LINDA LINGLE  
GOVERNOR

200 South High Street  
Wailuku, Hawaii 96793-2155  
Telephone (808) 270-7855  
Fax (808) 270-7870  
e-mail: mayors.office@mauicounty.gov



OFFICE OF THE MAYOR  
County of Maui

December 17, 2008

Mr. Brennan Morioka, Director  
State of Hawaii Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, HI 96707

Dear Mr. Morioka:

Re: Draft Environmental Assessment – Lahaina Bypass Modified Alignment  
Kahoma Stream to Keawe Street Extension

The County of Maui has received and reviewed the above indicated information and concurs with the anticipated finding of no significant impact for this project. The County of Maui recognizes the extensive planning efforts that have been taken to avoid and minimize impacts to the environment, historical and cultural resources and the community in order to provide a transportation project that will benefit Maui County.

Please feel free to contact me directly or my Senior Executive Assistant, Marian Feenstra at 242-1180 if you need additional information. As always, thank you very much for your assistance to the County of Maui.

Aloha,

CHARMAINE TAVARES  
Mayor, County of Maui

CT:sz

cc: Marian Feenstra, Senior Executive Assistant  
Ronald Sato, Wilson Okamoto Corporation  
Katherine Puana Kealoha, State Department of Health

The Honorable Mayor Charmaine Tavares  
County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

Dear Mayor Tavares:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 17, 2008 concurring with our anticipated Finding of No Significant Impact. Thank you for your recognition of our efforts to consider the impacts to all environmental and community resources, and for your continued support and commitment towards the implementation of this project.

This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Msisako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

RECEIVED

DEC 22 2008

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION



DEPARTMENT OF  
**HOUSING AND HUMAN CONCERNS**  
COUNTY OF MAUI

2200 MAIN STREET • SUITE 546 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165  
MAILING ADDRESS: 200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • EMAIL [director.hhc@mauicounty.gov](mailto:director.hhc@mauicounty.gov)

December 29, 2008

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

Dear Mr. Morioka:

**SUBJECT: Draft Environmental Assessment Lahaina Bypass Modified Alignment Kahoma Stream to Keawe Street Extension Federal Aid Project No. NH-030-1(35)R Lahaina District, Island of Maui, Hawaii Tax Map Keys: 4-05-015; por. 010 and 4-05-021; por. 003 & 022**

We have reviewed the Draft Environmental Assessment for proposed Lahaina Bypass Modified Alignment, Kahoma Stream to Keawe Street Extension project and would like to inform you that we do not have any comment to offer.

Please call Mr. Wayde Oshiro of our Housing Division at 270-7355 if you have any questions.

Sincerely,

LORI TSUHAKO  
Director of Housing and Human Concerns

cc: Housing Division  
Mr. Ronald Sato, AICP, Project Manager, Wilson Okamoto Corporation  
Ms. Katherine Puana Kealoha, Director, Dept. of Health, OEQC

LINDA LINGLE  
GOVERNOR

CHARMAINE TAVARES  
Mayor  
LORI TSUHAKO  
Director  
JO-ANN T. BIDAO  
Deputy Director



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5087

MAR 25 2009

Ms. Lori Tshuhako, Director  
County of Maui  
Department of Housing and Human Concerns  
200 South High Street  
Wailuku, Hawaii 96793

Dear Ms. Tshuhako:

**Subject:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
**Tax Map Keys:** 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 29, 2008 indicating that you have no comments on the subject DEA. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

CHARMAINE TAVARES  
Mayor

MILTON M. ARAKAWA, A.I.C.P.  
Director

MICHAEL M. MIYAMOTO  
Deputy Director

Telephone: (808) 270-7845  
Fax: (808) 270-7955



COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
200 SOUTH HIGH STREET, ROOM NO. 434  
WAILUKU, MAUI, HAWAII 96793

January 6, 2009

**RECEIVED**

JAN 09 2009

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

Brennon Morioka, Ph.D., Director  
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

ATTENTION: Ms. Misako Mimura

Dear Dr. Morioka:

SUBJECT: **DRAFT ENVIRONMENTAL ASSESSMENT FOR LAHAINA  
BYPASS MODIFIED ALIGNMENT - KAHOMA STREAM TO  
KEAWE STREET EXTENSION; TMK: (2) 4-5-015:010  
(POR.), 4-5-021:003;003 AND 022 (POR.)**

We reviewed the subject application and have the following comments:

1. It is stated that the realigned Keawe Street Extension will be dedicated to the County after project completion. What is the anticipated delineation between State and County for the Lahaina Bypass?
2. Existing Roadway Facilities states: "The intersection of Keawe Street with Honoapiilani Highway is un-signalized." This is an incorrect statement as the intersection is signalized.
3. New Bridge Effects on Kahoma Stream states: "The incremental construction of the bridge crossing and shoring towers will require the use of vehicles and equipment in the stream channel, including excavators, dump trucks, loaders, bulldozers, flat bed trucks, compactors, concrete trucks, concrete pump vehicles, mobile cranes, and pile drivers and/or drill rigs. Erosion-control measures will be installed as required by permitting agencies. The existing

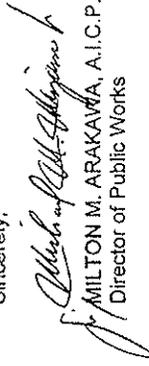
Brennon Morioka, Ph.D., Director  
January 6, 2009  
Page 2

access road to the Kahoma Stream Flood Control Project will be used to move vehicles and equipment in and out of the stream channel." Our concerns are that any damages to the existing access road needs to be repaired back to the original condition (or better). Dust control is needed in the non-concreted section of access road. Access to the Kahoma Stream Debris basin must be provided within a reasonable time for County response to needed maintenance and/or emergency activities. Modifications to the stream channel that may affect the Kahoma Stream flood-control facility needs to be reviewed by the U. S. Army Corps of Engineers/County of Maui. No dumping of concrete waste/wash water is permitted within the stream proper and within the access road. Any spillage of petroleum products needs to be promptly cleaned and removed. Any construction materials/fill used for the construction of the bridge that is washed away during a flood event will be required to be cleaned up downstream by the contractor(s).

4. The proposed makai bridge will cross over the Kahoma Stream Debris basin access road. There must be clearance for the heavy equipment (dump trucks, water tanker trucks, bulldozers, hydraulic excavators, loaders) used in the maintenance of the debris basin. Height clearance signs should be posted at the bottom of the bridge structure above the access road (similar to what is done on bridge overpasses).

Please call Michael Miyamoto at (808) 270-7845 if you have any questions regarding this letter.

Sincerely,

  
MILTON M. ARAKAWA, A.I.C.P.  
Director of Public Works

MMA:MMM:is  
xc: Highways Division  
Engineering Division

Ronald Sato, A.I.C.P., Project Manager, Wilson Okamoto Corporation  
Katherine Puana Kealoha, Director, Office of Environmental Quality Control  
S:\LUCAC2\MLah\_bypass\_kahoma\_to\_keaawe\_dep\_45015010\_45021003\_022\_is.wp



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 2 5 2009

Mr. Milton Arakawa, Director  
County of Maui  
Department of Public Works  
200 South High Street  
Wailuku, Hawaii 96793

Dear Mr. Arakawa:

**SUBJECT:** Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 603 and 022

We have received your letter dated January 6, 2009 commenting on the subject DEA. We offer the following responses in the respective order of your comments:

1. As you are aware, the Hawaii Housing Finance and Development Corporation, Department of Business, Economic Development & Tourism will not allow the transfer of TMK (2) 4-5-021-003, which is part of the Public Lands Trust, to a third party (County of Maui) until the ceded lands issue is resolved. Therefore, the State of Hawaii Department of Transportation will retain ownership and jurisdiction of the Keawe Street extension upon construction completion until the issue is resolved. At that time, the ownership and jurisdiction of Keawe Street will be conveyed to the County of Maui.
2. We acknowledge that the intersection of Keawe Street and Honoapiitani Highway was incorrectly described as "un-signalized", and have revised the sentence accordingly.
3. Erosion control measures will be installed prior to the start of construction. Any damages to the Kahoma Stream Flood Control Project access road resulting from the proposed project will be repaired and the access road will be restored to its pre-construction condition. Continued access for maintenance and emergency activities will be provided to the Kahoma Stream Debris basin.
4. The Phase IA (mauka) bridge will be constructed upstream of the Kahoma Stream Flood Control project and, therefore, will not affect the Flood Control project. Construction of the second (makai) bridge associated with the ultimate build-out of the overall Lahaina Bypass Corridor project will be constructed within the upper reaches of the Flood Control project. We have and will continue to coordinate with the U.S. Army Corps of Engineers and the County of Maui regarding both phases of work within Kahoma Stream.

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORBAY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUCHI  
JIRO A. SUWADA

IN REPLY REFER TO:  
HWY-DS 2.1286

Mr. Milton Arakawa, Director  
Page 2

MAR 2 5 2009

In December 2008, a National Pollutant Discharge Elimination System (NPDES) General Permit was approved by the State of Hawaii Department of Health. In conjunction with the NPDES Permit, a Best Management Practices (BMP) Plan was included for DOH's review and approval. The BMP Plan prohibits the discharge of concrete waste and wash water within Kahoma Stream and requires proper handling and clean up of petroleum products.

5. The design and construction of the proposed second (makai) bridge will comply with clearance requirements for equipment used to maintain the debris basin. We will consider posting height clearance signs at the bottom of the bridge structure above the access road.

This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Misako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

CHARMAINE TAVARES  
Mayor  
CHERYL K. OKUMA, Esq.  
Director  
GREGG KRESGE  
Deputy Director



COUNTY OF MAUI  
DEPARTMENT OF  
ENVIRONMENTAL MANAGEMENT  
2200 MAIN STREET, SUITE 100  
WAILUKU, MAUI, HAWAII 96793

February 2, 2009

Mr. Brennon Morioka, Director  
Attn: Ms. Misako Mimura  
State of Hawaii, Department of Transportation  
601 Kamokila Boulevard, Room 688  
Kapolei, Hawaii 96707

**SUBJECT: LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOA STREAM TO KEAWE STREET EXTENSION  
DRAFT ENVIRONMENTAL ASSESSMENT  
TMK (2) 4-5-015:010(POR) AND (2) 4-5-021:003 (POR.) AND 022,  
LAHAINA**

Dear Mr. Morioka,

We reviewed the subject project as a pre-application consultation and have the following comments:

1. Solid Waste Division comments:
  - a. None.
2. Wastewater Reclamation Division (WWRD) comments:
  - a. None.

if you have any questions regarding this memorandum, please contact Gregg Kresge at 270-8230.

Sincerely,

*Cheryl K. Okuma*  
Cheryl Okuma, Director

LINDA LINGLE  
GOVERNOR

TRACY TAKAMINE, P.E.  
Solid Waste Division  
DAVID TAYLOR, P.E.  
Wastewater Reclamation  
Division

RECEIVED  
FEB 05 2009  
TECHNICAL DESIGN STAFF  
DEPT OF TRANSPORTATION



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Ms. Cheryl Okuma, Director  
County of Maui  
Department of Environmental Management  
2200 Main Street, Suite 100  
Wailuku, Hawaii 96793

Dear Ms. Okuma:

Subject: Lahaina Bypass Modified Alignment  
Kahoia Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015: portion of 010 & 888; 4-05-021: portion of 003 and 022

We have received your letter dated February 2, 2009 indicating that the Solid Waste Division and Wastewater Reclamation Division have no comments on the subject DEA. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact. We appreciate your participation in the EA consultation process.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

*Brennon Morioka*

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORNEY  
FRANCIS PAUL KEGGIO  
BRIAN H. SERKICZYN  
JUDY A. SUJADA

IN REPLY, REFER TO  
HWY-D.S. 2.1281

LINDA LINGLE  
GOVERNOR



BRENNEN T. MORIOKA  
DIRECTOR

DEPUTY DIRECTOR  
MICHAEL J. FORBARY  
FRANCIS PAULI-NEEKO  
BRUNYI BERGBOFF  
JINOA SIMONA

IN REPLY REFER TO:  
HWY-DIS 2.1287

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5087

MAR 25 2009



December 10, 2008

Mr. Brennan Morioka, Director  
State of Hawaii, Department of Transportation  
601 Kamokila Blvd., Room 688  
Kapolei, HI 96707

Dear Director Morioka,

I am providing my written comments in favor of the Lahaina ByPass.

I represent the Maui Hotel & Lodging Association - in our membership includes approximately 40 properties (consisting of hotels, condos & timeshares) and 80 various businesses who have an interest in the visitor industry. Collectively we employ over 10,000 Maui county residents.

We are in favor of the Lahaina ByPass and support the Department of Transportation's plan to realign the road.

The Lahaina Bypass is important to many. It will provide both visitors and residents an ease of travel when trying to simply get from the Kahului Airport to their destination beyond Kaanapali, while also easing the local traffic for those needing to be in the Lahaina Town area. Each day up until this year visitors have numbered 30-40,000 a day on the island - many of which either stay on the West Side beyond Lahaina Town or visit there on day trips. Additionally, there has been a buildout of housing units beyond Ka'anapali and those residents contribute to the traffic issues in Lahaina as well. This project has been on the books for many, many years and if we fell it was needed 20 years ago, take a look at our growth since then.

The Lahaina ByPass will be a welcome & long-awaited relief for traffic!

Sincerely,

Carol Reimann  
Executive Director

Ms. Carol Reimann, Executive Director  
Maui Hotel and Lodging Association  
1727-B Willi Pa Loop  
Waituku, HI 96793

Dear Ms. Reimann:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated December 10, 2008 commenting on the subject project. We appreciate the continued support from the Maui Hotel & Lodging Association for the proposed project. Thank you for your interest and participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Mimura@hawaii.gov).

Very truly yours,

Brennon T. Morioka, Ph.D., P.E.  
Director of Transportation

Mr. Brennon Morioka, Director  
 State of Hawaii  
 Department of Transportation  
 Highways Division - Design Branch  
 601 Kamokila Blvd., Room 688  
 Kapolei, Hawaii 96707  
 Attention: Ms. Misako Mimura, P.E., Project Manager

LINDA LINGLE  
 GOVERNOR



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 869 PUNCHBOWL STREET  
 HONOLULU, HAWAII 96813-5097

MAR 25 2009

IN REPLY REFER TO:  
 HWY-753 2.1288

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

*DOT has failed the west Maui community for decades - MANY decades  
 The state has taken our money without respect.  
 Promises have been made and broken, made and broken over and over.  
 It is time to make things right and regain some lost respect.  
 Please do not continue to fool us. I want to see this in my lifetime - All of it.  
 30 years I've worked on this and waited.  
 (1) START! get going -- do it.  
 (2) Consolidate I-B-1 & I-B-2 - they need to be done together  
 (3) I-C may be more useful than I-B. Neither end will make any difference w/out the other.  
 (4) Do what ever possible to accelerate I-B & I-C  
 (5) See #1  
 This is way past due, we've paid, we've been duped, we waited, Now PLEASE just get it done.*

PLEASE PRINT: Name: Jim Hentz Phone: 810.3933  
 Organization: \_\_\_\_\_  
 Address: 320 Ekoa Place  
Wailuku HI 96793  
 Email: jhentz@armhi.com

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

Mr. Jim Hentz  
 320 Ekoa Place  
 Wailuku, HI 96793

Dear Mr. Hentz:

Subject: Lahaina Bypass Phas Modified Alignment  
 Kahoma Stream to Future Keawe Street Extension  
 Federal Aid Project No. NH-030-1(35)R  
 Draft Environmental Assessment (DEA)  
 Lahaina District, Island of Maui, Hawaii  
 Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 622

Thank you for providing your comment letter to us at the Public Information Meeting conducted on December 10, 2008. We recognize your concerns regarding the delays encountered throughout the planning and design process for the subject project. In compliance with regulatory requirements, extensive time and effort have been invested to consider possible alternative alignments and to evaluate the potential impacts to all environmental and community resources associated with each alternative. We appreciate your patience and continued support for the proposed project and look forward to the completion of the Lahaina Bypass.

With regard to your suggestion to consolidate Phases IB-1 and IB-2 of the overall Lahaina Bypass, the project was phased based on funding availability. However we will be looking for ways to expedite the project. We concur with your comment about the importance of Phases I-B and I-C, and we are committed to the implementation of all phases of the Lahaina Bypass in its entirety.

Thank you for your interest and participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msakko.K.Mimura@hawaii.gov](mailto:Msakko.K.Mimura@hawaii.gov).

Very truly yours,

Brennon T. Morioka, Ph.D., P.E.  
 Director of Transportation

Mr. Brennan Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707

Attention: Ms. Misako Mimura, P.E., Project Manager

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

*I think it's a no brainer that  
Lahaina Bay Pass is long  
over due. The biggest reason being  
is the safety of all people  
living on the highway Lahaina Lina  
Road.  
I appreciate all the volunteers  
that have spear headed this  
project up to this point.  
It is a county shame that  
we must make demands so much  
money to our state but yet  
see so little improvements.*

PLEASE PRINT: Name: Chuck & Paula Loewen (include additional sheets as necessary)  
Organization: Residence of Paula Phone: \_\_\_\_\_  
Address: P.O. Box 1112  
Email: \_\_\_\_\_

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

LINDA LINGLE  
GOVERNOR



BRENNON T. MORIOKA  
DIRECTOR

Deputy Director:  
MICHAEL D. FORBAY  
FRANCIS PAUL KEENE  
BRIAN H. BERGICH  
JIRO A. SAWADA

IN REPLY REFER TO  
HWY-D.S. 2.1290

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Mr. and Mrs. Chuck and Paula Loewen  
P.O. Box 1112  
Lahaina, HI 96761

Dear Mr. and Mrs. Loewen:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Thank you for providing your comment letter to us at the Public Information Meeting conducted on December 10, 2008. Thank you for your recognition of our efforts to evaluate possible alternative alignments and to assess the potential impacts to all environmental and community resources associated with each alternative. We appreciate your continued support for the proposed project and we are committed to the implementation of the long-awaited Lahaina Bypass.

Thank you for your interest and participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Sincerely,

Brennan T. Morioka, Ph.D., P.E.  
Director of Transportation

Mr. Brennon Morioka, Director  
 State of Hawaii  
 Department of Transportation  
 Highways Division - Design Branch  
 601 Kamokila Blvd., Room 688  
 Kapolei, Hawaii 96707  
 Attention: Ms. Misako Mimura, P.E., Project Manager

LINDA LINGLE  
 GOVERNOR



STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 669 PUNCHBOWL STREET  
 HONOLULU, HAWAII 96813-5087

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

*Thank you all for your dedication, time & effort.  
 It is hereby appreciated!!*

- 1) What Keawe Subdivision corridor would be  
 why not extend South through undeveloped  
 lands existing at Lot 400 Mill St. & Keawe  
 rather than utilizing Subdivision La-haina  
 which is already heavily used?*

*1) From tonight's discussion it seems enormous  
 land-shifting will be experienced with the  
 closure of Keawe St. to an alternate exit  
 for the bypass plan. It seems very important  
 for safety of pedestrian traffic as well.*

PLEASE PRINT: Name: CHARIE PAISHON Phone: 667.7022  
 (include additional sheets as necessary)

Organization: \_\_\_\_\_  
 Address: 62 Puukuihi Pl. # 2  
LAHAINA, HI 96761  
 Email: n/a

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

BRENNON F. MORIOKA  
 DIRECTOR  
 Deputy Directors:  
 MICHAEL D. FORBES  
 FRANCIS PAUL SEEBIG  
 BRYAN H. SERGIOSON  
 JIRO A. SORIMACHI  
 IN REPLY REFER TO:  
 HWY-DS 2.1291

MAR 25 2009

Ms. Claire Paishon  
 52 Puukuihi Place, #2  
 Lahaina, HI 96761

Dear Ms. Paishon:

Subject: Lahaina Bypass Modified Alignment  
 Kahoma Stream to Future Keawe Street Extension  
 Federal Aid Project No. NH-030-1(35)R  
 Draft Environmental Assessment (DEA)  
 Lahaina District, Island of Maui, Hawaii  
 Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Thank you for providing your comment letter to us at the Public Information Meeting conducted on December 10, 2008. We appreciate your support and recognition of our efforts to evaluate possible alternative alignments. In compliance with regulatory requirements, extensive time and effort have been invested to consider possible alternative alignments and to evaluate the potential impacts to all environmental and community resources associated with each alternative. The following responses are provided in the respective order of your comments:

1. We acknowledge your suggestion to consider an alternative alignment that would utilize the lands located makai of the proposed alignment and closer to Honoapiʻilani Highway, as well as utilize alternative connection points either at Mill or Aholo Streets rather than Lahainaluna Road. It appears that your suggested alignment is similar to the "cane haul road" alternative that was evaluated in an Environmental Impact Statement prepared by DOT in November 1990.

The cane haul road alternative was evaluated in an Environmental Impact Statement prepared by DOT in November 1990. This alternative was eliminated from consideration due to its impact to the former Pioneer Mills site and Maui Electric Company station, and proximity to Honoapiʻilani Highway, among other reasons. Subsequently, in 2008, in conjunction with the subject DEA, the DOT evaluated fifteen alternatives, including a re-evaluation of the "cane haul road" alternative.

As presented in the DEA and during the Public Information Meeting conducted on December 10, 2008, this alternative was eliminated again for several reasons. To serve a similar function as the Lahaina Bypass Corridor, the cane haul road would need to be widened to ultimately accommodate four lanes within a 150-foot right-of-way. The curvature of the road would also need to be straightened to meet design standards. These modifications would result in:

MAR 25 2009

- Displacement of homes and two commercial areas;
- Impacts to the historic railroad site and potential impacts to other historic sites; and
- Impacts to park facilities.

In addition, alteration of approximately 40 to 50 percent of the overall Lahaina Bypass Corridor would be required to align with the cane haul road corridor. Moreover, there would be insufficient distance between the two arterials to efficiently and safely transition traffic between them. The proposed project, as currently designed, addresses a critical need to alleviate the heavy traffic congestion experienced at the intersection of Lahainaluna Road and Honoapiilani Highway, especially during peak morning and afternoon travel periods, by providing an alternative route for the thousands of residents, students, school personnel, and first responders that use Lahainaluna Road.

2. We acknowledge your concern about the possible impacts to vehicular and pedestrian access in the Keiaweia Mauka subdivision as a result of the closure of Ikena Avenue. As a matter of clarification, Ikena Avenue is not within the project area assessed by the subject DEA. However, the closure of Ikena Avenue was the topic of discussion for the pre-construction portion of the Public Information Meeting conducted on December 10, 2008. At the meeting we heard similar concerns as yours. DOT has heard these concerns and will be conducting a traffic assessment to better determine the traffic and pedestrian circulation conditions in the area after Ikena Avenue has been completely closed. The traffic assessment will also identify possible mitigation measures to address these concerns. Please be assured that the safety of drivers and pedestrians is of great concern to the DOT, and we are committed to addressing this issue to the extent possible.

Thank you for your interest and participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

LINDA LINGLE  
GOVERNOR

BRENNON T. MORIOKA  
DIRECTOR

Debra Drach  
MICHAEL FORNEY  
FRANCIS PAUL KEENE  
GWYN H. SERGOUH  
JUDY A. SUWAYA

IN REPLY, REFER TO  
HWY-IDS 2.1292



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5007

MAR 25 2009

RECEIVED

DEC 22 2008

TECHNICAL DESIGN SVCS, CPC  
DEPT. OF TRANSPORTATION

Mr. Brennan Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

Assessment

- The present plan to widen Keawe Avenue from Lahainaluna with extension to Keawe is too short and too far mauka to provide any bypass of the Honopitili Highway traffic around Lahaina Town.
  - The public is being misled to think that it will provide ready egress from the highway and a bypass around Lahaina Town for most, but it will not.
  - All of this will only provide a bypass for a few in the local area up Lahainaluna.
  - It will only provide egress from the highway and a bypass around Lahaina Town when the major extensions North and South are done - the Northern one to primarily provide a super-highway for the Keapaha-area next developer, and the Southern one to egress (move) the highway away from the shore so as to allow the landowners and developers to use the land mauka to the highway for their money making development.
  - DOT is planning 6 lanes for the realigned Southern extension, but prior to completion of GPAC and knowledge of what the development plans and need for access will be.
- Recommendation
- The present plan should be changed to have the bypass use the trace of the cane road to bypass Lahaina Town. This would be close in, provide immediate egress from the highway, bypass Lahaina Town which is the main intent, and avoid the problems incurred mauka.
  - The next phase, extensions North and South of the so-called "Lahaina bypass" that would not truly bypass Lahaina but just open fields and were meant to primarily benefit land owners and developers, would not be necessary and should not be done as planned.
  - If more lanes are desired and needed for the highway, they can be added to the present Honopitili Highway by the shore.
  - If the Kona widening and extension to Keawe is proceeded with, the Southern extension should end at Puamana as originally planned at the shoreline highway and not unnecessarily extend mauka and to Olowali.

(include additional sheets as necessary)

PLEASE PRINT: Name: George Lavenson Phone: 808-687-9300  
Organization: MAUI UNITE  
Address: 50 Pui Anoano #2801  
LAHAINA, HI 96761  
Email: G.LAVENSON@AOL.COM

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

Mr. George Lavenson  
Maui Unite  
50 Pui Anoano, #2801  
Lahaina, HI 96761

Dear Mr. Lavenson:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter postmarked December 18, 2008 commenting on the subject project. We note that several of your comments pertain to the overall Lahaina Bypass Corridor, most of which is outside of the scope of the subject DEA. As a matter of clarification, subject DEA only includes the area from Kahoma Stream to the future Keawe Street Extension. We offer the following responses in the respective order of your comments:

Assessment

Item #1: We concur with your comment that Phase 1A from Lahainaluna Road to the future Keawe Street Extension will not bypass Lahaina Town. Phase 1A is the first of several phases of the overall Lahaina Bypass highway which, upon completion, will collectively provide a bypass around Lahaina Town.

Items #2 and #3: We disagree with your comment that the DOT is misleading the public. To the contrary, we have increased our efforts to ensure greater public awareness regarding the purpose and status of the project. DOT and its agents have conducted many meetings and presentations to update public agencies, community organizations and individuals, including three public information meetings on April 25, 2007, April 30, 2008, and December 10, 2008. We acknowledge and appreciate your attendance at two of the meetings. During the meetings and presentations, DOT consistently explained that the purpose for the Phase 1A was to provide an alternative access to alleviate traffic congestion at the intersection of Honopitili Highway and Lahainaluna Road. We also explained that Phase 1A is the first of several phases of the overall Lahaina Bypass highway which, upon completion, will collectively provide a bypass around Lahaina Town. The proposed project, as currently designed, addresses a critical need to alleviate the heavy traffic

MAR 2 5 2009

congestion experienced at the intersection of Lahainaluna Road and Honoapiilani Highway, especially during peak morning and afternoon travel periods, by providing an alternative route for the thousands of residents, students, school personnel, and first responders that use Lahainaluna Road.

**Item #4:** When completed, the Lahaina Bypass Corridor will address the existing and anticipated demands for traffic relief that will benefit all residents, businesses, commuters, and visitors of the West Maui area as a whole. We are currently considering the realignment of the southern portion of the Lahaina Bypass Corridor in the mauka direction to address concerns regarding coastal erosion and facilitate emergency access. As you may be aware, during periods of high tides and storm surges, portions of Honoapiilani Highway experience problems associated with coastal inundation, erosion and undermining that have resulted in hazardous driving conditions and road closures. An EA is currently being prepared for the southern extension, and we encourage you to participate in the consultation process for that EA.

**Item #5:** We encourage you to participate in the consultation process for the EA that is currently being prepared for the southern extension,

#### Recommendation

**Item #1:** The cane haul road alternative was evaluated in an Environmental Impact Statement prepared by DOT in November 1990. This alternative was eliminated from consideration due to its impact to the former Pioneer Mills site and Maui Electric Company station, and proximity to Honoapiilani Highway, among other reasons. Subsequently, in 2008, in conjunction with the subject DEA, the DOT evaluated fifteen alternatives, including a re-evaluation of the "cane haul road" alternative.

As presented in the DEA and during the Public Information Meeting conducted on December 10, 2008, this alternative was eliminated again for several reasons. To serve a similar function as the Lahaina Bypass Corridor, the cane haul road would need to be widened to ultimately accommodate four lanes within a 150-foot right-of-way. The curvature of the road would also need to be straightened to meet design standards. These modifications would result in:

- Displacement of homes and two commercial areas;
- Impacts to the historic railroad site and potential impacts to other historic sites; and
- Impacts to park facilities.

In addition, alteration of approximately 40 to 50 percent of the overall Lahaina Bypass Corridor would be required to align with the cane haul road corridor. Moreover, there would be insufficient distance between the two arterials to efficiently and safely transition traffic between them.

MAR 2 5 2009

**Item #2:** We acknowledge your opposition to future phases of the overall Lahaina Bypass Corridor. However, as you correctly commented in Items #1 and #4 above, Phase 1A is the first of several phases of the overall Lahaina Bypass Corridor. Implementation of the future phases is necessary to complete the bypass around Lahaina Town.

**Item #3:** DOT currently has plans to widen Honoapiilani Highway from Lahainaluna Road to Aholo St. to address current traffic congestion along the highway. There are no immediate plans to widen other areas of Honoapiilani Highway.

**Item #4:** As aforementioned, an EA is currently being prepared for the southern extension, and we encourage you to participate in the consultation process for that EA.

We appreciate your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

LINDA LINGLE  
GOVERNOR

RECEIVED

DEC 22 2008

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P. E., Project Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION

*WITH THE NEW KEAWE STREET ABOUT ALIGNMENT*

*AND A PROPOSED STOPLIGHT BEING*

*PUT IN, I WOULD PREFER SINCE IT IS*

*ONLY A THREE WAY INTERSECTION TO*

*USE A LARGE TRAFFIC CIRCLE OR*

*ROTARY TO KEEP TRAFFIC MOVING*

*AT ALL TIMES.*

(Include additional sheets as necessary)

PLEASE PRINT: Name: RON LACLERGUE Phone: 808-667-9820

Organization: TJ RESTAURANTS

Address: 2530 KEAWE DR. C-2

LAHAINA, HI 96761

Email: TJM00N@AOL.COM

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Mr. Ron Lactergue  
TJ Restaurants  
2530 Keawe Drive, #C-2  
Lahaina, HI 96761

SUBJECT: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)K  
Draft Environmental Assessment (EA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Dear Mr. Lactergue:

We received your letter on December 22, 2008 commenting on the subject project.

We understand that your main concern is the efficiency of the L-shaped intersection at the future Keawe Street Extension. The option of using a traffic circle or rotary was considered at the intersection of the modified alignment and Keawe Street. For efficiency, priority at this intersection will be given to the eastbound and westbound vehicular movements along the highway. Northbound vehicles traveling along the highway toward Honokowai will be able to bypass the intersection via two-lanes. Southbound vehicles headed toward Lanipoko will travel through the intersection along two left-turn lanes. Vehicles making turning movements onto, or from Keawe Street will be required to stop, or yield to the eastbound movements.

We are confident that the modified alignment is the most efficient alternative that meets federal regulatory requirements, state design standards and guidances, and our mission to provide a safe, efficient, and accessible highway system for the public through utilization of available resources in the maintenance, enhancement and support of land transportation facilities.

Thank you for your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/finding of No Significant Impact.

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL O. FORBURY  
FRANCIS PAUL KEENO  
BRYAN H. SENGGLICK  
JUDY A. SHIMADA

IN BREVY REFER TO  
HWY-DS 2.1293

Mr. Ron Laclergue  
Page 2

HWY-DS 2.1293

MAR 25 2009

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

LINDA LINGLE  
GOVERNOR

BRENNOA T. MORIOKA  
DIRECTOR

DAVID C. MORI  
MICHIE D. FURNARY  
FRANCIS H. KEENO  
BRANDY B. KOSOVICH  
JIMMY J. SHAWAN

WAKAY/MEASUREMENT  
HWY-DS 2.1294



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamohila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION

ON BEHALF OF THE WEST MAUI TAXPAYERS  
ASSOCIATION, I WANT TO COMMEND YOU NOT  
FOR ADJUSTING THE LAHAINA BYPASS  
PHASE I PLAN TO ACHIEVE THE GOAL  
OF BRINGING THE ROAD OVER OUR BENEVOLENT  
OF THE PROPOSED BYPASS WHICH  
FULLY PROTECTS THE ARCHAEOLOGICAL  
RESCOURCES FOUND IN THE PATH OF  
THE ORIGINAL PLAN.

WHILE IT WOULD BE NEARLY TO SUBMIT  
NOT IN ANY WAY PRESENT IN  
EASILY BUILDING THE BYPASS.

(include additional sheets as necessary)

PLEASE PRINT: Name: DONALD LEHMAN Phone: 808-661-1370  
Organization: WEST MAUI TAXPAYERS ASSOCIATION  
Address: 131 KUALAPA PL  
LAHAINA, HI 96761  
Email: dlehman@earthlink.net

In order for your comments to be considered in the forthcoming Final Environmental  
Assessment, comments must be received or postmarked by January 7, 2009, or send  
via facsimile by the same date to (808) 692-7555.

Mr. Donald E. Lehman, President  
West Maui Taxpayers Association  
131 Kualupa Place  
Lahaina, Hawaii 96761

Dear Mr. Lehman:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter postmarked December 23, 2008 commenting on the subject project. We acknowledge your support of the proposed modified alignment, and your recognition of our efforts to avoid impacts to the archaeological site State Inventory of Historic Places # 50-50-03-6277 that was inadvertently discovered within the path of the original alignment. Thank you for your continued support and commitment towards the implementation of this project, and for your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNOA T. MORIOKA, Ph.D., P.E.  
Director of Transportation

RECEIVED

DEC 31 2008

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

December 28, 2008

TO: Hawaii State Department of Transportation  
601 Kamokila Blvd. Room 688  
Kapolei, Hawaii 96707  
Attn: Misako Mimura, PE

From: Kupuna Edwin Lindsey,  
1087-A Pookela Rd  
Makawao, Hi. 96768

Subject: Lahaina Bypass, Phase I

Thank you for allowing me to give you my thoughts for the construction of the Lahaina bypass phase I.

Being that the location of three schools in the Lahainaluna road area was a bad decision, we must try to correct this by allowing the construction of Phase I to begin as soon as possible. We the community members of Lahaina, give thanks for the work and sensitivity of Lora, Mau in trying to mitigate the concerns of the families who have Kapuna burials in the original proposed road alignment.

In today's society and as population increases, care must be given to protect as much of our prehistoric sites and burials as possible. Developers, government, and the general populace need to look at things from the prospective that our ancestors have been coming to these islands before Columbus discovered America in 1492, before the Ming Dynasty in the 1500s, before the Vikings explorations to Nova Scotia, before the Middle Ages in Europe, they had been sailing to these islands at about the height of the Roman Empire 264 AD. That also puts them at the beginning of the height of the Mayan civilization and before Machu Pichu!

Our archaeological sites deserve the respect and reverence that the world gives to the 12 wonders of the ancient world. Imagine the intellect, and the connectiveness our seafarers had to the elements and spiritual world. They have explored an area in the Pacific larger than any culture in the history of humanity, as illustrated by the Polynesian Triangle.

However, in today's world and the bad decisions by planners to crowd three schools together, it is paramount that our children be safe in the event of any kind of natural disaster or emergency. We cannot allow to sacrifice the life of one mo'opuna for all the archaeological sites or burials on Maui. The health and safety and needs of the community must be given strong consideration.

Please feel free to call me any time at home phone number, 572-8085. Thank you for following the process so all views could be respectfully presented.

Mahalo,  
  
Kupuna Edwin Lindsey

RECEIVED  
DEPT. OF TRANSPORTATION  
TECHNICAL DESIGN SVCS OFC  
DEC 29 2008

LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-6097

MAR 25 2009

Mr. Edwin Lindsey  
1087-A Pookela Road  
Makawao, Hawaii 96768

Dear Mr. Lindsey:

**Subject:** Lahaina Bypass Modified Alignment  
Kahona Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Thank you for your letter dated December 28, 2009 commenting on the subject project. We acknowledge your support for the proposed modified alignment as it addresses your concerns regarding the protection of archaeological and burial sites, the safety of children, and the provision of an alternative emergency route. We appreciate your recognition of Ms. Laura Mau of Wilson Okamoto Corporation in working with the descendants who have lineal ties to the project area. As a matter of clarification, to date, no kuppuna 'iwi have been confirmed within or in proximity to the original or modified alignments.

Your participation in the EA consultation process is appreciated. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,

A handwritten signature in black ink, appearing to read "B. Morioka".

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORBARY  
FRANCIS PAUL KEENO  
BRIANTH SERIKUCIHI  
JIRO A. SUJADA

IN REPLY REFER TO:  
HWY-DS 2.1295

**RECEIVED**  
 JAN 02 2008  
 TECHNICAL DESIGN SVCS OFC  
 DEPT OF TRANSPORTATION

Mr. Brennon Morioka, Director  
 State of Hawaii  
 Department of Transportation  
 Highways Division - Design Branch  
 601 Kamokila Blvd., Room 688  
 Kapolei, Hawaii 96707  
 Attention: Ms. Misako Mimura, P.E., Project Manager

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

p 2-1 → I do not agree with 1.5.2 that SHPD & FHWA should have first say, there are still the families of the area that should be included in the final designs. Again - the families of Kahoma were not involved or asked of the SHPD EIS to make their comments nor the 0002 comment period. The Keahua Ohana was shared - there concern about the bridge staying in the area and there may be wai kupuna there.

1.5.2. We have a hard time seeing friendly acquisition for condemnation which the payer will be funding to a land owner? who just purchased these lands - How does Leialii mixed use residential community fit into this area? Are the Ceded Lands? We would like to note that the historic agricultural push prices you refuse to pay contain wai or other artifacts stated by families that wanted for Pub. 4.6.1 you make no mention of the Kahoma Ohana that pay property taxes to lands in this area.

4.4-70 4.3 relating to people to contact should also be Cultural Resource Commission & Criterion D is not sufficient in this find - The families need to be able to access to these lands above the bypass.

PLEASE PRINT: Name: Wilani Kapu Phone: 250-1479  
 Organization: Kuleana Ku'ikahi LLC  
 Address: P.O. Box 11524  
Lahaina HI 96761  
 Email: \_\_\_\_\_

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

Mr. Brennon Morioka, Director  
 State of Hawaii  
 Department of Transportation  
 Highways Division - Design Branch  
 601 Kamokila Blvd., Room 688  
 Kapolei, Hawaii 96707  
 Attention: Ms. Misako Mimura, P.E., Project Manager

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

*Handwritten:* Cultural Impact Ass - Sec 5 p 99 last par. Kuleana Ku'ikahi, LLC - not non-profit organization  
 I did not see anything about an access road for the families to travel to their lands located above the bypass - please make sure there is also an in the park area.

PLEASE PRINT: Name: Wilani Kapu Phone: 250-1479  
 Organization: Kuleana Ku'ikahi LLC  
 Address: P.O. Box 11524  
Lahaina HI 96761  
 Email: \_\_\_\_\_

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 2 5 2009

Ms Uilani Kapu  
Kuleana Ku'ikahi LLC  
P.O. Box 11524  
Lahaina, HI 96761

Dear Ms. Kapu:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter postmarked December 31, 2008 commenting on the subject project. We offer the following responses in the respective order of your comments:

**Section 1.5.2:** We acknowledge your concern that the families of Kahoma were not involved with the Environmental Impact Statement (EIS) dated November 1990 or the Supplemental EIS dated April 2002. The preparation and processing of both documents, however, were determined to be complete by their respective Records of Decision. We have consulted on several occasions with members of the Kahoma lineal descendants during the consultation process of the EA and the Cultural Impact Assessment to document the cultural and historic significance of the area. We have considered the contribution of the consulted parties in the design of the modified alignment to the extent practical. Pursuant to Section 106 of the National Historic Preservation Act, however, the final determination of effect is to be rendered by the State Historic Preservation Officer.

**Page 2.7:** We thoughtfully considered and acted upon the concerns expressed by the Kailihoa Ohana regarding the possibility of 'iwi kupuna in proximity to the proposed Kahoma Bridge. It was specifically in response to their concerns that extensive research and subsurface testing was conducted at the northern embankment near the proposed location of the Kahoma Bridge crossing. Due to the sensitivity of the area, a very cautious approach was used to detect the presence or absence of 'iwi.

First, extensive consultation was conducted with family members, as well as individuals, organizations and agencies affiliated with the mill operations and construction of the Kahoma Stream Flood Control Project. Throughout the consultation process, detailed research and review was also conducted of documents and maps pertaining to the historic character, agricultural practices, construction of the Flood Control Project, and disposition of the 'iwi kupuna. Results of

BRENNON T. MOPHOA  
DIRECTOR

Dwayne Coleman  
MICHAEL J. FORBRY  
FRANCIS PAUL KEENO  
BRIAN H. SEKIGUCHI  
JITO A. SUWADA

URGENT REFERTO:  
HWY-DS 2.1296

Ms. Uilani Kapu  
Page 2  
MAR 2 5 2009

HWY-DS 2.1296

the research indicated that the 'iwi kupuna were not likely to be present in the northern embankment area. In April 2008, results of the research were provided to family members, including Kuleana Ku'ikahi LLC. The results, as shared with you, included information regarding the past reburial of 'iwi kupuna outside of Kahoma Valley. We wish to reiterate that DOT was not involved in the design or construction of the Flood Control Project. However, in consideration of and sensitivity to the Kailihoa Ohana, DOT supported the research efforts to assist the family's understanding of the disposition of their 'iwi kupuna. At this juncture, if you have additional questions or require more information regarding this matter, please contact the Department of Land and Natural Resources State Historic Preservation Division or the U.S. Department of the Army Corps of Engineers.

Second, a non-invasive subsurface testing method, referred to as ground-penetrating radar (GPR) was employed. Finally, subsurface testing was carefully conducted in consultation with the State Historic Preservation Division. Results confirmed that 'iwi kupuna were not present in the test areas. Despite test results, however, we acknowledge the potential for subsurface burials. Therefore, voluntary archaeological monitoring will be conducted during construction of the bridge along the northern embankment. Information regarding the testing procedures and results is included in Section 4.11 and Appendix F of the EA.

**Section 2.5.2:** The acquisition of approximately 0.6 acres of land from Kahoma Land LLC and conveyance of approximately 29.3 acres of land from the State Hawaii Housing Finance and Development Corporation (HHFDC) will be in accordance with all current regulatory requirements.

**Agricultural Push Piles:** We recognize the potential for significance with regard to the two agricultural push piles within the project site, identified as State Inventory of Historic Places (SIHP) 50-50-03-6492 and -6596. Both push piles were considered to be significant due to their potential to yield information regarding the history of the region. As such, extensive research and testing was conducted on the push piles to determine the presence or absence of any archaeological or cultural resources. No significant cultural materials were discovered as a result of the research and testing. Both sites have been adequately recorded through the literature research and oral testimony, as well as locational documentation, written descriptions, photographs, maps, and archaeological testing. As such, no further work is needed. Detailed discussions on the testing procedures, results, maps, and photographs of push piles are included in Section 4.11.3 and Appendix F. We will be providing archaeological monitoring during construction.

**Section 4.6.1:** Section 4.12 and Appendix G include information regarding all Kahoma Ohana that participated in the Cultural Impact Assessment.

**Page 4-70, Item 3:** We acknowledge your comment that the Cultural Resources Commission (CRC) should also be contacted in the event that significant pre-contact or historic deposits or human burials are exposed during construction. However, current regulations only require that the State Historic Preservation Division (SHPD) be contacted, and the project will comply with this requirement. Please be assured that the CRC was consulted during the preparation of the Cultural Impact Assessment, Archaeological Inventory Survey, Pre-Environmental Assessment, and Draft EA.

MAR 25 2009

**Significance Determination:** "Criterion D" refers to the two agricultural push piles identified as SHIP #50-50-03-6492 and -6596 discussed above. Based on the extensive research and testing that was conducted on the push piles, SHPD concurred with this determination. As aforementioned, detailed discussions on the testing procedures, results, maps, and photographs of push piles are included in Section 4.11.3 and Appendix F.

**Cultural Access:** A discussion regarding the proposed access to mauka lands is included on Pages 4-75 through 4-78. Reference maps are also included as Figures 4-13 and 4-14. Within DOT's right-of-way, the proposed cultural access to lands located mauka of the project is proposed to be via a graded gravel road situated at the intersection of the realigned highway with Keawe Street. The gravel road will connect to an existing cane haul road that is presently used to access mauka areas. We will continue to coordinate with cultural practitioners and lineal descendants of the area to ensure mauka access within DOT's right-of-way. Access to the path will be gated for security purposes.

**Cultural Impact Assessment, Pg. 99:** The reference to "non-profit organization" will be omitted in the CIA.

We appreciate your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

LINDA LINGLE  
GOVERNOR

BRENNON F. MACHIDA  
DIRECTOR

DAVID R. COLEMAN  
MANAGING DIRECTOR  
FRANKIE PAUL KELEGA  
MANAGING DIRECTOR  
JIMMY A. SUGIYAMA

PROJECT REFER TO  
HWY-PS 2-1297



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5007

MAR 25 2009

Mr. Mitch Jenkins  
P.O. Box 10547  
Lahaina, HI 96761

Dear Mr. Jenkins:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NFI-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter postmarked January 2, 2009 commenting on the subject project. In compliance with regulatory requirements, extensive time and effort have been responsibly invested to consider possible alternative alignments to avoid the archaeological site identified as State Inventory of Historic Places # 50-50-03-6277 and to evaluate the potential impacts associated with each alternative. Of the 15 alternatives evaluated during this process, the modified alignment as assessed in the subject DEA was the only alignment other than the original determined to be feasible and prudent based on an evaluation of the required design criteria and impact analysis of all environmental and community resources. Since the modified alignment was considered feasible and prudent, Federal regulations do not allow us to revisit the original alignment.

We understand that your main concern is the efficiency of the L-shaped intersection at the future Keawe Street Extension. For efficiency, priority at this intersection will be given to the eastbound and westbound vehicular movements along the highway. Northbound vehicles traveling along the highway toward Honokowai will be able to bypass the intersection via two-lanes. Southbound vehicles headed toward Lanipupoko will travel through the intersection along two left-turn lanes. Vehicles making turning movements onto, or from Keawe Street will be required to stop, or yield to the eastbound movements. We are confident that the modified alignment is the most efficient alternative that meets both federal regulatory requirements, state design standards and guidances, and our mission to provide a safe, efficient, and accessible highway system for the public through utilization of available resources in the maintenance, enhancement and support of land transportation facilities.

RECEIVED

JAN 05 2009

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

Mr. Brennan Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION

I'M OPPOSED TO THE 90 DEGREE TURN AND THE ENVIRONMENTAL IMPLI-  
CATIONS THEREOF. THE RIGHT TURN FOR A BYPASS IS UNTHOUGHTFUL  
ENGINEERING. MOREOVER, ANY STOP AND 90 DEGREE TURN WILL FOR  
DECADES WASTE FUEL AND TIRES AS WELL AS CAUSE UNNECESSARY WEAR  
AND TEAR ON VEHICLES.

PLEASE REALIGN THE BYPASS TO A SIMILAR ONE AS THE ORIGINAL AND  
ELIMINATE THE ENVIRONMENTALLY UNFRIENDLY RIGHT TURN.

(include additional sheets as necessary)

PLEASE PRINT: Name: MITCH JENKINS Phone: 661-1307  
Organization: D/A  
Address: PO BOX 10547  
LAHAINA HI 96761  
Email: ZX@XISA.US

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.

Mr. Mitch Jenkins  
Page 2

HWY-DS 2.1297

MAR 25 2009

Thank you for your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

LINDA LINGLE  
GOVERNOR



DRENNON T. MORIOKA  
DIRECTOR  
Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRYAN H. SEKIGUCHI  
JURO A. SUMIDA

# Lahaina Bypass Now

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5037

BY REPLY REFER TO  
HWY-IDS 2.1298

MAR 25 2009

January 5, 2009

Ronald Salo  
Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, Hawaii 96826

RECEIVED

JAN 12 2009

WELCH DEPARTMENT OF TRANSPORTATION

Subject: Realignment of a Section of Honoapiilani Highway, Phase 1A (Lahaina Bypass)  
Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment  
Lahaina District, Maui Island, Hawaii  
TMK (2) 4-5-021, 010, 015 and 031 Multiple Parcels

Dear Mr. Salo:

Lahaina Bypass Now (LBN) thanks you for this opportunity to offer comments on the Draft Environmental Assessment. LBN continues to be a committed partner with DOT on the Lahaina Bypass project.

We have reviewed the Draft EA and LBN supports the modified bypass alignment that avoids the agricultural terraces. This alignment provides the best compromise to continue to build the bypass NOW. The DOT along with their project team of Wilson Okamoto has shown great sensitivity to the West Maui community with this modified alignment.

We are anxious to have this long awaited project finally started as it will have a positive impact on our entire community.

Sincerely,

Leilani Pulmano  
President

Ms. Leilani Pulmano, President  
Lahaina Bypass Now  
505 Front Street, Suite 202  
Lahaina, Hawaii 96761

Dear Ms. Pulmano:

Subject: Lahaina Bypass Modified Alignment  
Kahama Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated January 5, 2009 commenting on the subject project. We acknowledge the support Lahaina Bypass Now (LBN) has shown for both of the proposed modified alignment, and for our efforts to avoid impacts to the archaeological site that was inadvertently discovered within the path of the original alignment. Thank you for your recognition of Wilson Okamoto Corporation's sensitivity to the West Maui community. We look forward to working with LBN during the implementation of this project.

Your participation in the EA consultation process is appreciated. This response letter together with your comment letter will be included with the forthcoming Final EA/finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553. Technical Design Services Office, Design Branch, Highways Division or by email at [Msisako.K.Mimura@hawaii.gov](mailto:Msisako.K.Mimura@hawaii.gov).

Very truly yours,

DRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

505 Front Street, Suite 202A - Lahaina, HI 96761  
Telephone: 808-667-2516, Fax: 808-661-2058  
[www.lahainabypassnow.com](http://www.lahainabypassnow.com)

RECEIVED

K A H O M A L A N D L L C

JAN 12 2009

33 Lono Avenue • Suite 450  
Kahului, HI • 96732

TECHNICAL DESIGN SVCS OFC  
DEPT OF TRANSPORTATION

Phone 808 • 877-4202

Fax 808-877-9489

January 6, 2009

Mr. Ronald A. Sato, Project Manager  
Wilson Okamoto Corporation  
1907 South Beretania Street, Suite 400  
Honolulu, HI 96828

Re: *Lahaina Bypass Modified Alignment  
Kahoma Street to Keawe Street Extension  
District of Lahaina, Island of Maui  
Federal Aid Project No. NH-030-1 (35)R  
Comments for Draft Environmental Assessment -  
Lahaina District, Maui Island, Hawaii  
TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels*

Dear Mr. Sato,

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Lahaina Bypass Modified Alignment Kahoma Street to Keawe Street Extension.

Kahoma Land LLC has lands mauka of the "Lahaina Bypass" and has been in negotiations with and signed a Letter of Agreement with State Department of Transportation, Highways Division (Ref: #HW-R 3.85432) agreeing to access connection to the bypass at the Keawe Street connection to our mauka lands. Access to our mauka properties is essential in order to maintain watershed areas and attend to existing agricultural operations and Kahoma Land LLC has been in the process of completing an Environmental Assessment for temporary, re-locatable access easement corridors to access the mauka properties. We offer the following comments regarding the Draft Environment Assessment:

1. The proposed realignment will not permit Kahoma Land LLC to connect at our current proposed route at the new intersection with the Keawe Street extension thereby limiting Kahoma Land from accessing its mauka properties. To help mitigate this, we understand the State Department of Transportation (DOT) is agreeable with the following options:

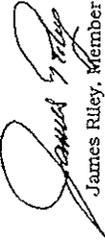
- a. Short-term: Access connection from the realigned Keawe Street to the bypass corridor along to Waihaku Road. This would be a temporary, re-locatable easement until the construction of the bypass and Villages Leali'i roadways are completed.

- b. Long-term: It is our understanding that the DOT and Hawaii Housing Finance and Development Corporation (HHFDC) have discussed access intersections from the bypass for the Villages of Leali'i project. Kahoma Land LLC will work with both DOT and HHFDC to relocate any temporary, re-locatable access easements as needed, as construction of the bypass and the Villages of Leali'i projects progress.

In light of this proposed alternative realignment which affects the Keawe Street intersection, Kahoma Land LLC remains open to discussion to determine alternate point(s) of access to our mauka properties.

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Lahaina Bypass Modified Alignment Kahoma Street to Keawe Street Extension. We look forward to working with you towards completing the long-awaited "Lahaina Bypass" to help address some of the traffic concerns of our community.

Sincerely,  
KAHOMA LAND LLC



James Riley, Member

Cc: B. Morioka, SDOOT  
D. Yogi, SDOOT  
M. Mimura, SDOOT  
E. Sniffen, SDOOT

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LINDA LINGLE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

Mr. James Riley  
Kahoma Land LLC  
33 Lono Avenue, Suite 450  
Kahului, Hawaii 96732

Dear Mr. Riley:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Thank you for your letter dated January 6, 2009 commenting on the subject project. We acknowledge the importance of access to lands owned by Kahoma Land LLC, which are located mauka of the bypass highway corridor. As Phase 1A of the Lahaina Bypass will not affect present access, no provisions for short-term access have been made.

For future phases, we will be providing Hawaii Housing Finance and Development Corporation two access locations to our Lahaina Bypass. As previously stated, we will allow access to the Lahaina Bypass to one of these access points, but access through lands outside of DOT's jurisdiction, must still be coordinated directly between Kahoma Land LLC and the respective landowners.

We appreciate your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msisko.K.Mimura@hawaii.gov](mailto:Msisko.K.Mimura@hawaii.gov).

Very truly yours,

A handwritten signature in black ink, appearing to read "Brennon T. Morioka".

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

BRENNON T. MORIOKA  
DIRECTOR

Deputy Director  
MICHAEL D. FORBAY  
FRANCIS PAUL KEENO  
BRUNN H. SENGODIN  
JINO A. SUMIDA

IN REPLY REFER TO:  
HWY-DS 2.1299

LINDA LINGLE  
GOVERNOR

Box 519  
Lahaina, HI 96767  
January 6, 2009

Mr. Ronald Sato  
Project Manager  
Wilson Okamoto Corporation  
1907 S. Beretania Street, Suite 400  
Honolulu, HI 96826

RECEIVED

JAN 07 2009

WILSON OKAMOTO CORPORATION

Re: Realignment of a section of the Lahaina By-pass Phase 1A  
Future Keawe Street Extension  
Federal Aid Project No. NH-030-1 (35) R  
Draft EA  
Lahaina District, Maui Island, Hawaii  
TMK (2) 4-5-021, 010,015 and 031 Multiple Parcels

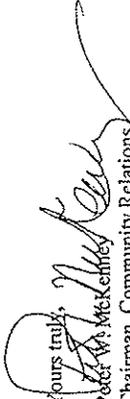
Dear Mr. Sato:

At the direction of our President, Holoaomoku Relar, I am expressing our Lahaina Hawaiian Civic Club's support of proceeding with the Lahaina By-Pass modified alignment. We currently have sixty-nine members.

Our reasons are:

1. The State has been conscientious and respectful in dealing with the concerns of Hawaiians regarding the original alignment. The modified plan satisfies us.
2. We are very concerned about the safety of Lahaina's children. The By-pass will provide an alternate evacuation route in the event of an emergency, such as a brush fire.

We thank you for your work and especially the extra efforts of Laura Mau in dealing with the sensitive issues surrounding this project.

Yours truly,  
  
Peter W. McKeeney  
Chairman, Community Relations



BRENNON T. MORIOKA  
DIRECTOR

Deputy Directors:  
ACQUILLO C. FORESBY  
FRANCIS PAUL KERRNO  
BINNETT SEVENOICH  
JASON H. SUZUKI

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5007

MAR 2 5 2009

IN REPLY REFER TO:  
HWY-IPS 2.1300

Mr. Peter W. McKeeney, Chairman  
Community Relations  
Lahaina Hawaiian Civic Club  
P.O. Box 519  
Lahaina, Hawaii 96797

Dear Mr. McKeeney:

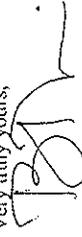
Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

Thank you for your letter dated January 6, 2009 commenting on the subject project. We acknowledge your support for the proposed modified alignment as it addresses your concerns regarding Hawaiian issues, the safety of Lahaina's children, and the provision of an alternative emergency evacuation route. We appreciate your recognition of Ms. Laura Mau of Wilson Okamoto Corporation in dealing with the sensitive issues surrounding this project.

Your participation in the EA consultation process is appreciated. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msako.K.Mimura@hawaii.gov](mailto:Msako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

January 7, 2009

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

Without a doubt, I conclude the credibility and integrity of this Environmental Impact Survey-Archaeological Inventory Survey (Mr. Paul Rosendahl, Ph.D.) conducted is tainted, therefore should be designated null and void; and at the very least another more thorough and credible Environmental Impact Survey-Archaeological Inventory Survey be conducted before any further work and/or commitments be made to the Lahaina Bypass project, from Laniapoko to Kapaia ahupua'a respectively.

I believe a fair and equitable remedy for all concerned and for the benefit of the West Maui public at large is that the Lahaina Bypass be built over the existing Cane-Haul Road as I have repeatedly called for; or if an alternative route cannot be agreed upon by all concern/parties than no construction should take place indefinitely until one (alternative route) is agreed upon.

SUBJECT: WRITTEN COMMENTS ON THE DRAFT ENVIRONMENTAL  
ASSESSMENT FOR THE LAHAINA BYPASS MODIFIED  
ALIGNMENT KAHOMA STREAM TO FUTURE KEAWE STREET  
EXTENSION.

RE: SUBMITTED BY Foster Robin Ampong.

Aloha ka kou,

As I have expressed on more than one occasion I strongly believe the Environmental Impact Survey-Archaeological Inventory Survey (Mr. Paul Rosendahl, Ph.D.) which began in the 1980's/1990's was not thoroughly and competently conducted.

Subsequent to Mr. Paul Rosendahl's initial work and official report, it was learned significant structures (Site 2484) well within the study area were apparently unobserved by Mr. Rosendahl as his final report implies; though I have serious doubts these structures could have been unobserved by anyone unless the individual(s) were legally deemed to be "blind"; suggesting with all due respect, the work indeed conducted by Mr. Paul Rosendahl was incompetent or perhaps, as I sincerely believe observed at the time of survey by Mr. Rosendahl and thereafter intentionally omitted from his report.

I have personally traveled the ahupa'a my entire life and physically crossed path/visited the location on numerous occasions, most frequently unabated since the 1990's. The initial sight of these structures immediately automatically perks curiosity and the "thought" that such a structure to be "an ancient structure" built by Hawaiians of pre-contact era; which one would presume any professional Archaeologist would most certainly investigate further.

It seems this was not the case for Mr. Paul Rosendahl, Ph.D.

Living being in the Huluman function with the attached name Foster Robin Ampong Ahupua'a O Kahoma/Kanaha, Moku O Lahaina, Mokupuni O Piihahi

C/O:  
82 East Papa Avenue  
Kahului, HI 96732  
Phone: (808)877-9097  
Email: [kekahuna@aweaiwi@yahoo.com](mailto:kekahuna@aweaiwi@yahoo.com)



BRENNON T. MORIOKA  
DIRECTOR

Deputy Director  
MICHAEL D. FORBARY  
FRANCIS PAUL KEENO  
BRIAN H. SENGUCHI  
JITO A. SIMAKA

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

MAR 25 2009

IN REPLY REFER TO:  
HWY-DS 2.1301

Mr. Foster Among  
Page 2

MAR 25 2009

HWY-DS 2.1301

four lanes within a 150-foot right-of-way. The curvature of the road would also need to be straightened to meet design standards. These modifications would result in:

- Displacement of homes and two commercial areas;
- Impacts to the historic railroad site and potential impacts to other historic sites; and
- Impacts to park facilities.

In addition, alteration of approximately 40 to 50 percent of the overall Lahaina Bypass Corridor would be required to align with the cane haul road corridor. Moreover, there would be insufficient distance between the two arterials to efficiently and safely transition traffic between them.

In compliance with regulatory requirements, extensive time and effort have been invested to consider possible alternative alignments to avoid SHP # 50-50-03-6277 and to evaluate the potential impacts associated with each alternative. Of the 15 alternatives evaluated during this process, the modified alignment as assessed in the subject DEA was determined to be feasible and prudent based on an evaluation of the required design criteria and impact analysis of all environmental and community resources.

Thank you for your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Misako.K.Mimura@hawaii.gov](mailto:Misako.K.Mimura@hawaii.gov).

Very truly yours,

BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation

Mr. Foster Robin Ampong  
82 East Papa Avenue  
Kahului, HI 96732

Dear Mr. Ampong:

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated January 7, 2009 commenting on the subject project. We acknowledge your concerns about the Archaeological Inventory Survey (AIS) conducted by PHRI, Inc. in conjunction with the Supplemental Environmental Impact Statement (SEIS) dated April 2002. Please be assured that, to address the potential for encountering additional archaeological sites, the DOT is committed to conducting archaeological studies prior to the implementation of each subsequent phase of the Lahaina Bypass project.

As a matter of clarification, the archaeological sites identified as State Inventory of Historic Places (SHP) #50-50-03-6277 and SHP #50-50-03-2484 were determined to be associated with the historic era, and not the pre-contact era based on fieldwork, research of historic documents and maps, and testing.

We acknowledge your continued support of an alternative alignment along the existing cane haul road. The cane haul road alternative was evaluated in an Environmental Impact Statement prepared by DOT in November 1990. This alternative was eliminated from consideration due to its impact to the former Pioneer Mills site and Maui Electric Company station, and proximity to Honopiilani Highway, among other reasons. Subsequently, in 2008, in conjunction with the subject DEA, the DOT evaluated 15 alternatives, including a re-evaluation of the "cane haul road" alternative. Our decision to re-visit the cane haul road alternative was based, in part, by your suggestion. The result was a very thorough re-evaluation of this alternative.

As presented in the DEA and during the Public Information Meeting conducted on December 10, 2008, this alternative was eliminated again for several reasons. To serve a similar function as the Lahaina Bypass Corridor, the cane haul road would need to be widened to ultimately accommodate

RECEIVED

JAN 21 2009

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

January 13, 2009

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Karmokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

SUBJECT: MY COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT  
FOR THE LAHAINA BYPASS MODIFIED ALIGNMENT,  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION

My name is Josephine Lilinoe Keliipio. I am a direct descendant (great great granddaughter) of Pohoopu who is listed as a CLAIMANT of Land Commission Award No. 07724 on Page 48 of the Cultural Impact Assessment for the Lahaina Bypass Modified Alignment (CIA) prepared by Cultural Surveys Hawaii, Inc. in November 2008. My siblings and I are the listed owners of a small piece (.8 acres, TMK 450150090000) of Pohoopu's larger acreage (13.33 acres, TMK 450150080000) which spanned the north side of Kahoma Stream (Map 4, Figure 11, and Page 22 of the CIA) and sits on the hillside, directly above and behind the north segment of Phase 1A of the proposed Lahaina Bypass.

The following are my comments as they relate to the Draft Environmental Assessment / Anticipated Finding of No Significant Impact, Lahaina Bypass Modified Alignment (Draft EA):

- 1) My mother is Myra Kanoelohua Pali Keliipio who was born (in 1921) and raised in Lahaina, Maui. She is now 88 years old and currently lives with me in Kailua-Kona, Hawaii. Her father was Adam Pali who was also born and raised in Lahaina, Maui. Adam Pali, was the only son of Philip Pali. Philip Pali along with his 4 sisters, who were all born and raised in Lahaina, Maui, were the remaining, surviving children of the Reverend Adam Albert Pali (he was the Minister for the old Waimee (now called Waiola) Church for 20 plus years) and his wife (sorry but I don't have her name at hand with me at the moment). Reverend Adam Albert Pali was not born and raised in Lahaina, Maui, however his wife (my great, great grandmother) was born and raised in Lahaina, Maui and she was apparently the only surviving child and daughter of Pohoopu. Thus the

way in which the Pali family is connected/related to Pohoopu and Kahoma Valley.

I find it most disturbing that when Mr. Paul Rosendahl, Ph.D. Inc. was doing the Archaeological Inventory Survey for the Lahaina Bypass in the 1990s, that he **TOTALLY FAILED** to contact and interview the many descendants of the Kahoma Valley area and he **TOTALLY MISSED** Site 6277, an extensive agricultural field system that should have been obvious to him had he done better work. What is additionally disturbing is that the State of Hawaii not only paid Mr. Rosendahl for his **INCOMPLETE FINDINGS** but it finalized and used his **SLOPPY WORK** in order to justify building the Lahaina Bypass in its current proposed location where it will cross Kahoma Stream in a culturally significant area. Site 6277 (most likely cultivated by my ancestor, Pohoopu), which was later discovered in 2007 by Cultural Surveys of Hawaii, Inc., was more than just an inadvertent discovery, it was a **SIGNIFICANT DISCOVERY** and a **RED FLAG** indicating that the Archaeological Inventory Survey along with the **ENTIRE** Environmental Impact Statement for the Lahaina Bypass was **ERRONEOUS** and needed to be **REDONE!** Realigning Phase 1A of the bypass by skewing the northern part of the planned bridge downstream in order to dodge Site 6277 is **NOT ENOUGH!** The entire planned roadway needs to be **SHIFTED DOWN** to where the bridge(s) will cross over the existing concrete channel so as not to further disturb or further desecrate Kahoma Stream. We don't need 2 ugly concrete structures with its traffic **DESTROYING THE AMBIENCE** of Kahoma. **MOVE THE BRIDGES AND RE-DO THE EIS !!**

- 2) Speaking of Kahoma Stream, it is my understanding from what I have read, that Kahoma Stream was **HISTORICALLY SIGNIFICANT** to Lahaina town and its inhabitants both pre and post contact. Kahoma Stream supplied most of the water for Lahaina. Without Kahoma Stream's water, Lahaina could not have thrived or survived as the oasis that it was. Yet, as **HISTORICALLY SIGNIFICANT** as Kahoma Stream was to Lahaina, it is disturbing to find that no one, not even the Maui County Cultural Resource Commission, bothered to designate Kahoma Stream as an **HISTORIC SITE**. How come? Kahoma Stream above its concrete channel, needs to be immediately designated as an **HISTORIC SITE** so that the State of Hawaii will **STOP DESTROYING** Kahoma Stream and move all **UGLY** double wide concrete bridges like the **TWO** that are proposed at Ikona Avenue to a lower location that will span the current concrete channel. Building those bridges in the current planned location at Ikona Avenue **IS BOTH A DIRECT INSULT AND AN EYE SORE** to Kahoma Stream's **HISTORICAL SIGNIFICANCE**. Shame on the State of Hawaii for continuing to destroy Kahoma and our Hawaiian Culture. **MOVE THE BRIDGES NOW AND RE-DO THE EIS!!**

LINDA LINGLE  
GOVERNOR



BRENNON T. MCRONIA  
DIRECTOR

Dorothy Davies  
MICHAEL D. FORNRY  
FRANCIS PAUL KEENO  
FRANK H. SEKIGUCHI  
JING A. SUMAYA

IN REPLY REFER TO:  
HWY-DS 2.1302

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5087

MAR 25 2009

Ms. Josephine L. Keliipio  
P.O. Box 368  
Kealahoukua, HI 96740

Dear Ms. Keliipio: *Just here*

Subject: Lahaina Bypass Modified Alignment  
Kahoma Stream to Future Keawe Street Extension  
Federal Aid Project No. NH-030-1(35)R  
Draft Environmental Assessment (DEA)  
Lahaina District, Island of Maui, Hawaii  
Tax Map Keys: 4-05-015; portion of 010 & 888; 4-05-021; portion of 003 and 022

We have received your letter dated January 13, 2009 commenting on the subject project, and offer the following responses in the respective order of your comments:

1. Thank you for sharing information regarding your family's connection to Kahoma Valley. We acknowledge your concerns about the Archaeological Inventory Survey (AIS) conducted by PRHI, Inc. in conjunction with the Supplemental Environmental Impact Statement (SEIS) dated April 2002. As a matter of clarification, the subject DEA only includes the area from Kahoma Stream to the future Keawe Street Extension that was modified to avoid the archaeological site identified as State Inventory of Historic Places # 50-50-03-6277. We note that your comment pertains to the overall Lahaina Bypass Corridor, most of which is outside of the scope of the subject DEA.

As you may be aware, the SEIS was preceded by an earlier EIS dated November 1990. The 1990 EIS evaluated other alternatives for the overall Lahaina Bypass Corridor, including two alternatives located makai of the current alignment. Both alternatives were eliminated during the evaluation process, and the Ikema Avenue alternative was identified as the preferred alignment. The preferred alignment was determined to be feasible and prudent based on the extensive evaluation of various design criteria and impact analysis of all environmental resources, and not solely on the basis of the AIS. The current alignment continues to be feasible and prudent and, as such, the total realignment of the Lahaina Bypass Corridor will not be considered.

Please be assured that, to address the potential for encountering additional archaeological sites, the DOT is committed to conducting archaeological studies prior to the implementation of each phase.

3 of 3

3) It is my understanding that Pioneer Mill leased a large number of parcels along Kahoma Stream from many Hawaiians including both my own ancestor, Poholopu and his grandson (my great grandfather), Philip Pali. It is also my understanding that when Pioneer Mill began selling off its property to Kahoma Land LLC in the 90s, that many of those leased lands were also sold off and NOT RETURNED to the families of the original Kuleana landowners. I understand further that Kahoma Land LLC DOES NOT HAVE CLEAR TITLE to most if not ALL of the lands along Kahoma Stream even though its name appears as the "owner" on the Maui County Tax Maps. Building the bypass in its current location will not only spur development in the area but it will cause developers like Kahoma Land LLC to begin QUIET TITLE proceedings which is a convenient way for developers to STEAL LAND from families who do not even know that they may still have title to these lands. So while the State of Hawaii is concentrating on providing an exclusive driveway, in the form of the bypass, directly to Kapalua Resort to help Maui Land and Pinesapple further their development plans and keep from going bankrupt, it is being TOTALLY IRRESPONSIBLE by not including this valuable information in the EIS on how the bypass WILL IMPACT LAND OWNERSHIP to many Hawaiian families WITH KULEANA LAND CONNECTIONS. ALL THE MORE REASON WHY THE STATE NEEDS TO RE-DO THE EIS FOR THE BYPASS IN ITS ENTIRETY. SHAME ON THE STATE OF HAWAII III

4) I would like to thank the consultants for this project for their help. Thank-you to Laura Mau and her team from Wilson Okamoto Corporation. Thank-you to Tanya Lee-Gregg, Colleen Dagan and Aulii Mitchell from Cultural Surveys Hawaii Inc. Thank-you to the engineers from the State of Hawaii. They all did their jobs well and it was very nice to interact with them. They produced a wonderful document Draft EA document that the State of Hawaii can be proud of BUT THE FINDING OF NO SIGNIFICANT IMPACT IS WRONG AND A TOTAL INSULT AND I DO NOT AGREE WITH IT.

PLEASE RE-DO THE EIS FOR THE BYPASS!!

Mahalo,  
*Josephine L. Keliipio*  
Josephine L. Keliipio  
P.O. Box 368  
Kealahoukua, HI 96740

MAR 25 2009

MAR 25 2009

2. We acknowledge your comment about visual impact of the bridge crossings at Kahoma Stream. The bridges will incorporate an inverted arch design, which reduces the vertical height of the bridges and minimizes visual impact. Furthermore, the bridges will be constructed to single-span Kahoma Stream, which precludes the need for permanent bridge supports within the stream and avoids impact to stream hydrology.

With regard to your comment about the historic significance of the Kahoma Stream and impact of the project on the Hawaiian culture, DOT supported the preparation of a Cultural Impact Assessment (CIA) by Cultural Surveys Hawaii (CSH) in conjunction with the subject DEA. We note that DOT's decision was voluntary as CIAs are not generally required in conjunction with EAs. Extensive work was conducted for the CIA, including research and review of historical documents and interviews with many kupuna, Hawaiian organizations, cultural practitioners, and descendants with lineal ties to the area. We note that you were also invited to participate in the interview process. The result of CSH's effort is a very thorough and comprehensive CIA which documents the cultural and historic significance of the area.

3. The acquisition of approximately 0.6 acres of land from Kahoma Land LLC and conveyance of approximately 29.3 acres of land from the State Hawaii Housing Finance and Development Corporation (HHFDC) will be in accordance with all current regulatory requirements.

When completed, the Lahaina Bypass Corridor will benefit all residents, businesses, commuters, and visitors of the West Maui area as a whole. The need for relief along Honoapiilani Highway is well-established based on comments and complaints we have received from the Lahaina community over a period of years. Many Lahaina residents travel Honoapiilani Highway on a daily basis, and have expressed frustration about heavy traffic congestion and road closures. The highway project will help to address the comments and concerns we have received from the public, and to relieve existing and future projected traffic congestion along the existing Honoapiilani Highway.

We acknowledge your comment regarding the need to re-do the prior EIS on the basis of land tenure. The intent of the Environmental documents is to address environmental impacts of a proposed action. Such impacts are independent of land tenure and, therefore, do not necessitate a re-evaluation of the EIS.

4. We appreciate your recognition of the project team, which includes DOT engineers and our consultants, Wilson Okamoto Corporation and CSH. In compliance with regulatory requirements, extensive time and effort have been invested to thoughtfully consider possible alternative alignments and to thoroughly evaluate the potential impacts to all environmental and community resources associated with each alternative. We would like to take this opportunity to extend our appreciation to you for your time and attendance during meetings and site visits with the project team.

Your opposition to the Finding of No Significant Impact is duly noted.

Thank you for your participation in the EA consultation process. This response letter together with your comment letter will be included with the forthcoming Final EA/Finding of No Significant Impact.

Should you have any questions, please contact Misako Mimura at 692-7553, Technical Design Services Office, Design Branch, Highways Division or by email at [Msizako.K.Mimura@hawaii.gov](mailto:Msizako.K.Mimura@hawaii.gov).

Very truly yours,



BRENNON T. MORIOKA, Ph.D., P.E.  
Director of Transportation



# Appendix C

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## Design Plans

Typical Roadway Sections

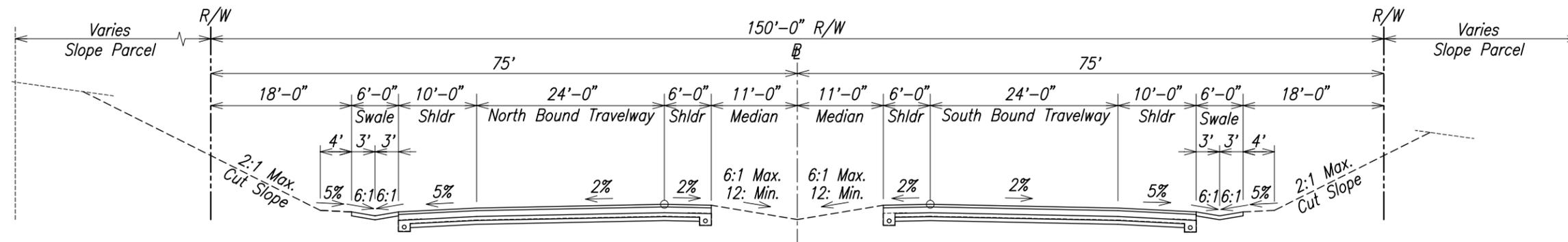
Plans and Profiles

Kahoma Stream Bridge Foundation Plan

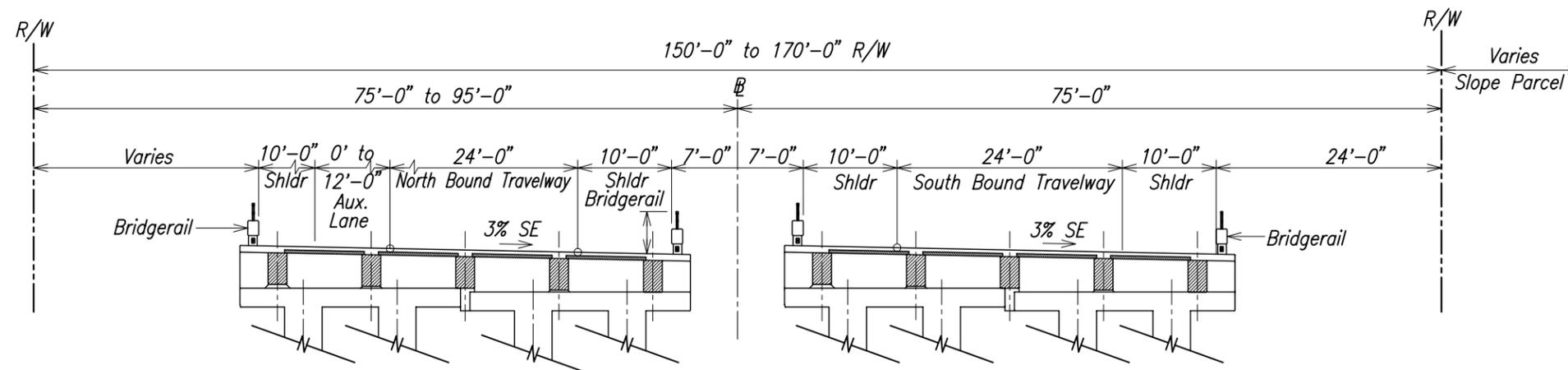
Kahoma Stream Bridge Sections



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2009	1	11



TYPICAL ROAD SECTION - HONOAPIILANI HIGHWAY  
SCALE: 1/8" = 1'-0"



TYPICAL KAHOMA BRIDGE SECTION  
SCALE: 1/8" = 1'-0"

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QUANTITIES BY	
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ORIGINAL PLAN	
NOTE BOOK	
No.	

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

TYPICAL ROAD SECTIONS

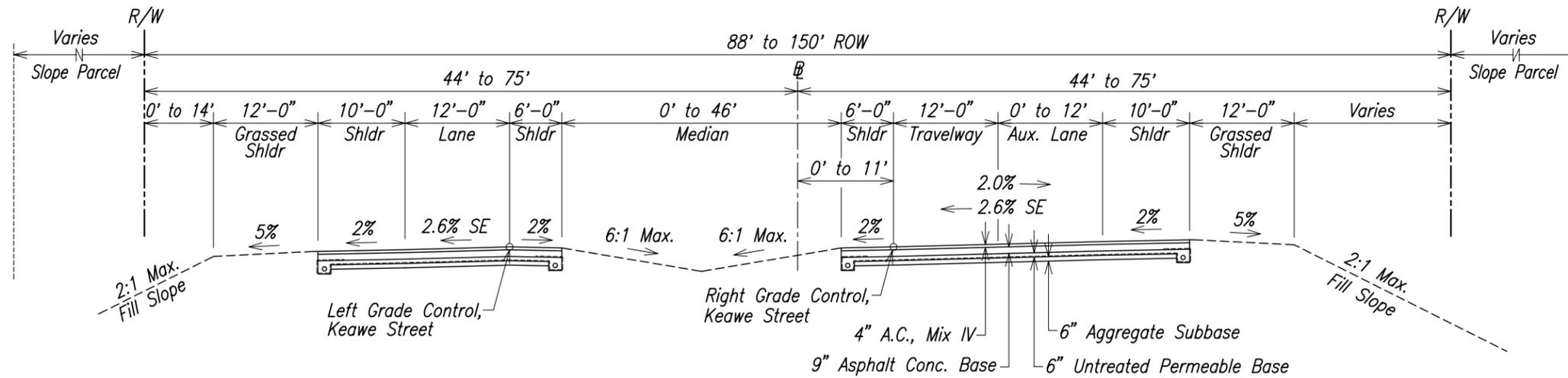
HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1A  
Future Keawe St Extension to Lahainaluna Rd  
Fed. Aid Proj. No. NH-030-1(35)R

Scale: As Noted      Date: March, 2009

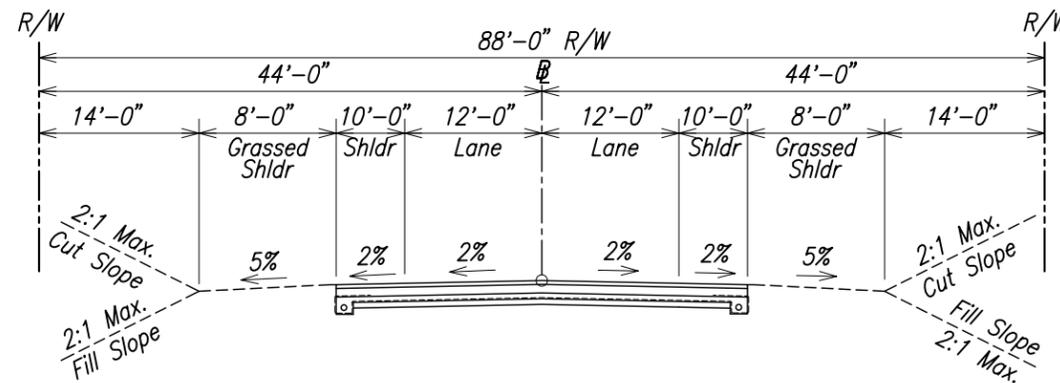
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ULTIMATE CONFIG

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2009	2	11



TYPICAL ROAD SECTION - KEAWE STREET  
SCALE: 1/8" = 1'-0"



TYPICAL ROAD SECTION - KEAWE STREET  
SCALE: 1/8" = 1'-0"

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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

TYPICAL ROAD SECTIONS

HONOAPIILANI HIGHWAY REALIGNMENT, PHASE 1A  
Future Keawe St Extension to Lahainaluna Rd  
Fed. Aid Proj. No. NH-030-1(35)R

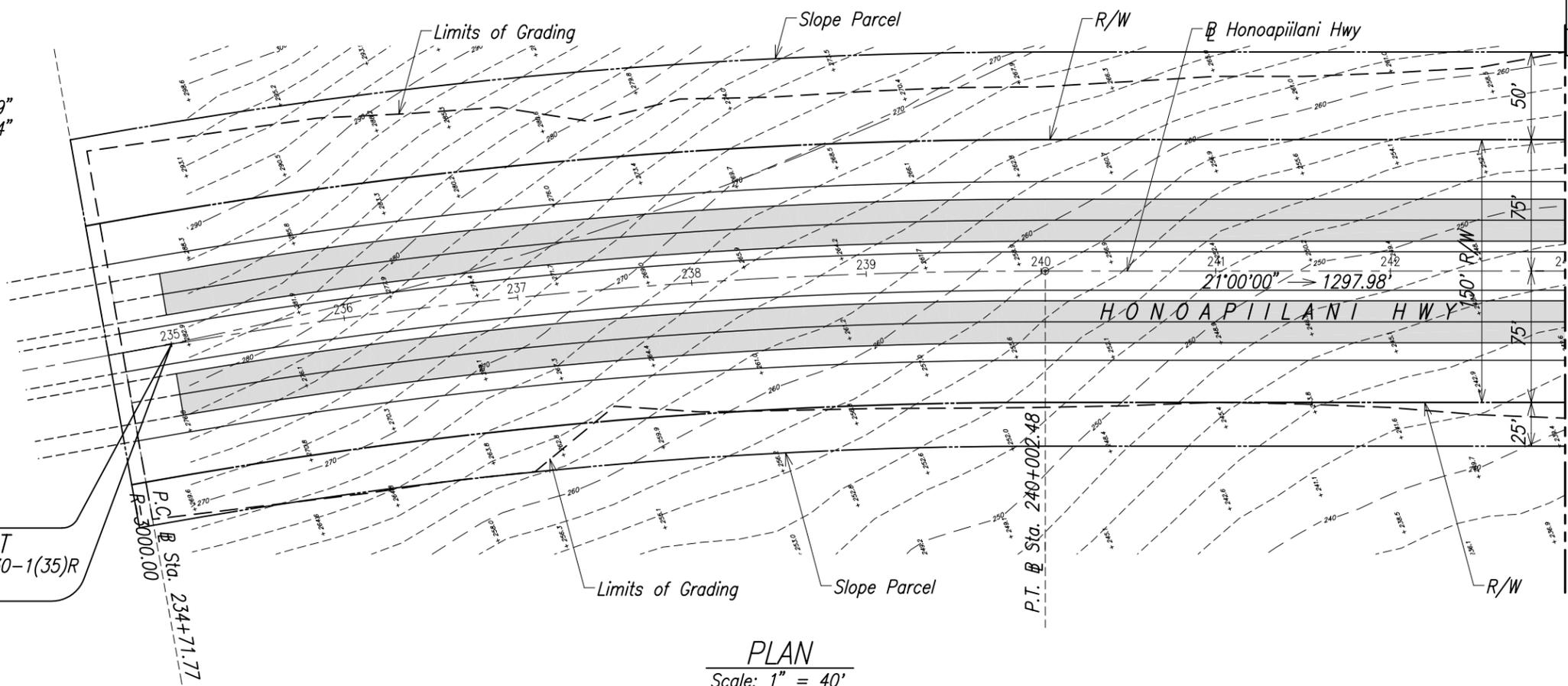
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ULTIMATE CONFIG

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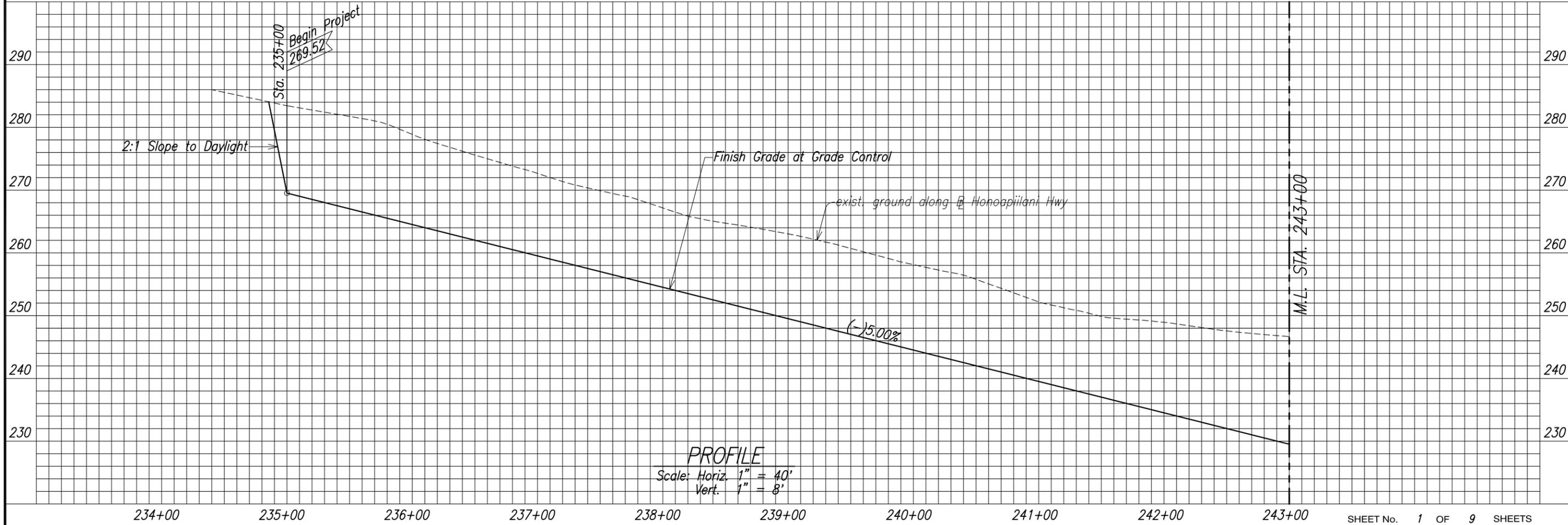
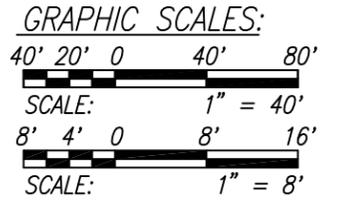
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 $T = 266.05$   
 $Ch = 530.02$   
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True North  
 Scale: 1" = 40'

**BEGIN PROJECT**  
 Project No. NH-030-1(35)R  
 Sta. 235+00

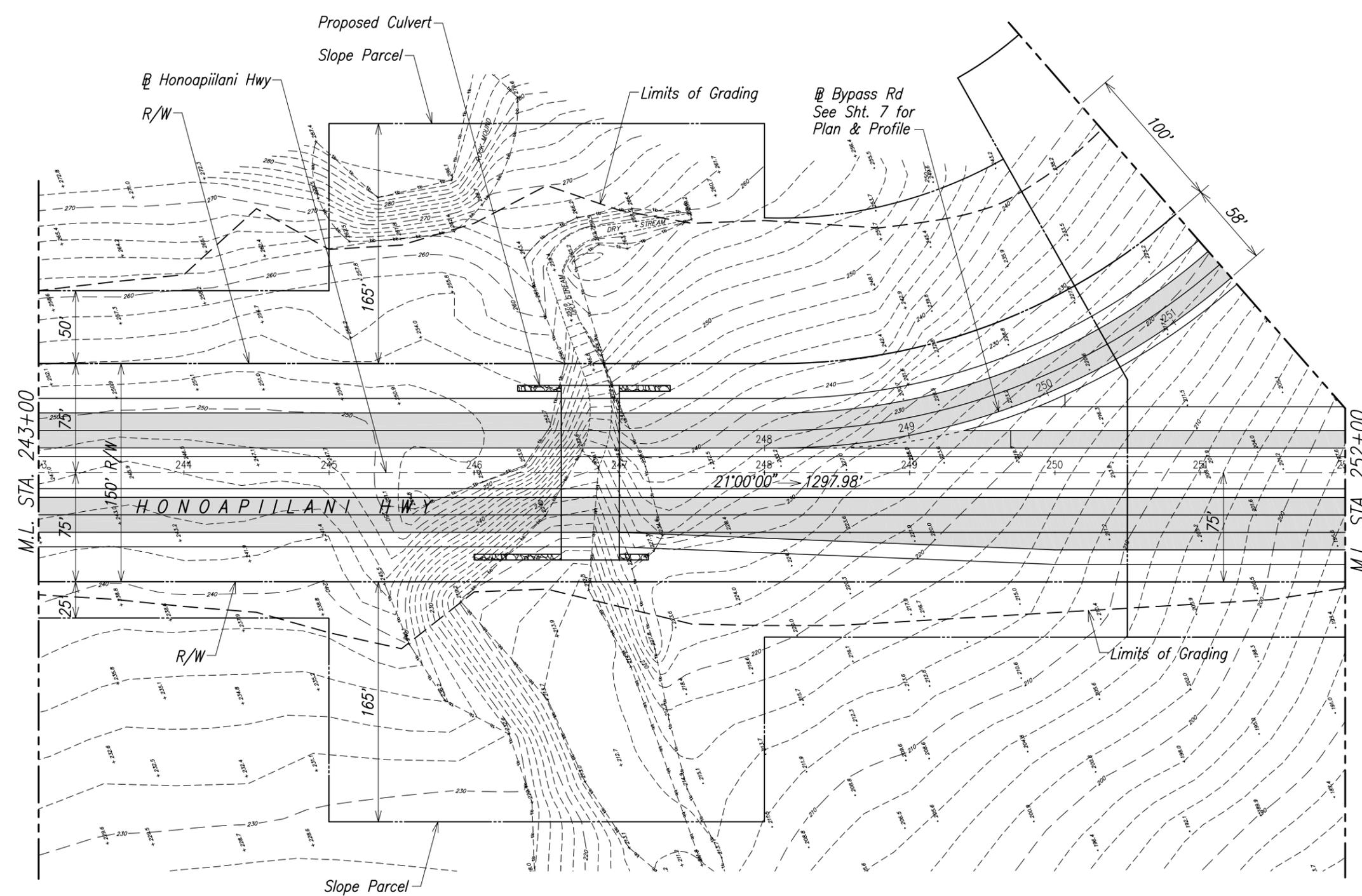
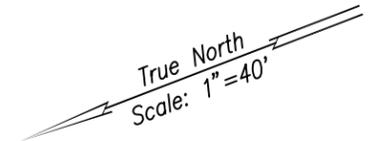
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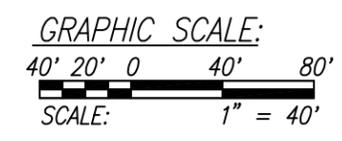
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2009	2	11



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Scale: 1" = 40'

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**PLAN**

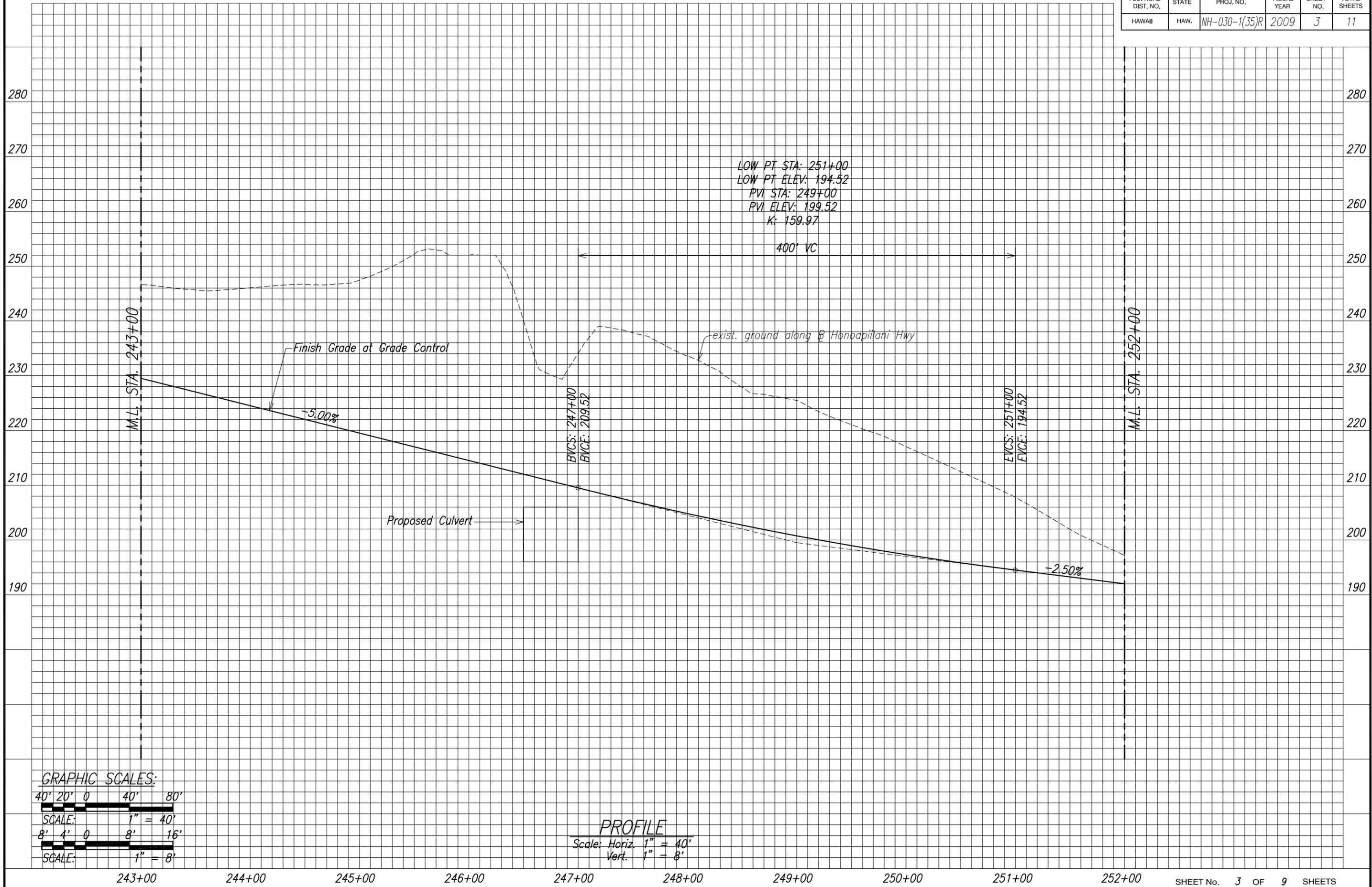
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Future Keawe St Extension to Lahainaluna Rd  
Fed. Aid Proj. No. NH-030-1(35)R

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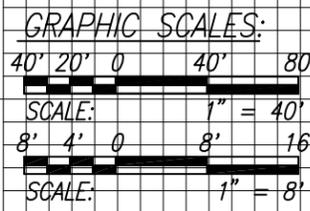
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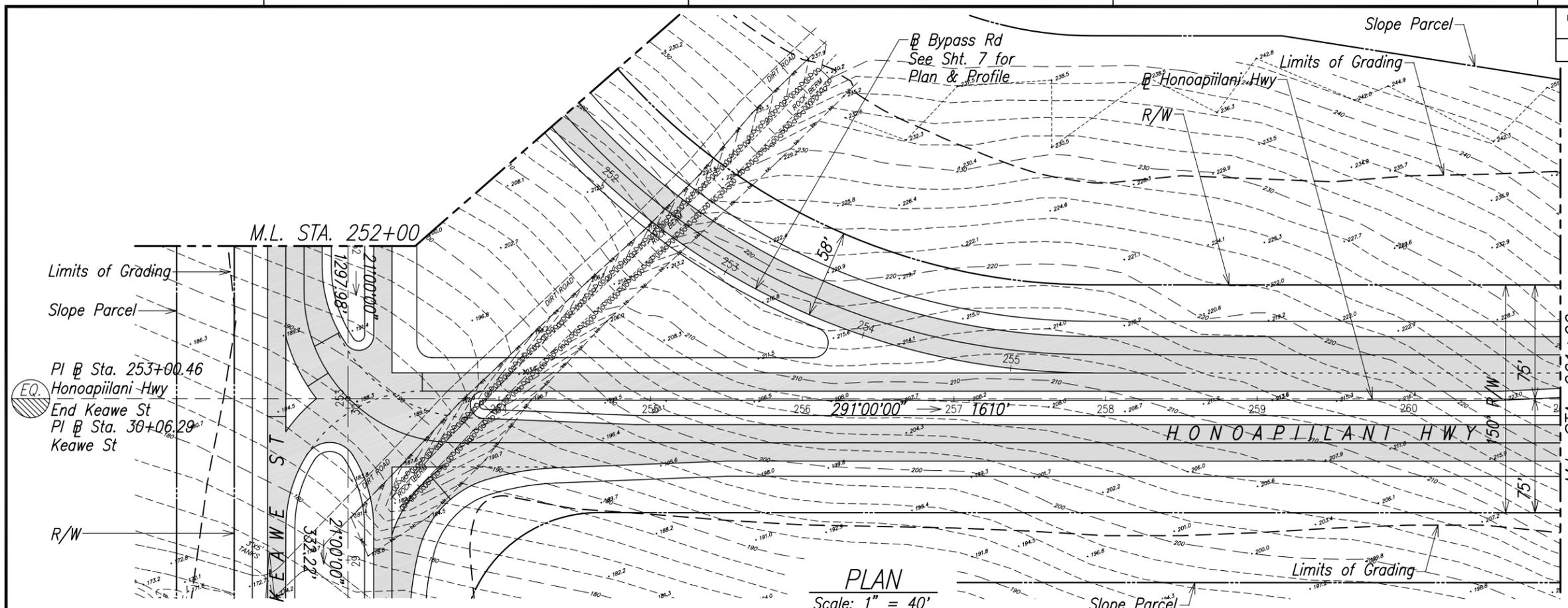
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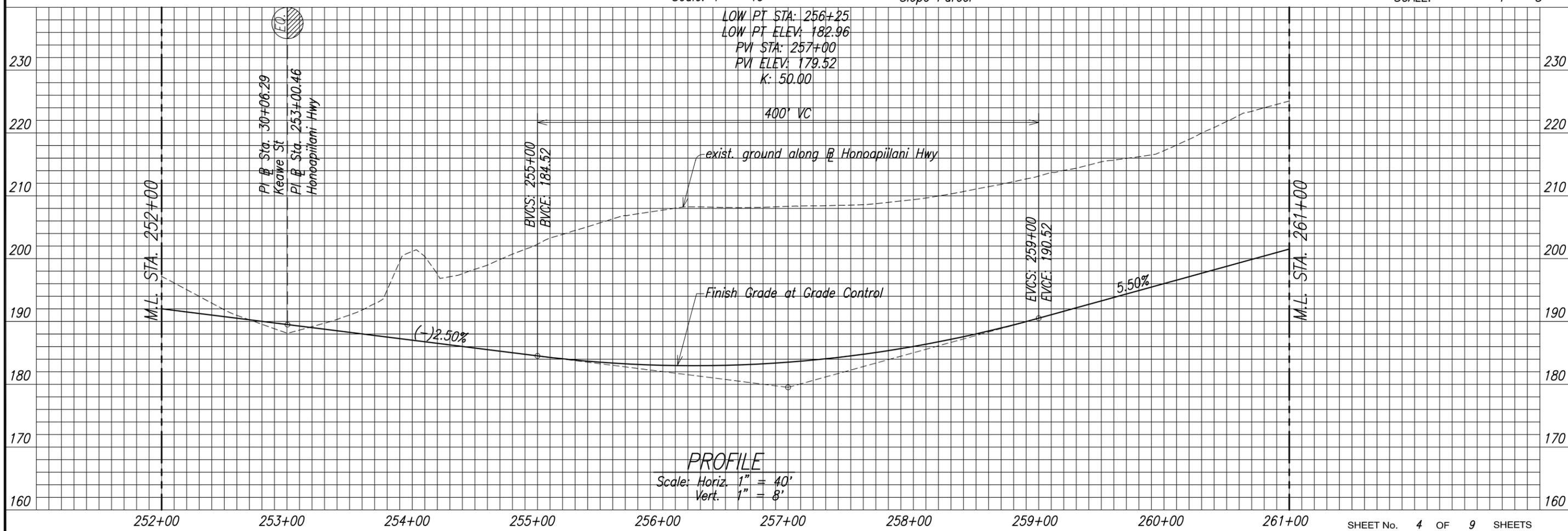
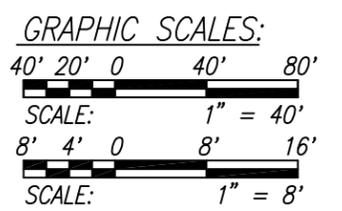
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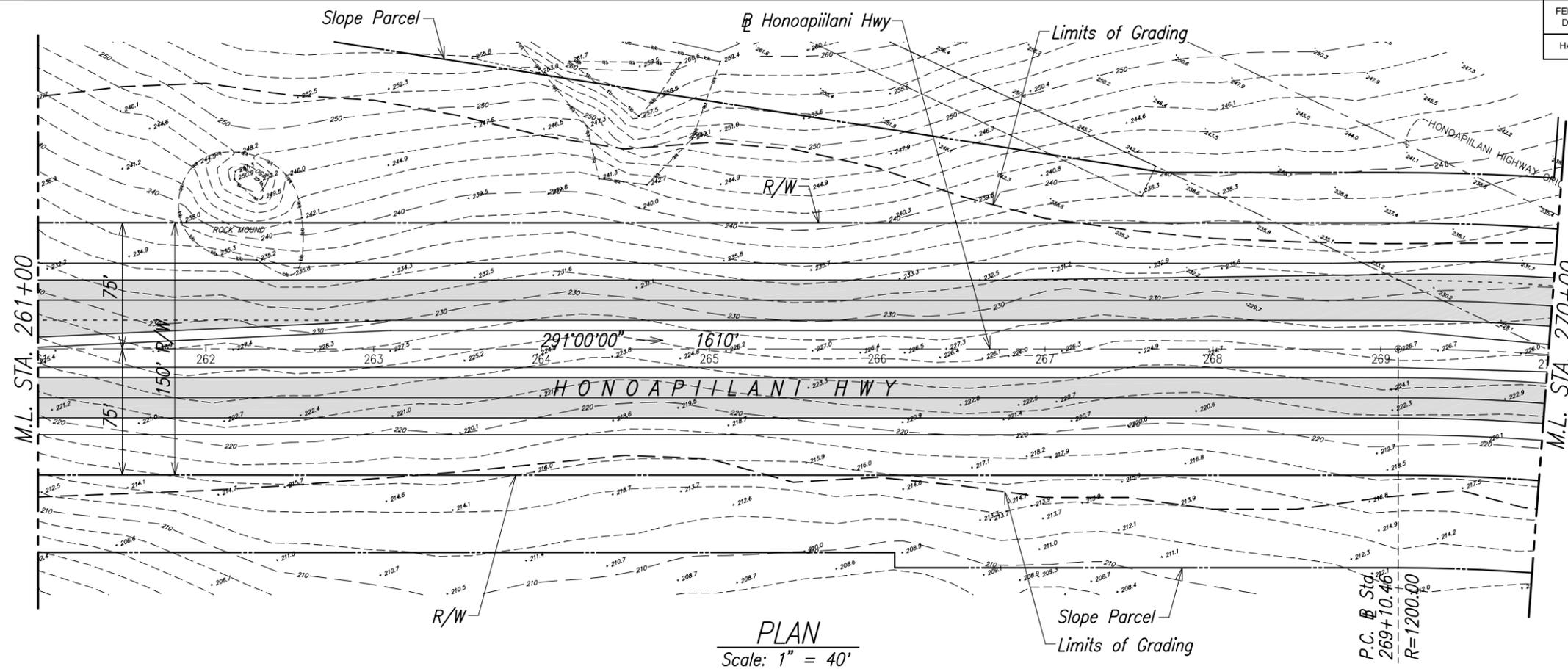


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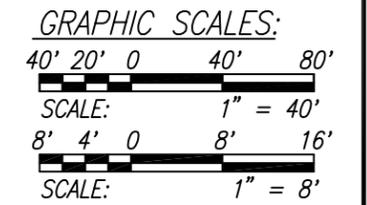


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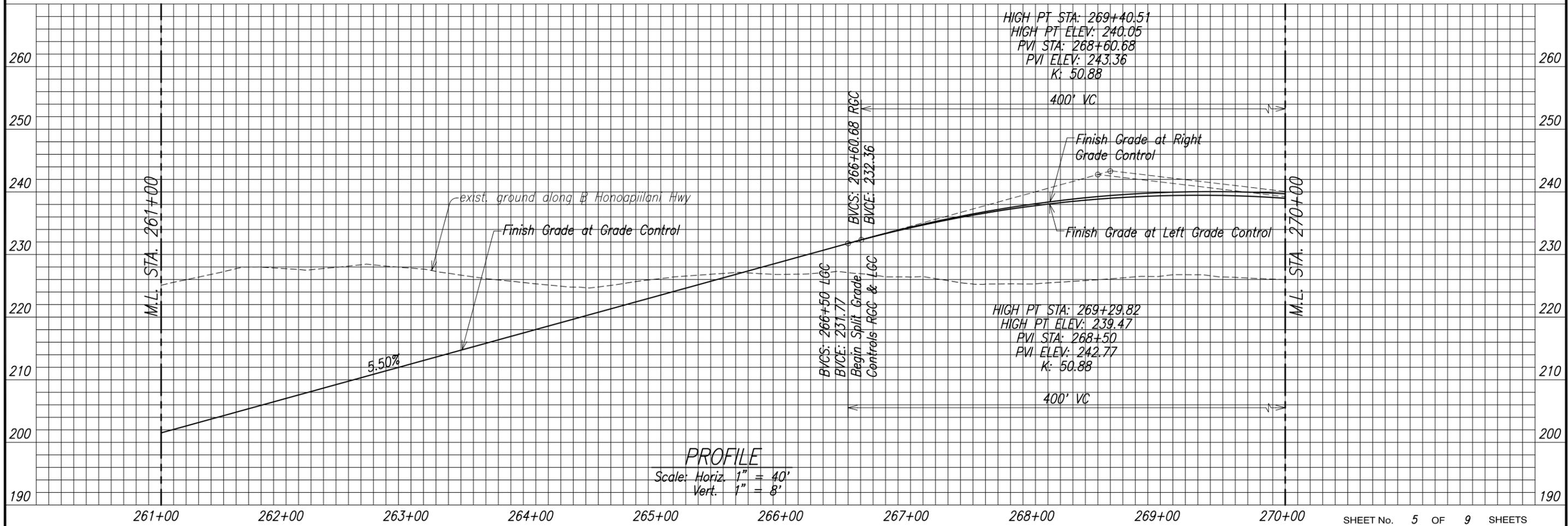
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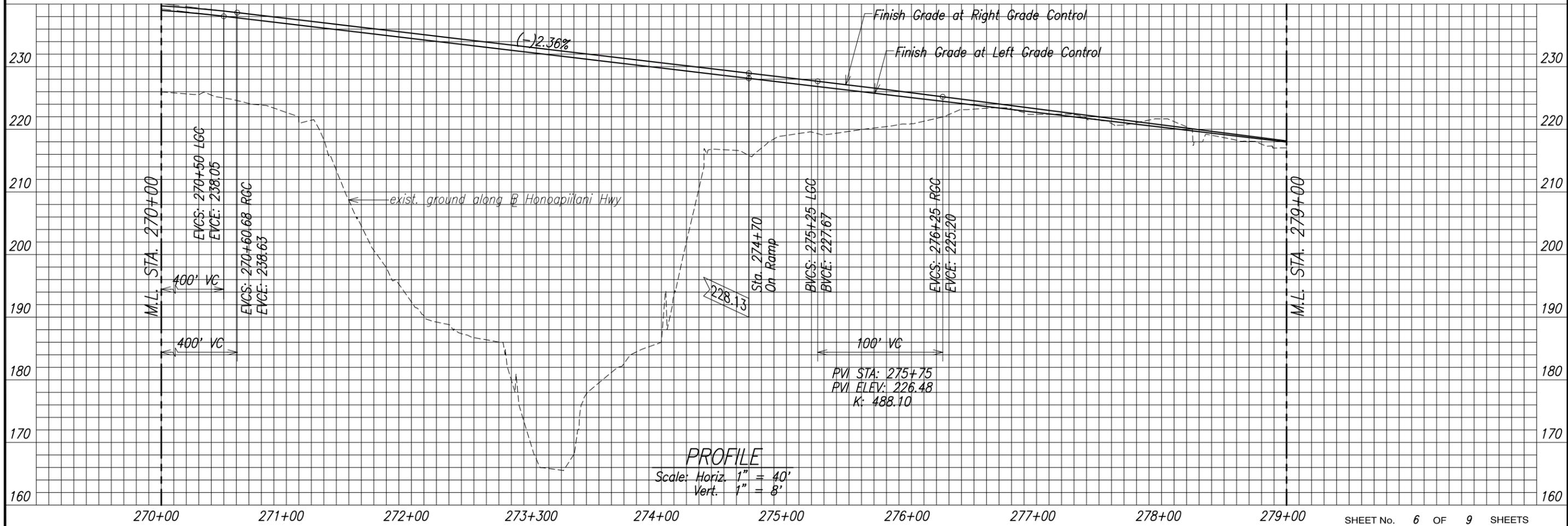
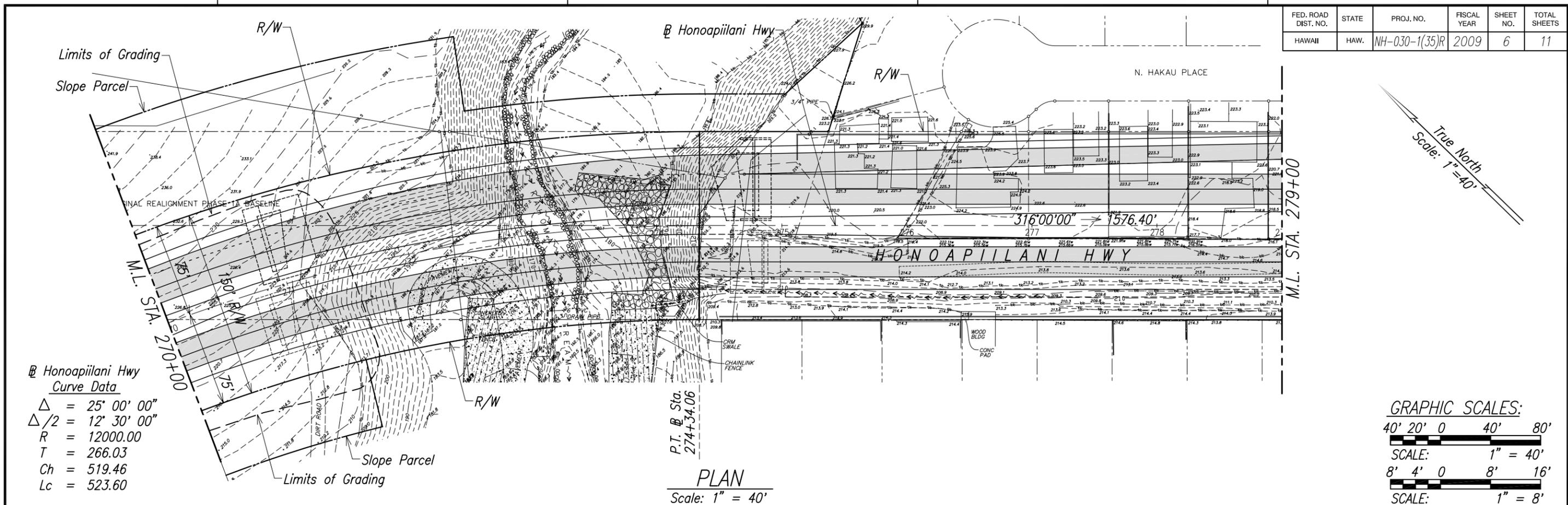
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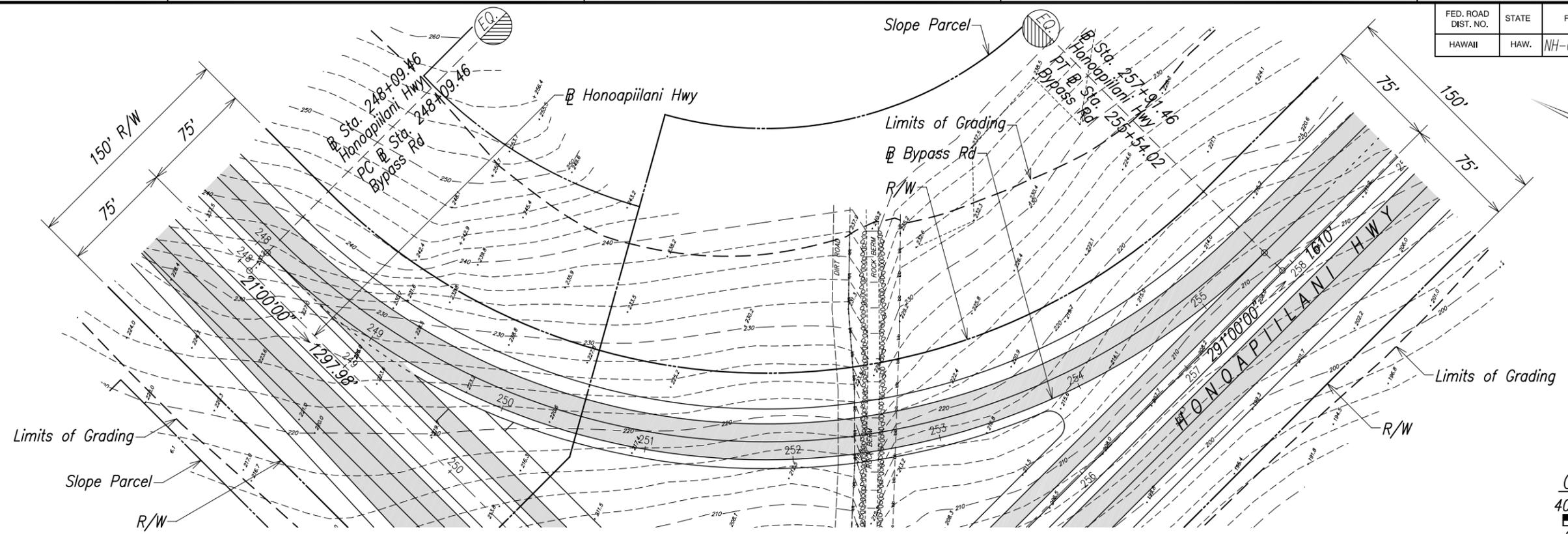
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HAWAII	HAW.	NH-030-1(35)R	2009	6	11

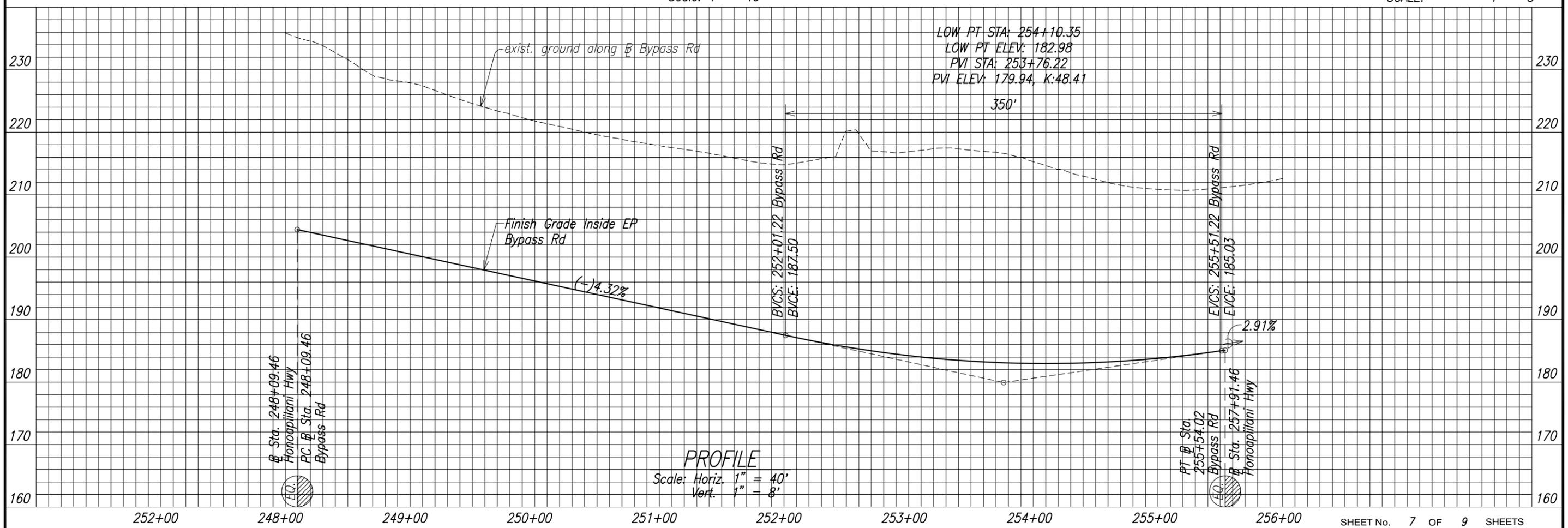
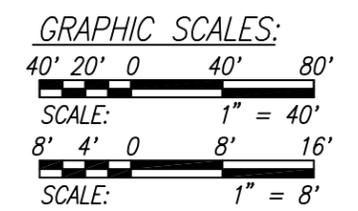


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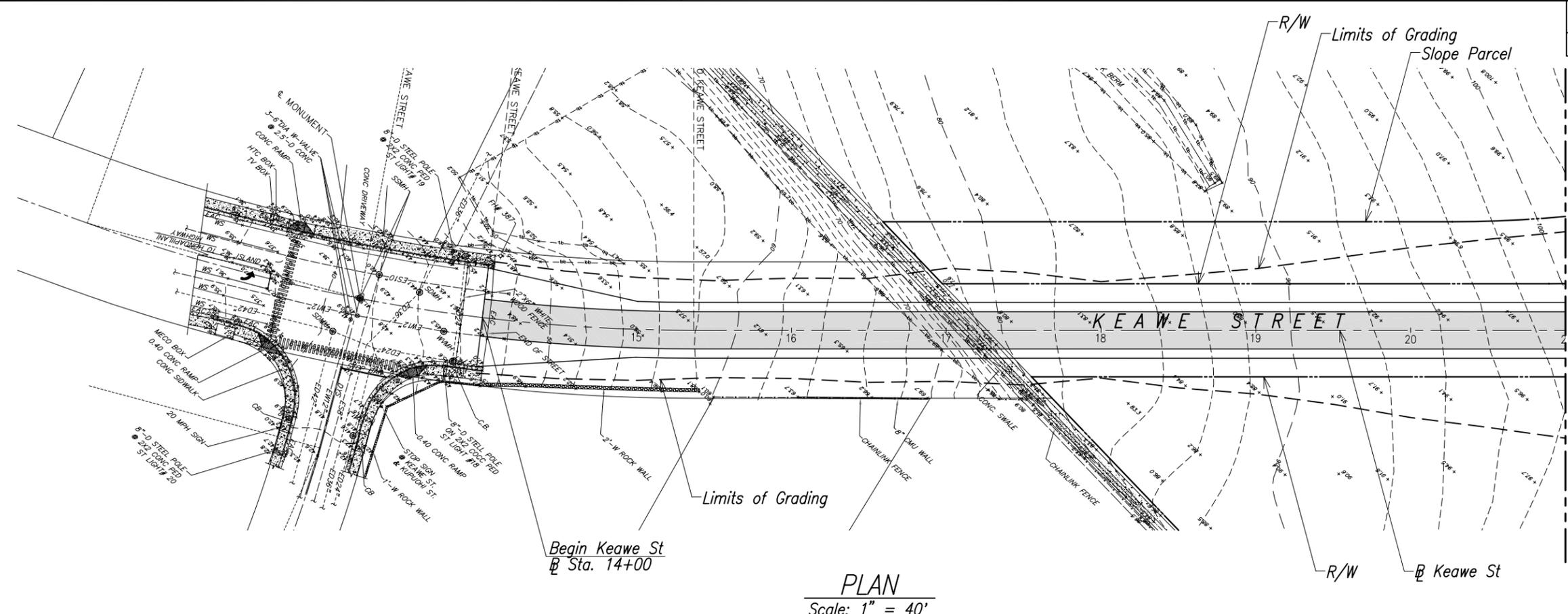
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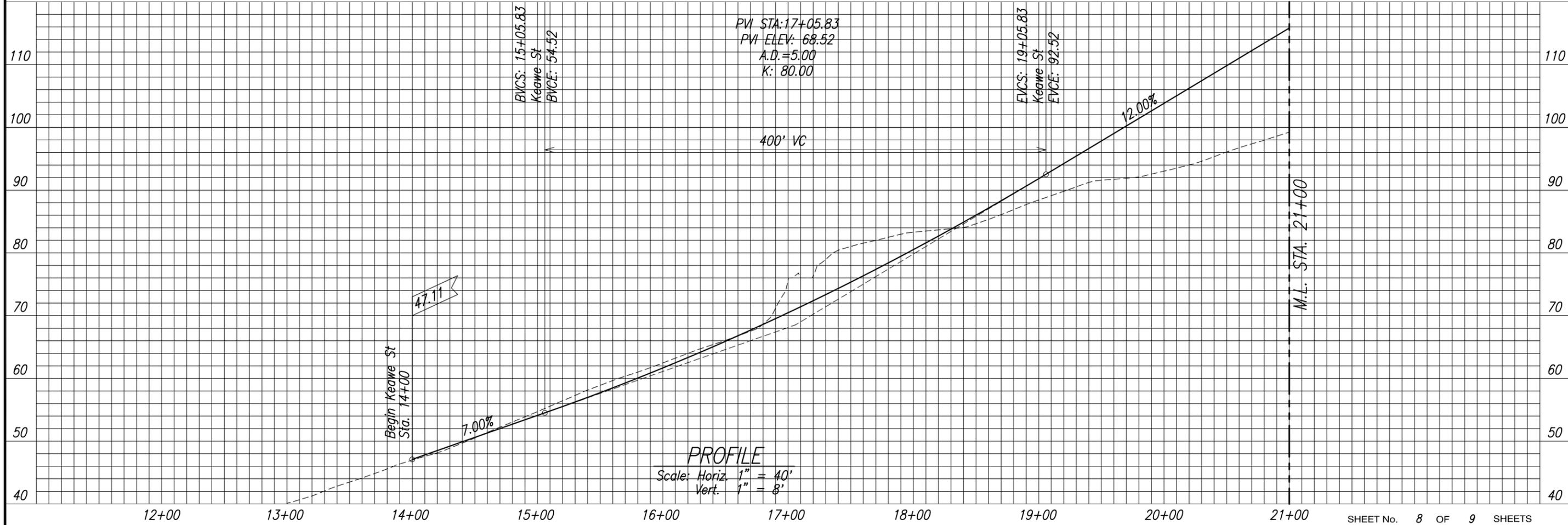
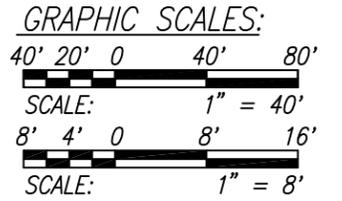
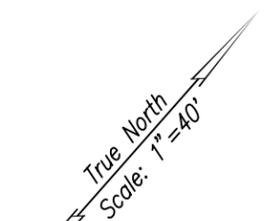
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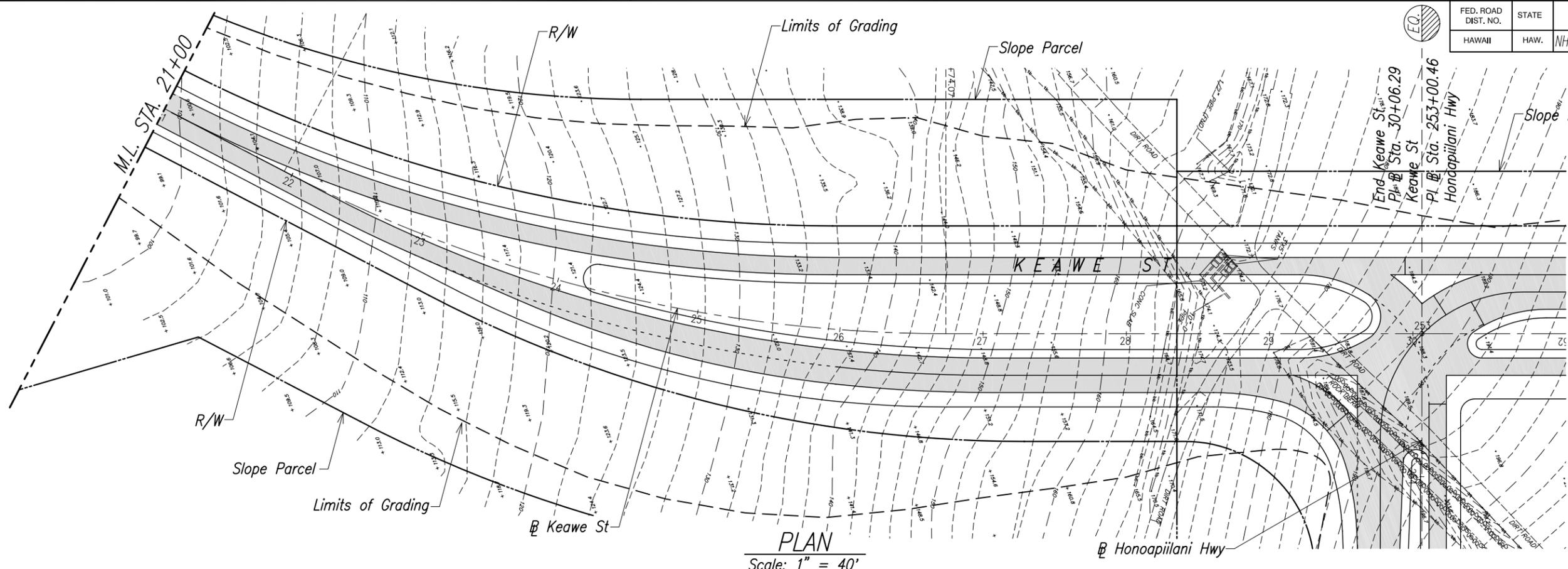
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Scale: 1" = 40'



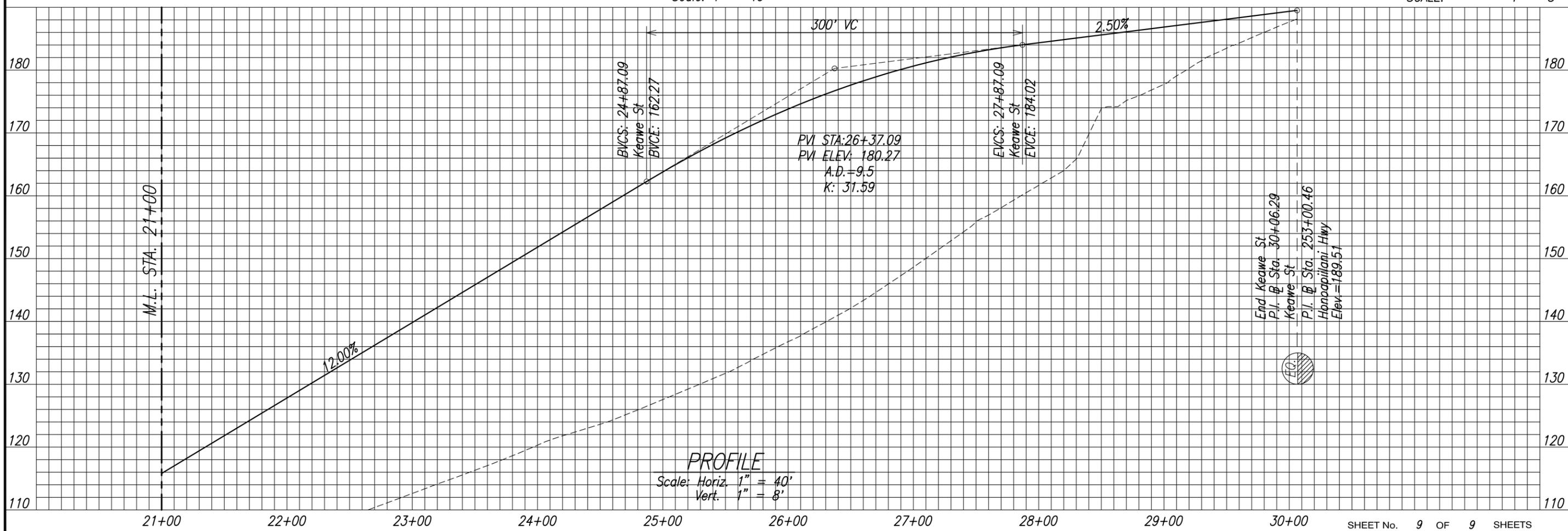
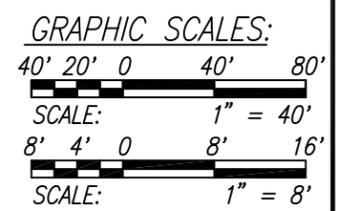
**PROFILE**  
Scale: Horiz. 1" = 40'  
Vert. 1" = 8'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	No.
NOTE BOOK	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	NH-030-1(35)R	2009	9	11



**PLAN**  
Scale: 1" = 40'



**PROFILE**  
Scale: Horiz. 1" = 40'  
Vert. 1" = 8'

ORIGINAL PLAN	DATE
DRAWN BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	
No.	

## Appendix D

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Masa Fujioka & Associates Letter for Environmental Survey  
Proposed 2008 Realignment Honoapiilani Highway,  
October 31, 2008

And

*Report of Environmental Survey Proposed Honoapiilani  
Highway Lahainaluna to Keawe Street Extension,  
Lahaina, Maui, Hawaii*

Masa Fujioka & Associates  
November 6, 2007



**M<sub>FA</sub> Masa Fujioka & Associates**  
***Geotechnical • Environmental • Hydrogeological Consulting***

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98-021 Kamehameha Highway, Suite 337, Aiea, Hawaii 96701  
Telephone: 808.484.5366 Facsimile: 808.484.0007

December 3, 2008

MFA Job No. 08096-101

Wilson Okamoto Corporation  
1907 Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Layne Hazama

Subject: **Results of Supplemental Soil Sampling  
Irrigation Treatment Station  
Honoapi'ilani Highway, Lahaina, Maui, Hawaii**

Dear Mr. Hazama:

Masa Fujioka & Associates (MFA) conducted supplemental soil sampling near a former irrigation water treatment (chlorination) station to assess environmental issues that may affect the proposed route of the Honoapi'ilani Highway. Our scope of work included sampling soils for pesticides related to previous agricultural activities conducted at the former irrigation water treatment station area. Sampling results indicate that no additional testing or mitigative measures regarding pesticides are warranted at the former irrigation water treatment station.

### **Background**

In 2008, the planned northern portion of Honoapi'ilani Highway was slightly realigned. An irrigation water treatment (chlorination) station was recently identified within the realigned area. Upon initial identification of the station, there were concerns that the tanks at this station may have historically been used for pesticide mixing. According to Robbi Varfield of Kanapali Farm Services, the area was only used as an irrigation treatment station with chlorine added to the irrigation water in order to prevent the buildup of algae in the lines. Soil sampling was nonetheless performed in this area on October 15, 2008 to evaluate the potential concern.

The irrigation treatment station area is approximately 30 feet by 25 feet in size and is comprised of 6 tanks set on an approximate 4-inch thick, 25-foot by 18-foot concrete pad. A small wooden shed is located at the northeast corner of the concrete pad and according to Mr. Varfield, it has been used to store chlorine used for treating irrigation water.

## Soil Sampling

The immediate area of the irrigation treatment station was demarked as a single decision unit (DU) for the purposes of our investigation. Soil samples were collected in clear 4-ounce glass jars. New, clean sample jars were utilized to obtain each sample, including a duplicate. In all cases, approximately 0.5 to 1 inch of grass and roots was cleared from each sub-sampling site, and the glass jar was pushed into the soil to obtain the sample. The sample was then placed in a bag with the other sub-samples from DU-IS. Soils were generally dry and easy to sample.

DOH guidance recommends collection of 30 to 50 subsamples to comprise the multi-increment sample for each DU. MFA collected 42 subsamples from DU-IS. A duplicate sample, DU-FS, was collected from DU-IS to provide an assurance of statistical validity of the sampling and analytical procedures. The duplicate was obtained by collecting a second sample, immediately adjacent to the first sample, at each sampling location at DU-IS. The duplicate sample identification was not known to the analytical laboratory.

## Analytical Results

Soil samples were placed in a cooler containing bagged ice and hand delivered to Test America in Aiea, Oahu, for sub-sampling and analysis for:

- Total arsenic in accordance with Modified EPA Method 3050B/6020;
- Organochlorine Pesticides in accordance with EPA Method 8081;
- Chlorinated Herbicides in accordance with Modified EPA Method 8151A;
- Semi-Volatile Organic compounds in accordance with Modified EPA Method 8270; and
- Triazine pesticides in accordance with Method E619.

The samples were prepared by the laboratory for analysis by incremental sub-sampling in accordance with EPA Method 600/R-03/027. The sub-sampling method included air-drying samples on large trays for 1-3 days. The air-dried samples were screened using a 2-mm sieve and sub-sampled prior to being analyzed. Results are reported on the basis of the air-dry weight. Analytical results from both samples for pesticides are summarized in Table 1 and laboratory analytical results are attached to this letter.

The majority of analytes tested for were reported as not detected, with detection limits less than applicable DOH Tier 1 Environmental Action Levels (EALs). No analytes were identified at concentrations exceeding DOH EALs for commercial/industrial land use, where the groundwater is not a source of drinking water and the nearest surface water body is more than 150 meters from the sample collection area.

Detected arsenic concentrations were all below regulatory action levels and also well within the range of concentrations that are known to occur naturally in soil in Hawaii. DOH provides health-based direct exposure goals for arsenic in soil of 0.39 mg/kg for residential exposure and 1.6 mg/kg for commercial/industrial exposure (DOH, 2006b). However, DOH also reports

background concentrations of arsenic in native soils ranging from 1 mg/kg to 20 mg/kg (DOH, 2006c), and states that background concentrations should be used as action levels in case where background concentrations exceed risk-based action levels for human health and environmental concerns. The 20 mg/kg level also corresponds well to the non-cancer EPA PRG of 22 mg/kg for arsenic. Reported arsenic concentrations (5.9 and 5.5 mg/kg) are well below the 20 mg/kg.

No semi-volatile organic compounds, free acid herbicides, or triazine pesticides were identified in the soil samples. Chlordane, heptachlor epoxide and pentachlorophneol were identified, but at concentrations well below DOH EALs.

Duplicate samples were obtained from DU-A to test the reproducibility of the sampling and sub-sampling procedures. The relative percent difference (RPD) between the results from the DU-A sample and its duplicate are presented in Table 1. A RPD between 0 and 30% between the duplicate samples is customarily considered acceptable. As shown in Table 1, the majority of the analytes in both samples were not detected, so the RPD could not be calculated. For the detected chemicals, the RPD ranged from 7 to 32, except for an RPD of 32 for one analyte.

## **Conclusion**

Soil sampling was conducted at the subject property to assess potential pesticide contamination of soil that may have resulted from the property's historic use. Most analytes were not detected. Three pesticides were detected and were reported at concentrations well below DOH EALs. Based on these results, no additional testing or mitigative measures regarding pesticides are deemed necessary.

It has been a pleasure performing this work for you. Please contact us at 484-5366 if you have questions regarding this report.

Respectfully submitted,

**MASA FUJIOKA & ASSOCIATES**  
A Professional Partnership



Lana J. Brodziak  
Soil Scientist

## **Attachments:**

1. Figure 1, Irrigation Treatment Station Area
2. Table 1, Summary of Pesticide Analytical Results
3. Laboratory Analytical Results



Irrigation Treatment Station Area  
(enlarged so visible)

Irrigation Treatment Station



Source: Google Earth,  
Lahaina, Maui, Hawaii, captured October 2008.

Project:  
08096-101

Approved: DRD  
Drawn: LJB

Date:  
December 2008

Scale:  
Not to Scale

**Figure 1**

**Irrigation Treatment  
Station Area**

**Honoapi'ilani Highway Realignment  
Lahaina, Maui, Hawaii**


**MASA FUJIOKA & ASSOCIATES**  
 ENVIRONMENTAL ■ GEOTECHNICAL ■ HYDROGEOLOGICAL CONSULTANTS

TABLE 1  
SUMMARY OF PESTICIDE ANALYTICAL RESULTS

Analyte	Sample ID			DOH Soil EALs <sup>2</sup> (mg/kg)
	DU-IS (Lab ID HRJ0113-01)	DU-FS (Duplicate) (Lab ID HRJ0113-02)	Relative Percent Difference <sup>1</sup>	
Total Arsenic EPA 6020 (mg/kg)				
Arsenic	5.90	5.50	7	22
Semi-Volatile Organic Compounds EPA 3545/8270C (mg/kg)				
68 Analytes	All ND <sup>3</sup> (varies <sup>4</sup> )	All ND (varies)	NA <sup>5</sup>	NA
Chlorinated Herbicides EPA 8151A (mg/kg)				
11 Analytes	All ND (varies)	All ND (varies)	NA	NA
Organochlorine Pesticides EPA8081A (mg/kg)				
Chlordane (tech)	0.8	0.88	10	29
Heptachlor epoxide	0.0087	0.012	32	0.046
Pentachlorophenol	0.0057	0.0062	8	5
Remaining 18 Analytes	All ND (varies)	All ND (varies)	NA	NA
Triazine Pesticides EPA 8270M (mg/Kg)				
11 Analytes	All ND (0.05)	All ND (0.05)	NA	NA

Notes:

- 1) A relative percent difference of 30% is acceptable for sample and duplicate data comparisons.
- 2) DOH Tier 1 Environmental Action Levels (EALs) for soil: commercial/industrial land use only, surface water body is >150m from the site and groundwater is not a source or potential source of drinking water. Updated October 2008.
- 3) ND = Not Detected at or above the laboratory limit of quantification (in brackets)
- 4) Detection limits for each analyte did not exceed DOH EALs or EPA Region 9 PRGs, refer to individual lab reporting sheets for details.
- 5) NA = Not Applicable (No data for comparison or Action Levels vary or do not exist for these undetected analytes).

## **Laboratory Analytical Results**

November 05, 2008

## LABORATORY REPORT

Client:

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Attn: Lana Brodziak

Work Order: HRJ0113  
Project Name: Honoapiilani Highway  
Project Number: 08096-101  
Date Received: 10/16/08

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

*TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.*

*The Chain of Custody, 1 page, is included and is an integral part of this report. This entire report was reviewed and approved for release.*

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

**CASE NARRATIVE: Samples were prepared by incremental subsampling in accordance with the EPA/600/R-03/027 Guidance Document.**

**Samples were received into laboratory at a temperature of 8 °C.**

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Approved By:



Mike D. Solick  
Project Manager

NELAC Certification # E87907

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

99-193 Alea Heights Drive, Suite 121 Alea, HI 96701 \* 808-486-5227 \* Fax 808-486-2456

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

**SAMPLE IDENTIFICATION**

**LAB NUMBER**

**COLLECTION DATE AND TIME**

DU-IS  
DU-FS

HRJ0113-01  
HRJ0113-02

10/15/08 12:45  
10/15/08 12:45

Masa Fujioka & Associates  
 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
 Project: Honoapiilani Highway  
 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil)</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>									
Acenaphthene	ND	RL1	ug/kg	670	2	10/29/08 22:40	10/28/08	8J28062	EPA 8270C
Acenaphthylene	ND	RL1	"	670	"	"	"	"	"
Aniline	ND	RL1	"	830	"	"	"	"	"
Anthracene	ND	RL1	"	670	"	"	"	"	"
Benzidine	ND	RL1,L6	"	1300	"	"	"	"	"
Benzo(a)anthracene	ND	RL1	"	670	"	"	"	"	"
Benzo(a)pyrene	ND	RL1	"	670	"	"	"	"	"
Benzo(b)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzo(g,h,i)perylene	ND	RL1	"	670	"	"	"	"	"
Benzo(k)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzoic acid	ND	RL1	"	1700	"	"	"	"	"
Benzyl alcohol	ND	RL1	"	670	"	"	"	"	"
4-Bromophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Butyl benzyl phthalate	ND	RL1	"	670	"	"	"	"	"
4-Chloro-3-methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Chloroaniline	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethoxy)methane	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethyl)ether	ND	RL1	"	330	"	"	"	"	"
Bis(2-chloroisopropyl)ether	ND	RL1	"	670	"	"	"	"	"
2-Chloronaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Chlorophenol	ND	RL1	"	670	"	"	"	"	"
4-Chlorophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Chrysene	ND	RL1	"	670	"	"	"	"	"
Dibenz(a,h)anthracene	ND	RL1	"	830	"	"	"	"	"
Dibenzofuran	ND	RL1	"	670	"	"	"	"	"
Di-n-butyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,3-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,4-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
3,3'-Dichlorobenzidine	ND	RL1	"	1700	"	"	"	"	"
2,4-Dichlorophenol	ND	RL1	"	670	"	"	"	"	"
Diethyl phthalate	ND	RL1	"	670	"	"	"	"	"
2,4-Dimethylphenol	ND	RL1	"	670	"	"	"	"	"
Dimethyl phthalate	ND	RL1	"	670	"	"	"	"	"
4,6-Dinitro-2-methylphenol	ND	RL1	"	830	"	"	"	"	"
2,4-Dinitrophenol	ND	RL1	"	1300	"	"	"	"	"
2,4-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
2,6-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
Di-n-octyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Diphenylhydrazine/Azobenzene	ND	RL1	"	670	"	"	"	"	"
Bis(2-ethylhexyl)phthalate	ND	RL1	"	670	"	"	"	"	"
Fluoranthene	ND	RL1	"	670	"	"	"	"	"
Fluorene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobenzene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobutadiene	ND	RL1	"	670	"	"	"	"	"
Hexachlorocyclopentadiene	ND	RL1	"	1700	"	"	"	"	"

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C) - cont.</b>									
Hexachloroethane	ND	RL1	"	670	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	RL1	"	670	"	"	"	"	"
Isophorone	ND	RL1	"	670	"	"	"	"	"
2-Methylnaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Methylphenol	ND	RL1	"	670	"	"	"	"	"
Naphthalene	ND	RL1	"	670	"	"	"	"	"
2-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
3-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
4-Nitroaniline	ND	RL1	"	1700	"	"	"	"	"
Nitrobenzene	ND	RL1	"	670	"	"	"	"	"
2-Nitrophenol	ND	RL1	"	670	"	"	"	"	"
4-Nitrophenol	ND	RL1	"	1700	"	"	"	"	"
N-Nitroso-di-n-propylamine	ND	RL1	"	500	"	"	"	"	"
N-Nitrosodiphenylamine	ND	RL1	"	670	"	"	"	"	"
Pentachlorophenol	ND	RL1	"	1700	"	"	"	"	"
Phenanthrene	ND	RL1	"	670	"	"	"	"	"
Phenol	ND	RL1	"	670	"	"	"	"	"
Pyrene	ND	RL1	"	670	"	"	"	"	"
1,2,4-Trichlorobenzene	ND	RL1	"	670	"	"	"	"	"
2,4,5-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
2,4,6-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
Surr: 2,4,6-Tribromophenol (35-125%)	57 %	RL1	"	"	"	"	"	"	"
Surr: 2-Fluorobiphenyl (35-120%)	76 %	RL1	"	"	"	"	"	"	"
Surr: 2-Fluorophenol (25-120%)	53 %	RL1	"	"	"	"	"	"	"
Surr: Nitrobenzene-d5 (30-120%)	64 %	RL1	"	"	"	"	"	"	"
Surr: Phenol-d6 (35-120%)	59 %	RL1	"	"	"	"	"	"	"
Surr: Terphenyl-d14 (40-135%)	103 %	RL1	"	"	"	"	"	"	"
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>									
4,4'-DDD	ND	C-1	ug/kg	5.0	1	10/31/08 06:41	10/27/08	8J27074	EPA 3545/8081A
4,4'-DDE	ND		"	5.0	"	"	"	"	"
4,4'-DDT	ND	C-7	"	5.0	"	"	"	"	"
Aldrin	ND		"	5.0	"	"	"	"	"
alpha-BHC	ND		"	5.0	"	"	"	"	"
beta-BHC	ND		"	5.0	"	"	"	"	"
delta-BHC	ND		"	10	"	"	"	"	"
Dieldrin	ND		"	5.0	"	"	"	"	"
Endosulfan I	ND		"	5.0	"	"	"	"	"
Endosulfan II	ND		"	5.0	"	"	"	"	"
Endosulfan sulfate	ND	C-7	"	10	"	"	"	"	"
Endrin	ND		"	5.0	"	"	"	"	"
Endrin aldehyde	ND	C-7	"	5.0	"	"	"	"	"
Endrin ketone	ND	C-7	"	5.0	"	"	"	"	"
gamma-BHC (Lindane)	ND		"	5.0	"	"	"	"	"
Heptachlor	ND	C-7	"	5.0	"	"	"	"	"
Heptachlor epoxide	8.7		"	5.0	"	"	"	"	"

Masa Fujioka & Associates  
 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
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 Project Number: 08096-101

Received: 10/16/08  
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## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A) - cont.</b>									
Methoxychlor	ND	C-7	"	5.0	"	"	"	"	"
Chlordane	80	A-01, C-7	"	50	"	"	"	"	"
Toxaphene	ND		"	200	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	75 %					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	64 %					"	"	"	"
<b>Herbicides (GC/MS)</b>									
Dalapon	ND		ug/Kg	8.3	1	10/24/08 18:43	10/24/08	37429	8151A STD
4-Nitrophenol	ND		"	3.3	"	"	"	"	"
Dicamba	ND		"	3.3	"	"	"	"	"
Mecoprop	ND		"	3.3	"	"	"	"	"
MCPA	ND		"	3.3	"	"	"	"	"
Dichlorprop	ND		"	3.3	"	"	"	"	"
2,4-D	ND		"	3.3	"	"	"	"	"
Pentachlorophenol	5.7		"	3.3	"	"	"	"	"
Silvex (2,4,5-TP)	ND		"	3.3	"	"	"	"	"
2,4,5-T	ND		"	3.3	"	"	"	"	"
Dinoseb	ND		"	8.3	"	"	"	"	"
2,4-DB	ND		"	3.3	"	"	"	"	"
<i>Surr: 2,4-Dichlorophenylacetic acid (51-129%)</i>	71 %					"	"	"	"

Masa Fujioka & Associates  
 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
 Project: Honoapiilani Highway  
 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil)</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>									
Acenaphthene	ND	RL1	ug/kg	670	2	10/29/08 23:17	10/28/08	8J28062	EPA 8270C
Acenaphthylene	ND	RL1	"	670	"	"	"	"	"
Aniline	ND	RL1	"	830	"	"	"	"	"
Anthracene	ND	RL1	"	670	"	"	"	"	"
Benzidine	ND	RL1,L6	"	1300	"	"	"	"	"
Benzo(a)anthracene	ND	RL1	"	670	"	"	"	"	"
Benzo(a)pyrene	ND	RL1	"	670	"	"	"	"	"
Benzo(b)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzo(g,h,i)perylene	ND	RL1	"	670	"	"	"	"	"
Benzo(k)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzoic acid	ND	RL1	"	1700	"	"	"	"	"
Benzyl alcohol	ND	RL1	"	670	"	"	"	"	"
4-Bromophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Butyl benzyl phthalate	ND	RL1	"	670	"	"	"	"	"
4-Chloro-3-methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Chloroaniline	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethoxy)methane	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethyl)ether	ND	RL1	"	330	"	"	"	"	"
Bis(2-chloroisopropyl)ether	ND	RL1	"	670	"	"	"	"	"
2-Chloronaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Chlorophenol	ND	RL1	"	670	"	"	"	"	"
4-Chlorophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Chrysene	ND	RL1	"	670	"	"	"	"	"
Dibenz(a,h)anthracene	ND	RL1	"	830	"	"	"	"	"
Dibenzofuran	ND	RL1	"	670	"	"	"	"	"
Di-n-butyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,3-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,4-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
3,3'-Dichlorobenzidine	ND	RL1	"	1700	"	"	"	"	"
2,4-Dichlorophenol	ND	RL1	"	670	"	"	"	"	"
Diethyl phthalate	ND	RL1	"	670	"	"	"	"	"
2,4-Dimethylphenol	ND	RL1	"	670	"	"	"	"	"
Dimethyl phthalate	ND	RL1	"	670	"	"	"	"	"
4,6-Dinitro-2-methylphenol	ND	RL1	"	830	"	"	"	"	"
2,4-Dinitrophenol	ND	RL1	"	1300	"	"	"	"	"
2,4-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
2,6-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
Di-n-octyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Diphenylhydrazine/Azobenzene	ND	RL1	"	670	"	"	"	"	"
Bis(2-ethylhexyl)phthalate	ND	RL1	"	670	"	"	"	"	"
Fluoranthene	ND	RL1	"	670	"	"	"	"	"
Fluorene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobenzene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobutadiene	ND	RL1	"	670	"	"	"	"	"
Hexachlorocyclopentadiene	ND	RL1	"	1700	"	"	"	"	"

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Aiea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C) - cont.</b>									
Hexachloroethane	ND	RL1	"	670	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	RL1	"	670	"	"	"	"	"
Isophorone	ND	RL1	"	670	"	"	"	"	"
2-Methylnaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Methylphenol	ND	RL1	"	670	"	"	"	"	"
Naphthalene	ND	RL1	"	670	"	"	"	"	"
2-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
3-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
4-Nitroaniline	ND	RL1	"	1700	"	"	"	"	"
Nitrobenzene	ND	RL1	"	670	"	"	"	"	"
2-Nitrophenol	ND	RL1	"	670	"	"	"	"	"
4-Nitrophenol	ND	RL1	"	1700	"	"	"	"	"
N-Nitroso-di-n-propylamine	ND	RL1	"	500	"	"	"	"	"
N-Nitrosodiphenylamine	ND	RL1	"	670	"	"	"	"	"
Pentachlorophenol	ND	RL1	"	1700	"	"	"	"	"
Phenanthrene	ND	RL1	"	670	"	"	"	"	"
Phenol	ND	RL1	"	670	"	"	"	"	"
Pyrene	ND	RL1	"	670	"	"	"	"	"
1,2,4-Trichlorobenzene	ND	RL1	"	670	"	"	"	"	"
2,4,5-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
2,4,6-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
<i>Surr: 2,4,6-Tribromophenol (35-125%)</i>	<i>48 %</i>	<i>RL1</i>							
<i>Surr: 2-Fluorobiphenyl (35-120%)</i>	<i>59 %</i>	<i>RL1</i>							
<i>Surr: 2-Fluorophenol (25-120%)</i>	<i>43 %</i>	<i>RL1</i>							
<i>Surr: Nitrobenzene-d5 (30-120%)</i>	<i>47 %</i>	<i>RL1</i>							
<i>Surr: Phenol-d6 (35-120%)</i>	<i>54 %</i>	<i>RL1</i>							
<i>Surr: Terphenyl-d14 (40-135%)</i>	<i>76 %</i>	<i>RL1</i>							
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>									
4,4'-DDD	ND	C	ug/kg	5.0	1	10/31/08 08:07	10/27/08	8J27074	EPA 3545/8081A
4,4'-DDE	ND		"	5.0	"	"	"	"	"
4,4'-DDT	ND	C-7	"	5.0	"	"	"	"	"
Aldrin	ND		"	5.0	"	"	"	"	"
alpha-BHC	ND		"	5.0	"	"	"	"	"
beta-BHC	ND		"	5.0	"	"	"	"	"
delta-BHC	ND		"	10	"	"	"	"	"
Dieldrin	ND		"	5.0	"	"	"	"	"
Endosulfan I	ND		"	5.0	"	"	"	"	"
Endosulfan II	ND		"	5.0	"	"	"	"	"
Endosulfan sulfate	ND	C-7	"	10	"	"	"	"	"
Endrin	ND		"	5.0	"	"	"	"	"
Endrin aldehyde	ND	C-7	"	5.0	"	"	"	"	"
Endrin ketone	ND	C-7	"	5.0	"	"	"	"	"
gamma-BHC (Lindane)	ND		"	5.0	"	"	"	"	"
Heptachlor	ND	C-7	"	5.0	"	"	"	"	"
Heptachlor epoxide	12		"	5.0	"	"	"	"	"

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 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A) - cont.</b>									
Methoxychlor	ND	C-7	"	5.0	"	"	"	"	"
Chlordane	88	A-01, C-7	"	50	"	"	"	"	"
Toxaphene	ND		"	200	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	75 %					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	70 %					"	"	"	"
<b>Herbicides (GC/MS)</b>									
Dalapon	ND		ug/Kg	8.0	1	10/24/08 19:07	10/24/08	37429	8151A STD
4-Nitrophenol	ND		"	3.2	"	"	"	"	"
Dicamba	ND		"	3.2	"	"	"	"	"
Mecoprop	ND		"	3.2	"	"	"	"	"
MCPA	ND		"	3.2	"	"	"	"	"
Dichlorprop	ND		"	3.2	"	"	"	"	"
2,4-D	ND		"	3.2	"	"	"	"	"
Pentachlorophenol	6.2		"	3.2	"	"	"	"	"
Silvex (2,4,5-TP)	ND		"	3.2	"	"	"	"	"
2,4,5-T	ND		"	3.2	"	"	"	"	"
Dinoseb	ND		"	8.0	"	"	"	"	"
2,4-DB	ND		"	3.2	"	"	"	"	"
<i>Surr: 2,4-Dichlorophenylacetic acid (51-129%)</i>	79 %					"	"	"	"

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## LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Blank Analyzed: 10/28/2008 (8J28062-BLK1)</b>													
Acenaphthene			ug/kg	N/A	330	ND							
Acenaphthylene			ug/kg	N/A	330	ND							
Aniline			ug/kg	N/A	420	ND							
Anthracene			ug/kg	N/A	330	ND							
Benzidine			ug/kg	N/A	660	ND							
Benzo(a)anthracene			ug/kg	N/A	330	ND							
Benzo(a)pyrene			ug/kg	N/A	330	ND							
Benzo(b)fluoranthene			ug/kg	N/A	330	ND							
Benzo(g,h,i)perylene			ug/kg	N/A	330	ND							
Benzo(k)fluoranthene			ug/kg	N/A	330	ND							
Benzoic acid			ug/kg	N/A	830	ND							
Benzyl alcohol			ug/kg	N/A	330	ND							
4-Bromophenyl phenyl ether			ug/kg	N/A	330	ND							
Butyl benzyl phthalate			ug/kg	N/A	330	ND							
4-Chloro-3-methylphenol			ug/kg	N/A	330	ND							
4-Chloroaniline			ug/kg	N/A	330	ND							
Bis(2-chloroethoxy)methane			ug/kg	N/A	330	ND							
Bis(2-chloroethyl)ether			ug/kg	N/A	170	ND							
Bis(2-chloroisopropyl)ether			ug/kg	N/A	330	ND							
2-Chloronaphthalene			ug/kg	N/A	330	ND							
2-Chlorophenol			ug/kg	N/A	330	ND							
4-Chlorophenyl phenyl ether			ug/kg	N/A	330	ND							
Chrysene			ug/kg	N/A	330	ND							
Dibenz(a,h)anthracene			ug/kg	N/A	420	ND							
Dibenzofuran			ug/kg	N/A	330	ND							
Di-n-butyl phthalate			ug/kg	N/A	330	ND							
1,2-Dichlorobenzene			ug/kg	N/A	330	ND							
1,3-Dichlorobenzene			ug/kg	N/A	330	ND							
1,4-Dichlorobenzene			ug/kg	N/A	330	ND							
3,3'-Dichlorobenzidine			ug/kg	N/A	830	ND							
2,4-Dichlorophenol			ug/kg	N/A	330	ND							
Diethyl phthalate			ug/kg	N/A	330	ND							
2,4-Dimethylphenol			ug/kg	N/A	330	ND							
Dimethyl phthalate			ug/kg	N/A	330	ND							
4,6-Dinitro-2-methylphenol			ug/kg	N/A	420	ND							
2,4-Dinitrophenol			ug/kg	N/A	660	ND							
2,4-Dinitrotoluene			ug/kg	N/A	330	ND							
2,6-Dinitrotoluene			ug/kg	N/A	330	ND							
Di-n-octyl phthalate			ug/kg	N/A	330	ND							
1,2-Diphenylhydrazine/Azobenzene			ug/kg	N/A	330	ND							
Bis(2-ethylhexyl)phthalate			ug/kg	N/A	330	ND							
Fluoranthene			ug/kg	N/A	330	ND							
Fluorene			ug/kg	N/A	330	ND							
Hexachlorobenzene			ug/kg	N/A	330	ND							
Hexachlorobutadiene			ug/kg	N/A	330	ND							

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## LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Blank Analyzed: 10/28/2008 (8J28062-BLK1)</b>													
Hexachlorocyclopentadiene			ug/kg	N/A	830	ND							
Hexachloroethane			ug/kg	N/A	330	ND							
Indeno(1,2,3-cd)pyrene			ug/kg	N/A	330	ND							
Isophorone			ug/kg	N/A	330	ND							
2-Methylnaphthalene			ug/kg	N/A	330	ND							
2-Methylphenol			ug/kg	N/A	330	ND							
4-Methylphenol			ug/kg	N/A	330	ND							
Naphthalene			ug/kg	N/A	330	ND							
2-Nitroaniline			ug/kg	N/A	330	ND							
3-Nitroaniline			ug/kg	N/A	330	ND							
4-Nitroaniline			ug/kg	N/A	830	ND							
Nitrobenzene			ug/kg	N/A	330	ND							
2-Nitrophenol			ug/kg	N/A	330	ND							
4-Nitrophenol			ug/kg	N/A	830	ND							
N-Nitroso-di-n-propylamine			ug/kg	N/A	250	ND							
N-Nitrosodiphenylamine			ug/kg	N/A	330	ND							
Pentachlorophenol			ug/kg	N/A	830	ND							
Phenanthrene			ug/kg	N/A	330	ND							
Phenol			ug/kg	N/A	330	ND							
Pyrene			ug/kg	N/A	330	ND							
1,2,4-Trichlorobenzene			ug/kg	N/A	330	ND							
2,4,5-Trichlorophenol			ug/kg	N/A	330	ND							
2,4,6-Trichlorophenol			ug/kg	N/A	330	ND							
Surrogate: 2,4,6-Tribromophenol			ug/kg						61			35-125	
Surrogate: 2-Fluorobiphenyl			ug/kg						68			35-120	
Surrogate: 2-Fluorophenol			ug/kg						59			25-120	
Surrogate: Nitrobenzene-d5			ug/kg						61			30-120	
Surrogate: Phenol-d6			ug/kg						61			35-120	
Surrogate: Terphenyl-d14			ug/kg						94			40-135	

## ORGANOCHLORINE PESTICIDES (EPA 8081A)

**Batch\Seq: 8J27074 Extracted: 10/27/08**

**Blank Analyzed: 10/28/2008 (8J27074-BLK1)**

4,4'-DDD			ug/kg	N/A	5.0	ND							
4,4'-DDE			ug/kg	N/A	5.0	ND							
4,4'-DDT			ug/kg	N/A	5.0	ND							
Aldrin			ug/kg	N/A	5.0	ND							
alpha-BHC			ug/kg	N/A	5.0	ND							
beta-BHC			ug/kg	N/A	5.0	ND							
delta-BHC			ug/kg	N/A	10	ND							
Dieldrin			ug/kg	N/A	5.0	ND							
Endosulfan I			ug/kg	N/A	5.0	ND							
Endosulfan II			ug/kg	N/A	5.0	ND							
Endosulfan sulfate			ug/kg	N/A	10	ND							
Endrin			ug/kg	N/A	5.0	ND							

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### LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
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#### ORGANOCHLORINE PESTICIDES (EPA 8081A)

**Batch\Seq: 8J27074 Extracted: 10/27/08**

Blank Analyzed: 10/28/2008 (8J27074-BLK1)

Endrin aldehyde			ug/kg	N/A	5.0	ND							
Endrin ketone			ug/kg	N/A	5.0	ND							
gamma-BHC (Lindane)			ug/kg	N/A	5.0	ND							
Heptachlor			ug/kg	N/A	5.0	ND							
Heptachlor epoxide			ug/kg	N/A	5.0	ND							
Methoxychlor			ug/kg	N/A	5.0	ND							
Chlordane			ug/kg	N/A	50	ND							
Toxaphene			ug/kg	N/A	200	ND							
Surrogate: Decachlorobiphenyl			ug/kg						83			45-120	
Surrogate: Tetrachloro-m-xylene			ug/kg						73			35-115	

#### Herbicides (GC/MS)

**Batch\Seq: 37429 Extracted: 10/24/08**

Blank Analyzed: 10/24/2008 (580-37693-1)

QC Source Sample:

Dalapon			ug/Kg	N/A	8.3	ND							
4-Nitrophenol			ug/Kg	N/A	3.3	ND							
Dicamba			ug/Kg	N/A	3.3	ND							
Mecoprop			ug/Kg	N/A	3.3	ND							
MCPA			ug/Kg	N/A	3.3	ND							
Dichlorprop			ug/Kg	N/A	3.3	ND							
2,4-D			ug/Kg	N/A	3.3	ND							
Pentachlorophenol			ug/Kg	N/A	3.3	ND							
Silvex (2,4,5-TP)			ug/Kg	N/A	3.3	ND							
2,4,5-T			ug/Kg	N/A	3.3	ND							
Dinoseb			ug/Kg	N/A	8.3	ND							
2,4-DB			ug/Kg	N/A	3.3	ND							
Surrogate: 2,4-Dichlorophenylacetic acid			ug/Kg						98			51-129	

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## LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J28062-BS1)</b>													
Acenaphthene		3330	ug/kg	N/A	330	2410		72		50-120			
Acenaphthylene		3330	ug/kg	N/A	330	2320		70		50-120			
Aniline		3330	ug/kg	N/A	420	913		27		25-120			
Anthracene		3330	ug/kg	N/A	330	2740		82		55-120			
Benzidine		3330	ug/kg	N/A	660	ND				20-120			L6
Benzo(a)anthracene		3330	ug/kg	N/A	330	3010		90		55-120			
Benzo(a)pyrene		3330	ug/kg	N/A	330	3150		95		50-125			
Benzo(b)fluoranthene		3330	ug/kg	N/A	330	3000		90		45-125			
Benzo(g,h,i)perylene		3330	ug/kg	N/A	330	3110		93		35-130			
Benzo(k)fluoranthene		3330	ug/kg	N/A	330	2960		89		45-125			
Benzoic acid		3330	ug/kg	N/A	830	2490		75		20-120			
Benzyl alcohol		3330	ug/kg	N/A	330	2380		71		35-120			
4-Bromophenyl phenyl ether		3330	ug/kg	N/A	330	2630		79		45-120			
Butyl benzyl phthalate		3330	ug/kg	N/A	330	3040		91		50-125			
4-Chloro-3-methylphenol		3330	ug/kg	N/A	330	2640		79		50-125			
4-Chloroaniline		3330	ug/kg	N/A	330	873		26		20-120			
Bis(2-chloroethoxy)methane		3330	ug/kg	N/A	330	2390		72		45-120			
Bis(2-chloroethyl)ether		3330	ug/kg	N/A	170	2520		76		35-120			
Bis(2-chloroisopropyl)ether		3330	ug/kg	N/A	330	2120		64		40-120			
2-Chloronaphthalene		3330	ug/kg	N/A	330	2330		70		45-120			
2-Chlorophenol		3330	ug/kg	N/A	330	2200		66		40-120			
4-Chlorophenyl phenyl ether		3330	ug/kg	N/A	330	2520		76		55-120			
Chrysene		3330	ug/kg	N/A	330	2900		87		55-120			
Dibenz(a,h)anthracene		3330	ug/kg	N/A	420	3070		92		40-135			
Dibenzofuran		3330	ug/kg	N/A	330	2560		77		55-120			
Di-n-butyl phthalate		3330	ug/kg	N/A	330	2900		87		50-125			
1,2-Dichlorobenzene		3330	ug/kg	N/A	330	2130		64		40-120			
1,3-Dichlorobenzene		3330	ug/kg	N/A	330	2010		60		35-120			
1,4-Dichlorobenzene		3330	ug/kg	N/A	330	2040		61		35-120			
3,3'-Dichlorobenzidine		3330	ug/kg	N/A	830	1700		51		20-130			
2,4-Dichlorophenol		3330	ug/kg	N/A	330	2520		76		45-120			
Diethyl phthalate		3330	ug/kg	N/A	330	2570		77		50-125			
2,4-Dimethylphenol		3330	ug/kg	N/A	330	2450		73		40-120			
Dimethyl phthalate		3330	ug/kg	N/A	330	2520		76		50-125			
4,6-Dinitro-2-methylphenol		3330	ug/kg	N/A	420	2800		84		40-120			
2,4-Dinitrophenol		3330	ug/kg	N/A	660	2450		74		25-120			
2,4-Dinitrotoluene		3330	ug/kg	N/A	330	2630		79		55-125			
2,6-Dinitrotoluene		3330	ug/kg	N/A	330	2540		76		55-125			
Di-n-octyl phthalate		3330	ug/kg	N/A	330	2950		89		50-135			
1,2-Diphenylhydrazine/Azobenzene		3330	ug/kg	N/A	330	2520		76		50-125			
Bis(2-ethylhexyl)phthalate		3330	ug/kg	N/A	330	3020		91		50-130			
Fluoranthene		3330	ug/kg	N/A	330	2870		86		55-120			
Fluorene		3330	ug/kg	N/A	330	2500		75		55-120			
Hexachlorobenzene		3330	ug/kg	N/A	330	2590		78		50-120			
Hexachlorobutadiene		3330	ug/kg	N/A	330	2310		69		40-120			

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Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J28062-BS1)</b>													
Hexachlorocyclopentadiene	3330	3330	ug/kg	N/A	830	2710		81		30-125			
Hexachloroethane	3330	3330	ug/kg	N/A	330	2060		62		40-120			
Indeno(1,2,3-cd)pyrene	3330	3330	ug/kg	N/A	330	3180		95		30-135			
Isophorone	3330	3330	ug/kg	N/A	330	2170		65		40-120			
2-Methylnaphthalene	3330	3330	ug/kg	N/A	330	2560		77		45-120			
2-Methylphenol	3330	3330	ug/kg	N/A	330	2290		69		40-120			
4-Methylphenol	3330	3330	ug/kg	N/A	330	2400		72		45-120			
Naphthalene	3330	3330	ug/kg	N/A	330	2310		69		45-120			
2-Nitroaniline	3330	3330	ug/kg	N/A	330	2430		73		50-125			
3-Nitroaniline	3330	3330	ug/kg	N/A	330	2420		72		35-120			
4-Nitroaniline	3330	3330	ug/kg	N/A	830	2100		63		45-125			
Nitrobenzene	3330	3330	ug/kg	N/A	330	2200		66		45-120			
2-Nitrophenol	3330	3330	ug/kg	N/A	330	2380		72		45-120			
4-Nitrophenol	3330	3330	ug/kg	N/A	830	2580		77		40-125			
N-Nitroso-di-n-propylamine	3330	3330	ug/kg	N/A	250	2240		67		40-120			
N-Nitrosodiphenylamine	3330	3330	ug/kg	N/A	330	2670		80		50-120			
Pentachlorophenol	3330	3330	ug/kg	N/A	830	2860		86		40-120			
Phenanthrene	3330	3330	ug/kg	N/A	330	2630		79		50-120			
Phenol	3330	3330	ug/kg	N/A	330	2200		66		40-120			
Pyrene	3330	3330	ug/kg	N/A	330	2720		82		45-125			
1,2,4-Trichlorobenzene	3330	3330	ug/kg	N/A	330	2280		69		40-120			
2,4,5-Trichlorophenol	3330	3330	ug/kg	N/A	330	2690		81		50-120			
2,4,6-Trichlorophenol	3330	3330	ug/kg	N/A	330	2670		80		50-120			
Surrogate: 2,4,6-Tribromophenol			ug/kg					70		35-125			
Surrogate: 2-Fluorobiphenyl			ug/kg					69		35-120			
Surrogate: 2-Fluorophenol			ug/kg					62		25-120			
Surrogate: Nitrobenzene-d5			ug/kg					64		30-120			
Surrogate: Phenol-d6			ug/kg					67		35-120			
Surrogate: Terphenyl-d14			ug/kg					93		40-135			

## ORGANOCHLORINE PESTICIDES (EPA 8081A)

**Batch\Seq: 8J27074 Extracted: 10/27/08**

**LCS Analyzed: 10/28/2008 (8J27074-BS1)**

4,4'-DDD	33.3	33.3	ug/kg	N/A	5.0	30.4		91		60-120			
4,4'-DDE	33.3	33.3	ug/kg	N/A	5.0	28.3		85		60-120			
4,4'-DDT	33.3	33.3	ug/kg	N/A	5.0	30.5		91		65-120			
Aldrin	33.3	33.3	ug/kg	N/A	5.0	21.5		65		50-115			
alpha-BHC	33.3	33.3	ug/kg	N/A	5.0	25.1		75		60-115			
beta-BHC	33.3	33.3	ug/kg	N/A	5.0	26.9		81		60-115			
delta-BHC	33.3	33.3	ug/kg	N/A	10	28.4		85		60-115			
Dieldrin	33.3	33.3	ug/kg	N/A	5.0	28.2		85		65-115			
Endosulfan I	33.3	33.3	ug/kg	N/A	5.0	26.9		81		40-120			
Endosulfan II	33.3	33.3	ug/kg	N/A	5.0	28.8		87		55-120			
Endosulfan sulfate	33.3	33.3	ug/kg	N/A	10	28.2		85		65-115			
Endrin	33.3	33.3	ug/kg	N/A	5.0	31.0		93		55-120			

MNR

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### LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>													
<b>Batch\Seq: 8J27074 Extracted: 10/27/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J27074-BS1)</b>													
MNR													
Endrin aldehyde		33.3	ug/kg	N/A	5.0	25.4		76		55-115			
Endrin ketone		33.3	ug/kg	N/A	5.0	27.3		82		65-115			
gamma-BHC (Lindane)		33.3	ug/kg	N/A	5.0	27.5		82		55-115			
Heptachlor		33.3	ug/kg	N/A	5.0	28.3		85		55-115			
Heptachlor epoxide		33.3	ug/kg	N/A	5.0	27.2		82		55-115			
Methoxychlor		33.3	ug/kg	N/A	5.0	30.4		91		65-120			
Surrogate: Decachlorobiphenyl			ug/kg					80		45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					74		35-115			
<b>Herbicides (GC/MS)</b>													
<b>Batch\Seq: 37429 Extracted: 10/24/08</b>													
<b>LCS Analyzed: 10/24/2008 (580-37693-2)</b>													
QC Source Sample:													
Dalapon		333	ug/Kg	N/A	8.3	246		74		16-74			
Dicamba		333	ug/Kg	N/A	3.3	316		95		48-123			
Mecoprop		333	ug/Kg	N/A	3.3	357		107		53-154			
MCPA		333	ug/Kg	N/A	3.3	324		97		50-150			
Dichlorprop		333	ug/Kg	N/A	3.3	317		95		75-140			
2,4-D		333	ug/Kg	N/A	3.3	302		91		46-136			
Pentachlorophenol		333	ug/Kg	N/A	3.3	329		99		50-150			
Silvex (2,4,5-TP)		333	ug/Kg	N/A	3.3	337		101		52-137			
Dinoseb		333	ug/Kg	N/A	8.3	288		86		18-157			
2,4-DB		333	ug/Kg	N/A	3.3	358		107		50-155			
Surrogate: 2,4-Dichlorophenylacetic acid			ug/Kg					100		51-129			

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## MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>BatchSeq: 8J28062 Extracted: 10/28/08</b>													
<b>Matrix Spike Analyzed: 10/28/2008 (8J28062-MS1)</b>						<b>QC Source Sample: IRJ2667-01</b>							
Acenaphthene	ND	3330	ug/kg	N/A	330	2580	2620	77	79	45-120	2	25	
Acenaphthylene	ND	3330	ug/kg	N/A	330	2500	2560	75	77	45-120	2	20	
Aniline	ND	3330	ug/kg	N/A	420	1820	1920	55	58	25-120	5	30	
Anthracene	ND	3330	ug/kg	N/A	330	2900	3030	87	91	55-120	4	25	
Benzidine	ND	3330	ug/kg	N/A	660	ND	ND			20-120		30	M8
Benzo(a)anthracene	ND	3330	ug/kg	N/A	330	3020	3180	91	95	50-120	5	25	
Benzo(a)pyrene	ND	3330	ug/kg	N/A	330	3140	3340	94	100	45-125	6	25	
Benzo(b)fluoranthene	ND	3330	ug/kg	N/A	330	2920	3150	87	94	45-125	8	30	
Benzo(g,h,i)perylene	ND	3330	ug/kg	N/A	330	3080	3110	92	93	25-130	1	30	
Benzo(k)fluoranthene	ND	3330	ug/kg	N/A	330	2870	3230	86	97	45-125	12	30	
Benzoic acid	ND	3330	ug/kg	N/A	830	1280	1670	38	50	20-120	26	30	
Benzyl alcohol	ND	3330	ug/kg	N/A	330	2500	2550	75	77	20-120	2	30	
4-Bromophenyl phenyl ether	ND	3330	ug/kg	N/A	330	2840	2940	85	88	45-120	3	20	
Butyl benzyl phthalate	ND	3330	ug/kg	N/A	330	3030	3300	91	99	45-125	9	25	
4-Chloro-3-methylphenol	ND	3330	ug/kg	N/A	330	2710	2960	81	89	50-125	9	25	
4-Chloroaniline	ND	3330	ug/kg	N/A	330	1900	2080	57	62	20-120	9	30	
Bis(2-chloroethoxy)methane	ND	3330	ug/kg	N/A	330	2460	2560	74	77	45-120	4	25	
Bis(2-chloroethyl)ether	ND	3330	ug/kg	N/A	170	2290	2300	69	69	35-110	0	25	
Bis(2-chloroisopropyl)ether	ND	3330	ug/kg	N/A	330	2210	2160	66	65	40-120	2	25	
2-Chloronaphthalene	ND	3330	ug/kg	N/A	330	2530	2580	76	77	45-120	2	20	
2-Chlorophenol	ND	3330	ug/kg	N/A	330	2280	2320	68	69	40-120	2	20	
4-Chlorophenyl phenyl ether	ND	3330	ug/kg	N/A	330	2730	2920	82	88	50-120	7	25	
Chrysene	ND	3330	ug/kg	N/A	330	2890	3130	87	94	55-120	8	25	
Dibenz(a,h)anthracene	ND	3330	ug/kg	N/A	420	3140	3190	94	96	25-135	2	30	
Dibenzofuran	ND	3330	ug/kg	N/A	330	2760	2870	83	86	50-120	4	25	
Di-n-butyl phthalate	ND	3330	ug/kg	N/A	330	3060	3210	92	96	50-125	5	25	
1,2-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2200	2210	66	66	40-120	1	25	
1,3-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2060	2050	62	62	35-120	1	25	
1,4-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2140	2090	64	63	35-120	2	25	
3,3'-Dichlorobenzidine	ND	3330	ug/kg	N/A	830	2240	2540	67	76	20-130	13	25	
2,4-Dichlorophenol	ND	3330	ug/kg	N/A	330	2630	2740	79	82	45-120	4	25	
Diethyl phthalate	ND	3330	ug/kg	N/A	330	2810	3030	84	91	50-125	7	25	
2,4-Dimethylphenol	ND	3330	ug/kg	N/A	330	2210	2380	66	72	30-120	8	25	
Dimethyl phthalate	ND	3330	ug/kg	N/A	330	2710	2850	81	85	45-125	5	25	
4,6-Dinitro-2-methylphenol	ND	3330	ug/kg	N/A	420	2390	2840	72	85	35-120	17	25	
2,4-Dinitrophenol	ND	3330	ug/kg	N/A	660	1720	2080	52	62	20-120	19	25	
2,4-Dinitrotoluene	ND	3330	ug/kg	N/A	330	2770	3160	83	95	50-125	13	25	
2,6-Dinitrotoluene	ND	3330	ug/kg	N/A	330	2740	3000	82	90	50-125	9	20	
Di-n-octyl phthalate	ND	3330	ug/kg	N/A	330	2960	3060	89	92	50-135	3	25	
1,2-Diphenylhydrazine/Azobenzene	ND	3330	ug/kg	N/A	330	2750	2900	83	87	50-125	5	25	
Bis(2-ethylhexyl)phthalate	ND	3330	ug/kg	N/A	330	3010	3170	90	95	45-130	5	25	
Fluoranthene	ND	3330	ug/kg	N/A	330	2920	3050	88	91	45-120	4	25	
Fluorene	ND	3330	ug/kg	N/A	330	2690	2870	81	86	50-120	7	25	
Hexachlorobenzene	ND	3330	ug/kg	N/A	330	2810	2830	84	85	50-120	1	25	
Hexachlorobutadiene	ND	3330	ug/kg	N/A	330	2470	2500	74	75	40-120	1	25	

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## MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Matrix Spike Analyzed: 10/28/2008 (8J28062-MS1)</b>						<b>QC Source Sample: IRJ2667-01</b>							
Hexachlorocyclopentadiene	ND	3330	ug/kg	N/A	830	2750	2930	83	88	20-125	6	30	
Hexachloroethane	ND	3330	ug/kg	N/A	330	2130	2120	64	64	35-120	0	30	
Indeno(1,2,3-cd)pyrene	ND	3330	ug/kg	N/A	330	3160	3300	95	99	20-130	4	30	
Isophorone	ND	3330	ug/kg	N/A	330	2230	2350	67	71	40-120	5	25	
2-Methylnaphthalene	ND	3330	ug/kg	N/A	330	2610	2750	78	83	40-120	5	20	
2-Methylphenol	ND	3330	ug/kg	N/A	330	2290	2330	69	70	40-120	2	25	
4-Methylphenol	ND	3330	ug/kg	N/A	330	2450	2520	74	76	45-120	3	25	
Naphthalene	ND	3330	ug/kg	N/A	330	2430	2500	73	75	40-120	3	25	
2-Nitroaniline	ND	3330	ug/kg	N/A	330	2630	2770	79	83	45-120	5	25	
3-Nitroaniline	ND	3330	ug/kg	N/A	330	2610	2810	78	84	30-120	7	25	
4-Nitroaniline	ND	3330	ug/kg	N/A	830	2320	2850	70	86	40-125	20	30	
Nitrobenzene	ND	3330	ug/kg	N/A	330	2260	2380	68	72	40-120	5	25	
2-Nitrophenol	ND	3330	ug/kg	N/A	330	2440	2570	73	77	40-120	5	25	
4-Nitrophenol	ND	3330	ug/kg	N/A	830	2530	3070	76	92	35-125	19	30	
N-Nitroso-di-n-propylamine	ND	3330	ug/kg	N/A	250	2300	2330	69	70	35-120	1	25	
N-Nitrosodiphenylamine	ND	3330	ug/kg	N/A	330	2850	2970	86	89	45-125	4	25	
Pentachlorophenol	ND	3330	ug/kg	N/A	830	2680	3020	81	91	30-120	12	25	
Phenanthrene	ND	3330	ug/kg	N/A	330	2790	2910	84	87	50-120	4	25	
Phenol	ND	3330	ug/kg	N/A	330	2360	2350	71	70	40-120	1	25	
Pyrene	ND	3330	ug/kg	N/A	330	2900	3110	87	93	40-125	7	30	
1,2,4-Trichlorobenzene	ND	3330	ug/kg	N/A	330	2390	2480	72	74	40-120	3	25	
2,4,5-Trichlorophenol	ND	3330	ug/kg	N/A	330	2910	3050	87	91	45-120	5	20	
2,4,6-Trichlorophenol	ND	3330	ug/kg	N/A	330	2890	2940	87	88	45-120	2	25	
Surrogate: 2,4,6-Tribromophenol			ug/kg					73	76	35-125			
Surrogate: 2-Fluorobiphenyl			ug/kg					76	76	35-120			
Surrogate: 2-Fluorophenol			ug/kg					65	65	25-120			
Surrogate: Nitrobenzene-d5			ug/kg					68	70	30-120			
Surrogate: Phenol-d6			ug/kg					70	69	35-120			
Surrogate: Terphenyl-d14			ug/kg					101	107	40-135			

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## CERTIFICATION SUMMARY

### Subcontracted Laboratories

#### Anatek Labs.

1282 Alturas Dr. - Moscow, ID 83843

Analysis Performed: 8270 Modified Pest. Screen  
Samples: HRJ0113-01, HRJ0113-02

#### TestAmerica - Irvine, CA

17461 Derian Avenue Suite 100 - Irvine, CA 92614

Method Performed: EPA 3545/8081A  
Samples: HRJ0113-01, HRJ0113-02

Method Performed: EPA 8270C  
Samples: HRJ0113-01, HRJ0113-02

#### STL - Seattle, WA

5755 8th Street East - Tacoma, WA 98424

Method Performed: 8151A STD  
Samples: HRJ0113-01, HRJ0113-02

#### STL - Sacramento, CA

880 Riverside Parkway - West Sacramento, CA 95605

Analysis Performed: Metals, Total 6020 ICPMS  
Samples: HRJ0113-01, HRJ0113-02

*For information concerning certifications of this facility or another TestAmerica facility, please visit our website at [www.TestAmericaInc.com](http://www.TestAmericaInc.com)*

## DATA QUALIFIERS AND DEFINITIONS

- A-01** Due to matrix interference, the data was reprocessed in a different way as the calibration; 3 peaks were used in the primary column and 2 peaks were used in the confirmation column.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- C-1** Calibration Verification recovery was above the method control limit for this analyte, however the average % difference for all analytes met method criteria. See Calibration Summary form.
- C-7** Calibration Verification recovery was below the method control limit due to matrix interference carried over from analytical samples. The matrix interference was confirmed by reanalysis with the same result.
- L6** Per the EPA methods, benzidine is known to be subject to oxidative losses during solvent concentration.
- M8** The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
- MNR** No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
- RL1** Reporting limit raised due to sample matrix effects.
- ND** Not detected at the reporting limit (or method detection limit if shown)

## ADDITIONAL COMMENTS



**CASE NARRATIVE**

November 4, 2008

**Lab Name: Anatek Labs, Inc.** 1282 Alturas Drive, Moscow, ID 83843 [www.anateklabs.com](http://www.anateklabs.com) *FL NELAP E87893, NV ID13-2004-31, WA DOE C126, OR ELAP ID200001, MT 0028, ID, CO, NM*

**Project Tracking No.:** HRJ0113  
**Anatek Batch:** 081027015

**Project Summary:** Two (2) Soil samples were received on 10/27/2008 for triazine pesticides (EPA 8270Cmod/619mod) analysis. Samples were received with the appropriate chain of custody. Samples were received at 10.5C.

<u>Client Sample ID</u>	<u>Anatek Sample ID</u>	<u>Method/Prep Method</u>
HRJ0113-01	081027015-001	EPA 619m/8270Cm
HRJ0113-02	081027015-002	EPA 619m/8270Cm

**QA/QC Checks**

<u>Parameters</u>	<u>Yes / No</u>	<u>Exceptions / Deviations</u>
Sample Holding Time Valid?	N	See Note
Surrogate Recoveries Valid?	Y	NA
QC Sample(s) Recoveries Valid?	Y	NA
Method Blank(s) Valid?	Y	NA
Tune(s) Valid?	Y	NA
Internal Standard Responses Valid?	Y	NA
Initial Calibration Curve(s) Valid?	Y	NA
Continuing Calibration(s) Valid?	Y	NA
Comments:	Y	NA

**1. Holding Time Requirements**

Samples were received above the recommended temperature range of 2-6C (10.5). Samples were stored at 4C after arrival at the laboratory. This is not expected to negatively affect results.

**2. GC/MS Tune Requirements**

No problems encountered

**3. Calibration Requirements**

No problems encountered.

**4. Surrogate Recovery Requirements**

No problems encountered.

**5. QC Sample (LCS/MS/MSD) Recovery Requirements**

No problems encountered.

**6. Method Blank Requirements**

The method blanks were non-detect (<MDL) for all analytes. No problems encountered.

**7. Internal Standard(s) Response Requirements**

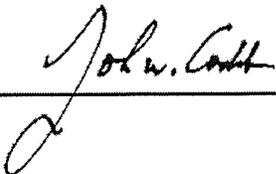
No problems encountered.

**8. Comments**

No problems encountered

**I certify that this data package is in compliance with the terms and conditions of the contract. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee.**

Approved by:

  
\_\_\_\_\_

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report

<b>Sample Number</b>	081027015-001	<b>Sampling Date</b>	10/15/2008	<b>Date/Time Received</b>	10/27/2008 10:00 AM
<b>Client Sample ID</b>	HRJ0113-01	<b>Sampling Time</b>	12:45 PM	<b>Extraction Date</b>	10/28/2008
<b>Matrix</b>	Soil	<b>Sample Location</b>			
<b>Comments</b>					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Ametryne	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atraton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atrazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Hexazinone	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometon	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Propazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Secbumeton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simetryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutylazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6

## Surrogate Data

<b>Sample Number</b>	081027015-001		
<b>Surrogate Standard</b>		<b>Method</b>	<b>Percent Recovery</b>
Terphenyl-d14		EPA 619mod	77.3
			<b>Control Limits</b>
			30-140

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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report

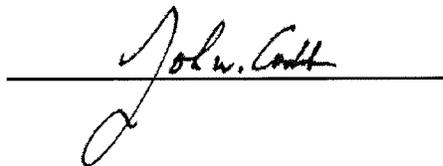
<b>Sample Number</b>	081027015-002	<b>Sampling Date</b>	10/15/2008	<b>Date/Time Received</b>	10/27/2008 10:00 AM
<b>Client Sample ID</b>	HRJ0113-02	<b>Sampling Time</b>	12:45 PM	<b>Extraction Date</b>	10/28/2008
<b>Matrix</b>	Soil	<b>Sample Location</b>			
<b>Comments</b>					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Ametryne	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atraton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atrazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Hexazinone	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometon	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Propazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Secbumeton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simetryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutylazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6

## Surrogate Data

<b>Sample Number</b>	081027015-002		
<b>Surrogate Standard</b>	Terphenyl-d14	<b>Method</b>	EPA 619mod
		<b>Percent Recovery</b>	67.7
		<b>Control Limits</b>	30-140

Authorized Signature



MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit  
Q6 Sample was received above recommended temperature.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL:(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report Quality Control Data

### Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Terbutryn	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
Terbutylazine	1.24	mg/kg	1	124.0	40-150	10/28/2008	10/28/2008
Simetryn	1.07	mg/kg	1	107.0	40-150	10/28/2008	10/28/2008
Simazine	0.89	mg/kg	1	89.0	40-150	10/28/2008	10/28/2008
Secbumeton	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
Propazine	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
Prometryn	1.15	mg/kg	1	115.0	40-150	10/28/2008	10/28/2008
Prometon	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
Atrazine	1.15	mg/kg	1	115.0	40-150	10/28/2008	10/28/2008
Atraton	1.14	mg/kg	1	114.0	40-150	10/28/2008	10/28/2008
Ametryne	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008

### Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
081024009-001A	Terbutryn	ND	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
081024009-001A	Terbutylazine	ND	1.29	mg/kg	1	129.0	40-150	10/28/2008	10/28/2008
081024009-001A	Simetryn	ND	0.98	mg/kg	1	98.0	40-150	10/28/2008	10/28/2008
081024009-001A	Simazine	ND	0.90	mg/kg	1	90.0	40-150	10/28/2008	10/28/2008
081024009-001A	Secbumeton	ND	1.11	mg/kg	1	111.0	40-150	10/28/2008	10/28/2008
081024009-001A	Propazine	ND	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
081024009-001A	Prometryn	ND	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008
081024009-001A	Prometon	ND	1.14	mg/kg	1	114.0	40-150	10/28/2008	10/28/2008
081024009-001A	Atrazine	ND	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008
081024009-001A	Atraton	ND	1.08	mg/kg	1	108.0	40-150	10/28/2008	10/28/2008
081024009-001A	Ametryne	ND	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008

### Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Terbutryn	1.12	mg/kg	1	112.0	4.4	0-50	10/28/2008	10/28/2008
Terbutylazine	1.20	mg/kg	1	120.0	7.2	0-50	10/28/2008	10/28/2008
Simetryn	0.94	mg/kg	1	94.0	4.2	0-50	10/28/2008	10/28/2008
Simazine	0.88	mg/kg	1	88.0	2.2	0-50	10/28/2008	10/28/2008

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1267

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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report Quality Control Data

### Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Secbumeton	0.91	mg/kg	1	91.0	19.8	0-50	10/28/2008	10/28/2008
Propazine	1.19	mg/kg	1	119.0	0.8	0-50	10/28/2008	10/28/2008
Prometryn	1.12	mg/kg	1	112.0	6.1	0-50	10/28/2008	10/28/2008
Prometon	1.01	mg/kg	1	101.0	12.1	0-50	10/28/2008	10/28/2008
Atrazine	1.12	mg/kg	1	112.0	6.1	0-50	10/28/2008	10/28/2008
Atraton	0.90	mg/kg	1	90.0	18.2	0-50	10/28/2008	10/28/2008
Ametryne	1.04	mg/kg	1	104.0	11.8	0-50	10/28/2008	10/28/2008

### Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Ametryne	ND	mg/kg	0.1	10/28/2008	10/28/2008
Atraton	ND	mg/kg	0.1	10/28/2008	10/28/2008
Atrazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Hexazinone	ND	mg/kg	0.1	10/28/2008	10/28/2008
Prometon	ND	mg/kg	0.1	10/28/2008	10/28/2008
Prometryn	ND	mg/kg	0.1	10/28/2008	10/28/2008
Propazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Secbumeton	ND	mg/kg	0.1	10/28/2008	10/28/2008
Simazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Simetryn	ND	mg/kg	0.1	10/28/2008	10/28/2008
Terbutylazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Terbutryn	ND	mg/kg	0.1	10/28/2008	10/28/2008

AR Acceptable Range  
ND Not Detected  
PQL Practical Quantitation Limit  
RPD Relative Percentage Difference

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

# Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

## Login Report

**Customer Name:** TEST AMERICA - HONOLULU, HI  
99-193 AIEA HEIGHTS DRIVE  
AIEA HI 96701-3900  
**Order ID:** 081027015  
**Order Date:** 10/27/2008  
**Contact Name:** MIKE D. SOLICK  
**Project Name:** HRJ0113  
**Comment:**

**Sample #:** 081027015-001 **Customer Sample #:** HRJ0113-01

**Recv'd:**  **Collector:** **Date Collected:** 10/15/2008  
**Quantity:** 2 **Matrix:** Soil **Date Received:** 10/27/2008 10:00:00  
**Comment:**

Test	Test Group	Method	Due Date	Priority
%Moisture		%moisture	11/4/2008	<u>Normal (6-10 Days)</u>
TRIAZINE PESTICIDES		EPA 619mod	11/4/2008	<u>Normal (6-10 Days)</u>

**Sample #:** 081027015-002 **Customer Sample #:** HRJ0113-02

**Recv'd:**  **Collector:** **Date Collected:** 10/15/2008  
**Quantity:** 2 **Matrix:** Soil **Date Received:** 10/27/2008 10:00:00  
**Comment:**

Test	Test Group	Method	Due Date	Priority
%Moisture		%moisture	11/4/2008	<u>Normal (6-10 Days)</u>
TRIAZINE PESTICIDES		EPA 619mod	11/4/2008	<u>Normal (6-10 Days)</u>

## SAMPLE CONDITION RECORD

Samples received in a cooler?	Yes
Samples received intact?	Yes
What is the temperature inside the cooler?	10.5
Samples received with a COC?	Yes
Samples received within holding time?	Yes
Are all sample bottles properly preserved?	Yes
Are VOC samples free of headspace?	N/A
Is there a trip blank to accompany VOC samples?	N/A
Labels and chain agree?	Yes

**SUBCONTRACT ORDER**

TestAmerica Honolulu

**HRJ0113**

**SENDING LABORATORY:**

TestAmerica Honolulu  
 99-193 Aiea Heights Drive, Suite 121  
 Aiea, HI 96701  
 Phone: 808-486-5227  
 Fax: 808-486-2456  
 Project Manager: Mike D. Solick

**RECEIVING LABORATORY:**

Anatek Labs.  
 1282 Alturas Dr.  
 Moscow, ID 83843  
 Phone : (208) 883-2839  
 Fax: 208  
 Project Location: HI - HAWAII  
 Receipt Temperature: \_\_\_\_\_ °C      Icc: Y / N

619 Triazine Pesticides analyzed by 8270Modified Pest. Screen

Analysis	Units	Due	Expires	Comments
Sample ID: HRJ0113-01	Solid/Soil			Sampled: 10/15/08 12:45
8270Modified Pest. Screen	mg/kg	11/04/08	10/29/08 12:45	
<i>Containers Supplied:</i>				
Incremental				
Sub-sample (analyze entire content) (C)	2x7oz			
Sample ID: HRJ0113-02	Solid/Soil			Sampled: 10/15/08 12:45
8270Modified Pest. Screen	mg/kg	11/04/08	10/29/08 12:45	
<i>Containers Supplied:</i>				
Incremental				
Sub-sample (analyze entire content) (C)	2x7oz			

MWBS

**ANATEK LABS RECEIVING LIST**

RECEIVED INTACT      TEMP: 10.5 °C  
 LABELS & CHAINS AGREE  
 NO HEADSPACE  
 PRESERVATIVE: ant

NUMBER OF CONTAINERS: 4      SHIPPED VIA: Fedex  
 DATE & TIME: 10-27-08 10:00      INSPECTED BY: [Signature]

81027 015 TARIH Last 11/4/2008  
 ST SAMP Due 10/15/200 1st RCVD 10/27/2008  
 RJ0113

<u>[Signature]</u>	<u>10/23/08</u>	Released By	Date/Time	<u>[Signature]</u>		Received By	Date/Time
_____	_____	Released By	Date/Time	_____	_____	Received By	Date/Time



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

November 5, 2008

**TestAmerica Project Number: G8J240320**  
PO/Contract: HRJ0113

Mike Solick  
TestAmerica - Honolulu  
RL Cushing Building  
99-193 Aiea Heights Dr  
Aiea, HI 96701

Dear Mr. Solick,

This report contains the analytical results for the samples received under chain of custody by TestAmerica on October 24, 2008. These samples are associated with your HRJ0113 project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4383.

Sincerely,



David R. Alltucker  
Project Manager

## Table of Contents

# TestAmerica West Sacramento Project Number G8J240320

Case Narrative

Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

SOLID, 6020 As, MIS 10g digestion

Samples: 1, 2

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

## Case Narrative

### TestAmerica West Sacramento Project Number G8J240320

#### **SOLID, 6020**

Sample(s): 1, 2

Both of the samples required dilution as the result of interference in the matrix. The reporting limits are raised accordingly.

There were no other anomalies associated with this project.

## TestAmerica Laboratories West Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	New York*	11666
Arizona	AZ0616	Oregon*	CA 200005
Arkansas	04-067-0	Pennsylvania	68-1272
California*	01119CA	South Carolina	87014002
Colorado	NA	Texas	TX 270-2004A
Connecticut	PH-0691	Utah*	QUAN1
Florida*	E87570	Virginia	00178
Georgia	960	Washington	C087
Hawaii	NA	West Virginia	9930C, 334
Kansas*	E10375	Wisconsin	998204680
Louisiana*	01944	NFESC	NA
Michigan	9947	USACE	NA
Nevada	CA44	USDA Foreign Plant	37-82605
New Jersey*	CA005	USDA Foreign Soil	S-46613

\*NELAP accredited. A more detailed parameter list is available upon request. Updated 9/21/07

## QC Parameter Definitions

**QC Batch:** The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

**Method Blank:** An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

**Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD):** An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also be used to evaluate the precision of the process.

**Duplicate Sample (DU):** Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

**Surrogates:** Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

**Matrix Spike and Matrix Spike Duplicate (MS/MSD):** An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

**Isotope Dilution:** For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

**Control Limits:** The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

## Sample Summary

### TestAmerica West Sacramento Project Number G8J240320

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
K1KN7	1	HRJ0113-01	10/15/2008 12:45 PM	10/24/2008 09:40 AM
K1KPG	2	HRJ0113-02	10/15/2008 12:45 PM	10/24/2008 09:40 AM

#### Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

**SUBCONTRACT ORDER**

**TestAmerica Honolulu**

**HRJ0113**

**SENDING LABORATORY:**

TestAmerica Honolulu  
99-193 Aiea Heights Drive, Suite 121  
Aiea, HI 96701  
Phone: 808-486-5227  
Fax: 808-486-2456  
Project Manager: Mike D. Solick  
Client: Masa Fujioka & Associates

**RECEIVING LABORATORY:**

TestAmerica West Sacramento  
880 Riverside Parkway  
West Sacramento, CA 95605  
Phone : (916) 373-5600  
Fax: (916) 372-1059  
Project Location: HI - HAWAII  
Receipt Temperature: 5 °C      Ice: Y / N

619 Triazine Pesticides analyzed by 8270 Modified Pest. Screen

**Analysis                      Units                      Due                      Expires                      Interlab Price Surch                      Comments**

**Sample ID: HRJ0113-01**

**Solid/Soil**

**Sampled: 10/15/08 12:45**

Metals, Total 6020 ICPMS      ug/L      10/30/08      04/13/09 12:45      \$105.00      0%      Arsenic 10g method.

Containers Supplied:

Incremental

Sub-sample (analyze  
entire content) (F)

*2 x 200 jar*

**Sample ID: HRJ0113-02**

**Solid/Soil**

**Sampled: 10/15/08 12:45**

Metals, Total 6020 ICPMS      ug/L      10/30/08      04/13/09 12:45      \$105.00      0%      Arsenic 10g method.

Containers Supplied:

Incremental

Sub-sample (analyze  
entire content) (F)

*2 x 200 jar*

*Mike D. Solick*      10/23/08  
Released By                      Date/Time

*Chong H*      10/24/08 1050  
Received By                      Date/Time





**SOLID, 6020**

TestAmerica Honolulu

Client Sample ID: HRJ0113-01

TOTAL Metals

Lot-Sample #...: G8J240320-001

Matrix.....: SOLID

Date Sampled...: 10/15/08

Date Received...: 10/24/08

% Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 8302142						
Arsenic	5.9	2.0	mg/kg	SW846 6020	10/28-10/29/08	K1KN71AA
		Dilution Factor: 10				

TestAmerica Honolulu

Client Sample ID: HRJ0113-02

TOTAL Metals

Lot-Sample #...: G8J240320-002

Matrix.....: SOLID

Date Sampled...: 10/15/08

Date Received...: 10/24/08

% Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 8302142						
Arsenic	5.5	2.0	mg/kg	SW846 6020	10/28-10/29/08	K1KPG1AA

Dilution Factor: 10

# QC DATA ASSOCIATION SUMMARY

G8J240320

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 6020		8302142	
002	SOLID	SW846 6020		8302142	

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: G8J240320

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: G8J280000-142				Prep Batch #...: 8302142		
Arsenic	ND	0.20	mg/kg	SW846 6020	10/28-10/29/08	K1P1P1AA
		Dilution Factor: 1				

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: G8J240320

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	<u>RPD</u> <u>RPD</u>	<u>RPD</u> <u>LIMITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP-</u> <u>BATCH #</u>
Arsenic	101	(81 - 110)			SW846 6020	10/28-10/29/08	8302142
	100	(81 - 110)	0.97	(0-20)	SW846 6020	10/28-10/29/08	8302142

Dilution Factor: 1

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

**LABORATORY CONTROL SAMPLE DATA REPORT**

**TOTAL Metals**

Lot-Sample #...: G8J240320

Matrix.....: SOLID

PARAMETER	SPIKE	MEASURED	UNITS	PERCNT	RPD	METHOD	PREPARATION-	PREP
	AMOUNT	AMOUNT		RECVRY			ANALYSIS DATE	BATCH #
Arsenic	20.0	20.1	mg/kg	101		SW846 6020	10/28-10/29/08	8302142
	20.0	20.0	mg/kg	100	0.97	SW846 6020	10/28-10/29/08	8302142

Dilution Factor: 1

**NOTE(S) :**

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Calculations are performed before rounding to avoid round-off errors in calculated results.

# Appendix D-1

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Results of Supplemental Soil Sampling

Irrigation Treatment Station

Masa Fujioka & Associates

December 3, 2008



**M<sub>FA</sub> Masa Fujioka & Associates**  
***Geotechnical • Environmental • Hydrogeological Consulting***

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98-021 Kamehameha Highway, Suite 337, Aiea, Hawaii 96701  
Telephone: 808.484.5366 Facsimile: 808.484.0007

December 3, 2008

MFA Job No. 08096-101

Wilson Okamoto Corporation  
1907 Beretania Street, Suite 400  
Honolulu, Hawaii 96826

Attention: Mr. Layne Hazama

Subject: **Results of Supplemental Soil Sampling  
Irrigation Treatment Station  
Honoapi'ilani Highway, Lahaina, Maui, Hawaii**

Dear Mr. Hazama:

Masa Fujioka & Associates (MFA) conducted supplemental soil sampling near a former irrigation water treatment (chlorination) station to assess environmental issues that may affect the proposed route of the Honoapi'ilani Highway. Our scope of work included sampling soils for pesticides related to previous agricultural activities conducted at the former irrigation water treatment station area. Sampling results indicate that no additional testing or mitigative measures regarding pesticides are warranted at the former irrigation water treatment station.

### **Background**

In 2008, the planned northern portion of Honoapi'ilani Highway was slightly realigned. An irrigation water treatment (chlorination) station was recently identified within the realigned area. Upon initial identification of the station, there were concerns that the tanks at this station may have historically been used for pesticide mixing. According to Robbi Varfield of Kanapali Farm Services, the area was only used as an irrigation treatment station with chlorine added to the irrigation water in order to prevent the buildup of algae in the lines. Soil sampling was nonetheless performed in this area on October 15, 2008 to evaluate the potential concern.

The irrigation treatment station area is approximately 30 feet by 25 feet in size and is comprised of 6 tanks set on an approximate 4-inch thick, 25-foot by 18-foot concrete pad. A small wooden shed is located at the northeast corner of the concrete pad and according to Mr. Varfield, it has been used to store chlorine used for treating irrigation water.

## Soil Sampling

The immediate area of the irrigation treatment station was demarked as a single decision unit (DU) for the purposes of our investigation. Soil samples were collected in clear 4-ounce glass jars. New, clean sample jars were utilized to obtain each sample, including a duplicate. In all cases, approximately 0.5 to 1 inch of grass and roots was cleared from each sub-sampling site, and the glass jar was pushed into the soil to obtain the sample. The sample was then placed in a bag with the other sub-samples from DU-IS. Soils were generally dry and easy to sample.

DOH guidance recommends collection of 30 to 50 subsamples to comprise the multi-increment sample for each DU. MFA collected 42 subsamples from DU-IS. A duplicate sample, DU-FS, was collected from DU-IS to provide an assurance of statistical validity of the sampling and analytical procedures. The duplicate was obtained by collecting a second sample, immediately adjacent to the first sample, at each sampling location at DU-IS. The duplicate sample identification was not known to the analytical laboratory.

## Analytical Results

Soil samples were placed in a cooler containing bagged ice and hand delivered to Test America in Aiea, Oahu, for sub-sampling and analysis for:

- Total arsenic in accordance with Modified EPA Method 3050B/6020;
- Organochlorine Pesticides in accordance with EPA Method 8081;
- Chlorinated Herbicides in accordance with Modified EPA Method 8151A;
- Semi-Volatile Organic compounds in accordance with Modified EPA Method 8270; and
- Triazine pesticides in accordance with Method E619.

The samples were prepared by the laboratory for analysis by incremental sub-sampling in accordance with EPA Method 600/R-03/027. The sub-sampling method included air-drying samples on large trays for 1-3 days. The air-dried samples were screened using a 2-mm sieve and sub-sampled prior to being analyzed. Results are reported on the basis of the air-dry weight. Analytical results from both samples for pesticides are summarized in Table 1 and laboratory analytical results are attached to this letter.

The majority of analytes tested for were reported as not detected, with detection limits less than applicable DOH Tier 1 Environmental Action Levels (EALs). No analytes were identified at concentrations exceeding DOH EALs for commercial/industrial land use, where the groundwater is not a source of drinking water and the nearest surface water body is more than 150 meters from the sample collection area.

Detected arsenic concentrations were all below regulatory action levels and also well within the range of concentrations that are known to occur naturally in soil in Hawaii. DOH provides health-based direct exposure goals for arsenic in soil of 0.39 mg/kg for residential exposure and 1.6 mg/kg for commercial/industrial exposure (DOH, 2006b). However, DOH also reports

background concentrations of arsenic in native soils ranging from 1 mg/kg to 20 mg/kg (DOH, 2006c), and states that background concentrations should be used as action levels in case where background concentrations exceed risk-based action levels for human health and environmental concerns. The 20 mg/kg level also corresponds well to the non-cancer EPA PRG of 22 mg/kg for arsenic. Reported arsenic concentrations (5.9 and 5.5 mg/kg) are well below the 20 mg/kg.

No semi-volatile organic compounds, free acid herbicides, or triazine pesticides were identified in the soil samples. Chlordane, heptachlor epoxide and pentachlorophneol were identified, but at concentrations well below DOH EALs.

Duplicate samples were obtained from DU-A to test the reproducibility of the sampling and sub-sampling procedures. The relative percent difference (RPD) between the results from the DU-A sample and its duplicate are presented in Table 1. A RPD between 0 and 30% between the duplicate samples is customarily considered acceptable. As shown in Table 1, the majority of the analytes in both samples were not detected, so the RPD could not be calculated. For the detected chemicals, the RPD ranged from 7 to 32, except for an RPD of 32 for one analyte.

## **Conclusion**

Soil sampling was conducted at the subject property to assess potential pesticide contamination of soil that may have resulted from the property's historic use. Most analytes were not detected. Three pesticides were detected and were reported at concentrations well below DOH EALs. Based on these results, no additional testing or mitigative measures regarding pesticides are deemed necessary.

It has been a pleasure performing this work for you. Please contact us at 484-5366 if you have questions regarding this report.

Respectfully submitted,

**MASA FUJIOKA & ASSOCIATES**  
A Professional Partnership



Lana J. Brodziak  
Soil Scientist

## **Attachments:**

1. Figure 1, Irrigation Treatment Station Area
2. Table 1, Summary of Pesticide Analytical Results
3. Laboratory Analytical Results



Irrigation Treatment Station Area  
(enlarged so visible)



Irrigation Treatment Station



Source: Google Earth,  
Lahaina, Maui, Hawaii, captured October 2008.

Project:  
08096-101

Approved: DRD  
Drawn: LJB

Date:  
December 2008

Scale:  
Not to Scale

**Figure 1**  
**Irrigation Treatment Station Area**  
**Honoapi'ilani Highway Realignment**  
**Lahaina, Maui, Hawaii**


**MASA FUJIOKA & ASSOCIATES**  
 ENVIRONMENTAL ■ GEOTECHNICAL ■ HYDROGEOLOGICAL CONSULTANTS

TABLE 1  
SUMMARY OF PESTICIDE ANALYTICAL RESULTS

Analyte	Sample ID			DOH Soil EALs <sup>2</sup> (mg/kg)
	DU-IS (Lab ID HRJ0113-01)	DU-FS (Duplicate) (Lab ID HRJ0113-02)	Relative Percent Difference <sup>1</sup>	
Total Arsenic EPA 6020 (mg/kg)				
Arsenic	5.90	5.50	7	22
Semi-Volatile Organic Compounds EPA 3545/8270C (mg/kg)				
68 Analytes	All ND <sup>3</sup> (varies <sup>4</sup> )	All ND (varies)	NA <sup>5</sup>	NA
Chlorinated Herbicides EPA 8151A (mg/kg)				
11 Analytes	All ND (varies)	All ND (varies)	NA	NA
Organochlorine Pesticides EPA8081A (mg/kg)				
Chlordane (tech)	0.8	0.88	10	29
Heptachlor epoxide	0.0087	0.012	32	0.046
Pentachlorophenol	0.0057	0.0062	8	5
Remaining 18 Analytes	All ND (varies)	All ND (varies)	NA	NA
Triazine Pesticides EPA 8270M (mg/Kg)				
11 Analytes	All ND (0.05)	All ND (0.05)	NA	NA

Notes:

- 1) A relative percent difference of 30% is acceptable for sample and duplicate data comparisons.
- 2) DOH Tier 1 Environmental Action Levels (EALs) for soil: commercial/industrial land use only, surface water body is >150m from the site and groundwater is not a source or potential source of drinking water. Updated October 2008.
- 3) ND = Not Detected at or above the laboratory limit of quantification (in brackets)
- 4) Detection limits for each analyte did not exceed DOH EALs or EPA Region 9 PRGs, refer to individual lab reporting sheets for details.
- 5) NA = Not Applicable (No data for comparison or Action Levels vary or do not exist for these undetected analytes).

## **Laboratory Analytical Results**

November 05, 2008

## LABORATORY REPORT

Client:

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Attn: Lana Brodziak

Work Order: HRJ0113  
Project Name: Honoapiilani Highway  
Project Number: 08096-101  
Date Received: 10/16/08

*The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the applicable certifications as noted. All soil samples are reported on a wet weight basis unless otherwise noted in the report. This Laboratory Report is confidential and is intended for the sole use of TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica.*

*TestAmerica Analytical Testing Corporation certifies that the analytical results contained herein apply only to the specific sample(s) analyzed.*

*The Chain of Custody, 1 page, is included and is an integral part of this report. This entire report was reviewed and approved for release.*

If you have any questions relating to this analytical report, please contact your Laboratory Project Manager at 1-(808)486-5227

**CASE NARRATIVE: Samples were prepared by incremental subsampling in accordance with the EPA/600/R-03/027 Guidance Document.**

**Samples were received into laboratory at a temperature of 8 °C.**

NELAC states that samples which require thermal preservation shall be considered acceptable if the arrival temperature is within 2 degrees C of the required temperature or the method specified range. For samples with a temperature requirement of 4 degrees C, an arrival temperature from 0 degrees C to 6 degrees C meets specifications. Samples that are delivered to the laboratory on the same day that they are collected may not meet these criteria. In these cases, the samples are considered acceptable if there is evidence that the chilling process has begun, such as arrival on ice.

The reported results were obtained in compliance with the 2003 NELAC standards unless otherwise noted.

Approved By:



Mike D. Solick  
Project Manager

NELAC Certification # E87907

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

99-193 Alea Heights Drive, Suite 121 Alea, HI 96701 \* 808-486-5227 \* Fax 808-486-2456

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

SAMPLE IDENTIFICATION

LAB NUMBER

COLLECTION DATE AND TIME

DU-IS  
DU-FS

HRJ0113-01  
HRJ0113-02

10/15/08 12:45  
10/15/08 12:45

Masa Fujioka & Associates  
 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
 Project: Honoapiilani Highway  
 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil)</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>									
Acenaphthene	ND	RL1	ug/kg	670	2	10/29/08 22:40	10/28/08	8J28062	EPA 8270C
Acenaphthylene	ND	RL1	"	670	"	"	"	"	"
Aniline	ND	RL1	"	830	"	"	"	"	"
Anthracene	ND	RL1	"	670	"	"	"	"	"
Benzidine	ND	RL1,L6	"	1300	"	"	"	"	"
Benzo(a)anthracene	ND	RL1	"	670	"	"	"	"	"
Benzo(a)pyrene	ND	RL1	"	670	"	"	"	"	"
Benzo(b)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzo(g,h,i)perylene	ND	RL1	"	670	"	"	"	"	"
Benzo(k)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzoic acid	ND	RL1	"	1700	"	"	"	"	"
Benzyl alcohol	ND	RL1	"	670	"	"	"	"	"
4-Bromophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Butyl benzyl phthalate	ND	RL1	"	670	"	"	"	"	"
4-Chloro-3-methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Chloroaniline	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethoxy)methane	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethyl)ether	ND	RL1	"	330	"	"	"	"	"
Bis(2-chloroisopropyl)ether	ND	RL1	"	670	"	"	"	"	"
2-Chloronaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Chlorophenol	ND	RL1	"	670	"	"	"	"	"
4-Chlorophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Chrysene	ND	RL1	"	670	"	"	"	"	"
Dibenz(a,h)anthracene	ND	RL1	"	830	"	"	"	"	"
Dibenzofuran	ND	RL1	"	670	"	"	"	"	"
Di-n-butyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,3-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,4-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
3,3'-Dichlorobenzidine	ND	RL1	"	1700	"	"	"	"	"
2,4-Dichlorophenol	ND	RL1	"	670	"	"	"	"	"
Diethyl phthalate	ND	RL1	"	670	"	"	"	"	"
2,4-Dimethylphenol	ND	RL1	"	670	"	"	"	"	"
Dimethyl phthalate	ND	RL1	"	670	"	"	"	"	"
4,6-Dinitro-2-methylphenol	ND	RL1	"	830	"	"	"	"	"
2,4-Dinitrophenol	ND	RL1	"	1300	"	"	"	"	"
2,4-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
2,6-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
Di-n-octyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Diphenylhydrazine/Azobenzene	ND	RL1	"	670	"	"	"	"	"
Bis(2-ethylhexyl)phthalate	ND	RL1	"	670	"	"	"	"	"
Fluoranthene	ND	RL1	"	670	"	"	"	"	"
Fluorene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobenzene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobutadiene	ND	RL1	"	670	"	"	"	"	"
Hexachlorocyclopentadiene	ND	RL1	"	1700	"	"	"	"	"

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Aiea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C) - cont.</b>									
Hexachloroethane	ND	RL1	"	670	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	RL1	"	670	"	"	"	"	"
Isophorone	ND	RL1	"	670	"	"	"	"	"
2-Methylnaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Methylphenol	ND	RL1	"	670	"	"	"	"	"
Naphthalene	ND	RL1	"	670	"	"	"	"	"
2-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
3-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
4-Nitroaniline	ND	RL1	"	1700	"	"	"	"	"
Nitrobenzene	ND	RL1	"	670	"	"	"	"	"
2-Nitrophenol	ND	RL1	"	670	"	"	"	"	"
4-Nitrophenol	ND	RL1	"	1700	"	"	"	"	"
N-Nitroso-di-n-propylamine	ND	RL1	"	500	"	"	"	"	"
N-Nitrosodiphenylamine	ND	RL1	"	670	"	"	"	"	"
Pentachlorophenol	ND	RL1	"	1700	"	"	"	"	"
Phenanthrene	ND	RL1	"	670	"	"	"	"	"
Phenol	ND	RL1	"	670	"	"	"	"	"
Pyrene	ND	RL1	"	670	"	"	"	"	"
1,2,4-Trichlorobenzene	ND	RL1	"	670	"	"	"	"	"
2,4,5-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
2,4,6-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
Surr: 2,4,6-Tribromophenol (35-125%)	57 %	RL1	"	"	"	"	"	"	"
Surr: 2-Fluorobiphenyl (35-120%)	76 %	RL1	"	"	"	"	"	"	"
Surr: 2-Fluorophenol (25-120%)	53 %	RL1	"	"	"	"	"	"	"
Surr: Nitrobenzene-d5 (30-120%)	64 %	RL1	"	"	"	"	"	"	"
Surr: Phenol-d6 (35-120%)	59 %	RL1	"	"	"	"	"	"	"
Surr: Terphenyl-d14 (40-135%)	103 %	RL1	"	"	"	"	"	"	"
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>									
4,4'-DDD	ND	C-1	ug/kg	5.0	1	10/31/08 06:41	10/27/08	8J27074	EPA 3545/8081A
4,4'-DDE	ND		"	5.0	"	"	"	"	"
4,4'-DDT	ND	C-7	"	5.0	"	"	"	"	"
Aldrin	ND		"	5.0	"	"	"	"	"
alpha-BHC	ND		"	5.0	"	"	"	"	"
beta-BHC	ND		"	5.0	"	"	"	"	"
delta-BHC	ND		"	10	"	"	"	"	"
Dieldrin	ND		"	5.0	"	"	"	"	"
Endosulfan I	ND		"	5.0	"	"	"	"	"
Endosulfan II	ND		"	5.0	"	"	"	"	"
Endosulfan sulfate	ND	C-7	"	10	"	"	"	"	"
Endrin	ND		"	5.0	"	"	"	"	"
Endrin aldehyde	ND	C-7	"	5.0	"	"	"	"	"
Endrin ketone	ND	C-7	"	5.0	"	"	"	"	"
gamma-BHC (Lindane)	ND		"	5.0	"	"	"	"	"
Heptachlor	ND	C-7	"	5.0	"	"	"	"	"
Heptachlor epoxide	8.7		"	5.0	"	"	"	"	"

Masa Fujioka & Associates  
 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
 Project: Honoapiilani Highway  
 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-01 (DU-IS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A) - cont.</b>									
Methoxychlor	ND	C-7	"	5.0	"	"	"	"	"
Chlordane	80	A-01, C-7	"	50	"	"	"	"	"
Toxaphene	ND		"	200	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	75 %					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	64 %					"	"	"	"
<b>Herbicides (GC/MS)</b>									
Dalapon	ND		ug/Kg	8.3	1	10/24/08 18:43	10/24/08	37429	8151A STD
4-Nitrophenol	ND		"	3.3	"	"	"	"	"
Dicamba	ND		"	3.3	"	"	"	"	"
Mecoprop	ND		"	3.3	"	"	"	"	"
MCPA	ND		"	3.3	"	"	"	"	"
Dichlorprop	ND		"	3.3	"	"	"	"	"
2,4-D	ND		"	3.3	"	"	"	"	"
Pentachlorophenol	5.7		"	3.3	"	"	"	"	"
Silvex (2,4,5-TP)	ND		"	3.3	"	"	"	"	"
2,4,5-T	ND		"	3.3	"	"	"	"	"
Dinoseb	ND		"	8.3	"	"	"	"	"
2,4-DB	ND		"	3.3	"	"	"	"	"
<i>Surr: 2,4-Dichlorophenylacetic acid (51-129%)</i>	71 %					"	"	"	"

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 98-021 Kamehameha Highway, #337  
 Aiea, HI 96701  
 Lana Brodziak

Work Order: HRJ0113  
 Project: Honoapiilani Highway  
 Project Number: 08096-101

Received: 10/16/08  
 Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil)</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>									
Acenaphthene	ND	RL1	ug/kg	670	2	10/29/08 23:17	10/28/08	8J28062	EPA 8270C
Acenaphthylene	ND	RL1	"	670	"	"	"	"	"
Aniline	ND	RL1	"	830	"	"	"	"	"
Anthracene	ND	RL1	"	670	"	"	"	"	"
Benzidine	ND	RL1,L6	"	1300	"	"	"	"	"
Benzo(a)anthracene	ND	RL1	"	670	"	"	"	"	"
Benzo(a)pyrene	ND	RL1	"	670	"	"	"	"	"
Benzo(b)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzo(g,h,i)perylene	ND	RL1	"	670	"	"	"	"	"
Benzo(k)fluoranthene	ND	RL1	"	670	"	"	"	"	"
Benzoic acid	ND	RL1	"	1700	"	"	"	"	"
Benzyl alcohol	ND	RL1	"	670	"	"	"	"	"
4-Bromophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Butyl benzyl phthalate	ND	RL1	"	670	"	"	"	"	"
4-Chloro-3-methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Chloroaniline	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethoxy)methane	ND	RL1	"	670	"	"	"	"	"
Bis(2-chloroethyl)ether	ND	RL1	"	330	"	"	"	"	"
Bis(2-chloroisopropyl)ether	ND	RL1	"	670	"	"	"	"	"
2-Chloronaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Chlorophenol	ND	RL1	"	670	"	"	"	"	"
4-Chlorophenyl phenyl ether	ND	RL1	"	670	"	"	"	"	"
Chrysene	ND	RL1	"	670	"	"	"	"	"
Dibenz(a,h)anthracene	ND	RL1	"	830	"	"	"	"	"
Dibenzofuran	ND	RL1	"	670	"	"	"	"	"
Di-n-butyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,3-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
1,4-Dichlorobenzene	ND	RL1	"	670	"	"	"	"	"
3,3'-Dichlorobenzidine	ND	RL1	"	1700	"	"	"	"	"
2,4-Dichlorophenol	ND	RL1	"	670	"	"	"	"	"
Diethyl phthalate	ND	RL1	"	670	"	"	"	"	"
2,4-Dimethylphenol	ND	RL1	"	670	"	"	"	"	"
Dimethyl phthalate	ND	RL1	"	670	"	"	"	"	"
4,6-Dinitro-2-methylphenol	ND	RL1	"	830	"	"	"	"	"
2,4-Dinitrophenol	ND	RL1	"	1300	"	"	"	"	"
2,4-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
2,6-Dinitrotoluene	ND	RL1	"	670	"	"	"	"	"
Di-n-octyl phthalate	ND	RL1	"	670	"	"	"	"	"
1,2-Diphenylhydrazine/Azobenzene	ND	RL1	"	670	"	"	"	"	"
Bis(2-ethylhexyl)phthalate	ND	RL1	"	670	"	"	"	"	"
Fluoranthene	ND	RL1	"	670	"	"	"	"	"
Fluorene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobenzene	ND	RL1	"	670	"	"	"	"	"
Hexachlorobutadiene	ND	RL1	"	670	"	"	"	"	"
Hexachlorocyclopentadiene	ND	RL1	"	1700	"	"	"	"	"

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Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C) - cont.</b>									
Hexachloroethane	ND	RL1	"	670	"	"	"	"	"
Indeno(1,2,3-cd)pyrene	ND	RL1	"	670	"	"	"	"	"
Isophorone	ND	RL1	"	670	"	"	"	"	"
2-Methylnaphthalene	ND	RL1	"	670	"	"	"	"	"
2-Methylphenol	ND	RL1	"	670	"	"	"	"	"
4-Methylphenol	ND	RL1	"	670	"	"	"	"	"
Naphthalene	ND	RL1	"	670	"	"	"	"	"
2-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
3-Nitroaniline	ND	RL1	"	670	"	"	"	"	"
4-Nitroaniline	ND	RL1	"	1700	"	"	"	"	"
Nitrobenzene	ND	RL1	"	670	"	"	"	"	"
2-Nitrophenol	ND	RL1	"	670	"	"	"	"	"
4-Nitrophenol	ND	RL1	"	1700	"	"	"	"	"
N-Nitroso-di-n-propylamine	ND	RL1	"	500	"	"	"	"	"
N-Nitrosodiphenylamine	ND	RL1	"	670	"	"	"	"	"
Pentachlorophenol	ND	RL1	"	1700	"	"	"	"	"
Phenanthrene	ND	RL1	"	670	"	"	"	"	"
Phenol	ND	RL1	"	670	"	"	"	"	"
Pyrene	ND	RL1	"	670	"	"	"	"	"
1,2,4-Trichlorobenzene	ND	RL1	"	670	"	"	"	"	"
2,4,5-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
2,4,6-Trichlorophenol	ND	RL1	"	670	"	"	"	"	"
<i>Surr: 2,4,6-Tribromophenol (35-125%)</i>	<i>48 %</i>	<i>RL1</i>							
<i>Surr: 2-Fluorobiphenyl (35-120%)</i>	<i>59 %</i>	<i>RL1</i>							
<i>Surr: 2-Fluorophenol (25-120%)</i>	<i>43 %</i>	<i>RL1</i>							
<i>Surr: Nitrobenzene-d5 (30-120%)</i>	<i>47 %</i>	<i>RL1</i>							
<i>Surr: Phenol-d6 (35-120%)</i>	<i>54 %</i>	<i>RL1</i>							
<i>Surr: Terphenyl-d14 (40-135%)</i>	<i>76 %</i>	<i>RL1</i>							
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>									
4,4'-DDD	ND	C	ug/kg	5.0	1	10/31/08 08:07	10/27/08	8J27074	EPA 3545/8081A
4,4'-DDE	ND		"	5.0	"	"	"	"	"
4,4'-DDT	ND	C-7	"	5.0	"	"	"	"	"
Aldrin	ND		"	5.0	"	"	"	"	"
alpha-BHC	ND		"	5.0	"	"	"	"	"
beta-BHC	ND		"	5.0	"	"	"	"	"
delta-BHC	ND		"	10	"	"	"	"	"
Dieldrin	ND		"	5.0	"	"	"	"	"
Endosulfan I	ND		"	5.0	"	"	"	"	"
Endosulfan II	ND		"	5.0	"	"	"	"	"
Endosulfan sulfate	ND	C-7	"	10	"	"	"	"	"
Endrin	ND		"	5.0	"	"	"	"	"
Endrin aldehyde	ND	C-7	"	5.0	"	"	"	"	"
Endrin ketone	ND	C-7	"	5.0	"	"	"	"	"
gamma-BHC (Lindane)	ND		"	5.0	"	"	"	"	"
Heptachlor	ND	C-7	"	5.0	"	"	"	"	"
Heptachlor epoxide	12		"	5.0	"	"	"	"	"

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 Project Number: 08096-101

Received: 10/16/08  
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## ANALYTICAL REPORT

Analyte	Sample Result	Data Qualifiers	Units	Rpt Limit	Dilution	Date Analyzed	Prep Date	Seq/ Batch	Method
<b>Sample ID: HRJ0113-02 (DU-FS - Solid/Soil) - cont.</b>						<b>Sampled: 10/15/08 12:45</b>		<b>Recvd: 10/16/08 10:20</b>	
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A) - cont.</b>									
Methoxychlor	ND	C-7	"	5.0	"	"	"	"	"
Chlordane	88	A-01, C-7	"	50	"	"	"	"	"
Toxaphene	ND		"	200	"	"	"	"	"
<i>Surr: Decachlorobiphenyl (45-120%)</i>	75 %					"	"	"	"
<i>Surr: Tetrachloro-m-xylene (35-115%)</i>	70 %					"	"	"	"
<b>Herbicides (GC/MS)</b>									
Dalapon	ND		ug/Kg	8.0	1	10/24/08 19:07	10/24/08	37429	8151A STD
4-Nitrophenol	ND		"	3.2	"	"	"	"	"
Dicamba	ND		"	3.2	"	"	"	"	"
Mecoprop	ND		"	3.2	"	"	"	"	"
MCPA	ND		"	3.2	"	"	"	"	"
Dichlorprop	ND		"	3.2	"	"	"	"	"
2,4-D	ND		"	3.2	"	"	"	"	"
Pentachlorophenol	6.2		"	3.2	"	"	"	"	"
Silvex (2,4,5-TP)	ND		"	3.2	"	"	"	"	"
2,4,5-T	ND		"	3.2	"	"	"	"	"
Dinoseb	ND		"	8.0	"	"	"	"	"
2,4-DB	ND		"	3.2	"	"	"	"	"
<i>Surr: 2,4-Dichlorophenylacetic acid (51-129%)</i>	79 %					"	"	"	"

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## LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Blank Analyzed: 10/28/2008 (8J28062-BLK1)</b>													
Acenaphthene			ug/kg	N/A	330	ND							
Acenaphthylene			ug/kg	N/A	330	ND							
Aniline			ug/kg	N/A	420	ND							
Anthracene			ug/kg	N/A	330	ND							
Benzidine			ug/kg	N/A	660	ND							
Benzo(a)anthracene			ug/kg	N/A	330	ND							
Benzo(a)pyrene			ug/kg	N/A	330	ND							
Benzo(b)fluoranthene			ug/kg	N/A	330	ND							
Benzo(g,h,i)perylene			ug/kg	N/A	330	ND							
Benzo(k)fluoranthene			ug/kg	N/A	330	ND							
Benzoic acid			ug/kg	N/A	830	ND							
Benzyl alcohol			ug/kg	N/A	330	ND							
4-Bromophenyl phenyl ether			ug/kg	N/A	330	ND							
Butyl benzyl phthalate			ug/kg	N/A	330	ND							
4-Chloro-3-methylphenol			ug/kg	N/A	330	ND							
4-Chloroaniline			ug/kg	N/A	330	ND							
Bis(2-chloroethoxy)methane			ug/kg	N/A	330	ND							
Bis(2-chloroethyl)ether			ug/kg	N/A	170	ND							
Bis(2-chloroisopropyl)ether			ug/kg	N/A	330	ND							
2-Chloronaphthalene			ug/kg	N/A	330	ND							
2-Chlorophenol			ug/kg	N/A	330	ND							
4-Chlorophenyl phenyl ether			ug/kg	N/A	330	ND							
Chrysene			ug/kg	N/A	330	ND							
Dibenz(a,h)anthracene			ug/kg	N/A	420	ND							
Dibenzofuran			ug/kg	N/A	330	ND							
Di-n-butyl phthalate			ug/kg	N/A	330	ND							
1,2-Dichlorobenzene			ug/kg	N/A	330	ND							
1,3-Dichlorobenzene			ug/kg	N/A	330	ND							
1,4-Dichlorobenzene			ug/kg	N/A	330	ND							
3,3'-Dichlorobenzidine			ug/kg	N/A	830	ND							
2,4-Dichlorophenol			ug/kg	N/A	330	ND							
Diethyl phthalate			ug/kg	N/A	330	ND							
2,4-Dimethylphenol			ug/kg	N/A	330	ND							
Dimethyl phthalate			ug/kg	N/A	330	ND							
4,6-Dinitro-2-methylphenol			ug/kg	N/A	420	ND							
2,4-Dinitrophenol			ug/kg	N/A	660	ND							
2,4-Dinitrotoluene			ug/kg	N/A	330	ND							
2,6-Dinitrotoluene			ug/kg	N/A	330	ND							
Di-n-octyl phthalate			ug/kg	N/A	330	ND							
1,2-Diphenylhydrazine/Azobenzene			ug/kg	N/A	330	ND							
Bis(2-ethylhexyl)phthalate			ug/kg	N/A	330	ND							
Fluoranthene			ug/kg	N/A	330	ND							
Fluorene			ug/kg	N/A	330	ND							
Hexachlorobenzene			ug/kg	N/A	330	ND							
Hexachlorobutadiene			ug/kg	N/A	330	ND							

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## LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Blank Analyzed: 10/28/2008 (8J28062-BLK1)</b>													
Hexachlorocyclopentadiene			ug/kg	N/A	830	ND							
Hexachloroethane			ug/kg	N/A	330	ND							
Indeno(1,2,3-cd)pyrene			ug/kg	N/A	330	ND							
Isophorone			ug/kg	N/A	330	ND							
2-Methylnaphthalene			ug/kg	N/A	330	ND							
2-Methylphenol			ug/kg	N/A	330	ND							
4-Methylphenol			ug/kg	N/A	330	ND							
Naphthalene			ug/kg	N/A	330	ND							
2-Nitroaniline			ug/kg	N/A	330	ND							
3-Nitroaniline			ug/kg	N/A	330	ND							
4-Nitroaniline			ug/kg	N/A	830	ND							
Nitrobenzene			ug/kg	N/A	330	ND							
2-Nitrophenol			ug/kg	N/A	330	ND							
4-Nitrophenol			ug/kg	N/A	830	ND							
N-Nitroso-di-n-propylamine			ug/kg	N/A	250	ND							
N-Nitrosodiphenylamine			ug/kg	N/A	330	ND							
Pentachlorophenol			ug/kg	N/A	830	ND							
Phenanthrene			ug/kg	N/A	330	ND							
Phenol			ug/kg	N/A	330	ND							
Pyrene			ug/kg	N/A	330	ND							
1,2,4-Trichlorobenzene			ug/kg	N/A	330	ND							
2,4,5-Trichlorophenol			ug/kg	N/A	330	ND							
2,4,6-Trichlorophenol			ug/kg	N/A	330	ND							
Surrogate: 2,4,6-Tribromophenol			ug/kg						61			35-125	
Surrogate: 2-Fluorobiphenyl			ug/kg						68			35-120	
Surrogate: 2-Fluorophenol			ug/kg						59			25-120	
Surrogate: Nitrobenzene-d5			ug/kg						61			30-120	
Surrogate: Phenol-d6			ug/kg						61			35-120	
Surrogate: Terphenyl-d14			ug/kg						94			40-135	

## ORGANOCHLORINE PESTICIDES (EPA 8081A)

**Batch\Seq: 8J27074 Extracted: 10/27/08**

**Blank Analyzed: 10/28/2008 (8J27074-BLK1)**

4,4'-DDD			ug/kg	N/A	5.0	ND							
4,4'-DDE			ug/kg	N/A	5.0	ND							
4,4'-DDT			ug/kg	N/A	5.0	ND							
Aldrin			ug/kg	N/A	5.0	ND							
alpha-BHC			ug/kg	N/A	5.0	ND							
beta-BHC			ug/kg	N/A	5.0	ND							
delta-BHC			ug/kg	N/A	10	ND							
Dieldrin			ug/kg	N/A	5.0	ND							
Endosulfan I			ug/kg	N/A	5.0	ND							
Endosulfan II			ug/kg	N/A	5.0	ND							
Endosulfan sulfate			ug/kg	N/A	10	ND							
Endrin			ug/kg	N/A	5.0	ND							

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### LABORATORY BLANK QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
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#### ORGANOCHLORINE PESTICIDES (EPA 8081A)

**Batch\Seq: 8J27074 Extracted: 10/27/08**

Blank Analyzed: 10/28/2008 (8J27074-BLK1)

Endrin aldehyde			ug/kg	N/A	5.0	ND							
Endrin ketone			ug/kg	N/A	5.0	ND							
gamma-BHC (Lindane)			ug/kg	N/A	5.0	ND							
Heptachlor			ug/kg	N/A	5.0	ND							
Heptachlor epoxide			ug/kg	N/A	5.0	ND							
Methoxychlor			ug/kg	N/A	5.0	ND							
Chlordane			ug/kg	N/A	50	ND							
Toxaphene			ug/kg	N/A	200	ND							
Surrogate: Decachlorobiphenyl			ug/kg						83			45-120	
Surrogate: Tetrachloro-m-xylene			ug/kg						73			35-115	

#### Herbicides (GC/MS)

**Batch\Seq: 37429 Extracted: 10/24/08**

Blank Analyzed: 10/24/2008 (580-37693-1)

QC Source Sample:

Dalapon			ug/Kg	N/A	8.3	ND							
4-Nitrophenol			ug/Kg	N/A	3.3	ND							
Dicamba			ug/Kg	N/A	3.3	ND							
Mecoprop			ug/Kg	N/A	3.3	ND							
MCPA			ug/Kg	N/A	3.3	ND							
Dichlorprop			ug/Kg	N/A	3.3	ND							
2,4-D			ug/Kg	N/A	3.3	ND							
Pentachlorophenol			ug/Kg	N/A	3.3	ND							
Silvex (2,4,5-TP)			ug/Kg	N/A	3.3	ND							
2,4,5-T			ug/Kg	N/A	3.3	ND							
Dinoseb			ug/Kg	N/A	8.3	ND							
2,4-DB			ug/Kg	N/A	3.3	ND							
Surrogate: 2,4-Dichlorophenylacetic acid			ug/Kg						98			51-129	

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## LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup % REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J28062-BS1)</b>													
Acenaphthene		3330	ug/kg	N/A	330	2410		72		50-120			
Acenaphthylene		3330	ug/kg	N/A	330	2320		70		50-120			
Aniline		3330	ug/kg	N/A	420	913		27		25-120			
Anthracene		3330	ug/kg	N/A	330	2740		82		55-120			
Benzidine		3330	ug/kg	N/A	660	ND				20-120			L6
Benzo(a)anthracene		3330	ug/kg	N/A	330	3010		90		55-120			
Benzo(a)pyrene		3330	ug/kg	N/A	330	3150		95		50-125			
Benzo(b)fluoranthene		3330	ug/kg	N/A	330	3000		90		45-125			
Benzo(g,h,i)perylene		3330	ug/kg	N/A	330	3110		93		35-130			
Benzo(k)fluoranthene		3330	ug/kg	N/A	330	2960		89		45-125			
Benzoic acid		3330	ug/kg	N/A	830	2490		75		20-120			
Benzyl alcohol		3330	ug/kg	N/A	330	2380		71		35-120			
4-Bromophenyl phenyl ether		3330	ug/kg	N/A	330	2630		79		45-120			
Butyl benzyl phthalate		3330	ug/kg	N/A	330	3040		91		50-125			
4-Chloro-3-methylphenol		3330	ug/kg	N/A	330	2640		79		50-125			
4-Chloroaniline		3330	ug/kg	N/A	330	873		26		20-120			
Bis(2-chloroethoxy)methane		3330	ug/kg	N/A	330	2390		72		45-120			
Bis(2-chloroethyl)ether		3330	ug/kg	N/A	170	2520		76		35-120			
Bis(2-chloroisopropyl)ether		3330	ug/kg	N/A	330	2120		64		40-120			
2-Chloronaphthalene		3330	ug/kg	N/A	330	2330		70		45-120			
2-Chlorophenol		3330	ug/kg	N/A	330	2200		66		40-120			
4-Chlorophenyl phenyl ether		3330	ug/kg	N/A	330	2520		76		55-120			
Chrysene		3330	ug/kg	N/A	330	2900		87		55-120			
Dibenz(a,h)anthracene		3330	ug/kg	N/A	420	3070		92		40-135			
Dibenzofuran		3330	ug/kg	N/A	330	2560		77		55-120			
Di-n-butyl phthalate		3330	ug/kg	N/A	330	2900		87		50-125			
1,2-Dichlorobenzene		3330	ug/kg	N/A	330	2130		64		40-120			
1,3-Dichlorobenzene		3330	ug/kg	N/A	330	2010		60		35-120			
1,4-Dichlorobenzene		3330	ug/kg	N/A	330	2040		61		35-120			
3,3'-Dichlorobenzidine		3330	ug/kg	N/A	830	1700		51		20-130			
2,4-Dichlorophenol		3330	ug/kg	N/A	330	2520		76		45-120			
Diethyl phthalate		3330	ug/kg	N/A	330	2570		77		50-125			
2,4-Dimethylphenol		3330	ug/kg	N/A	330	2450		73		40-120			
Dimethyl phthalate		3330	ug/kg	N/A	330	2520		76		50-125			
4,6-Dinitro-2-methylphenol		3330	ug/kg	N/A	420	2800		84		40-120			
2,4-Dinitrophenol		3330	ug/kg	N/A	660	2450		74		25-120			
2,4-Dinitrotoluene		3330	ug/kg	N/A	330	2630		79		55-125			
2,6-Dinitrotoluene		3330	ug/kg	N/A	330	2540		76		55-125			
Di-n-octyl phthalate		3330	ug/kg	N/A	330	2950		89		50-135			
1,2-Diphenylhydrazine/Azobenzene		3330	ug/kg	N/A	330	2520		76		50-125			
Bis(2-ethylhexyl)phthalate		3330	ug/kg	N/A	330	3020		91		50-130			
Fluoranthene		3330	ug/kg	N/A	330	2870		86		55-120			
Fluorene		3330	ug/kg	N/A	330	2500		75		55-120			
Hexachlorobenzene		3330	ug/kg	N/A	330	2590		78		50-120			
Hexachlorobutadiene		3330	ug/kg	N/A	330	2310		69		40-120			

Masa Fujioka & Associates  
98-021 Kamehameha Highway, #337  
Alea, HI 96701  
Lana Brodziak

Work Order: HRJ0113  
Project: Honoapiilani Highway  
Project Number: 08096-101

Received: 10/16/08  
Reported: 11/05/08 15:47

## LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J28062-BS1)</b>													
Hexachlorocyclopentadiene	3330	3330	ug/kg	N/A	830	2710		81		30-125			
Hexachloroethane	3330	3330	ug/kg	N/A	330	2060		62		40-120			
Indeno(1,2,3-cd)pyrene	3330	3330	ug/kg	N/A	330	3180		95		30-135			
Isophorone	3330	3330	ug/kg	N/A	330	2170		65		40-120			
2-Methylnaphthalene	3330	3330	ug/kg	N/A	330	2560		77		45-120			
2-Methylphenol	3330	3330	ug/kg	N/A	330	2290		69		40-120			
4-Methylphenol	3330	3330	ug/kg	N/A	330	2400		72		45-120			
Naphthalene	3330	3330	ug/kg	N/A	330	2310		69		45-120			
2-Nitroaniline	3330	3330	ug/kg	N/A	330	2430		73		50-125			
3-Nitroaniline	3330	3330	ug/kg	N/A	330	2420		72		35-120			
4-Nitroaniline	3330	3330	ug/kg	N/A	830	2100		63		45-125			
Nitrobenzene	3330	3330	ug/kg	N/A	330	2200		66		45-120			
2-Nitrophenol	3330	3330	ug/kg	N/A	330	2380		72		45-120			
4-Nitrophenol	3330	3330	ug/kg	N/A	830	2580		77		40-125			
N-Nitroso-di-n-propylamine	3330	3330	ug/kg	N/A	250	2240		67		40-120			
N-Nitrosodiphenylamine	3330	3330	ug/kg	N/A	330	2670		80		50-120			
Pentachlorophenol	3330	3330	ug/kg	N/A	830	2860		86		40-120			
Phenanthrene	3330	3330	ug/kg	N/A	330	2630		79		50-120			
Phenol	3330	3330	ug/kg	N/A	330	2200		66		40-120			
Pyrene	3330	3330	ug/kg	N/A	330	2720		82		45-125			
1,2,4-Trichlorobenzene	3330	3330	ug/kg	N/A	330	2280		69		40-120			
2,4,5-Trichlorophenol	3330	3330	ug/kg	N/A	330	2690		81		50-120			
2,4,6-Trichlorophenol	3330	3330	ug/kg	N/A	330	2670		80		50-120			
Surrogate: 2,4,6-Tribromophenol			ug/kg					70		35-125			
Surrogate: 2-Fluorobiphenyl			ug/kg					69		35-120			
Surrogate: 2-Fluorophenol			ug/kg					62		25-120			
Surrogate: Nitrobenzene-d5			ug/kg					64		30-120			
Surrogate: Phenol-d6			ug/kg					67		35-120			
Surrogate: Terphenyl-d14			ug/kg					93		40-135			

## ORGANOCHLORINE PESTICIDES (EPA 8081A)

### Batch\Seq: 8J27074 Extracted: 10/27/08

#### LCS Analyzed: 10/28/2008 (8J27074-BS1)

4,4'-DDD	33.3	33.3	ug/kg	N/A	5.0	30.4		91		60-120			
4,4'-DDE	33.3	33.3	ug/kg	N/A	5.0	28.3		85		60-120			
4,4'-DDT	33.3	33.3	ug/kg	N/A	5.0	30.5		91		65-120			
Aldrin	33.3	33.3	ug/kg	N/A	5.0	21.5		65		50-115			
alpha-BHC	33.3	33.3	ug/kg	N/A	5.0	25.1		75		60-115			
beta-BHC	33.3	33.3	ug/kg	N/A	5.0	26.9		81		60-115			
delta-BHC	33.3	33.3	ug/kg	N/A	10	28.4		85		60-115			
Dieldrin	33.3	33.3	ug/kg	N/A	5.0	28.2		85		65-115			
Endosulfan I	33.3	33.3	ug/kg	N/A	5.0	26.9		81		40-120			
Endosulfan II	33.3	33.3	ug/kg	N/A	5.0	28.8		87		55-120			
Endosulfan sulfate	33.3	33.3	ug/kg	N/A	10	28.2		85		65-115			
Endrin	33.3	33.3	ug/kg	N/A	5.0	31.0		93		55-120			

MNR

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### LCS/LCS DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>ORGANOCHLORINE PESTICIDES (EPA 8081A)</b>													
<b>Batch\Seq: 8J27074 Extracted: 10/27/08</b>													
<b>LCS Analyzed: 10/28/2008 (8J27074-BS1)</b>													
MNR													
Endrin aldehyde		33.3	ug/kg	N/A	5.0	25.4		76		55-115			
Endrin ketone		33.3	ug/kg	N/A	5.0	27.3		82		65-115			
gamma-BHC (Lindane)		33.3	ug/kg	N/A	5.0	27.5		82		55-115			
Heptachlor		33.3	ug/kg	N/A	5.0	28.3		85		55-115			
Heptachlor epoxide		33.3	ug/kg	N/A	5.0	27.2		82		55-115			
Methoxychlor		33.3	ug/kg	N/A	5.0	30.4		91		65-120			
Surrogate: Decachlorobiphenyl			ug/kg					80		45-120			
Surrogate: Tetrachloro-m-xylene			ug/kg					74		35-115			
<b>Herbicides (GC/MS)</b>													
<b>Batch\Seq: 37429 Extracted: 10/24/08</b>													
<b>LCS Analyzed: 10/24/2008 (580-37693-2)</b>													
QC Source Sample:													
Dalapon		333	ug/Kg	N/A	8.3	246		74		16-74			
Dicamba		333	ug/Kg	N/A	3.3	316		95		48-123			
Mecoprop		333	ug/Kg	N/A	3.3	357		107		53-154			
MCPA		333	ug/Kg	N/A	3.3	324		97		50-150			
Dichlorprop		333	ug/Kg	N/A	3.3	317		95		75-140			
2,4-D		333	ug/Kg	N/A	3.3	302		91		46-136			
Pentachlorophenol		333	ug/Kg	N/A	3.3	329		99		50-150			
Silvex (2,4,5-TP)		333	ug/Kg	N/A	3.3	337		101		52-137			
Dinoseb		333	ug/Kg	N/A	8.3	288		86		18-157			
2,4-DB		333	ug/Kg	N/A	3.3	358		107		50-155			
Surrogate: 2,4-Dichlorophenylacetic acid			ug/Kg					100		51-129			

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## MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>BatchSeq: 8J28062 Extracted: 10/28/08</b>													
<b>Matrix Spike Analyzed: 10/28/2008 (8J28062-MS1)</b>						<b>QC Source Sample: IRJ2667-01</b>							
Acenaphthene	ND	3330	ug/kg	N/A	330	2580	2620	77	79	45-120	2	25	
Acenaphthylene	ND	3330	ug/kg	N/A	330	2500	2560	75	77	45-120	2	20	
Aniline	ND	3330	ug/kg	N/A	420	1820	1920	55	58	25-120	5	30	
Anthracene	ND	3330	ug/kg	N/A	330	2900	3030	87	91	55-120	4	25	
Benzidine	ND	3330	ug/kg	N/A	660	ND	ND			20-120		30	M8
Benzo(a)anthracene	ND	3330	ug/kg	N/A	330	3020	3180	91	95	50-120	5	25	
Benzo(a)pyrene	ND	3330	ug/kg	N/A	330	3140	3340	94	100	45-125	6	25	
Benzo(b)fluoranthene	ND	3330	ug/kg	N/A	330	2920	3150	87	94	45-125	8	30	
Benzo(g,h,i)perylene	ND	3330	ug/kg	N/A	330	3080	3110	92	93	25-130	1	30	
Benzo(k)fluoranthene	ND	3330	ug/kg	N/A	330	2870	3230	86	97	45-125	12	30	
Benzoic acid	ND	3330	ug/kg	N/A	830	1280	1670	38	50	20-120	26	30	
Benzyl alcohol	ND	3330	ug/kg	N/A	330	2500	2550	75	77	20-120	2	30	
4-Bromophenyl phenyl ether	ND	3330	ug/kg	N/A	330	2840	2940	85	88	45-120	3	20	
Butyl benzyl phthalate	ND	3330	ug/kg	N/A	330	3030	3300	91	99	45-125	9	25	
4-Chloro-3-methylphenol	ND	3330	ug/kg	N/A	330	2710	2960	81	89	50-125	9	25	
4-Chloroaniline	ND	3330	ug/kg	N/A	330	1900	2080	57	62	20-120	9	30	
Bis(2-chloroethoxy)methane	ND	3330	ug/kg	N/A	330	2460	2560	74	77	45-120	4	25	
Bis(2-chloroethyl)ether	ND	3330	ug/kg	N/A	170	2290	2300	69	69	35-110	0	25	
Bis(2-chloroisopropyl)ether	ND	3330	ug/kg	N/A	330	2210	2160	66	65	40-120	2	25	
2-Chloronaphthalene	ND	3330	ug/kg	N/A	330	2530	2580	76	77	45-120	2	20	
2-Chlorophenol	ND	3330	ug/kg	N/A	330	2280	2320	68	69	40-120	2	20	
4-Chlorophenyl phenyl ether	ND	3330	ug/kg	N/A	330	2730	2920	82	88	50-120	7	25	
Chrysene	ND	3330	ug/kg	N/A	330	2890	3130	87	94	55-120	8	25	
Dibenz(a,h)anthracene	ND	3330	ug/kg	N/A	420	3140	3190	94	96	25-135	2	30	
Dibenzofuran	ND	3330	ug/kg	N/A	330	2760	2870	83	86	50-120	4	25	
Di-n-butyl phthalate	ND	3330	ug/kg	N/A	330	3060	3210	92	96	50-125	5	25	
1,2-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2200	2210	66	66	40-120	1	25	
1,3-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2060	2050	62	62	35-120	1	25	
1,4-Dichlorobenzene	ND	3330	ug/kg	N/A	330	2140	2090	64	63	35-120	2	25	
3,3'-Dichlorobenzidine	ND	3330	ug/kg	N/A	830	2240	2540	67	76	20-130	13	25	
2,4-Dichlorophenol	ND	3330	ug/kg	N/A	330	2630	2740	79	82	45-120	4	25	
Diethyl phthalate	ND	3330	ug/kg	N/A	330	2810	3030	84	91	50-125	7	25	
2,4-Dimethylphenol	ND	3330	ug/kg	N/A	330	2210	2380	66	72	30-120	8	25	
Dimethyl phthalate	ND	3330	ug/kg	N/A	330	2710	2850	81	85	45-125	5	25	
4,6-Dinitro-2-methylphenol	ND	3330	ug/kg	N/A	420	2390	2840	72	85	35-120	17	25	
2,4-Dinitrophenol	ND	3330	ug/kg	N/A	660	1720	2080	52	62	20-120	19	25	
2,4-Dinitrotoluene	ND	3330	ug/kg	N/A	330	2770	3160	83	95	50-125	13	25	
2,6-Dinitrotoluene	ND	3330	ug/kg	N/A	330	2740	3000	82	90	50-125	9	20	
Di-n-octyl phthalate	ND	3330	ug/kg	N/A	330	2960	3060	89	92	50-135	3	25	
1,2-Diphenylhydrazine/Azobenzene	ND	3330	ug/kg	N/A	330	2750	2900	83	87	50-125	5	25	
Bis(2-ethylhexyl)phthalate	ND	3330	ug/kg	N/A	330	3010	3170	90	95	45-130	5	25	
Fluoranthene	ND	3330	ug/kg	N/A	330	2920	3050	88	91	45-120	4	25	
Fluorene	ND	3330	ug/kg	N/A	330	2690	2870	81	86	50-120	7	25	
Hexachlorobenzene	ND	3330	ug/kg	N/A	330	2810	2830	84	85	50-120	1	25	
Hexachlorobutadiene	ND	3330	ug/kg	N/A	330	2470	2500	74	75	40-120	1	25	

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## MATRIX SPIKE/MATRIX SPIKE DUPLICATE QC DATA

Analyte	Source Result	Spike Level	Units	MDL	MRL	Result	Dup Result	% REC	Dup %REC	% REC Limits	RPD RPD	RPD Limit	Q
<b>SEMI-VOLATILE ORGANICS BY GC/MS (EPA 3545/8270C)</b>													
<b>Batch\Seq: 8J28062 Extracted: 10/28/08</b>													
<b>Matrix Spike Analyzed: 10/28/2008 (8J28062-MS1)</b>						<b>QC Source Sample: IRJ2667-01</b>							
Hexachlorocyclopentadiene	ND	3330	ug/kg	N/A	830	2750	2930	83	88	20-125	6	30	
Hexachloroethane	ND	3330	ug/kg	N/A	330	2130	2120	64	64	35-120	0	30	
Indeno(1,2,3-cd)pyrene	ND	3330	ug/kg	N/A	330	3160	3300	95	99	20-130	4	30	
Isophorone	ND	3330	ug/kg	N/A	330	2230	2350	67	71	40-120	5	25	
2-Methylnaphthalene	ND	3330	ug/kg	N/A	330	2610	2750	78	83	40-120	5	20	
2-Methylphenol	ND	3330	ug/kg	N/A	330	2290	2330	69	70	40-120	2	25	
4-Methylphenol	ND	3330	ug/kg	N/A	330	2450	2520	74	76	45-120	3	25	
Naphthalene	ND	3330	ug/kg	N/A	330	2430	2500	73	75	40-120	3	25	
2-Nitroaniline	ND	3330	ug/kg	N/A	330	2630	2770	79	83	45-120	5	25	
3-Nitroaniline	ND	3330	ug/kg	N/A	330	2610	2810	78	84	30-120	7	25	
4-Nitroaniline	ND	3330	ug/kg	N/A	830	2320	2850	70	86	40-125	20	30	
Nitrobenzene	ND	3330	ug/kg	N/A	330	2260	2380	68	72	40-120	5	25	
2-Nitrophenol	ND	3330	ug/kg	N/A	330	2440	2570	73	77	40-120	5	25	
4-Nitrophenol	ND	3330	ug/kg	N/A	830	2530	3070	76	92	35-125	19	30	
N-Nitroso-di-n-propylamine	ND	3330	ug/kg	N/A	250	2300	2330	69	70	35-120	1	25	
N-Nitrosodiphenylamine	ND	3330	ug/kg	N/A	330	2850	2970	86	89	45-125	4	25	
Pentachlorophenol	ND	3330	ug/kg	N/A	830	2680	3020	81	91	30-120	12	25	
Phenanthrene	ND	3330	ug/kg	N/A	330	2790	2910	84	87	50-120	4	25	
Phenol	ND	3330	ug/kg	N/A	330	2360	2350	71	70	40-120	1	25	
Pyrene	ND	3330	ug/kg	N/A	330	2900	3110	87	93	40-125	7	30	
1,2,4-Trichlorobenzene	ND	3330	ug/kg	N/A	330	2390	2480	72	74	40-120	3	25	
2,4,5-Trichlorophenol	ND	3330	ug/kg	N/A	330	2910	3050	87	91	45-120	5	20	
2,4,6-Trichlorophenol	ND	3330	ug/kg	N/A	330	2890	2940	87	88	45-120	2	25	
Surrogate: 2,4,6-Tribromophenol			ug/kg					73	76	35-125			
Surrogate: 2-Fluorobiphenyl			ug/kg					76	76	35-120			
Surrogate: 2-Fluorophenol			ug/kg					65	65	25-120			
Surrogate: Nitrobenzene-d5			ug/kg					68	70	30-120			
Surrogate: Phenol-d6			ug/kg					70	69	35-120			
Surrogate: Terphenyl-d14			ug/kg					101	107	40-135			

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## CERTIFICATION SUMMARY

### Subcontracted Laboratories

#### Anatek Labs.

1282 Alturas Dr. - Moscow, ID 83843

Analysis Performed: 8270 Modified Pest. Screen  
Samples: HRJ0113-01, HRJ0113-02

#### TestAmerica - Irvine, CA

17461 Derian Avenue Suite 100 - Irvine, CA 92614

Method Performed: EPA 3545/8081A  
Samples: HRJ0113-01, HRJ0113-02

Method Performed: EPA 8270C  
Samples: HRJ0113-01, HRJ0113-02

#### STL - Seattle, WA

5755 8th Street East - Tacoma, WA 98424

Method Performed: 8151A STD  
Samples: HRJ0113-01, HRJ0113-02

#### STL - Sacramento, CA

880 Riverside Parkway - West Sacramento, CA 95605

Analysis Performed: Metals, Total 6020 ICPMS  
Samples: HRJ0113-01, HRJ0113-02

*For information concerning certifications of this facility or another TestAmerica facility, please visit our website at [www.TestAmericaInc.com](http://www.TestAmericaInc.com)*

## DATA QUALIFIERS AND DEFINITIONS

- A-01** Due to matrix interference, the data was reprocessed in a different way as the calibration; 3 peaks were used in the primary column and 2 peaks were used in the confirmation column.
- C** Calibration Verification recovery was above the method control limit for this analyte. Analyte not detected, data not impacted.
- C-1** Calibration Verification recovery was above the method control limit for this analyte, however the average % difference for all analytes met method criteria. See Calibration Summary form.
- C-7** Calibration Verification recovery was below the method control limit due to matrix interference carried over from analytical samples. The matrix interference was confirmed by reanalysis with the same result.
- L6** Per the EPA methods, benzidine is known to be subject to oxidative losses during solvent concentration.
- M8** The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
- MNR** No results were reported for the MS/MSD. The sample used for the MS/MSD required dilution due to the sample matrix. Because of this, the spike compounds were diluted below the detection limit.
- RL1** Reporting limit raised due to sample matrix effects.
- ND** Not detected at the reporting limit (or method detection limit if shown)

## ADDITIONAL COMMENTS

## Chain of Custody / Analysis Request Form

Report to:		Project identification		Indicate analyses requested		Laboratory ID no.		
Company name	Address	Job name	Job number	No. of containers	Analysis requested	Date / time released	Condition noted	
Lana Brodzia	Masa Fujioka Assoc. 98-021 Kam. Hwy #337 Aiea HI 96707	Hana Pilani Hwy.	8096-101		Asenic - 308B/6020 Organic Chlorine Res. 8087 Chlorinated Hydro 8151A Semi VOCs - 8270M Triazine Res. - 8270M Sub-sampling prep. by mult - increment sub sample		HR1013-01 -02	
Phone: 484-5366	Fax: 484-0007	Contact email address: lbrodziak@masafujioka.com	Date results needed: 10 days					
City: Aiea	State: HI	ZIP: 96707						
City: L Brodzia	State: HI	ZIP: 96707						
City: L Brodzia	State: HI	ZIP: 96707						
Item no.	Client sample ID	COMP	GRAB	Matrix	Preservation Method	Date	Time	No. of containers
1	DU - IS	X	X		ICE	10/15/08	1245	1
2	DU - FS	X	X		ICE	10/15/08	1245	1
3								
4								
5								
6								
7								
8								
9								
10								
Released by (print / sign)	Date / time released	Delivery method	Received by (print / sign)	Company / Agency affiliation	Date / time received	Condition noted		
Lana Brodzia	10/15/08	Hand	Sim Lan	TYA Plan	10/15/08	8 wt = 114622 wet 8-122		

Comments:

Please check one:  
 Dispose by lab  
 Return to client  
 Archive

**CASE NARRATIVE**

November 4, 2008

**Lab Name: Anatek Labs, Inc.** 1282 Alturas Drive, Moscow, ID 83843 [www.anateklabs.com](http://www.anateklabs.com) *FL NELAP E87893, NV ID13-2004-31, WA DOE C126, OR ELAP ID200001, MT 0028, ID, CO, NM*

**Project Tracking No.:** HRJ0113  
**Anatek Batch:** 081027015

**Project Summary:** Two (2) Soil samples were received on 10/27/2008 for triazine pesticides (EPA 8270Cmod/619mod) analysis. Samples were received with the appropriate chain of custody. Samples were received at 10.5C.

<u>Client Sample ID</u>	<u>Anatek Sample ID</u>	<u>Method/Prep Method</u>
HRJ0113-01	081027015-001	EPA 619m/8270Cm
HRJ0113-02	081027015-002	EPA 619m/8270Cm

**QA/QC Checks**

<u>Parameters</u>	<u>Yes / No</u>	<u>Exceptions / Deviations</u>
Sample Holding Time Valid?	N	See Note
Surrogate Recoveries Valid?	Y	NA
QC Sample(s) Recoveries Valid?	Y	NA
Method Blank(s) Valid?	Y	NA
Tune(s) Valid?	Y	NA
Internal Standard Responses Valid?	Y	NA
Initial Calibration Curve(s) Valid?	Y	NA
Continuing Calibration(s) Valid?	Y	NA
Comments:	Y	NA

**1. Holding Time Requirements**

Samples were received above the recommended temperature range of 2-6C (10.5). Samples were stored at 4C after arrival at the laboratory. This is not expected to negatively affect results.

**2. GC/MS Tune Requirements**

No problems encountered

**3. Calibration Requirements**

No problems encountered.

**4. Surrogate Recovery Requirements**

No problems encountered.

**5. QC Sample (LCS/MS/MSD) Recovery Requirements**

No problems encountered.

**6. Method Blank Requirements**

The method blanks were non-detect (<MDL) for all analytes. No problems encountered.

**7. Internal Standard(s) Response Requirements**

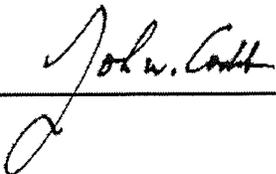
No problems encountered.

**8. Comments**

No problems encountered

**I certify that this data package is in compliance with the terms and conditions of the contract. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee.**

Approved by:

  
\_\_\_\_\_

# Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com  
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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report

<b>Sample Number</b>	081027015-001	<b>Sampling Date</b>	10/15/2008	<b>Date/Time Received</b>	10/27/2008 10:00 AM
<b>Client Sample ID</b>	HRJ0113-01	<b>Sampling Time</b>	12:45 PM	<b>Extraction Date</b>	10/28/2008
<b>Matrix</b>	Soil	<b>Sample Location</b>			
<b>Comments</b>					

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Ametryne	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atraton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atrazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Hexazinone	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometon	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Propazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Secbumeton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simetryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutylazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6

## Surrogate Data

<b>Sample Number</b>	081027015-001			
<b>Surrogate Standard</b>		<b>Method</b>	<b>Percent Recovery</b>	<b>Control Limits</b>
Terphenyl-d14		EPA 619mod	77.3	30-140

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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report

<b>Sample Number</b>	081027015-002	<b>Sampling Date</b>	10/15/2008	<b>Date/Time Received</b>	10/27/2008 10:00 AM
<b>Client Sample ID</b>	HRJ0113-02	<b>Sampling Time</b>	12:45 PM	<b>Extraction Date</b>	10/28/2008
<b>Matrix</b>	Soil	<b>Sample Location</b>			
<b>Comments</b>					

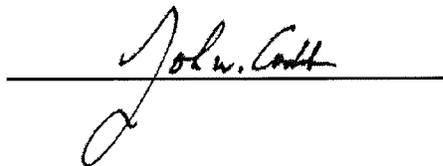
  

Parameter	Result	Units	MDL	PQL	Analysis Date	Analyst	Method	Qualifier
Ametryne	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atraton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Atrazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Hexazinone	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometon	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Prometryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Propazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Secbumeton	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Simetryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutylazine	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6
Terbutryn	ND	mg/kg	0.05	0.1	10/28/2008	EMP	EPA 619mod	Q6

## Surrogate Data

<b>Sample Number</b>	081027015-002		
<b>Surrogate Standard</b>	Terphenyl-d14	<b>Method</b>	EPA 619mod
		<b>Percent Recovery</b>	67.7
		<b>Control Limits</b>	30-140

Authorized Signature



MCL EPA's Maximum Contaminant Level  
ND Not Detected  
PQL Practical Quantitation Limit  
Q6 Sample was received above recommended temperature.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL:(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

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**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report Quality Control Data

### Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Terbutryn	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
Terbutylazine	1.24	mg/kg	1	124.0	40-150	10/28/2008	10/28/2008
Simetryn	1.07	mg/kg	1	107.0	40-150	10/28/2008	10/28/2008
Simazine	0.89	mg/kg	1	89.0	40-150	10/28/2008	10/28/2008
Secbumeton	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
Propazine	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
Prometryn	1.15	mg/kg	1	115.0	40-150	10/28/2008	10/28/2008
Prometon	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
Atrazine	1.15	mg/kg	1	115.0	40-150	10/28/2008	10/28/2008
Atraton	1.14	mg/kg	1	114.0	40-150	10/28/2008	10/28/2008
Ametryne	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008

### Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
081024009-001A	Terbutryn	ND	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008
081024009-001A	Terbutylazine	ND	1.29	mg/kg	1	129.0	40-150	10/28/2008	10/28/2008
081024009-001A	Simetryn	ND	0.98	mg/kg	1	98.0	40-150	10/28/2008	10/28/2008
081024009-001A	Simazine	ND	0.90	mg/kg	1	90.0	40-150	10/28/2008	10/28/2008
081024009-001A	Secbumeton	ND	1.11	mg/kg	1	111.0	40-150	10/28/2008	10/28/2008
081024009-001A	Propazine	ND	1.18	mg/kg	1	118.0	40-150	10/28/2008	10/28/2008
081024009-001A	Prometryn	ND	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008
081024009-001A	Prometon	ND	1.14	mg/kg	1	114.0	40-150	10/28/2008	10/28/2008
081024009-001A	Atrazine	ND	1.19	mg/kg	1	119.0	40-150	10/28/2008	10/28/2008
081024009-001A	Atraton	ND	1.08	mg/kg	1	108.0	40-150	10/28/2008	10/28/2008
081024009-001A	Ametryne	ND	1.17	mg/kg	1	117.0	40-150	10/28/2008	10/28/2008

### Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Terbutryn	1.12	mg/kg	1	112.0	4.4	0-50	10/28/2008	10/28/2008
Terbutylazine	1.20	mg/kg	1	120.0	7.2	0-50	10/28/2008	10/28/2008
Simetryn	0.94	mg/kg	1	94.0	4.2	0-50	10/28/2008	10/28/2008
Simazine	0.88	mg/kg	1	88.0	2.2	0-50	10/28/2008	10/28/2008

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1267

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

**Client:** TEST AMERICA - HONOLULU, HI  
**Address:** 99-193 AIEA HEIGHTS DRIVE  
AIEA, HI 96701-3900  
**Attn:** MIKE D. SOLICK

**Batch #:** 081027015  
**Project Name:** HRJ0113

## Analytical Results Report Quality Control Data

### Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Secbumeton	0.91	mg/kg	1	91.0	19.8	0-50	10/28/2008	10/28/2008
Propazine	1.19	mg/kg	1	119.0	0.8	0-50	10/28/2008	10/28/2008
Prometryn	1.12	mg/kg	1	112.0	6.1	0-50	10/28/2008	10/28/2008
Prometon	1.01	mg/kg	1	101.0	12.1	0-50	10/28/2008	10/28/2008
Atrazine	1.12	mg/kg	1	112.0	6.1	0-50	10/28/2008	10/28/2008
Atraton	0.90	mg/kg	1	90.0	18.2	0-50	10/28/2008	10/28/2008
Ametryne	1.04	mg/kg	1	104.0	11.8	0-50	10/28/2008	10/28/2008

### Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Ametryne	ND	mg/kg	0.1	10/28/2008	10/28/2008
Atraton	ND	mg/kg	0.1	10/28/2008	10/28/2008
Atrazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Hexazinone	ND	mg/kg	0.1	10/28/2008	10/28/2008
Prometon	ND	mg/kg	0.1	10/28/2008	10/28/2008
Prometryn	ND	mg/kg	0.1	10/28/2008	10/28/2008
Propazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Secbumeton	ND	mg/kg	0.1	10/28/2008	10/28/2008
Simazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Simetryn	ND	mg/kg	0.1	10/28/2008	10/28/2008
Terbutylazine	ND	mg/kg	0.1	10/28/2008	10/28/2008
Terbutryn	ND	mg/kg	0.1	10/28/2008	10/28/2008

AR Acceptable Range  
ND Not Detected  
PQL Practical Quantitation Limit  
RPD Relative Percentage Difference

### Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C1320  
Certifications held by Anatek Labs WA: EPA:WA00169; CA:Cert2632; ID:WA00169; WA:C1287

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## Login Report

**Customer Name:** TEST AMERICA - HONOLULU, HI  
99-193 AIEA HEIGHTS DRIVE  
AIEA HI 96701-3900  
**Order ID:** 081027015  
**Order Date:** 10/27/2008  
**Contact Name:** MIKE D. SOLICK  
**Project Name:** HRJ0113  
**Comment:**

**Sample #:** 081027015-001 **Customer Sample #:** HRJ0113-01

**Recv'd:**  **Collector:** **Date Collected:** 10/15/2008  
**Quantity:** 2 **Matrix:** Soil **Date Received:** 10/27/2008 10:00:00  
**Comment:**

Test	Test Group	Method	Due Date	Priority
%Moisture		%moisture	11/4/2008	<u>Normal (6-10 Days)</u>
TRIAZINE PESTICIDES		EPA 619mod	11/4/2008	<u>Normal (6-10 Days)</u>

**Sample #:** 081027015-002 **Customer Sample #:** HRJ0113-02

**Recv'd:**  **Collector:** **Date Collected:** 10/15/2008  
**Quantity:** 2 **Matrix:** Soil **Date Received:** 10/27/2008 10:00:00  
**Comment:**

Test	Test Group	Method	Due Date	Priority
%Moisture		%moisture	11/4/2008	<u>Normal (6-10 Days)</u>
TRIAZINE PESTICIDES		EPA 619mod	11/4/2008	<u>Normal (6-10 Days)</u>

## SAMPLE CONDITION RECORD

Samples received in a cooler?	Yes
Samples received intact?	Yes
What is the temperature inside the cooler?	10.5
Samples received with a COC?	Yes
Samples received within holding time?	Yes
Are all sample bottles properly preserved?	Yes
Are VOC samples free of headspace?	N/A
Is there a trip blank to accompany VOC samples?	N/A
Labels and chain agree?	Yes

SUBCONTRACT ORDER

TestAmerica Honolulu

HRJ0113

SENDING LABORATORY:

TestAmerica Honolulu  
99-193 Aiea Heights Drive, Suite 121  
Aiea, HI 96701  
Phone: 808-486-5227  
Fax: 808-486-2456  
Project Manager: Mike D. Solick

RECEIVING LABORATORY:

Anatek Labs.  
1282 Alturas Dr.  
Moscow, ID 83843  
Phone : (208) 883-2839  
Fax: 208  
Project Location: HI - HAWAII  
Receipt Temperature: °C      Icc: Y / N

619 Triazine Pesticides analyzed by 8270Modified Pest. Screen

Analysis	Units	Due	Expires	Comments
Sample ID: HRJ0113-01	Solid/Soil		Sampled: 10/15/08 12:45	
8270Modified Pest. Screen	mg/kg	11/04/08	10/29/08 12:45	
Containers Supplied:				
Incremental				
Sub-sample (analyze entire content) (C)	2x7oz			
Sample ID: HRJ0113-02	Solid/Soil		Sampled: 10/15/08 12:45	
8270Modified Pest. Screen	mg/kg	11/04/08	10/29/08 12:45	
Containers Supplied:				
Incremental				
Sub-sample (analyze entire content) (C)	2x7oz			

MWBS

**ANATEK LABS RECEIVING LIST**

RECEIVED INTACT      TEMP: 10.5 °C  
 LABELS & CHAINS AGREE  
 NO HEADSPACE  
 PRESERVATIVE: ant

NUMBER OF CONTAINERS: 4      SHIPPED VIA: Fedex  
 DATE & TIME: 10-27-08 10:00      INSPECTED BY: [Signature]

81027 015 TARIH Last 11/4/2008  
 ST SAMP Due 10/15/200 1st RCVD 10/27/2008  
 RJ0113

[Signature]      10/23/08      \_\_\_\_\_      \_\_\_\_\_  
 Released By      Date/Time      Received By      Date/Time

\_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_      \_\_\_\_\_  
 Released By      Date/Time      Received By      Date/Time



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

November 5, 2008

**TestAmerica Project Number: G8J240320**  
PO/Contract: HRJ0113

Mike Solick  
TestAmerica - Honolulu  
RL Cushing Building  
99-193 Aiea Heights Dr  
Aiea, HI 96701

Dear Mr. Solick,

This report contains the analytical results for the samples received under chain of custody by TestAmerica on October 24, 2008. These samples are associated with your HRJ0113 project.

The test results in this report meet all NELAC requirements for parameters that accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The case narrative is an integral part of this report.

If you have any questions, please feel free to call me at (916) 374-4383.

Sincerely,



David R. Alltucker  
Project Manager

## Table of Contents

# TestAmerica West Sacramento Project Number G8J240320

Case Narrative

Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

SOLID, 6020 As, MIS 10g digestion

Samples: 1, 2

Sample Data Sheets

Method Blank Report

Laboratory QC Reports

## Case Narrative

### TestAmerica West Sacramento Project Number G8J240320

#### **SOLID, 6020**

Sample(s): 1, 2

Both of the samples required dilution as the result of interference in the matrix. The reporting limits are raised accordingly.

There were no other anomalies associated with this project.

## TestAmerica Laboratories West Sacramento Certifications/Accreditations

Certifying State	Certificate #	Certifying State	Certificate #
Alaska	UST-055	New York*	11666
Arizona	AZ0616	Oregon*	CA 200005
Arkansas	04-067-0	Pennsylvania	68-1272
California*	01119CA	South Carolina	87014002
Colorado	NA	Texas	TX 270-2004A
Connecticut	PH-0691	Utah*	QUAN1
Florida*	E87570	Virginia	00178
Georgia	960	Washington	C087
Hawaii	NA	West Virginia	9930C, 334
Kansas*	E10375	Wisconsin	998204680
Louisiana*	01944	NFESC	NA
Michigan	9947	USACE	NA
Nevada	CA44	USDA Foreign Plant	37-82605
New Jersey*	CA005	USDA Foreign Soil	S-46613

\*NELAP accredited. A more detailed parameter list is available upon request. Updated 9/21/07

## QC Parameter Definitions

**QC Batch:** The QC batch consists of a set of up to 20 field samples that behave similarly (i.e., same matrix) and are processed using the same procedures, reagents, and standards at the same time.

**Method Blank:** An analytical control consisting of all reagents, which may include internal standards and surrogates, and is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background contamination.

**Laboratory Control Sample and Laboratory Control Sample Duplicate (LCS/LCSD):** An aliquot of blank matrix spiked with known amounts of representative target analytes. The LCS (and LCSD as required) is carried through the entire analytical process and is used to monitor the accuracy of the analytical process independent of potential matrix effects. If an LCSD is performed, it may also be used to evaluate the precision of the process.

**Duplicate Sample (DU):** Different aliquots of the same sample are analyzed to evaluate the precision of an analysis.

**Surrogates:** Organic compounds not expected to be detected in field samples, which behave similarly to target analytes. These are added to every sample within a batch at a known concentration to determine the efficiency of the sample preparation and analytical process.

**Matrix Spike and Matrix Spike Duplicate (MS/MSD):** An MS is an aliquot of a matrix fortified with known quantities of specific compounds and subjected to an entire analytical procedure in order to indicate the appropriateness of the method for a particular matrix. The percent recovery for the respective compound(s) is then calculated. The MSD is a second aliquot of the same matrix as the matrix spike, also spiked, in order to determine the precision of the method.

**Isotope Dilution:** For isotope dilution methods, isotopically labeled analogs (internal standards) of the native target analytes are spiked into the sample at time of extraction. These internal standards are used for quantitation, and monitor and correct for matrix effects. Since matrix effects on method performance can be judged by the recovery of these analogs, there is little added benefit of performing MS/MSD for these methods. MS/MSD are only performed for client or QAPP requirements.

**Control Limits:** The reported control limits are either based on laboratory historical data, method requirements, or project data quality objectives. The control limits represent the estimated uncertainty of the test results.

## Sample Summary

### TestAmerica West Sacramento Project Number G8J240320

<u>WO#</u>	<u>Sample #</u>	<u>Client Sample ID</u>	<u>Sampling Date</u>	<u>Received Date</u>
K1KN7	1	HRJ0113-01	10/15/2008 12:45 PM	10/24/2008 09:40 AM
K1KPG	2	HRJ0113-02	10/15/2008 12:45 PM	10/24/2008 09:40 AM

#### Notes(s):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity, pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.





	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
VOA*	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
VOAh*	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
AGB																				
AGBs																				
250AGB																				
250AGBs																				
250AGBn																				
500AGB																				
___AGJ																				
500AGJ																				
250AGJ																				
125AGJ																				
<b>50 CGJ</b>	<b>2</b>	<b>2</b>																		
500CGJ																				
250CGJ																				
125CGJ																				
PJ																				
PJn																				
500PJ																				
500PJn																				
500PJna																				
500PJzn/na																				
250PJ																				
250PJn																				
250PJna																				
250PJzn/na																				
Acetate Tube																				
___"CT																				
Encore																				
Folder/filter																				
PUF																				
Petri/Filter																				
XAD Trap																				
Ziploc																				

h = hydrochloric acid    s = sulfuric acid    na = sodium hydroxide    n = nitric acid    zn = zinc acetate

Number of VOAs with air bubbles present / total number of VOA's

LEAVE NO SPACES BLANK. USE "NA" IF NOT APPLICABLE.

**SOLID, 6020**

TestAmerica Honolulu

Client Sample ID: HRJ0113-01

TOTAL Metals

Lot-Sample #...: G8J240320-001

Matrix.....: SOLID

Date Sampled...: 10/15/08

Date Received...: 10/24/08

% Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 8302142						
Arsenic	5.9	2.0	mg/kg	SW846 6020	10/28-10/29/08	K1KN71AA
		Dilution Factor: 10				

TestAmerica Honolulu

Client Sample ID: HRJ0113-02

TOTAL Metals

Lot-Sample #...: G8J240320-002

Matrix.....: SOLID

Date Sampled...: 10/15/08

Date Received...: 10/24/08

% Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 8302142						
Arsenic	5.5	2.0	mg/kg	SW846 6020	10/28-10/29/08	K1KPG1AA

Dilution Factor: 10

# QC DATA ASSOCIATION SUMMARY

G8J240320

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SOLID	SW846 6020		8302142	
002	SOLID	SW846 6020		8302142	

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: G8J240320

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
MB Lot-Sample #: G8J280000-142				Prep Batch #...: 8302142		
Arsenic	ND	0.20	mg/kg	SW846 6020	10/28-10/29/08	K1P1P1AA
		Dilution Factor: 1				

**NOTE(S):**

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Lot-Sample #...: G8J240320

Matrix.....: SOLID

<u>PARAMETER</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>	<u>RPD</u> <u>RPD</u>	<u>RPD</u> <u>LIMITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>PREP-</u> <u>BATCH #</u>
Arsenic	101	(81 - 110)			SW846 6020	10/28-10/29/08	8302142
	100	(81 - 110)	0.97	(0-20)	SW846 6020	10/28-10/29/08	8302142

Dilution Factor: 1

**NOTE(S) :**

Calculations are performed before rounding to avoid round-off errors in calculated results.

**LABORATORY CONTROL SAMPLE DATA REPORT**

**TOTAL Metals**

**Lot-Sample #...:** G8J240320

**Matrix.....:** SOLID

PARAMETER	SPIKE	MEASURED	UNITS	PERCNT	RPD	METHOD	PREPARATION-	PREP
	AMOUNT	AMOUNT		RECVRY			ANALYSIS DATE	BATCH #
Arsenic	20.0	20.1	mg/kg	101		SW846 6020	10/28-10/29/08	8302142
	20.0	20.0	mg/kg	100	0.97	SW846 6020	10/28-10/29/08	8302142

Dilution Factor: 1

**NOTE(S) :**

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Calculations are performed before rounding to avoid round-off errors in calculated results.

# Appendix E

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*Biological Surveys of the Proposed Realignment of Honoapiʻilani Highway, Phase 1 (Lāhainā Bypass)*

*Future Keawe Street Extension to Lahainaluna Road*

*Lāhainā District, Island of Maui*

Rana Productions, Ltd. and AECOS Inc.

September 4, 2008



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Biological Surveys of the Proposed Realignment of  
Honoapi‘ilani Highway, Phase 1A (Lāhainā Bypass)  
Future Keawe Street Extension to Lahainaluna Road,  
Lāhainā District, Island of Maui.

---

***DRAFT***

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September 4, 2008

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### Introduction

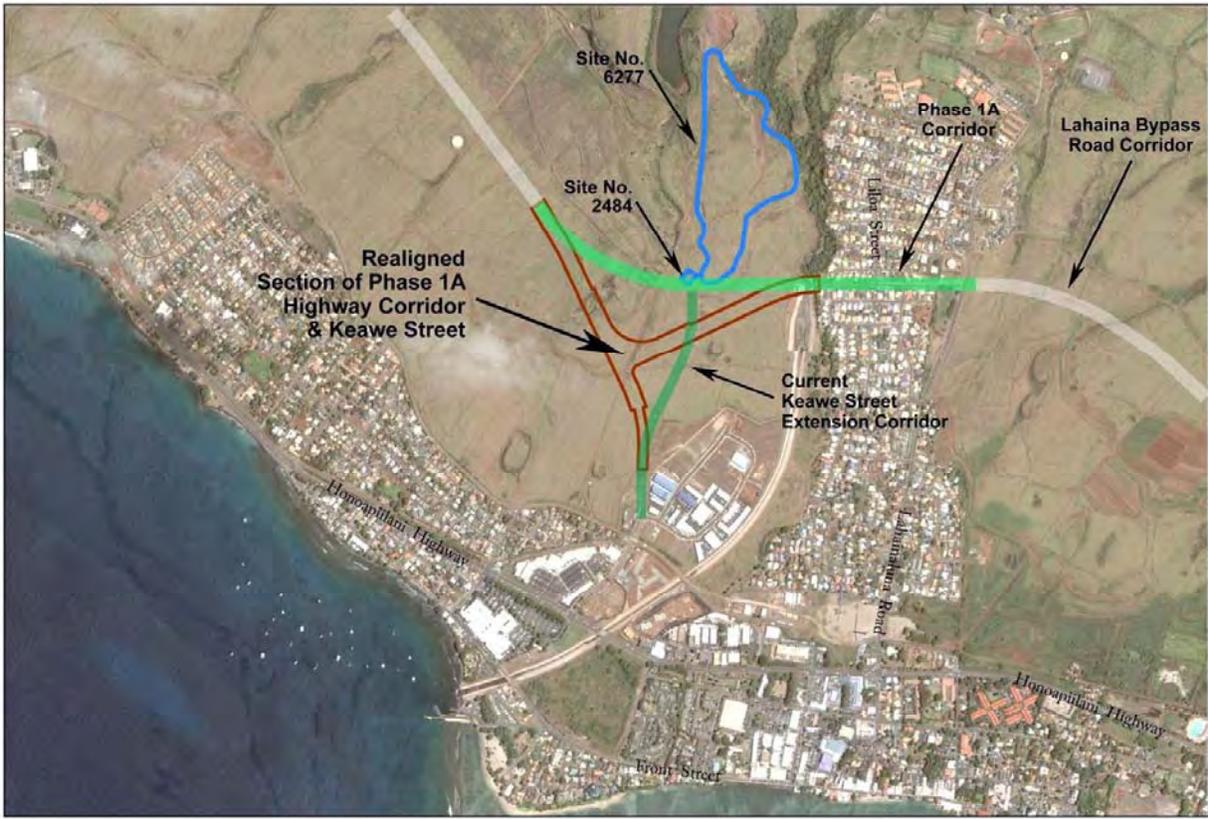
The State of Hawai'i, Department of Transportation (DOT), Highways Division is currently in the process of implementing Phase 1A of the Honoapiʻilani Highway Project, also referred to as the Lāhainā Bypass. The Phase 1A project involves construction of an approximately 0.5 mile long section of highway extending from Lahainaluna Road, northbound, to the future extension of Keawe Street. The project is the first of several phases of the overall Lāhainā Bypass corridor, which will span approximately ten miles from Launiupoko to Honokōwai.

An alternative realignment of a section of the Phase 1A corridor is being considered due to the inadvertent discovery of an archaeological site within the highway corridor during the initial construction phase of this project. This realigned section is being considered to avoid the archaeological site. It would also involve a realignment of the future planned extension of the County of Maui's Keawe Street, and this change is included with this project (Figure 1).

This report summarizes the findings of the botanical, avian and mammalian surveys that were conducted along the proposed alternative alignments. The primary purpose of the surveys was to determine if there were any avian or mammalian species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs on, or within in the immediate vicinity of the site. We were also asked to evaluate the potential impacts that the development of the project might pose to any sensitive or protected native botanical, avian or mammalian species, and to propose appropriate minimization and/or mitigative measures that could be implemented to reduce or eliminate any such impacts. Federal and State of Hawai'i listed species status follows species identified in the following referenced documents (Division of Land and Natural Resources (DLNR) 1998, Federal Register 2005, U. S. Fish & Wildlife Service (USFWS) 2005, 2008). Fieldwork was conducted on June 26, 2008.

The avian phylogenetic order and nomenclature used in this report follows *The American Ornithologists' Union Checklist of North American Birds 7<sup>th</sup> Edition* (American Ornithologists' Union 1998), and the 42<sup>nd</sup> through the 49<sup>th</sup> supplements to *Check-list of North American Birds* (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005, 2006, 2007, 2008). Mammal scientific names follow *Mammals in Hawaii* (Tomich 1986). Plant names follow *Hawai'i's Ferns and Fern Allies* (Palmer, 2003) for ferns, *Manual of the Flowering Plants of Hawai'i* (Wagner et al., 1990, 1999) for native and naturalized flowering plants, and *A Tropical Garden Flora* (Staples and Herbst, 2005) for crop and ornamental plants. Place names follow *Place Names of Hawai'i* (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text on page 14.



### LEGEND

 Realignment of Phase 1A Highway Corridor & Keawe Street  
 Archaeological Sites

 Present Lahaina Bypass Road Corridor  
 Phase 1A Lahaina Bypass Road Corridor

 County Keawe Street Extension

### General Project and Site Description

The bulk of the site is comprised of former Pioneer Mills sugar cane lands. Large portions of the site have reverted to a shrub and grassland dominated by buffelgrass (*Cenchrus ciliaris*) and koa haole (*Leucaena leucocephala*), a vegetation commonly encountered on former sugar cane lands on Maui. As with most former sugar cane lands the site is crisscrossed with unimproved 4 x 4 roads which allowed for ready and complete access to the site. The site has been extensively modified by the agricultural activities that took place on the property in the past. From a native biological perspective the entire site can be considered to be extremely degraded.

### Botanical Survey methods

The botanical survey was undertaken on June 26, 2008 following a wandering transect method that generally followed the layout of the bypass alternative from the Kahoma Stream crossing to a proposed traffic circle, down slope to the upper end of Keawe Street, and then back upslope to the point where the alternative rejoined the original route at the north end. This route was easily navigated due to prior flagging of the proposed roadway. Return to the start at Kahoma Stream was made across the top (previous proposed route) for comparison. The survey was conducted early in the dry season and therefore a few plants typical of this site, especially annuals, might have completed their life cycle and been missed or gone dormant. The dominant herbaceous plant (buffelgrass) was still showing some green leaves, but had completed flowering and fruiting.

### Botanical Survey Results

The results of the botanical survey are provided as a table of the flora for the project area (Table 1). The table includes only plant species identified on June 26, 2008 with relative abundances. A number of species were seen only at the point where the proposed bypass crosses Kahoma Stream, and these are indicated by note (1).

**Table 1. Botanical Checklist of the Honouliuli Highway Avoidance Alignments**

Species listed by family	Common name	Status	Abundance	Notes
	<i>FLOWERING PLANTS</i>			
	<i>DICOTYLEDONES</i>			
AMARANTHACEAE				
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat.	U	(1)
ASCLEPIADACEAE				
<i>Calotropis gigantea</i> (L.) W. T. Aiton	crown flower	Orn.	R	
ASTERACEAE (COMPOSITAE)				
<i>Bidens pilosa</i> L.	---	Nat.	R	(1)
<i>Emilia fosbergii</i> Nicolson	<i>pualele</i>	Nat.	R	(1)
<i>Galinsoga parviflora</i> Cav.	---	Nat.	R	
<i>Tridax procumbens</i> L.	coat buttons	Nat.	U2	

**Table 1 Continued**

Species listed by family	Common name	Status	Abundance	Notes
BUDDLEIACEAE				
<i>Buddleia asiatica</i> Lour.	dog tail	Nat.	R	(1)
CONVOLVULACEAE				
<i>Merremia aegyptia</i> (L.) Urb.	hairy merremia	Nat.	O	
CUCURBITACEAE				
<i>Momordica charantia</i> L.	balsam pear	Nat.	R	
EUPHORBIAEAE				
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat.	U	
<i>Ricinus communis</i> L.	castor bean	Nat.	U2	
FABACEAE				
<i>Acacia farnesiana</i> (L.) Willd.	<i>ktu</i>	Nat.	R	
<i>Crotalaria pallida</i> Aiton	smooth rattlepod	Nat.	A	
<i>Desmanthus permambucanus</i> (L.) Thellung	virgate mimosa	Nat.	R3	
<i>Indigofera hendecaphylla</i> Jacq.	creeping indigo	Nat.	R	
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>koa haole</i>	Nat.	A	
<i>Macropitilium lathyroides</i> (L.) Urb.	cow pea	Nat.	R	
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	<i>kiawe</i>	Nat.	U	
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod	Nat.	R	(1)
<i>Senna surattensis</i> (N.L. Burm.) H. Irwin & Barneby	<i>kolomona</i>	Nat.	R	(1)
LAMIACEAE				
<i>Leonotis nepetifolia</i> (L.) R. Br.	lion's ear	Nat.	O3	
MALVACEAE				
<i>Sida ciliaris</i> L.	---	Nat.	R2	
<i>Sida fallax</i> Walp.	<i>'ilima</i>	Ind.	R	
MORINGACEAE				
<i>Moringa oleifera</i> Lam.	horseradish tree	Nat.	R	
MYRTACEAE				
<i>Psidium guajava</i> L.	common guava	Nat.	R	
<i>Syzygium cumini</i> (L.) Skeels	Java plum	Nat.	R	
NYCTAGINACEAE				
<i>Boerhavia coccinea</i> Mill.	false alena	Nat.	R	
STERCULIACEAE				
<i>Waltheria indica</i> L.	<i>'ihaloa</i>	Ind.	C+	
VERBENACEAE				
<i>Verbena litoralis</i> Kunth	<i>owi</i>	Nat.	R	(1)

Species listed by family	Common name	Status	Abundance	Notes
MONOCOTYLEDONES				
AGAVACEAE	<i>Furcraea foetida</i> (L.) Haw.	Nat.	R	(1)
POACEAE				
	<i>Cenchrus ciliaris</i> L.	Nat.	AA	
	<i>Chloris barbata</i> (L.) Sw.	Nat.	U3	†
	<i>Eragrostis pectinacea</i> (Michx.) Nees	Nat.	R3	†
	<i>Melinis repens</i> (Willd.) Zizka	Nat.	R2	
	<i>Saccharum officinarum</i> L.	Nat.	R2	†
	<i>Urochloa maxima</i> (Jacq.) Webster	Nat.	U+	

Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:  
ind. = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.  
nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.  
ABUNDANCE = occurrence ratings for plants by area:  
R - Rare  
U - Uncommon- seen in only one or perhaps two locations.  
O - Occasional  
C - Common  
A - Abundant  
AA - Very abundant  
Numbers following an occurrence rating indicate clusters within the survey area. The ratings above provide an estimate of the likelihood of encountering a species within the specified survey area; numbers modify this where abundance, where encountered, tends to be greater than the occurrence rating:  
1 - several plants present  
2 - many plants present  
3 - locally abundant  
NOTES:  
(1) - Seen only in the riparian area for Kahoma Stream.  
(2) - Plant lacking key diagnostic characteristics (flower, fruit).  
† - Seen only as dead plant matter.

The June 26 survey yielded 36 flowering plant species and no ferns. Only 2 of the species are native (5.6%) and both of these, *Ilima* (*Sida fallax*) and *Uhaloa* (*Waltheria indica*) are common throughout the islands in lowland, leeward settings. The vegetation of the former sugar cane fields is now dominated by buffelgrass, scrubby *koa haole*, and smooth rattlespod (*Crotalaria pallida*). Common in our survey area is *Uhaloa*. The remainder of the species are introduced plants, many ruderal weeds. A typical view of the vegetation in the project area is shown in Figure 2.

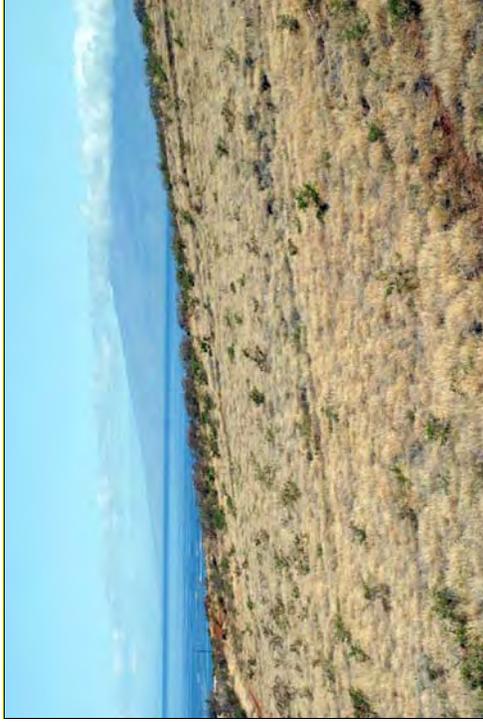


Figure 2. Typical vegetation covering the survey area is dominated by buffelgrass and scattered *koa haole* shrubs. The island of Moloka'i appears in the background.

#### Avian Survey Methods

Eight avian count stations were sited along linear transects running the length of the three proposed revised roadway alignments. Count stations were placed at approximately 300-meter intervals equally spaced along these transects. Six-minute point counts were made at each of eight count stations. Each station was counted once. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated in the early morning hours, traditionally the peak of daily bird activity. Time not spent counting was used to search the remainder of the project site for species and habitats that were not detected during count sessions.

#### Avian Survey Results

A total of 59 individual birds of nine different species, representing seven separate families, were recorded during station counts (Table 2). All of the species recorded are considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened or proposed for listing under either Federal or State of Hawai'i endangered species statutes was recorded during the course of this survey.

Avian diversity and densities were extremely low, although, in keeping with the location and the existing vegetation on the site. The most common avian species recorded was Common Myna (*Acridotheres tristis*), which accounted for slightly less than 36% of the total number of birds recorded during the course of this survey. An average of seven individual birds was recorded per station count.

**Table 2 Avian Species Detected Honoapiʻilani Highway Avoidance Alignments**

Common Name	Scientific Name	ST	RA
Gray Francolin	PHASIANIDAE - Pheasants & Partridges Phasianinae - Pheasants & Allies <i>Francolinus pondicerianus</i>	A	4.19
Spotted Dove	COLUMBIFORMES COLUMBIDAE - Pigeons & Doves <i>Streptopelia chinensis</i>	A	0.44
Zebra Dove	<i>Geopelia striata</i>	A	1.42
Japanese White-eye	PASSERIFORMES ZOSTEROPIDAE - White-eyes <i>Zosterops japonicus</i>	A	6.22
Common Myna	STURNIDAE - Starlings <i>Acridotheres tristis</i> FRINGILLIDAE - Fringilline and Carduline Finches & Allies	A	2.81
House Finch	Carduelinae - Carduline Finches <i>Carduelacus mexicanus</i>	A	5.58
House Sparrow	PASSERIDAE - Old World Sparrows <i>Passer domesticus</i>		0.89
African Silverbill	ESTRIDIDAE - Estrildid Finches Estrildinae - Estrildine Finches <i>Lonchura cantans</i>	A	0.69
Nutmeg Mannikin	<i>Lonchura punctulata</i>	A	0.92

KEY TO TABLE 2

- ST Status  
A Alien Species  
RA Relative Abundance: Number of birds detected divided by the number of count stations (8)

### Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'ope'ape'a as it is known locally, all terrestrial mammals currently found on the Island of Maui are alien species. Most are ubiquitous. The survey of mammals was limited to visual and auditory

detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed, heard or detected by other means within the project area.

### Mammalian Survey Results

Two mammalian species were detected during the course of this survey. We encountered tracks, scat and sign of dog (*Canis f. familiaris*) and cat (*Felis catus*) along the proposed alignments. Additionally, dogs were heard barking from within the Kelaweia Mauka subdivision located south of the study corridors.

### Discussion

#### Botanical Resources

The present survey results relate only to the proposed alternative to the Honoapiʻilani Highway, Lāhainā Bypass known as Alternative F-4. The entire route of the proposed new roadway from Puamana to Kā'anapali (Phase I) and Kā'anapali to Honokōwai (Phase II) was surveyed previously by Winona Char (Char, 1986; Char & Assoc., 1988). Alternative F-4 lies partly in "Phase B" but mostly in "Phase A" of the Villages of Leialī; Housing Project area recently surveyed by Whistler (2008). The latter survey—encompassing 1,128 ac (456 ha) of similar landscape although over a much wider elevation range (90 to 800 ft) and with somewhat more diverse environments—yielded 155 species of vascular plants. Because the present survey was so limited in area, it is pointless to make any comparisons in the floristic listings of these previous surveys with the current effort.

These previous surveys recognized several vegetation types: (1) Cane Fields, (2) Gulch Vegetation, and (3) Reservoir and Quarry Vegetation (Char, 1989), which Whistler (2008) interpreted (in the present survey area) as (1) Buffel grass/Koa Haole Grassland, (2) Riparian Vegetation, and (3) Cinder Cone Vegetation. Only Buffelgrass/Koa Haole Grassland and Riparian Vegetation lie within the footprint of the proposed highway route alternative; the cinder cone and reservoir are located upslope of the highway route. The Riparian Vegetation is limited to the narrow gulch of Kahoma Stream at the very south end of the bypass alternative route. The remainder of the alternative route covers a vegetation (Buffelgrass/Koa Haole Grassland) growing on what was formerly sugar cane fields, these actively cultivated at the time of the original highway surveys by Char (1986, 1988).

The abundant species as observed in this area by Whistler (2008) are buffelgrass, Natal redtop (*Melinis repens*), Guinea grass (*Urochloa maxima*), hairy merremia (*Merrimia aegyptica*), Koa haole, lion's ear (*Leonotis nepetifolia*), and 'uhaloa. Although, not all were judged by us to be abundant along the flagged alternative route, these species were either abundant, common, or regularly encountered in the area. Species noted in our survey and not recorded by Whistler (2008) include monkeypod (*Samanea saman*); a single tree observed along Kahoma Stream, *ovi* (*Verbenia litorea*), dog tail (*Buddleia asiatica*), the latter two also seen very near the stream banks in Kahoma Gulch). Comparison with the earlier surveys by Char are made difficult by the long passage of time separating the surveys and the generally poor overlap in specific areas

surveyed. For example, much of our survey area was seen by Char as cultivated sugar cane with agricultural roads and irrigation ditches. However, her description of the road route crossing of Kahoma Stream included the following (Char, 1988, p. 4):

Kahoma Gulch is densely vegetated especially on the gulch floor due to water from Kahoma Stream. The gulch bottom supports large stands of trees such as mango, Java plum, tamarind (*Tamarindus indica*), kiawe, and kukui (*Alseis blackiana*).

Whistler (2008) found no listed plant species anywhere in his survey of a much larger area encompassing the area of the present survey of the highway alternative route. Our survey also concluded no listed species is present here. It can be concluded that no significant botanical resources occur within the footprint of the proposed Lāhainā Bypass Highway Alternative F-4.

#### **Avian Resources**

The findings of the avian survey are consistent with the location and habitat present within the proposed project site. The avian survey results are similar to the results of at least two other faunal surveys conducted on the subject property (Bruner 1989, David 2008). The species list generated by this survey is lower than that generated during the Bruner and David surveys which is not surprising since they surveyed the entire 1,128 acre site that is currently being proposed to be developed by The Hawai'i Housing & Finance Development Corporation, as an affordable housing development. Those surveys covered two reservoirs and areas under cultivation that were irrigated. The conditions encountered on this survey were markedly different. The former plantation lands through which these three alignments run are now fallow and irrigation was stopped years ago, resulting in remarkable xeric conditions and extremely depauperate habitat.

All of the avian species detected during the course of this survey are considered to be alien to the Hawaiian Islands. No species currently listed as endangered, threatened or proposed for listing under either federal or State of Hawai'i endangered species statutes was recorded during the course of this survey.

No indigenous migratory species were recorded during the course of this survey, not surprising since the surveys were conducted in late June, a time of year when almost all of the regularly occurring indigenous migratory shorebird species normally encountered in Hawai'i are not present. It is likely that several migratory shorebird species are present on the site between late July and late April each year. The most likely species to be expected are, Pacific Golden-Plover (*Pluvialis fulva*), Ruddy Turnstone (*Arenaria interpres*). These two species are commonly encountered in Hawai'i during the fall and winter months – both nest in the high Arctic, and spend the winter months in lower latitudes, including Hawai'i and the Tropical Pacific.

Although not detected during this survey both the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*), may over-fly the project area between April and the end of November each year. Both species have been recorded flying inland south of Lāhainā and at several other locations on Maui (Cooper and Day 2003, 2004a, Day and Cooper 1999, Denis and Hamer 2007). Both of these pelagic seabird species nest high in the mountains in burrows excavated under thick

vegetation, especially *uluhe* (*Dicranopteris linearis*) fern. There is no suitable nesting habitat for either of these seabird species on, or close to the proposed roadway alignments.

The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (USFWS 1983, Simons and Hodges 1998, Ainley et al. 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Hadley 1961, Telfer 1979, Sincok 1981, Reed et al. 1985, Telfer et al. 1987, Cooper and Day 1998, Podolsky et al. 1998, Ainley et al. 2001, Day et al., 2003).

#### **Mammalian Resources**

The findings of the mammalian survey are consistent with the location and the habitat present within the proposed project site. The mammalian survey results are similar to the results of at least two other faunal surveys conducted on the subject property (Bruner 1989, David 2008).

Hawaiian hoary bats were not detected during the course of this, Bruner's or David's earlier surveys of the site (Bruner 1989, David 2008). There have been very few bats documented from the general Lāhainā area over the years. Bruner recorded one roof rat (*Rattus r. rattus*), on the site when he surveyed the site in 1989 (Bruner 1989). David recorded numerous European house mice (*Mus musculus domesticus*), as well as several unidentified rat skulls during his earlier survey of the site (David 2008). It is to be expected that the four established *muridae* species present on the island of Maui, Roof Rat, Norway rat (*Rattus norvegicus*), and Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse use resources within the general project area on a seasonal basis. All of these introduced rodents are deleterious to remaining native ecosystems present in Hawai'i and the native floral and faunal species that are dependant on them for their survival.

#### **Potential Impacts to Protected Species**

##### **Hawaiian Petrel and Newell's Shearwater**

The principal potential impact that the construction and operation of the proposed roadway alignments poses to Hawaiian Petrels and Newell's Shearwaters, is the potential increased threat that birds will be downed after becoming disoriented by exterior lighting that may be required in conjunction with construction activities, or following build out with street lighting associated with the roadways.

#### **Potential Impacts to Critical Habitat**

There is no federally delineated Critical Habitat within or close to the project site, thus the clearing, grubbing and construction of the proposed roadway alignments will not result in any impacts to federally designated Critical Habitat.

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**Conclusions**

There is nothing unique about the project site or its vegetation. There is abundant like habitat in and around Lahainā. It is not expected that the construction or operation of the proposed roadway sections will result in deleterious impacts to native avian or mammalian resources present within the general project area.

**Recommendation**

If streetlights or other exterior lighting is installed in conjunction with this project, it is recommended that lights be shielded to reduce the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures (Reed et al. 1985; Telfer et al. 1987).

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**Glossary:**

- Alien – Introduced to Hawai'i by humans.
- Crepuscular – Twilight hours.
- Endangered – Listed and protected under the Endangered Species Act of 1973, as amended as an endangered species.
- Endemic – Native and unique to the Hawaiian Islands
- Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally.
- mauka* – Upslope, towards the mountains
- muridae* – Rodents, including rats, mice and voles, one of the most divers family of mammals.
- Nocturnal – Night-time, after dark.
- Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young.
- Ruderal – Disturbed, rocky, rubbishy areas, such as old agricultural fields and rock piles.
- Sign – Biological term referring tracks, scat, rubbing, odor, marks, nests, and other signs created by animals by which their presence may be detected
- Threatened – Listed and protected under the ESA as a threatened species.
- Volant – Flying, capable of flight, as in flying insect.
- Xeric – Extremely dry conditions or habitat.
  
- DLNR – Hawaii State Department of Land & Natural Resources.
- DOFAW – Division of Forestry and Wildlife
- ESA – Federal Endangered Species Act of 1973, as amended.
- USFWS – United States Fish & Wildlife Service.

### Literature Cited

- Ainley, D. G., R. Podolsky, L. Deforest, G. Spencer, and N. Nur. 2001. The Status and Population Trends of the Newell's Shearwater on Kaua'i: Insights from Modeling. *In*: Scott, J. M., S. Conant, and C. Van Riper III (editors) *Evolution, Ecology, Conservation, and Management of Hawaiian Birds: A Vanishing Avifauna*. Studies in Avian Biology No. 22. Cooper's Ornithological Society, Allen Press, Lawrence, Kansas. (Pg. 108-123)
- American Ornithologists Union. 1998. *Check-list of North American Birds*. 7th edition. AOU, Washington D.C. 829pp.
- \_\_\_\_\_. 2000. Forty-second supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 117:847-858.
- Banks, R. C., C. Cicero, J. L. Dunn, A. W. Kratter, P. C. Rasmussen, J. V. Rensen, Jr., J. D. Rising, and D. F. Stotz. 2002. Forty-third supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 119:897-906.
- \_\_\_\_\_. 2003. Forty-fourth supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 120:923-931.
- \_\_\_\_\_. 2004. Forty-fifth supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 121:985-995.
- \_\_\_\_\_. 2005. Forty-sixth supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 122:1031-1031.
- \_\_\_\_\_. 2006. Forty-seventh supplement to the American Ornithologists Union *Check-list of North American Birds*. Auk 123:926-936.
- Banks, R. C., C. R. Terry Chesser, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Rensen, Jr., J. D. Rising, and D. F. Stotz. 2007. Forty-eighth supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 124:1109-1115.
- Banks, R. C., C. R. Terry Chesser, C. Cicero, J. L. Dunn, A. W. Kratter, I. J. Lovette, P. C. Rasmussen, J. V. Rensen, Jr., J. D. Rising, and D. F. Stotz, and K. Winker. 2008. Forty-ninth supplement to the American Ornithologist Union *Check-list of North American Birds*. Auk 125:758-768.
- Bruner, P. L. 1989. Field Survey of the Avifauna and Feral Mammals for the Lahaina HFDC Master Plan, Maui. Prepared for Phillips Brandt Reddick & Associates.
- Chat, W. P. 1986. Botanical reconnaissance survey, proposed widening and realignment alternatives, Hono-a-Pi'ilani Highway, Punamama to Ka'anapali. Prep. for Environmental Communications, Inc.
- \_\_\_\_\_. 1988. Botanical survey, Hono-a-Pi'ilani Highway, Island of Maui, proposed widening and realignment alternatives. Prep. for Environmental Communications, Inc. by Char & Assoc. 1.5 pp.

- \_\_\_\_\_. 1989. Botanical survey, HFDC Project, Lahaina District, Island of Maui. Prep. for PBR Hawaii. 14 pp.
- Char, W. P., and A. Whistler. 1986. Biological survey, North Beach Joint Venture Project, Maui. Prep. for Helber, Hastert, Van Horn, & Kimura, Planners, Honolulu.
- Cooper, B. A. and R. H. Day. 1998. Summer Behavior and Mortality of Dark-rumped Petrels and Newell's Shearwaters at Power Lines on Kauai. *Colonial Waterbirds*, 21 (1): 11-19.
- \_\_\_\_\_. 2003. Movement of Hawaiian Petrels to inland breeding sites on Maui Island, Hawaii. *Waterbirds* 26:62-71.
- \_\_\_\_\_. 2004a. Results of Endangered Bird and Bat Surveys at the Kaheawa Pastures Wind Energy Facility on Maui Island, Hawaii, Fall 2004. Prepared for: Kaheawa Wind Power LLC, Makawao, HI and UPC Wind Management, LLC, Newton, MA.
- David, R. E. 2008. A Survey of Avian and Terrestrial Mammalian Resources for the Villages of Leialoi Housing Project, Lahaina, Island of Maui. Prepared for: Belt Collins Hawaii, Ltd. & Hawaii'i Housing & Finance Development Corporation.
- Day, R. H., and B. A. Cooper. 1999. Results of Endangered Bird and Bat Surveys at the Proposed Kaheawa Pastures Wind Energy Facility on Maui Island, Hawaii. Summer 1999. Prepared for: Zond Pacific, Wailuku, HI.
- Day, R. H., B. Cooper, and T. C. Telfer. 2003. Decline of Townsend's (Newell's) Shearwaters (*Puffinus auricularis newelli*) on Kauai, Hawaii. *The Auk* 120: 669-679.
- Denis, N. and T. E. Hamer. 2007. Endangered Bird And Bat Surveys At The Proposed Auwaihi South Wind Energy Facility On The Island Of Maui, Hawaii. Prepared by Hamer Environmental L.P., P.O. Box 2561, 1510 S 3rd Street, Mount Vernon, WA, 98273 for Shell WindEnergy Inc., One Shell Plaza, Suite 1074, 910 Louisiana St., Houston, TX, 77002.
- Department of Land and Natural Resources. (DLNR). 1998. Indigenous Wildlife, Endangered and Threatened Wildlife and Plants, and Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.
- \_\_\_\_\_. 2005. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. Federal Register, 70 No. 90 (Wednesday, May 11, 2005): 24870-24934.
- Hadley, T. H. 1961. Shearwater calamity on Kauai. *Elepaio* 21:60.
- Podolsky, R., D.G. Ainley, G. Spencer, L. de Forest, and N. Nur. 1998. "Mortality of Newell's

- Shearwaters Caused by Collisions with Urban Structures on Kauai". Colonial Waterbirds 21:20-34.
- Pukui, M. K., S. H. Elbert, and E. T. Mookini. 1976. *Place Names of Hawaii*. University of Hawaii Press, Honolulu, Hawai'i. 289 pp.
- Reed, J. R., J. L. Sincock, and J. P. Hailman. 1985. Light Attraction in Endangered Procellariiform Birds: Reduction by Shielding Upward Radiation. Auk 102: 377-383.
- Simons, T. R., and C. N. Hodges. 1998. Dark-rumped Petrel (*Pterodroma phaeopygia*). In A. Poole and F. Gill (editors). The Birds of North America, No. 345. The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists Union, Washington, D.C.
- Sincock, J. L. 1981. Saving the Newell's Shearwater. Pages 76-78 in Proceedings of the Hawaii Forestry and Wildlife Conference, 2-4 October 1980. Department of Land and Natural Resources, State of Hawaii, Honolulu.
- Telfer, T. C. 1979. Successful Newell's Shearwater Salvage on Kauai. 'Elepaio 39:71
- Telfer, T. C., J. L. Sincock, G. V. Byrd, and J. R. Reed. 1987. Attraction of Hawaiian seabirds to lights: Conservation efforts and effects of moon phase. Wildlife Society Bulletin 15:406-413.
- Tomich, P. Q. 1986. *Mammals in Hawaii*. Bishop Museum Press, Honolulu, Hawaii. 37 pp.
- U.S. Fish & Wildlife Service (USFWS) 1983. Hawaiian Dark-Rumped Petrel & Newell's Manx Shearwater Recovery Plan. USFWS, Portland, Oregon. February 1983.
- \_\_\_\_\_. 2005. Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12 (Tuesday, November 1, 2005).
- \_\_\_\_\_. 2008. USFWS Threatened and Endangered Species System (TESS), online at [http://ecos.fws.gov/tess\\_public/StartTESS.do](http://ecos.fws.gov/tess_public/StartTESS.do)
- Wagner, W. L., D.R. Herbst, and S.H. Sohmer. 1990. *Manual of the Flowering Plants of Hawaii*. University of Hawaii Press, Honolulu, Hawaii 1854 pp.
- Wagner, W. L. and D.R. Herbst. 1999. *Supplement to the Manual of the flowering plants of Hawaii*. pp. 1855-1918. In: Wagner, W.L., D.R. Herbst, and S.H. Sohmer, Manual of the flowering plants of Hawaii. Revised edition. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.
- Whistler, A. 1982. Biological assessment for two parcels of land at Ka'anapali, Maui. Prep. for Group 70, Honolulu.
- \_\_\_\_\_. 2008. Botanical survey of the Villages of Leialii Housing Project, Lahaina, Island of Maui. Prep. for Belt Collins and Assoc., Honolulu, Hawai'i. 15 pp.



# Appendix F

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*Biological and Water Quality Surveys of Kahoma and Kanaha  
Stream for a Bypass Road in Lahaina, Maui*

AECOS, Inc.

October 16, 2008



## Biological and water quality surveys of Kahoma and Kanaha Stream for a bypass road in Lahaina, Maui.



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## Biological and water quality surveys of Kahoma and Kanaha Streams for a bypass road in Lahaina, Maui.

October 16, 2008

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### Introduction

On September 22, 2008, biologists from AECOS, Inc. conducted water quality and biological surveys in Kahoma and Kanaha Streams near Lahaina, Maui (Fig. 1). The State Department of Transportation (HDOT) is planning to construct a bypass highway above Lahaina as part of the Honoapiʻilani Highway Realignment Project, Phase 1A, also known as the Lahaina Bypass. The bypass is planned as a two-lane road spanning approximately one-half mile from Lahainaluna Road to a future Keawe Street Extension. The Lahaina Bypass is expected to alleviate traffic congestion and improve circulation at the intersection of Honoapiʻilani Highway and Lahainaluna Road. Future phases of the Honoapiʻilani Highway Realignment Project will continue the new two-lane roadway south towards Lanuiupoko and north towards Honokōwai (HDOT, 2008). AECOS, Inc. was contracted by Wilson Okamoto to ascertain biological resources and assess water quality of Kahoma Stream and its tributaries for permitting of the construction project. This report details the findings of these surveys.

### Methods

AECOS biologists took water quality field measurements, collected a water sample for laboratory analyses, and identified aquatic biota present in the project waterways. Figure 2 indicates the approximate locations of the water quality station and the extent of the biological survey area. The survey area included an approximately 1.5 miles (2400 m) segment of the lower and middle reach of Kahoma Stream and two upper middle reach segments (one each in Kahoma and Kanaha streams). The upper middle reach survey area of Kanaha Stream is located north of Lahainaluna High School. This survey area extended approximately 400 m (1310 ft) from an elevation of 450 ft (140 m) to an elevation of 650 ft (200 m). The upper middle reach survey area of Kahoma Stream is located southeast of the Crater (Kahoma) Reservoir and included a 250 m (820 ft) segment from an elevation

of 400 ft (120 m) to an elevation of 500 ft (150 m). Dip nets were used to sample aquatic resources in stream waters with limited visibility.

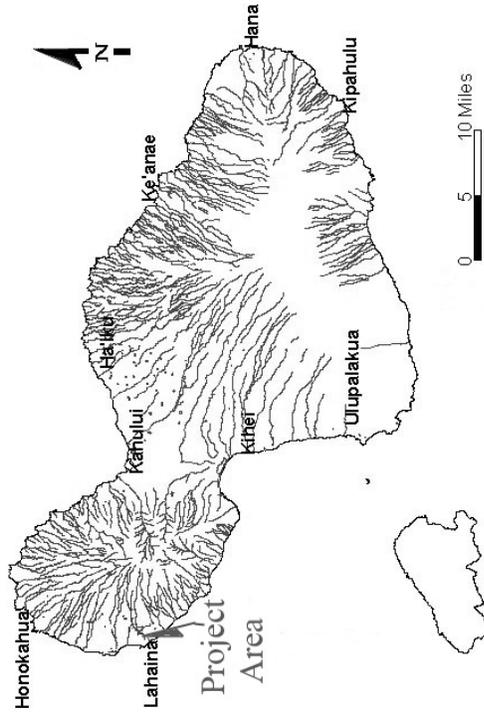


Figure 1. The project location at Lahaina, Maui.

### Stream Description

The waters of Kahoma Stream, located on the western side of Maui, originate along the western slopes of Pu'u Kukui. This 17.4-mile (28-km) long stream is classified as a perennial stream by the Division of Aquatic Resources (DAR) and given the stream code of 6-1-005. Kanaha, Halona, and two unnamed tributaries feed into Kahoma Stream in its 5.8-mi<sup>2</sup> (14.9-km<sup>2</sup>) watershed. Originating at an elevation of approximately 5570 ft (1700 m), Kahoma Stream flows due west before being joined by an unnamed tributary at an elevation of 2430 ft (740 m). Halona Stream, originating at an elevation of 3200 ft (975 m), enters Kahoma at the 1050 ft (320 m) elevation contour. Another small tributary joins at an elevation of approximately 900 ft (275 m) before the streams confluence with Kanaha Stream at an elevation of 275 ft (80 m). Several ditches and flumes divert the waters of Kahoma and Kanaha

Stream for agricultural use. At the proposed project site, 1970 ft (600 m) downstream from the confluence with Kanaha Stream, Kahoma Stream has been modified into a 670-ft (205-m) long basin with concrete walls. At the downstream end of the structure a concrete debris collector spans the gulch (Fig 3). A service ramp is present along on the northern stream bank near the upstream end of the basin. Downstream of the debris basin, the 50-ft (15-m) wide gulch is channelized for 1.7 km (1.1 mile) before entering the Pacific Ocean just north of the Mala Wharf (Fig 4).

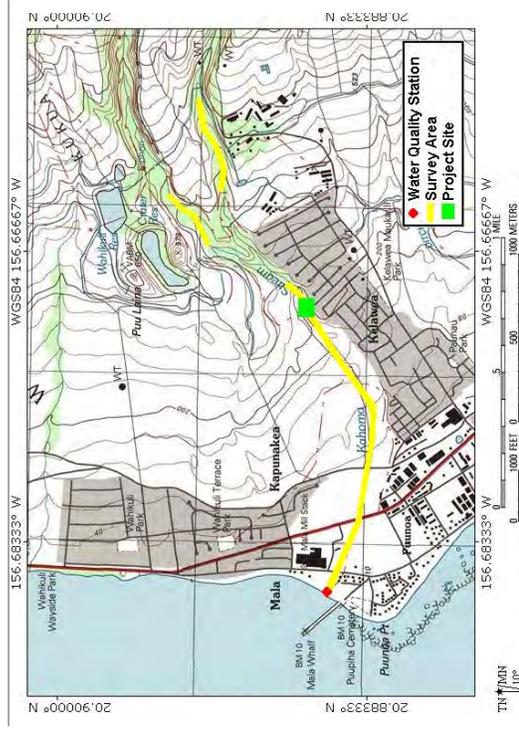


Figure 2. Water quality stations (red), survey area (yellow), and project site for the proposed the Lahaina bypass highway in west Maui.

Approximately 95% of land within the Kahoma watershed is undeveloped with forest, shrubland, and grassland comprising most of the land use in the area (DAR, 2008). The north end of Lahaina, which surrounds the lower and middle reaches of the stream, represents developed (urban) land uses within the watershed.



Figure 3. Concrete-lined debris basin at the proposed project site on Kahoma Stream at Lahaina.



Figure 4. Kahoma Stream's outlet into the Pacific Ocean just west of the Front Street Bridge.

### Water Quality

On September 22, 2008 the only water present in the surveyed areas of Kahoma and Kanaha streams was that in a small pool located in the estuary. This turbid pool was separated from the ocean by a 50-ft (15-m) wide berm composed of gravel and sand. The 250-ft (75-m) long pool had an average depth of 1 ft (0.3 m). One water quality sample was collected from the center of this pool and transported to the AECOS Inc. laboratory in Kaneohe (AECOS Log No. 24527). Table 2 lists the field instruments and analytical methods used to evaluate these samples.

Table 1. Analytical methods and instruments used for a September 22, 2008 water quality analysis of Kahoma Stream sample.

Analysis	Method	Reference	Instrument
Ammonia	EPA 350M	Grasshoff et al. (1986)	Technicon AutoAnalyzer II
Chlorophyll $\alpha$	SM 10200	Standard Methods 20th Edition (1998);	Turner Model 112 fluorometer
Dissolved Oxygen	EPA 360.1	EPA (1979)	YSI Model 85 DO meter
Nitrate + Nitrite	EPA 353.2	EPA (1993)	Technicon AutoAnalyzer II
pH	EPA 150.1	EPA (1979)	Hannah pocket pH meter
Salinity by Salinometer	bench salinometer	Grasshoff in Grasshoff et al. (1986)	AGE Model 2100 salinometer
Salinity (field)	SM 2520 B	Standard Methods 20th Edition (1998);	YSI Model 85 DO meter
Temperature	thermister calibrated to NBS cert. thermometer (EPA 170.1)	EPA (1979)	YSI Model 550A DO meter
Total Nitrogen	persulfate digestion/EPA 353.2	Grasshoff et al (1986)/EPA (1993)	Technicon AutoAnalyzer II
Total Phosphorus	persulfate digestion/EPA 365.1	Grasshoff et al. (1986)/EPA (1993)	Technicon AutoAnalyzer II
Total Suspended Solids	Method 2540D (EPA 160.2)	Standard Methods 20th Edition (1998); EPA(1979)	Mettler H3 1 balance
Turbidity	Method 2130B (EPA 180.1)	Standard Methods 20th Edition (1998); EPA (1993)	Hach 2100N Turbidimeter

EPA. 1979. Methods for Chemical Analysis of Water and Wastes. U.S. Environmental Protection Agency, EPA 600/4-79-020.  
 EPA. 1993. Methods for the Determination of Inorganic Substances in Environmental Samples. EPA 600/R-93/100.  
 Grasshoff, K., M. Ehrhardt, & K. Kremling (eds). 1986. Methods of Seawater Analysis (2nd ed). Verlag Chemie, GmbH, Weinheim.  
 Standard Methods. 1998. Standard Methods for the Examination of Water and Wastewater. 20th Edition. 1998. (Greenberg, Clesceri, and Eaton, eds.). APHA, AWWA, & WEF. 1220 p.

Field salinity measurements show salinity ranging from 50.1 ppt near the center of the pool to 40.1 ppt along the margins of the pool where small culverts trickled water into the pool. The high water temperature reflects the shallow depth of the pool. The dissolved oxygen concentration of 6.74 mg/l represents 120% saturation at the pool's temperature and salinity. Turbidity and total suspended solids (TSS) concentrations were high, reflecting the brown water color observed at the time of sampling. Elevated ammonia levels are typical in stagnant pools due to the accumulation of biological waste products. Total nitrogen and total phosphorus levels are also high in this sample.

Table 2 Water quality characteristics of Kahoma Stream on September 22, 2008.

Temp. (C)	DO (mg/l)	DO (% Sat.)	pH (pH units)	Salinity (ppt)	Turbidity (ntu)
33.7	6.74	120	7.83	48.7	74
TSS (mg/l)	Ammonia (µg N/l)	Nitrate +nitrite (µg N/l)	Total N (µg N/l)	Total P (µg P/l)	Chlorophyll a (µg/l)
73.4	80	6	2550	152	16

### Aquatic Biota

Terrestrial plants and animals in the project area have been recently described by David and Günther (2008). The aquatic organisms observed or reported in Kahoma Stream from various recent surveys are given in Table 3. Small *āholehole* (*Kuhlia sandvicensis*) are common throughout the pool. A few *ʻōpū ʻōhune* (*Bathygobius cocosensis*) are sighted along the margins of the pool in very shallow water. Another *ʻōpū* was also sighted in the pool but was small enough to swim through pores of the dip nets used to aid in identification. No aquatic invertebrates, insects or algae were observed in the survey area.

### Assessment

The proposed project site is located aqt the upper end of a highly modified (channelized) section of Kahoma Stream (see Fig. 3). The stream here is generally dry except during heavy rainfall events. The only water found in Kahoma Stream on September 22, 2008 was confined to a small hyper-saline pool separated from

the ocean by a sand berm. The source of water in this pool is primarily seawater that enters the pool during spring tides or heavy surf conditions. The water evaporates slowly between input events raising salinity within the pool. Though measured water quality parameters were within a range supportive of some aquatic life, water quality was generally poor. Nitrogen (total nitrogen), ammonia, phosphorus (total phosphorus), turbidity and chlorophyll levels were elevated with respect to State of Hawai'i water quality standards for estuaries (Table 4).

Table 3 Aquatic biota observed or reported from Kahoma Stream. Abundance for all species reported previously listed as present (P).

FAMILY	Genus species	Common name	Abundance	Status	Source
ATYIDAE	<i>Atyoida bisulcata</i>		P	End.	2
PALAEONIDAE	<i>Macrobriachium grandimanus</i>		P	End.	1
GRAPSIDAE	indet.		P	Ind.	1
		<b>FISHES</b>			
MUGILIDAE	indet.	unid. mullet	P	Ind	1
POECILIIDAE	<i>Poecilia reticulata</i>	guppy	P	Nat.	1
KUHLIDAE	<i>Kuhlia sandvicensis</i>	<i>āholehole</i>	C	Ind.	1, 3
CICHLIDAE	<i>Tilapia</i> sp.	tilapia	P	Nat.	2
GOBIDAE	<i>Bathygobius cocosensis</i>	<i>ʻōpū ʻōhune</i>	U	Ind.	3
	indet.	unid. goby; <i>ʻōpū</i>	P		1, 2, 3

#### KEY TO TABLE SYMBOLS:

Status:  
 nat. - naturalized. An introduced or exotic species.  
 ind. - indigenous. A native species also found elsewhere in the Pacific.  
 end. - endemic - A native species found only in the Hawaiian Islands.  
 Abundance at survey location:  
 P - present; not common, but unable to assess abundance.  
 R - rare; only one or two individuals seen.  
 U - uncommon; several individuals seen, in some habitat places visited.  
 C - common; numerous individuals seen, or seen in most habitat places visited.  
 A - abundant; numerous in most or all habitat places visited

Source:  
 1 - Army Corps of Engineers, 1974  
 2 - Division of Aquatic Resources, 2008  
 3 - observed during September 22, 2008 survey

Table 4. State of Hawaii's water quality criteria for estuaries from HAR §11-54-05.2d (HDOH,2004).

Parameter units	Total Nitrogen (µg N/l)	Nitrate + Nitrite (µg N/l)	Ammonia (µg N/l)	Total Phosphorus (µg P/l)	Turbidity (NTU)
Geometric mean not to exceed given value	200.0	8.0	6.0	25.0	1.5
Value not to be exceeded more than 10% of the time	350.0	25.0	10.0	50.0	3.0
Value not to be exceeded more than 2% of the time	500.0	35.0	20.0	75.0	5.0

Kahoma Stream is listed on the Hawaii Department of Health (HDOH), 2004 list of impaired waters in Hawaii, prepared under Clean Water Act §303(d). This listing indicates that the stream does not meet the Hawaii Water Quality Standards for certain parameters. Kahoma Stream is listed as impaired for turbidity based upon a visual assessment. HDOH also reported that the stream is typically dry (HDOH, 2004).

Only *āholehole* (*Kuhlia sandvicensis*), *ʻōpū ʻōhune* (*Bathygobius coccineus*), and an unidentified *ʻōpū* were observed within the survey area of Kahoma Stream. Hawaii Administrative Rules (HAR) §13-95 regulates the taking *āholehole*, while HAR §13-100 and §188-43 regulate the taking of all *ʻōpū* in Hawaiian waters (DLNR, 2007). No federally endangered or threatened species (Federal Register, 2005; USFWS, 2005) were encountered during the survey, and none is anticipated to utilize stream habitats in the project area.

Previous surveys conducted in Kahoma Stream indicate that native *ʻōpū* species, *ʻōpaeʻkalaʻole* (*Atyoida bisculata*), and *ʻōpaeʻoehaʻa* (*Macrobrachium grandimanus*) may utilize Kahoma Stream (ACOE, 1974; DAR, 2008). A Best Management Practices (BMP) plan should be designed and implemented to minimize environmental

impacts to water quality and aquatic biota in the vicinity of and downstream of the project site.

References

Army Corps of Engineers (ACOE). 1974. Supplemental Information Report to the Final Environmental Impact Statement for the Kahoma Flood Control Project. 61 pp.

David, R. and E. Guinther. 2008. Biological Surveys of the Proposed Avoidance Route, Honoa Pihani Highway Realignment Project, Lāhainā, Island of Maui. Prep. for Wilson Okamoto Corp. 17 pp.

Division of Aquatic Resources (DAR). 2008. Atlas of Hawaiian Watersheds & Their Aquatic Resources. Island of Maui, Lahiana Watersheds, Kahoma Stream. (available online at URL: <http://www.hawaiiwatershedsatlas.com/watersheds/maui/61005.pdf> and last visited on October 12, 2008).

Federal Register. 2005. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 70 No. 90 (Wednesday, May 11, 2005): 24870-24934.

Hawaii Department of Health (HDOH). 2004. Hawaii Administrative Rules, Title 11, Department of Health, Chapter 54, Water Quality Standards. 62 pp.

Hawaii Department of Land and Natural Resources (DLNR). 1998. Indigenous Wildlife, Endangered and Threatened Wildlife and Plants, and Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.

----- 2007. Hawaii Fishing Regulations. State of Hawaii, Administrative Rules §13-95, §13-100, and §188-43

Hawaii Department of Transportation (HDOOT). 2008. News Release: 08-144. Updated Status Of Lahaina Bypass Road Project. Dated: February 15, 2008

U.S. Fish & Wildlife Service (USFWS). 2005. Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12.



# Appendix G

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*An Archaeological Inventory Survey Report for the Lāhainā*

*Bypass Modified Alignment from Kahoma Stream*

*to the Keawe Street Extension*

*Kelaweā, Paeohi, and Wahikuli Ahupua‘a*

*Lāhainā District, Maui Island*

Cultural Surveys Hawai‘i, Inc.

Final, December 2008



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**An Archaeological Inventory Survey Report for  
the Lāhainā Bypass Modified Alignment from Kahoma  
Stream to the Keawe Street Extention  
Kelaweā, Paeohi, and Wahikuli Ahupua‘a,  
Lāhainā District, Maui Island**

**TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels**

**FINAL**

**Prepared for**

**Wilson Okamoto Corporation  
State of Hawai‘i Department of Transportation**

**Prepared by**

**Tanya L. Lee-Greig, M.A.,**

**Robert Hill, B.A,**

**and**

**Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.**

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**December 2008**

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December 3, 2008

Hallett H. Hammatt, Ph.D.  
Cultural Surveys Hawai'i, Inc.  
P.O. Box 1114  
Kailua, Hawai'i 96734

LOG NO: 2008.4840  
DOC NO: 0812PC02  
Archaeology

Dear Dr. Hammatt:

**SUBJECT: Section 106 Historic Preservation Review –  
REVISED Archaeological Inventory Survey for the Realignment of the  
Honoapi'ilani Highway, Phase 1A Modified Extension  
Kelawea/Paeohi/Wahikuli Ahupua'a, Lahaina District, Maui Island  
TMK: (2) 4-5-010, 015, 021 and 031 (por.): multiple parcels**

Thank you for the opportunity to review this revised report, which our staff received on November 21, 2008 (Lee-Greig, Hill and Hammatt 2008): *An Archaeological Inventory Survey Report for the Realignment of the Honoapi'ilani Highway...* Cultural Surveys Hawai'i, Inc.

The report was first reviewed by SHPD staff on November 10 of 2008 (SHPD LOG NO: 2008.4588; DOC NO: 0811PC10), resulting in a series of requested revisions. The most recent version of the report was reviewed in PDF format to confirm completion of those revisions and suggestions.

The survey area as described in the report consists of a 55 acre (22 hectare) corridor [17.5 acre right of way (ROW) with a total area of potential effect (APE) of 55 acres] within the *ahupua'a* of Kelawea, Paeohi and Wahikuli, situated within multiple parcels of TMKs (2) 4-5-010, 4-5-015, 4-5-021 and 4-5-031. The reason for the identification of an alternate location for a portion of Phase 1A infrastructure (modified extension) and subsequent inventory survey is due to the inadvertent discovery in May of 2007 of a 30 acre agricultural terrace system (SIHP #50-50-03-6277), two acres of which are located at the northern terminus of the originally planned highway realignment right-of-way. Under Section 106 of the National Historic Preservation Act (NHPA) and Section 4f of the Federal Department of Transportation Act (DTA), the project agency (in this case the State of Hawai'i Department of Transportation) for federally funded undertakings is required to investigate alternatives to determine whether avoidance of a historically significant property (in this case SIHP #50-50-03-6277) was feasible, which in association with Hawai'i Revised Statutes (HRS) Chapter 343 and HRS 6E-8 Hawai'i Administrative Rules (HAR) Chapter 13-275, was the trigger for the current inventory survey project.

A systematic pedestrian survey which included the mechanical excavation of 26 representative trenches, ground penetrating radar exploration and partial deconstruction of two commercial agriculture clearing piles (see below) was undertaken June 9 and 10, June 19 through June 27 and July 7 and 9 of 2008. Two new post-Contact era sites, now on record as SIHP #50-50-03-6492 [mechanized clearing pile] and -6596 [mechanized clearing pile] were identified. Although contemporaneous with one another and

Hallett H. Hammatt, Ph.D.

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morphologically similar, the mechanized clearing piles were issued separate SIHP numbers at the request of the Deputy State Historic Preservation Officer, Ms. Nancy McMahon.

The report now contains the required information as specified in HAR §13-276-5 regarding documentation of inventory level field work completed in general and is acceptable.

With respect to the Hawai'i Register of Historic Places, we concur that SIHP #50-50-03-6492 and -6596 are significant under Criterion D for their potential to yield information important to history or prehistory. We also believe that enough such information was collected during the current survey and that no further historic preservation work with respect to the sites themselves is warranted. However, during a September 23, 2008 meeting with representatives of the State Department of Transportation, Wilson Okamoto Corporation, State Historic Preservation Division (SHPD) administration and Cultural Surveys Hawai'i, the SHPD recommended that precautionary archaeological monitoring be undertaken during the deconstruction/removal of SIHP #50-50-03-6596, as well as during all ground altering disturbance along Kahoma Stream. Please note that the recommendation for monitoring will require the submission of a formal monitoring plan for SHPD review and acceptance in order for mitigation related to the proposed project to be complete.

Now that the archaeological inventory survey report has been accepted pursuant to HAR §13-276, please send one hardcopy of the current version, clearly marked **FINAL**, along with a copy of this review letter and a text-searchable PDF file on CD to the attention of "SHPD Library" at the Kapolei SHPD office.

Should you have any questions or comments regarding this letter, please contact Patty Conte ([Patty.J.Conte@hawaii.gov](mailto:Patty.J.Conte@hawaii.gov)).

Aloha,



Nancy McMahon, Deputy SHPO/State Archaeologist  
State Historic Preservation Division

c: Jeff Hunt, Director, Dept. of Planning, 250 S. High Street, Wailuku, Hawai'i 96793  
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✓ Cultural Surveys Hawai'i, 1993 Main Street, Wailuku, Hawai'i 96793

## Management Summary

Reference	An Archaeological Inventory Survey Report for the Lāhainā Bypass Modified Alignment from Kahoma Stream to the Keawe Street Extension Kelaweā, Paeohi, and Wahikuli Ahupuaʻa, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels (Lee-Greig et al. 2008)
Date	December 2008 (FINAL)
Project Number (s)	CSH Job Code: PANAewa 04 Federal Aid Project No.: NH-030-1(35)R
Investigation Permit Number	CSH completed the inventory survey fieldwork under state archaeological permit No. 08-14 issued by the State Historic Preservation Division (SHPD), per Hawai'i Administrative Rules (HAR) Chapter 13-13-282.
Project Location	North of Kahoma Stream and east of Honoapiʻilani Highway, Kelaweā, Paeohi, and Wahikuli Ahupuaʻa, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels. This area is depicted on the 1992 Lāhainā USGS 7.5-minute topographic quadrangle.
Land Jurisdiction	Government: State of Hawai'i
Agencies	Federal: Federal Highway Administration (FHWA) State: Hawai'i Department of Transportation (HDOT) Hawai'i Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD)
Project Description	<p>In May of 2007, a system of over 400 early historic era agricultural terraces (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified along the northern terminus of the Lāhainā Bypass Phase IA Right-of-Way (ROW). As the historic preservation review process for the Lāhainā Bypass Section of the Honoapiʻilani Highway Realignment Project had been completed (December 22, 1992 [Log No.: 7126; Doc No.: 9212AG52]; March 3, 1994 [Log No.: 10704; Doc No.: 9402KD28]; October 6, 1994 [Log No.: 12728; Doc No.: 9409KD32]; June 2, 1994 [Log No.: 11460; Doc No.: 9406RC04]; and June 2, 1994 [Log No.: 11459; Doc No.: 9406RC05]) and Phase IA had entered into the construction stage, SIHP-6277 was reported as an inadvertent find per HAR §13-280-3 (b). Due to the inadvertent discovery of a historic property and per the regulatory statutes of a federally funded undertaking, National Historic Preservation Act (NHPA) Section 106 consultation and Department of Transportation Act Section 4f alternatives analysis with regard to SIHP -6277 was conducted.</p> <p>The State of Hawai'i Department of Transportation has identified a possible feasible and prudent avoidance alternative and is proposing to realign the northern terminus of the Phase IA section of the Honoapiʻilani Highway -- Lāhainā Bypass, as well as a section of the Keawe Street Extension, in an effort to completely avoid SIHP -6277. The proposed realignment would include skewing the bridge downstream to a T-intersection that would feed traffic to both the realigned Keawe Street Extension and future phases of the Lāhainā Bypass (Phase IC).</p>

Project Acreage	ROW: Approximately 7 Hectares (17.5 Acres)																			
Area of Potential Effect (APE)	In order to account for areas of cut and fill, the APE covered during the archaeological inventory survey extends out from the ROW limits by approximately 100 ft along the upslope or <i>mauka</i> extent of the ROW and 200 ft. along the downslope or <i>makai</i> extent of the ROW. The approximate total area covered by the APE equals about 22 Hectares (55 Acres) including the ROW.																			
Historic Preservation Regulatory Context	<p>Due to FHWA funding, this project is considered a federal undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and Section 4(f) of the federal Department of Transportation Act (DTA). As an HDOT project within state lands, the project is additionally subject to State of Hawai‘i environmental and historic preservation review legislation [Hawai‘i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai‘i Administrative Rules (HAR) Chapter 13-13-275, respectively].</p> <p>This archaeological inventory survey report was prepared in accordance with the requirements for an archaeological inventory survey report as stated in Hawai‘i Administrative Rules (HAR) 13-276-5 and details the survey methods of the inventory survey, as per the approved archaeological inventory survey plan (Lee-Greig and Hammatt 2008; SHPD Log No. 2008.2335; SHPD Doc No. 0806PC20), and subsequent results.</p>																			
Fieldwork Effort	Hallett H. Hammatt, Ph.D.; Todd McCurdy, MA; Tanya L. Lee-Greig, MA; Virginia Vega, BA; and Michael Willman, BA completed the field effort for this archaeological inventory survey. The pedestrian portion of the inventory survey was conducted on June 9-10, 2008. Mechanized subsurface testing of former cane lands and two historic to modern-era agricultural pushpiles was conducted on June 19-27, 2008. Geophysical testing followed by mechanical exploration at the base of the northern embankment of the Kahoma Gulch area was conducted on July 7th and 9th, 2008. Overall, a total of 24 person-days were required to complete fieldwork.																			
Number of Historic Properties Identified	2																			
Historic Properties Recommended Eligible to the Hawai‘i Register of Historic Places (Hawai‘i Register)	<table border="1"> <thead> <tr> <th>SIHP (50-50-03-)</th> <th>Function</th> <th>Form</th> <th>Age</th> <th>Significance Criteria</th> </tr> </thead> <tbody> <tr> <td>6492</td> <td>Agricultural: Remnant of Field Improvement Activity</td> <td>Irregular Shaped Push piles</td> <td>Historic</td> <td>D</td> </tr> <tr> <td>6596</td> <td>Agricultural: Remnant of Field Improvement Activity</td> <td>Irregular Shaped Push piles</td> <td>Historic</td> <td>D</td> </tr> </tbody> </table>					SIHP (50-50-03-)	Function	Form	Age	Significance Criteria	6492	Agricultural: Remnant of Field Improvement Activity	Irregular Shaped Push piles	Historic	D	6596	Agricultural: Remnant of Field Improvement Activity	Irregular Shaped Push piles	Historic	D
SIHP (50-50-03-)	Function	Form	Age	Significance Criteria																
6492	Agricultural: Remnant of Field Improvement Activity	Irregular Shaped Push piles	Historic	D																
6596	Agricultural: Remnant of Field Improvement Activity	Irregular Shaped Push piles	Historic	D																

<p>Effect Recommendation</p>	<p>Under Hawai‘i state historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR Chapter 13-284-7). In the circumstance of the current project area, two historic properties have been documented. These historic properties are significant for information content. The current inventory survey investigation has adequately recorded the information available from these properties through location documentation, written descriptions, oral testimony, literature research, and photographs. Because the significant information for these historic properties have been recorded, and additional historic preservation mitigation would not add to the body of information concerning this historic property, CSH recommends a project specific effect determination of “no historic properties affected.” This is believed to be appropriate because the information that gives these historic properties their significance have been adequately recorded.</p>
<p>Overall Mitigation Recommendation</p>	<p>Based on the above evaluation of effect, CSH recommends no further historic preservation work with regard to SIHP 50-50-03-6492 and -6596. It should be noted; however, that the above project effect recommendation applies only to the constructed portions of SIHP 50-50-03-6492 and -6596 and while no additional historic properties were identified in a subsurface context, the possibility of encountering sensitive cultural remains within or beneath these historic pushpiles should not be underestimated. Specific concerns regarding the possibility of burials near Kahoma Stream and within the pushpiles were expressed by the descendants of <i>kuleana</i> holders within the Kahoma and Kanaha stream valleys, as well as, Wahikuli Ahupua‘a and the native Hawaiian community of Lāhainā. Therefore, CSH, in consultation with SHPD, is recommending on-site archaeological monitoring during all surface alteration and ground disturbing work along Kahoma Stream and during pushpile deconstruction of SIHP 50-50-03-6596 with no further archaeological work recommended for the remainder of the alignment. SIHP 50-50-03-6492 is currently located outside of the proposed project ROW; therefore, no further work with regard to this historic property is recommended.</p>

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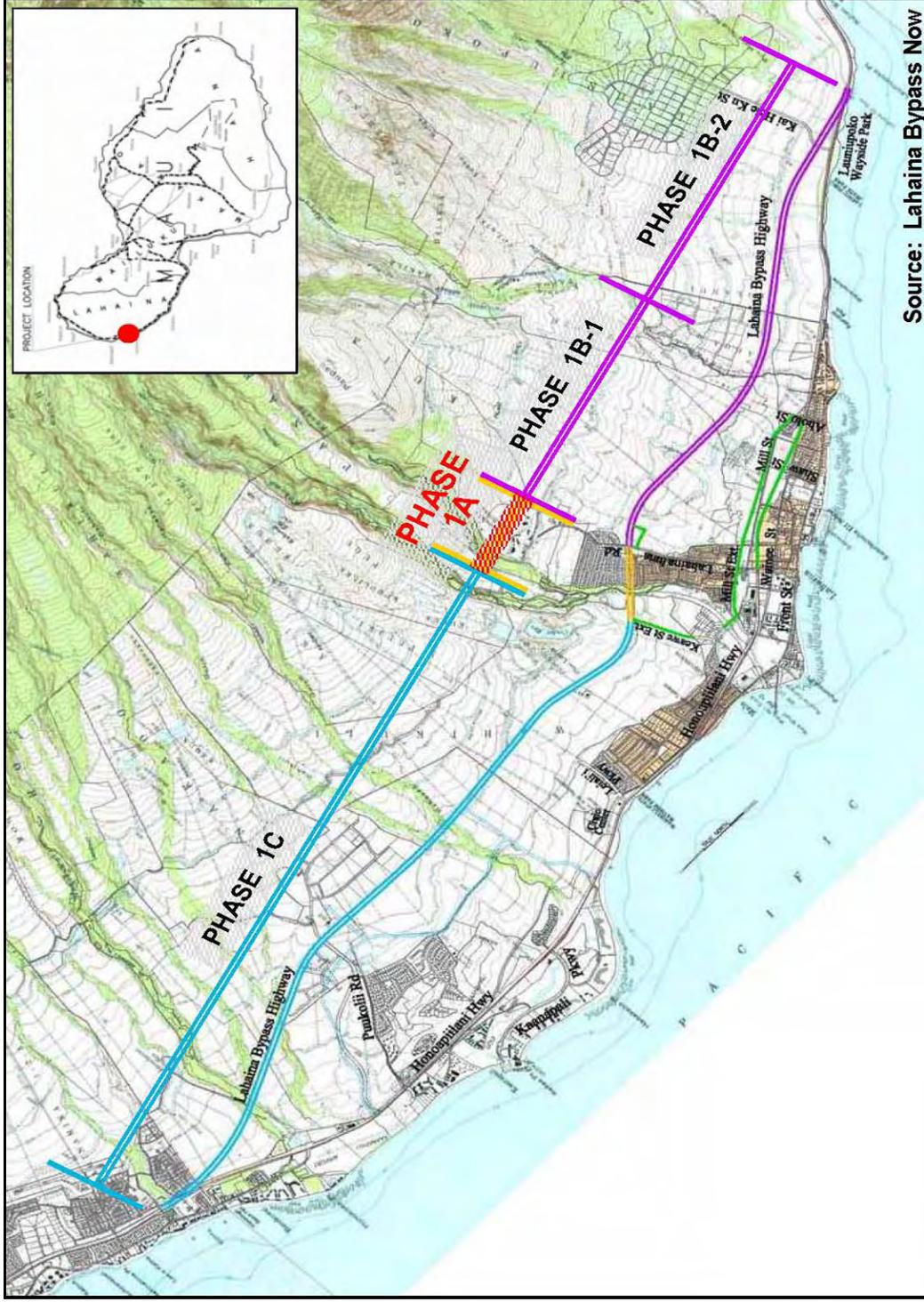
## Section 1 Introduction

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The Honoapi'ilani Highway Realignment, Lāhainā Bypass Project is a State of Hawai'i Department of Transportation (HDOT) project that will be constructed in three segments (Phases IA through IC) (Figure 1). Phase IA is the first phase of the build-out for the Lāhainā Bypass Project, a portion of which comprised the project area for this archaeological study, and consists of a half-mile long section from Ikena Avenue to the future Keawe Street Extension with a bridge crossing at Kahoma Stream. At the request of Wilson Okamoto Corporation (WOC), and in consultation with the Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD), Cultural Surveys Hawai'i, Inc. (CSH) conducted an archaeological inventory survey of the modified extension of Phase IA of the Honoapi'ilani Highway Lāhainā Bypass (hereafter referred to as Phase IA) road corridor and a portion of the Keawe Street extension.

### 1.1 Project Background

In May of 2007, a system of over 400 early historic era agricultural terraces (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified along the northern terminus of the Lāhainā Bypass Phase IA Right-of-Way (ROW). As the historic preservation review process for the Honoapi'ilani Highway Realignment Lāhainā Bypass Project had been completed (December 22, 1992 [Log No.: 7126; Doc No.: 9212AG52]; March 3, 1994 [Log No.: 10704; Doc No.: 9402KD28]; October 6, 1994 [Log No.: 12728; Doc No.: 9409KD32]; June 2, 1994 [Log No.: 11460; Doc No.: 9406RC04]; and June 2, 1994 [Log No.: 11459; Doc No.: 9406RC05]) and Phase IA had entered into the construction stage, SIHP-6277 was reported as an inadvertent find per HAR §13-280-3 (b). While the size of the entire system is 30 acres, two acres of the system containing over 400 terraces are located within the northern terminus of the original Lāhainā Bypass Phase IA ROW. Due to this inadvertent discovery of a potentially significant historic property, and per the regulatory statutes of a federally funded undertaking (Section 106 of the National Historic Preservation Act [NHPA] and Section 4f of the Department of Transportation Act [DTA],) HDOT investigated other realignment alternatives to see if avoidance of SIHP - 6277 was feasible.



Source: Lāhainā Bypass Now

Figure 1. Topographic map showing Lāhainā Bypass, Phase IA in red (graphic courtesy of Wilson Okamoto Corporation)

As a result of the evaluation of possible avoidance alternatives, the State of Hawai'i Department of Transportation (HDOT) has identified a potentially feasible and prudent avoidance alternative that proposes to realign the northern terminus of the Phase IA road corridor in an effort to completely avoid SIHP -6277. This proposed modification would include skewing the bridge downstream to a T-intersection that would then feed traffic to both the Keawe Street Extension and future phases of the Lāhainā Bypass roadway (Phase IC). As a result of this amendment to the original Lāhainā Bypass road corridor through the Phase IA section, an archaeological inventory survey of the reconfigured northern terminus of the road corridor to include a portion of the Keawe Street realignment, hereafter referred to as the current project area, was required per Hawai'i Revised Statutes (HRS) Chapter 343 and HRS 6E-8/Hawai'i Administrative Rules (HAR) Chapter 13-13-275, respectively. As a federal undertaking, this project is further subject to compliance with Section 106 of the National Historic Preservation Act (NHPA) and Section 4f of the Federal Department of Transportation Act (DTA).

The current project area is located east of Honoapi'ilani Highway, within Kelawea, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island (TMK: [2] 4-5-021, 010, 015, and 031: Multiple Parcels) (Figure 2 through Figure 4). The project corridor includes a portion of the Kahoma Gulch where the temporary bridge shoring will be located, as well as fallow sugar cane lands north of Kahoma Gulch. In order to account for areas of cut and fill, the area of potential effect (APE) that was covered during the archaeological inventory survey extends out from the ROW limits by approximately 100 ft along the upslope or *mauka* extent of the ROW and 200 ft. along the down slope or *makai* extent of the ROW. The approximate total area covered by the APE equaled about 22 Hectares (55 Acres) including the ROW.

This archaeological inventory survey report was prepared in accordance with the requirements for an archaeological inventory survey report as stated in Hawai'i Administrative Rules (HAR) 13-276-5 and details the survey methods of the inventory survey, as per the approved archaeological inventory survey plan (Lee-Greig and Hammatt 2008; SHPD Log No. 2008.2335; SHPD Doc No. 0806PC20), and subsequent inventory survey results.

## 1.2 Scope of Work

The following archaeological inventory survey scope of work was proposed to satisfy state and county historic preservation review requirements:

1. A complete ground survey of the entire project area for the purpose of historic property identification and documentation. Any identified historic properties would be located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation would include photographs and scale drawings of selected historic properties. Any identified historic properties would be assigned *Inventory of Historic Properties* numbers by the State (SIHP) and located using a GPS and/or GIS Software;



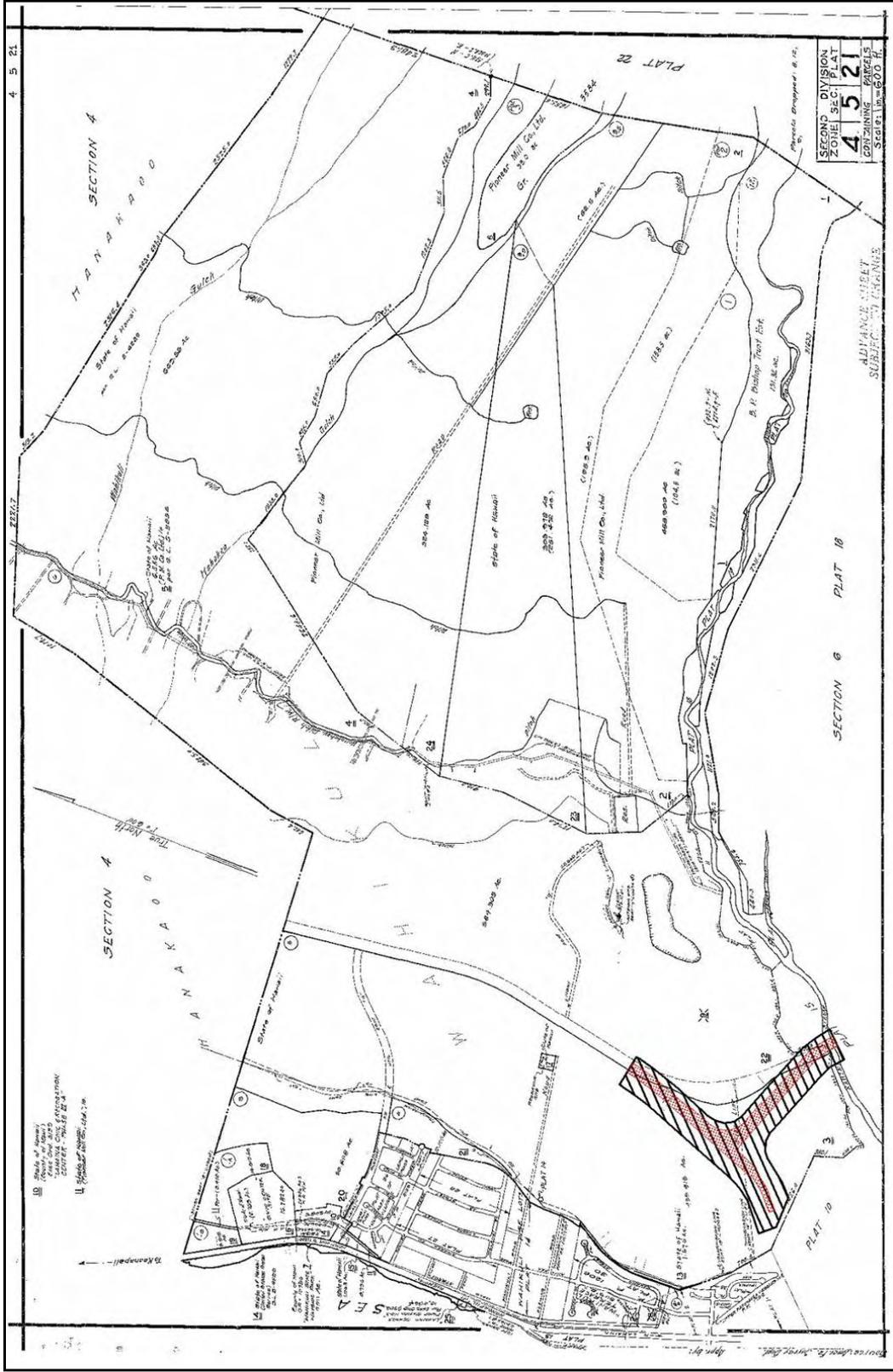


Figure 3. TMK (2) 4-5-021 showing approximate location the current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch)



Figure 4. A portion of TMK (2) 4-5-015 showing approximate location of current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch)

2. Subsurface testing would be focused on locating and evaluating subsurface deposits, such as buried cultural layers and/or deposits with significant paleo-environmental data, which could not be located by surface pedestrian inspection. If appropriate samples from these excavations were found, they would be analyzed for chronological and paleo-environmental information;
3. Research on historic and archaeological background, including search of historic maps, written records, and Land Commission Award documents. This research would focus on the specific area with general background on the traditional Hawaiian land divisions, *ahupua'a* and *moku*, emphasizing settlement patterns;
4. Appropriate consultation with knowledgeable members of the community, requesting information on historic properties in the project area; and
5. Preparation of a survey report that would include the following:
  - a. A topographic map of the survey area showing all historic properties;
  - b. Results of consultation with knowledgeable community members about the property's past land use and historic properties;
  - c. Description of all historic properties with selected photographs, scale drawings, and discussions of function;
  - d. Historical and archaeological background sections summarizing precontact and historic era land use as they relate to the project area's historic properties;
  - e. A summary of historic property categories and their significance in an archaeological and historic context; and
  - f. Recommendations based on all information generated that will specify what steps should be taken to mitigate impact of development on the project area's significant historic properties - such as data recovery (excavation) and preservation of specific areas.

## 1.3 Environmental Setting

### 1.3.1 Natural Environment

The current project area is approximately located at the 200-ft. elevation above mean sea level and ranges in distance from the coastline between 0.9 km and 1.7 km. The soils of the lands covered by the current project area are generally described as the Honolua-Olelo Association (USDA Natural Resources Conservation Service 2007). This soil association consists of deep, gently sloping to moderately steep, well-drained soils that have fine-textured subsoil, on intermediate uplands (Foote et al. 1972:8). More specifically, the soil units within the boundaries of the current project area include Rock Land (rRK), Rough Broken and Stone Land (rRS), Wahikuli Very Stony Silty Clay 3 to 7% slopes (WdB), and Stony Silty Clay 7 to 15% slopes (WcC) (Figure 5). At the time of the 1972 soil survey (Foote et al. 1972) Wahikuli silty clay soils were primarily used for sugar cane with small acreages used as homesites (USDA Natural Resources Conservation Service 2007). Soil borings associated with the original Phase IA alignment were made to understand the subsurface conditions within the overall project corridor and may provide insight into the soil conditions of the reconfigured alignment of Phase IA.

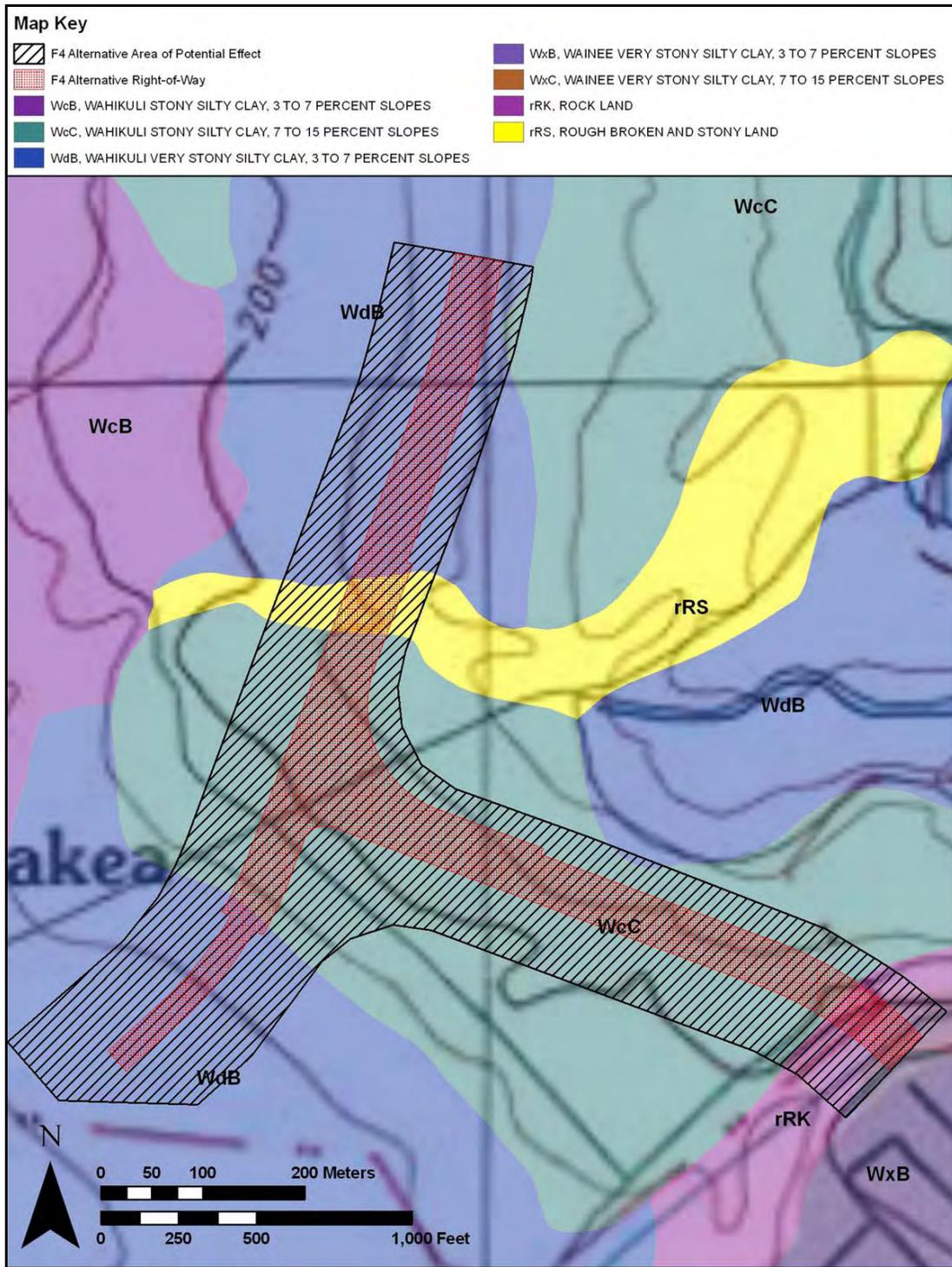


Figure 5. A portion of the 1992 Lāhainā 7.5-minute USGS topographic quadrangles, showing the current project area relative to the local soil series (U.S. Department of Agriculture, Natural Resources Conservation Service 2001)

The general stratigraphic profile for soils within the original Phase IA alignment consists of a surface layer, ranging from 1 to 16.5 feet thick, overlying C-Horizon saprolite and basalts extending to the maximum explored depth of 84.5 feet (Geolabs 2007). This layer consisted of fill materials (loose to dense sands with gravel and very stiff to hard clays and silts), as well as clinker and residual soils generally composed of loose to dense silty gravel and hard sand silt respectively (Geolabs 2007). Four of 17 borings encountered colluvial and cinder deposits above the C-Horizon.

Average annual rainfall at this elevation on the western slope of the West Maui Mountains reaches up to 15 inches per year (Giambelluca and Schroeder 1998) with cooler temperatures and heavier rainfall occurring in the winter months and warmer temperatures and lighter rainfall occurring during the summer months. During the pre-contact era, these soils and level of rainfall would likely have supported a lowland dry and mesic forest, woodland, and shrubland. According to Pratt and Gon (1998: 127), this type of native environment would have provided medicinal plants for *la'au lapa'au* (traditional Hawaiian medicine) and hardwoods for building, tool, and carving material, as well as *pili* grass for use in thatching. Pratt and Gon (1998: 127) go on to point out that some mesic areas were cleared and converted to dryland *kalo* (taro) and *'uala* (sweet potato) agriculture. After years of historic and modern era sugarcane agriculture, the natural environment of the former cane lands within the current project area now consists entirely of various species of introduced grasses on the ridge tops with small stands of *'ilima* (*Sida fallax*) and *koa haole* (*Leucaena and leucocephala*) scattered throughout. Within Kahoma Gulch, *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and Century Plants (*Agave americana*) are present.

### 1.3.2 Built Environment

The built environment of the current project area consists of a section of the Kahoma Stream flood control improvements within Kahoma Gulch. The project area is bordered by the Kelaweā Mauka residential subdivision to the south and the Lāhainā Industrial Area to the west (Figure 6). Within Kahoma Gulch, the primary built feature within the current project area consists of a basalt rock and mortar spillway, as well as a utility road that runs along the northern edge of the concreted portion of the streambed that comprises the flood control project. The built environment features of the Kelaweā Mauka residential subdivision consists of two-lane asphalt roads with concrete curbing, sidewalks, and single family homes, while the industrial area consists primarily of concrete and steel warehouses and associated connector roads.



Figure 6. A portion of the Lāhainā orthophoto showing the natural and built environment in relation to the current project area (photo courtesy of Wilson Okamoto Corporation).

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## Section 2 Methods

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This section details the methods used by CSH personnel during fieldwork, laboratory analysis, and the preparation of the archaeological inventory survey report as outlined in *Archaeological Inventory Survey Plan for Honoapi'ilani Highway Realignment Phase IA, Future Keawe Street Extension to Lahainaluna Road: Ikena Avenue Alignment with Modified Extension* (Lee-Greig and Hammatt 2008).

### 2.1 Field Methods

#### 2.1.1 Pedestrian Survey

A complete ground survey of the entire project area was undertaken for the purpose of historic property identification and documentation. The pedestrian inspection of the study area was accomplished through systematic sweeps, with four archaeologists generally spaced at 10-15 meter intervals. Historic properties identified within the project area were documented by way of:

1. a detailed written description and evaluation of function, interrelationships, and significance;
2. digital photographs;
3. drawings to scale using standard tape-and-compass mapping procedures; and
4. location information acquired with Trimble ProXR GPS survey equipment (sub-meter accuracy).

#### 2.1.2 Subsurface Testing

In an effort to identify any buried cultural deposits, and due to geologic and topographic considerations, the subsurface testing program within the project APE occurred in three phases listed below in an effort to identify any buried cultural deposits:

1. Testing of Former Sugar Cane Lands;
2. Testing of Land Clearing Push piles; and
3. Testing at the Bridge Shoring within Kahoma Gulch.

##### 2.1.2.1 Testing of Former Sugar Cane Lands

For the current project area, the subsurface testing program of former sugar cane lands within the project APE consisted of the mechanical excavation of 26 trenches averaging 20 ft (feet) or 6 m (meters) long, using a three foot, or approximately one meter, wide backhoe bucket. The following methods were used to document each backhoe trench:

1. The soil stratigraphy of each trench was drawn to scale and photographed;
2. The sediments of each trench were described using standard USDA soil description terminology which included Munsell color, texture, consistency, structure, plasticity,

cementation, origin of sediments, descriptions of any inclusions such as cultural material and/or roots and rootlets, lower boundary distinctiveness and topography, and other general observations; and

3. The location and orientation of each backhoe trench was recorded using the Trimble ProXR GPS survey equipment.

#### *2.1.2.2 Testing of Land Clearing Pushpiles*

Approximately 25% of each agricultural pushpile within the current project area was subject to mechanical testing. Testing was conducted using an excavator with a thumb to remove rocks and facilitate subsurface inspection. To accomplish a thorough examination of the subsurface conditions of each pushpile in a safe and effective manner, excavation was completed through the removal of 20-foot sections. Documentation of the results for this testing procedure included:

1. Drawings to scale, as well as digital photographs,
2. Location information using the Trimble Pathfinder ProXR GPS Unit, and
3. Written descriptions.

#### *2.1.2.3 Testing at the Bridge Shoring within Kahoma Gulch*

Lineal descendants of lands adjacent to and within Kahoma Gulch have expressed concerns about the presence of subsurface burials located within the area where some of the temporary northern bridge shoring may be located. In an effort to thoroughly understand the subsurface conditions of this area, a program of non-destructive testing followed by subsurface verification was carried out according to the procedures described below.

##### **Ground Penetrating Radar**

Ground penetrating radar (GPR) testing was conducted using a Sir-2000 radar unit with 400 MHz frequency antenna, manufactured by Geophysical Survey Systems, Inc. (GSSI) of North Salem, New Hampshire. GPR scans were conducted at three foot intervals over an approximate 4,350 sq. ft. area located at the turnaround for the northern maintenance road for Kahoma Stream Flood Control Project (Figure 7). Locations where geologic anomalies were identified were marked and followed up with subsurface verification.

##### **Mechanical Subsurface Testing**

Subsurface verification of the geologic anomalies was accomplished using the following methods:

1. The concrete slab was cut and removed with a concrete saw, jackhammer, and front end loader;
2. Sediments were excavated using a backhoe with a three foot wide bucket;
3. The soil stratigraphy of each test area was drawn to scale and photographed;
4. The sediments of each test area were described using standard USDA soil description terminology which included Munsell color, texture, consistency, structure, plasticity, cementation, origin of sediments, descriptions of any inclusions such as cultural

- material and/or roots and rootlets, lower boundary distinctiveness and topography, and other general observations; and
5. The location and orientation of each backhoe test area was recorded using the Trimble ProXR GPS survey equipment.



Figure 7. Kahoma northern shoring location, red flags mark three foot scanning intervals.

## 2.2 Document Review and GIS Methods

Research venues included the State Historic Preservation Division of the Department of Land and Natural Resources (SHPD/DLNR), the Survey Office of the Department of Accounting and General Services (DAGS), the Lahaina Restoration Foundation Archives at the Hale Pa'i, the Maui County Planning Department, as well reference materials from private collections.

Historic maps were georeferenced in relation to Maui Island TMK shapefile and the 1992 Lahaina Quadrangle using known points and ArcView 9.1. The project area boundary depicted on historic maps included as a part of this report should be considered approximate and used for reference information only.

Coordinate data collected with the Trimble Pathfinder ProXR GPS unit was downloaded using GPS Pathfinder Office V 4.0 and exported to the ESRI Shapefile format UTM Coordinate System, Zone 4 North, NAD 1983 (Hawaii) Datum. All topographic maps presented herein were created using ArcView 9.1 and TOPO! ©2003 National Geographic Maps, All Rights Reserved.

## 2.3 Consultation

A community consultation effort was undertaken as a component of the planned Archaeological Inventory Survey investigation. Per HAR Chapter 13-13-276, the community consultation effort for the archaeological inventory survey involved “notifying interested

organizations and individuals that a project could affect historic properties of interest to them; seeking their views on the identification, significance evaluations, and mitigation treatment of these properties; and considering their views in a good faith and appropriate manner during the review process.” An effort was made to contact and consult with the families that have come forward as a part of the Section 106 process, as well as, Hawaiian cultural organizations and government agencies. Additionally, as the historic properties identified within the current project area were associated with historic era commercial sugar agriculture, knowledgeable individuals regarding Pioneer Mill Co. plantation management and field production were also consulted.

## Section 3 Background Research

The lands of the current project area are located on the east facing slopes of Mauna E'eka, or the West Maui mountains, in the traditional *moku* of Lāhainā. The project area is located adjacent to the *kalana* of Lāhainā and is almost entirely located within Wahikuli Ahupua'a (Figure 8), with portions crossing Paeohi and Kelaweā Ahupua'a (Figure 9).

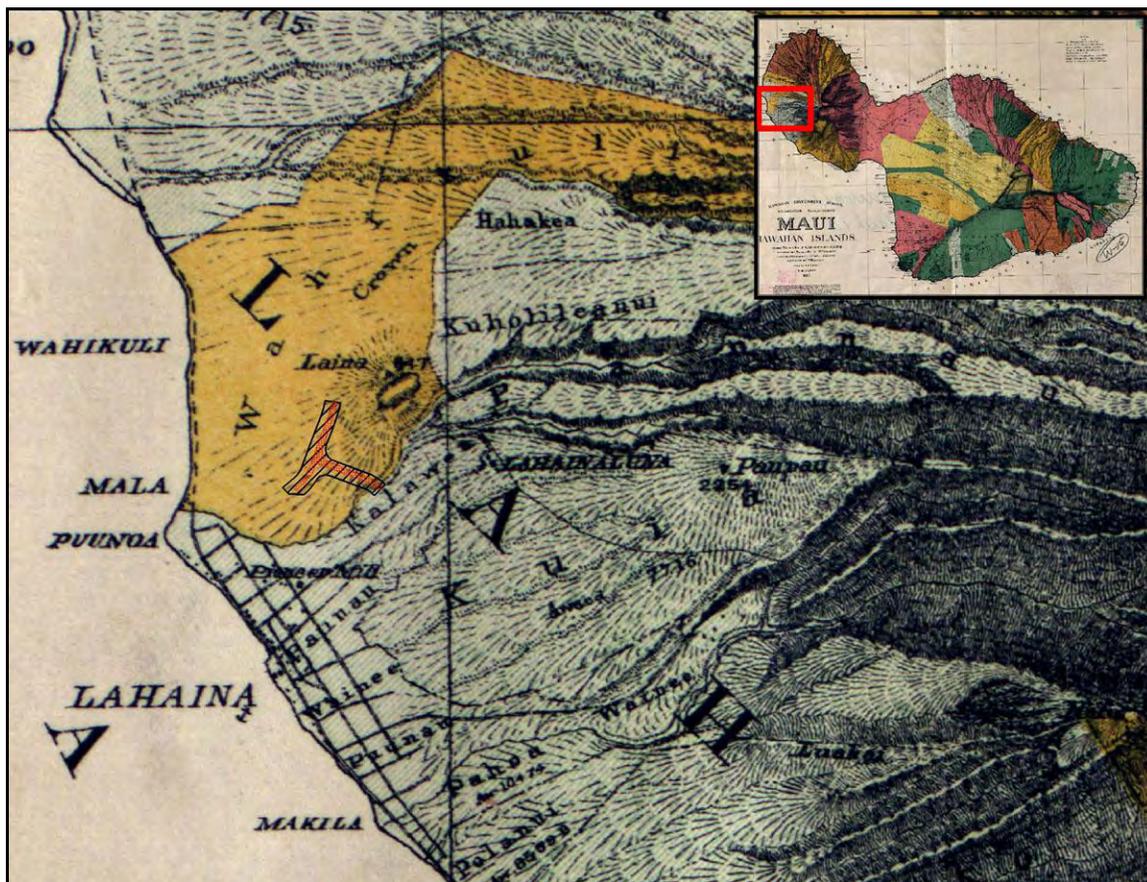


Figure 8. A portion of the F.S. Dodge map (1885) showing the approximate location of the current project area in relation to Wahikuli Ahupua'a (crown lands in yellow, government lands in green).

The workings of traditional Hawaiian land tenure are often reflective of the socio-political intricacies of particular places that were favored among the *ali'i* (ruling class), and the area surrounding the *kalana* of Lāhainā is illustrative of that fact. The *moku o loko*, or *moku* as it is most commonly called, literally means “to cut across, divide, separate” (Lucas 1995:77). When used as a term of traditional land tenure, a *moku* is akin to a political district, an overall land division that can contain smaller divisions of land such as *'okana*, *kalana*, *ahupua'a*, *'ili*, and *mo'o*. Lāhainā Moku, located on the south facing flank of Mauna o E'eka, or the West Maui Mountains as it is commonly called today, consists of multiple *ahupua'a* that extend from Ukumehame at the southern end to Hanakao'o along the northern end.

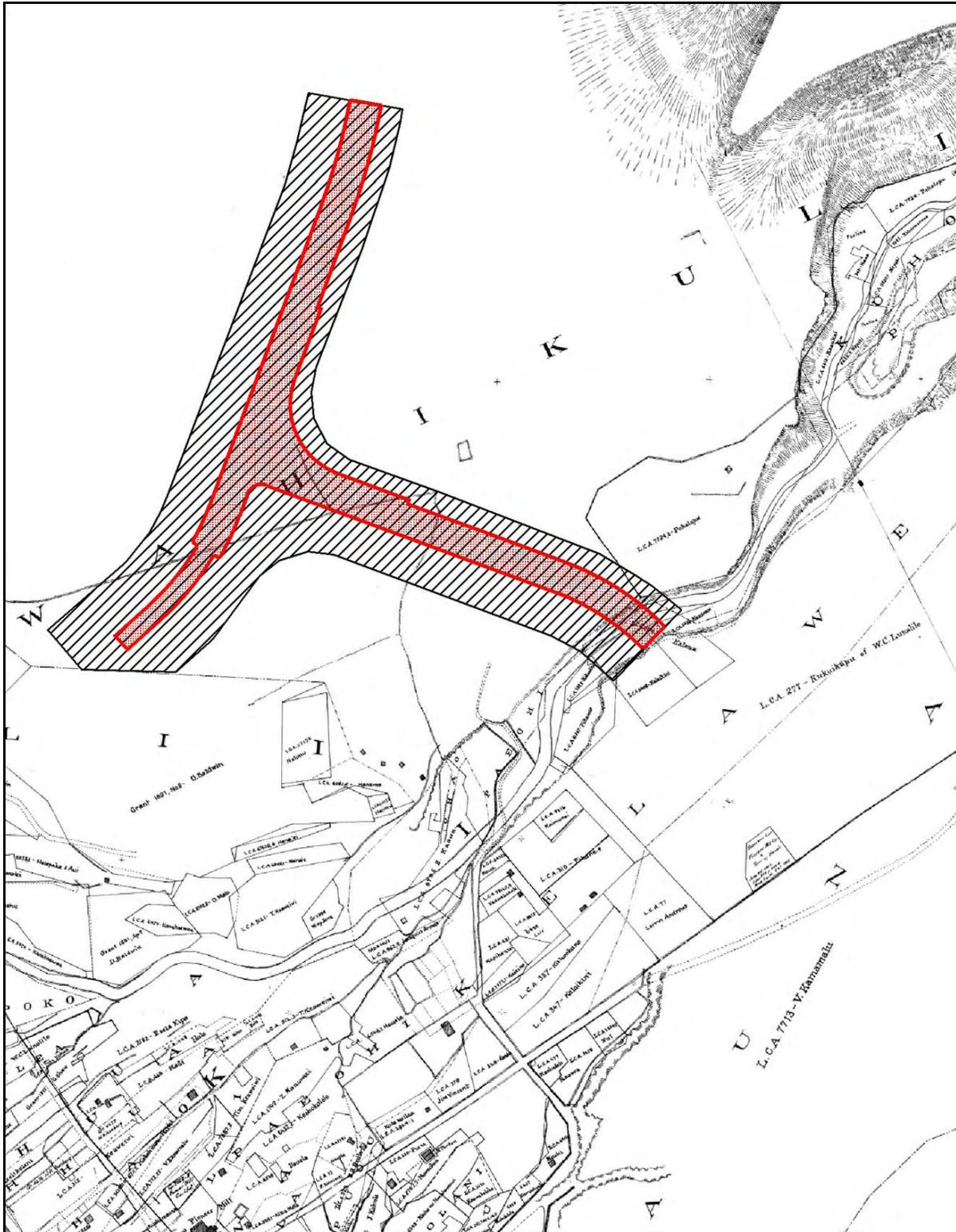


Figure 9. A portion of the 1884 S.E. Bishop map showing the current project area in relation to the *ahupua'a* of Lāhainā.

The term *kalana* literally translates to mean a thing loosened or released – “to loosen” (*kala*) with the nominal suffix of “*na*” added at the end (Handy et al. 1991:47). In reference to land tenure, *kalana* is a term that is sometimes interchanged or synonymous with the term *‘okana*, which is a sub-division of land that is smaller than a *moku* (Alexander 1890 and Lucas 1995:47). On Maui Island, W.D. Alexander (1890) observes that there are five *‘okana* or sub-districts within Hāna Moku, while Lāhainā is termed a *kalana*. Handy and others (1991:47) speculate that the land divisions that were designated as *kalana* were politically released from the *‘okana* or even *moku* that they had been a part of during the original division of the islands. These land divisions were then given as separate domains to *ali‘i* of first rank, remaining as autonomous heritages. Lyons, a surveyor during the Mahele, specifically states that the *kalana* of Lāhainā belonged to no *moku* (in Handy et al. 1991:47). While the formal boundaries of the *kalana* of Lāhainā within Lāhainā Moku have never been surveyed, it is possible that the area comprising the *kalana* encompassed the fertile strip of lands along the coastline, stretching from Puamana to Māla , and inner reaches of the stream valleys, from Kaua‘ula to Wahikuli.

### 3.1 Traditional and Historic Background

The *kalana* of Lāhainā has been known by three other names in times past. The oldest name was said to have been Na-hono-a-Pi‘ilani, the lands of Pi‘ilani as it was surrounded by other islands (G.H. Hanakauluna in Sterling 1998: 37). Lāhainā then becomes known as Lele, a name that has been acknowledged as the ancient name of Lāhainā (Sterling 1998: 34 and 37) in the story of Kamalalawalu and Halemano in their flight from the O‘ahu Chief Aikanaka in the legend of Halemano (Fornander 1918-1919, Volume 5 Part II: 238) and in the Legend of Pupukeya as home to Maui Chief Kamalalawalu (referred to frequently as Kama), a contemporary of Kakuhihewa on O‘ahu (Fornander 1918-1919, Volume 5 Part II:436). A third name for Lāhainā is mentioned in the story *Relating to Kekaa* (S. Kaha in Fornander 1918-1919, Volume 5 Part II: 540-544) where Kekaa is noted as the capital of Maui when Kaalaneo was reigning over West Maui. Fornander speculates that the name of Kekaa predates that of Lele as the story predates the introduction of breadfruit, the primary food source that is referred to when speaking of the area as Lele (Fornander 1918-1919, Volume 5 Part II: 540, Footnote 2; H.L. Sheldon in Sterling 1998: 35.)

It is unclear when the current place-name of Lāhainā was given to this area. J.N.K. Keola is quoted by Albert Pierce Taylor (in Sterling 1998:16-17) as attributing the name to a thin-haired chief who lived at Kaua‘ula Valley and felt annoyed at the effects of the scorching rays of the sun. This chief gazed up and cursed at the sun say:

“He ku hoi keia o kala haina!” (What an unmerciful sun!)

The words of this chief resonated with the people on Maui and this area has since taken its name “La-haina” from this chiefly outburst. Pukui and others (1974:127) give the literal meaning of Lāhainā as “cruel sun” and note that the area is said to have been named for droughts. A notation by Sterling (1998:16) following the recollection of the meaning of the name by Mrs. Pia Cockett attributes the literal translation to the time of Chief Hua of Lahaina whose killing of his priest brought on a terrible drought.

### 3.1.1.1 Drought and the Lesson of Hua

There is an ancient proverb, or *'olelo no 'eau*, that warns others to not talk too much of one's king and is a reminder that trouble will follow those who destroy the innocent (Pukui 1983:194 [1811]):

Ko'ele na iwi o Hua i ka lā.

The bones of Hua rattled in the sun.

According to the story retold by Fornander (1918-1919 Volume V: 514-516), Hua was a chief of Lāhainā who had forsaken his *kahuna*, or priest, Luaho'omoe and caused a drought throughout the Hawaiian Islands:

There lived here in Lahaina a chief named Hua ... he desired to get some *ua'u* squabs to eat; then he sent some men up to the mountains above Oloalu [sic] to get some squabs to satisfy his desire. He did not wish for birds from the beach. When the birds were obtained, they were to be taken to the priest for him to ascertain where the birds came from; if he should give out the same information as the men had given to the chief as to the source of the birds, then he would be safe; if he should give a contrary answer, he would be killed. The name of this priest was Luahoomoe and he also had children. When the men went up, they could not find any mountain birds at all, so they decided to get some shore birds. When they caught some, they daubed the feathers red with dirt so that the chief would think the birds came from the mountain. When they returned and handed the birds to the chief, he was exceedingly glad because he thought the birds came from the mountain. The chief told the men to take them to the priest for his inspection. The priest perceived, however, that the birds came from the seashore. Then the chief said to the priest: "You shall not live, for you have guessed wrongly. I can very well see that these are mountain birds." Then and there an *imu* was prepared in which to bake the priest.

Before he was placed in the *imu*, however he said to his children: "You two wait until the *imu* is lighted, and when the smoke ascends, should it break for the Oloalu mountains, that indicates the path; move along; and where the smoke becomes stationary, that indicates where you are to reside ... Then the priest was cast into the oven and the opening closed up tightly. The smoke arose and darkened the sky ... after the priest had been in the *imu* for two days, he reappeared and sat by the edge of the *imu* unknown to any one; the chief thinking all the time that he was dead; but it was not so.

When the smoke ascended and leaned towards the Oloalu mountains, the two sons went off in that direction; the cloud pointed towards Hanaula, and there it stood still, so the two sons ascended to the place and resided there...

Then the whole of Maui became dry; no rain, not even a cloud in the sky, and people died from lack of water. The smoke that hung over Hanaula became a cloud, and rain fell there.

Hua, the chief, lived on, and because of the lack of water and food he sailed for Hawaii, the home of his elder brother; but because Hawaii also suffered from lack of water and food he came back and lived at Wailuku. Wailuku also did not have any water, and that caused the chief to be crazed, so he leaned against the edge of the precipice and died, and that was the origin of the saying "The bones of Hua rattle in the sun."

Fornander further notes that the saying, “The bones of Hua rattle in the sun,” refers to the chief whose wickedness won him the ire of his people. In an ultimate show of disregard, they let his body lie where he fell so that his bones bleached in the sun and rattled in the wind. Hence the above proverb warning others to not destroy the innocent as Hua had destroyed Luaho‘omoe and in that caused great suffering to people of Hawai‘i and ultimate desecration of his bones by his own people.

Hua, the island chief who reigned over Maui prior to the 10<sup>th</sup> Century, is credited with constructing the first *heiau* on the island beginning in Lāhainā. Of the six *heiau* that are documented in Lāhainā, Hua was responsible for the construction of at least two, while his descendent namesake, Hua-nui-kalalailai, built the third *heiau* only two-generations later.

### 3.1.2 Legendary Accounts Associated with Wahikuli

#### 3.1.2.1 *The Origins of Pu‘ulaina, Eeke, and Lihau*

Pu‘ulaina, a hill or crater located within Wahikuli Ahupua‘a, is situated approximately 614 meters or a little over 1/3 of a mile *mauka* of the northern terminus of the current project area. There are two accounts regarding the origins and significance of this *pu‘u* (hill). Fornander (1918-1919 Volume V: 532-534) recounts the following regarding the birth of Pu‘ulaina:

...some say it was begotten by two mountains, Eeke (the summit crater of the West Maui Mountains) and Lihau (the mountain top back of Olowalu). Eeke was the husband and Lihau was the wife. They were real persons, but it will be shown later the reason for their being changed to mountains. After they had lived as man and wife, a child was born to them, a son, the subject of this story which we are considering. But after some time Eeke became entangled, for he saw a beautiful woman, Puuwaiohina from Kauaula, and they committed adultery. Because of this, Lihau thought to choke the child to death, so that the two of them could go and do mischief; this caused them to quarrel. Eeke took the child to his mother, Maunahoomaha, and left him with her. After that their god, Hinaikaulau, placed a restriction over them; they were not to live together, nor were they to have any intercourse with others; but ten days after this order, Eeke again committed adultery with Puuwaiohina above referred to, who was a younger sister to Lihau. Because of this their god punished them by making Eeke a mountain and Puuwaiohina a mountain ridge; that is the ridge prominent at Kauaula.

After that, Lihau was possessed with love for their child, so she asked Maunahoomaha for permission to meet her son, that was agreeable to her mother-in-law, and when she met her child she was glad. When she realized what a handsome man her favorite son had grown to be, she gave him for husband to Molokini, one of the noted beauties of that time, because she was the wife intended for him ...

However, arriving on Maui, this was one of Pele’s (the fire goddess) cruel deed; one of her younger sisters saw how handsome Puulaina was, so she asked Molokini to let her have him for husband. The other refused, for she was greatly in love with her own husband; so she (Molokini) was changed into a little island, and she has remained so to this day.

When Lihau heard of this, she grieved for her daughter-in-law, so she went to consult Pele on the matter. But Pele replied gruffly: “If that is the case, then I say to you that you will die; also your son.” Lihau was there and then changed into a hill where Pele resided

for some time; the son also died. But the one whose was the desire, earnestly entreated and begged that her husband be spared. But the red-bleary-eyed (Makole-ulaula, an epithet applied to Pele) did not wish it that way. That was how the son became a hill and has remained such until this day.

Captain Henry Whalley Nicholson (1881:40) recounts the following Pele story regarding Pu'ulaina as she made her way through the Hawaiian Archipelago:

On Pele's first arrival at Hawaii Nei, she dwelt on the island of Kauai. Thence she went to Kalaupapa (Molokai), and lived in the crater of Kahua-Ko at that place. Subsequently she departed for Puulaina, near Lahainaluna (on the Island of Maui), and excavated that crater.

Fornander goes on to recount an alternative story regarding the naming of Pu'ulaina following the creation of that hill by Pele:

This was the reason for so naming it (Pu'ulaina): At that time a chief was living on the other side of the hill, and because he was tired of seeing it standing there obstructing his view, and preventing him from seeing the breadfruit grove of Lahaina, he ordered his men to go and construct a ti-leaf house on its top; and the hill was called Puulai. And because it was slightly to those viewing it from Lahaina it was called Puulaina [Fornander 1918-1919 Volume V: 536.]

Fornander (1918-1919 Volume V: 536) further notes that the chief who had constructed the ti leaf house atop Pu'ulaina also constructed a larger *heiau* on the far, *makai*, side of the hill – a place where people frequently died and where buried on the side of the hill. It is said that because there was such a great number of dead buried there and because the dirt slid down when the graves were being dug, this side of the hill was named Puuheehee (sliding hill). Jeanne Booth Johnson in Elspeth Sterling's *Sites of Maui* (1998: 43) recalls the presence of remnants (three rock mounds) of an old *heiau* atop Pu'ulaina that was reportedly dedicated to Pele; this *heiau* is possibly the same as that mentioned in the story related by Fornander.

### 3.1.2.2 The Stories of Halulukoakoa Heiau

Thomas Maunapau wrote a series of newspaper articles about his visit to Lahaina (Maunapau 1921-24 in Walker 1931), and wrote about a legend associated with a *heiau* at Wahikuli at the southeast corner of the coconut grove at Māla (Walker Site 11, see Previous Archaeological Research Section 3.2). Winslow Walker collected this article for his research, and included it in his notes:

At one time a temple was located there known as Halulukoakoa. The story goes that a Hawaiian youth Kaili was seized by warriors of a West Maui chieftain at Kahakuloa. Kaili was taken in a canoe around the western end of the island for the sacrifice at the temple. His sister, Nailima saw the capture and skirted the cliffs of the island, keeping her eyes on the canoes which were in the open sea. She arrived at Lahaina and learned that her brother had been taken to the temple. She withdrew to the outskirts of the settlement, sat down upon a stone and commenced to cry.

Pueo the owl god appeared suddenly and learned the cause of her grief. He told her to pray to all the gods for her brother's deliverance while he went to the sacrifice. Here the owl-god unbound the victim from the sacrificial stone and bade him walk backwards from the temple. At first the youth did not understand, but the owl-god circled and beat

his wings. Finally conveying his meaning to the youth. After walking backwards for several miles under the owl-god's guidance, he found the sister.

He immediately heard warriors approaching and hid under the stone upon which Nailima was sitting. When the warriors arrived they asked if a man had been seen passing that way, saying they were searching for Kaili. The sister said she had seen no one. The warriors then fell upon the footprints of Kaili and followed them, little knowing they would lead them back to the temple (Walker 1931: 68).

Thomas Thrum (in Sterling 1998:43) gives an account of another story related to Halulukoakoa Heiau as a shelter, or place of refuge:

Halulukoakoa, a coral structure, is famed traditionally as having given shelter to Wahine-o-Manua, a very beautiful young woman who fled from her husband in consequence of constant ill treatment. Regardless of the rigid kapu of the heiaus against women being allowed within its sacred walls, she hid herself therein and watched those searching for her. On their departure she ventured forth and on reaching the road an owl god appeared to her as guarding and guide, and by the clapping of its wings led to the pursued girl through the brush till she reached the large stone mauka of Kekaa, Kaanapali, where it left her and she lay down and slept till morn, when she arose and departed. The stone is known as Pohaku o Wahine o Manua.

### 3.1.3 Traditional Accounts

As emphasized by E.S. Craighill and Elizabeth Handy in the following summary, the *ali'i* and *maka'ainana* were attracted to Lāhainā Moku by its natural resources and geographic position:

Lāhainā District was a favorable place for the high chiefs of Maui and their entourage for a number of reasons: the abundance of food from both land and sea; its equable climate and its attractiveness as a place of residence; it had probably the largest concentration of population, with its adjoining areas of habitation; easy communication with the other heavily populated areas of eastern and northeastern West Maui, 'The Four Streams' (Na Wai Eha), and with the people living on the western, southwestern and southern slopes of Haleakala; and its propinquity to Lanai and Molokai. (Handy and Handy 1972:492)

#### 3.1.3.1 Agricultural Endeavors

With regard to the wealth of resources at Lāhainā, Handy and others note that the main taro lands of Lāhainā were watered by two large streams, the Kahoma Stream (which the current project area crosses) and Kanaha Stream (a tributary to the Kahoma stream) which run far back into the valleys (Handy et al. 1991: 492). Early descriptions indicate that both dry-land (*kula*) and pond-field (*lo'i*) methods of cultivation, were equally employed in the Lāhainā area (Menzies 1793 in Handy et al. 1991:492-493). The English missionary William Ellis (1826:46) offers the following description upon seeing Lāhainā for the first time:

The appearance of Lahaina from the anchorage is singularly romantic and beautiful ... (t)he level land of the whole district, for about three miles, is one continued garden, laid out in beds of taro, potatoes, yams, sugar cane, or cloth plants. The lowly cottage of the farmer is seen peeping through the leaves of the luxuriant plantain and banana tree, and in every direction, white columns of smoke ascend, curling up among the wide-spreading branches of the bread-fruit tree.

While discussing the fishing traditions of Hawai'i, Daniel Kahā'ulelio (2006:91) describes the environment of Lāhainā in the following manner:

Lahaina was like the Garden of Eden in productiveness from one end to the other. There was none to compare with it before the days of the sugar plantation; this was sure.

In an unpublished manuscript about life in Lāhainā in 1897, Arthur Waal former *luna* for Pioneer Mill Sugar Company and postmaster for the Lāhainā post office makes the following observation about the population and subsistence practices of native Hawaiians in Lāhainā:

Lahaina has a mixed population. Many natives had their own kuleanas, up in the valleys where they grew taro, sweet potatoes, vegetables and bananas. Most all of them had chickens and pigs (Waal 1898:5).

I saw the last remaining grass huts in Lahaina, one was near the Kilipaki Village camp on the beach out Kaanapali way, and the other one in Kahumana<sup>1</sup> gulch occupied by a very old Hawaiian with a thick, heavy white beard and hair. This Hawaiian, George Kukaia, was a wonderfully health specimen of the old type Hawaiian. Nearby was his taro patch and fruit bearing trees (Waal 1898:6.)

Other observations note the rather abrupt shift in vegetation and cultivation, as well as the apparent severity of the landscape along the alluvial plains with a rise in elevation. Jacques Arago, a draftsman aboard the *Uranie* and *Physicienne* under the command of Captain Freycinet during a French scientific expedition of the Pacific during the years 1817-1820 notes the following about the Lāhainā area:

The space cultivated by the natives of Lahaina is about three leagues in length, and one in its greatest breadth. Beyond this, all is dry and barren; everything recalls the image of desolation. Nevertheless, the soil and its resources are the same; whence therefore this apparently culpable neglect? It is a natural consequence of the mode of reasoning adopted by these people; they have all that is necessary at hand, what advantage would there be in seeking superfluities from afar? .... Superfluities are thrown away on these people. Twenty acres of land will not produce them a better dinner than their square of taro. (Arago 1823: 120)

The missionary Charles Stewart elaborates on the above description by noting that

... (t)he land is watered entirely by conducting the streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day. The pathways, which are very narrow, are usually along the sides of these water trenches. The number of inhabitants is about two thousand five hundred.

The land begins to rise rather abruptly about three fourths of a mile from the sea, and towers into lofty mountains, three rude elevations of which, immediately east of Lahaina, are judged to be four thousand five hundred, or five thousand feet, above the level of the ocean. From the first swell of the rising ground, almost to the summits of these mountains, there is nothing to be seen but the most dreary sterility and sunbunt vegetation, intersected by gloomy ravines and frightful precipices. [Stewart 1839:140]

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<sup>1</sup> On the next page Waal (1898:7) notes that George Kuakaia lived in the last house in Kanaha Valley next to a big taro path below Lahainaluna Seminary, it is unclear at this point whether or not Mr. Kuakaia maintained homes in both gulches.

Pukui (1983:172, proverb 1594) offers the following *‘olelo no ‘eau* about the plains, “sunburnt vegetation” above Lāhainā town:

Ka-ua Pa‘ūpili o Lele

The Pili-soaking rain of Lele

In this saying, Pukui mentions that the plains of Lāhainā were once covered with *pili* grass in the ancient days and that when the Pa‘ūpili rains came, the grass was well soaked. She makes an additional mention of the magnificence of Lāhainā in association with the Pa‘ūpili rain (Pukui 1983, proverb 1703):

Keikei Lahaina i ka ua Pa‘ūpili.

Majestic Lahaina in the Pa‘ūpili rain.

### 3.1.3.2 Fishing and Other Aquatic Resources

While the valley floors and low-lying coastal plain provided a good environment and ample water for agricultural crops, the coastal reefs, off-shore waters, and inland ponds were rich in aquatic resources (E.S.C Handy in Sterling 1998:17.) The inland ponds or *loko* of Aimakalepo, Unahiole, and ‘Alamihi near the mouth of Kahoma (Figure 10), and the famed royal fishpond of Mokuhinia at Waine‘e likely provided a reliable fish resource that was likely supplemented by off-shore communal or family fishing. As a part of Winslow Walker’s 1930 island-wide survey of Maui Island, a *kama ‘aina* of Lāhainā, J.K. Napaepae noted that the pond at Māla , Alanuhi (Alamihi?) was primarily for mullet (Walker 1931:299.)

Daniel Kahā‘ulelio (2006:9) notes a particular fishing ground, Kapuali‘ili‘i, for *lau* fishing that extended from Keawaiki (present day Lāhainā harbor) to ‘Uha‘ilio Pt., about  $\frac{3}{4}$  of a mile along the Lāhainā shore. In this manner of communal fishing smaller fish and *kakakī* (a type of *kala* or unicorn fish) were the primary catches. The shoreline of Lāhainā is again singled out for *kala kū* fishing where Kahā‘ulelio (2006:217) notes that this type of fish would feed on the *limu kala* found in the shallow waters and, when seen by fishermen, were quickly surrounded with two or three finger mesh nets. Other types of fish and marine resources often sought in the waters off of Lāhainā include *mahimahi*, *aku*, *iheihei*, *puhiki‘i*, *he‘e*, *weke*, *akule*, and many others (Kahā‘ulelio 2006; Tommy Kekona, *kama ‘aina* to Lāhainā personal communication 2008.)

### 3.1.3.3 Politics and Warfare

Flanked by excellent fishing grounds and surrounded by fertile lands, Lāhainā was the primary seat of the *ali‘i* of West Maui (Handy et al. 1991) and later was the center of government for the Kingdom of Hawai‘i. The desirability of Lāhainā lands and resources is also reflected in the political and warfare history of the area. While Hāna, on the extreme eastern end of Maui Island, was a center of traditional Hawaiian political strife during the expansion period and into the early historic period, Lāhainā was no stranger to warfare.

During battles fought between Ka‘uhi of Maui and Alapa‘i of Hawai‘i, the Hawai‘i Island warriors attacked the food resources of Lāhainā by drying up the streams of Kaua‘ula, Kanaha, and Kahoma and laying waste to the *lo‘i* fields and brooks:

Ka-uhi with his war leader Ku-ka-'e'a and other warriors opened the attack against Kamehameha-nui. It was a great battle from which the forces of Kamehameha-nui fled before those of Ka-uhi...There the fighting men of Kamehameha-nui were slaughtered. Kamehameha-nui fled to Alapa'i's canoe ... Alapa'i returned to Hawaii, taking Kamehameha-nui with him, and made ready to come back and overrun the place and take Ka-uhi prisoner.

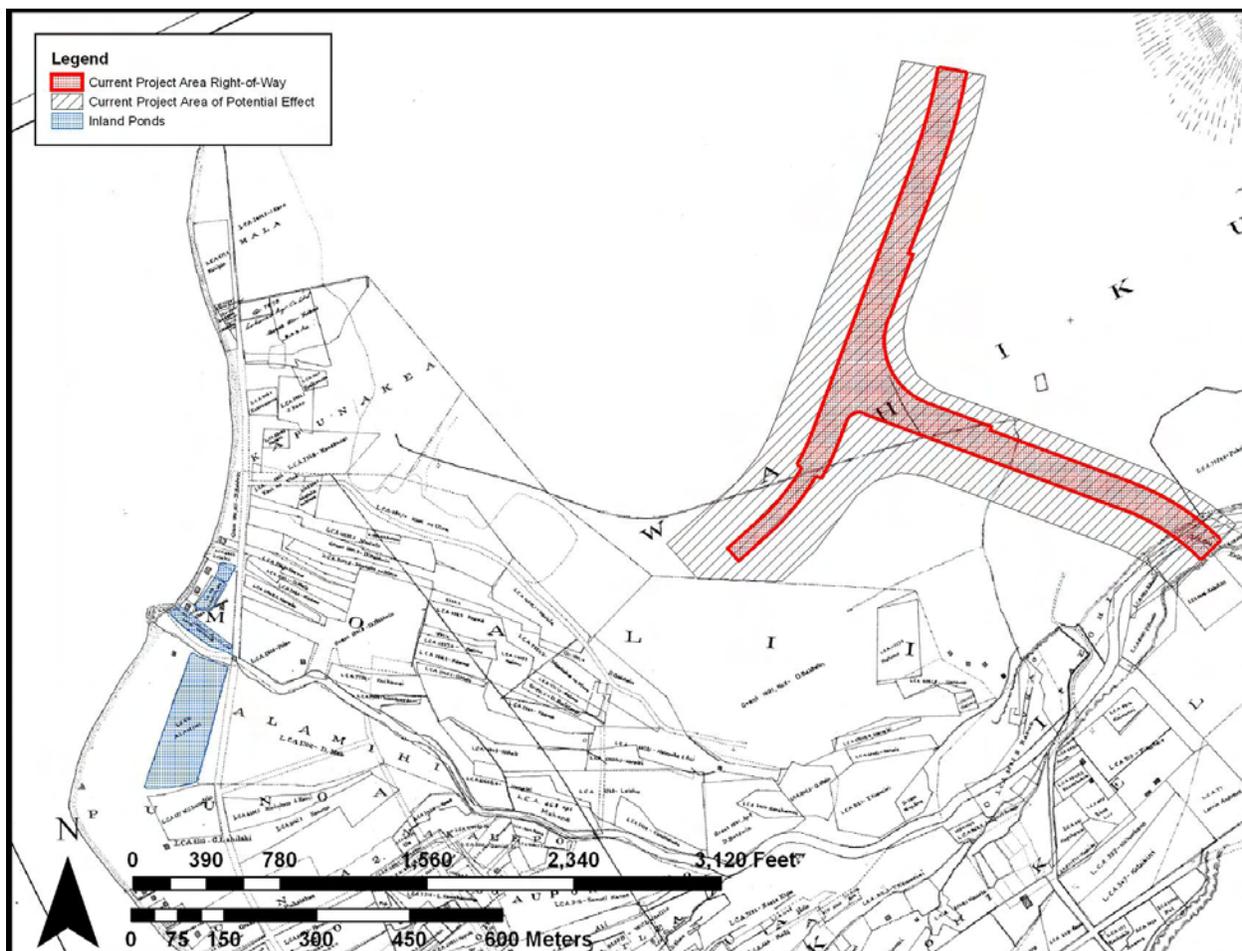


Figure 10. A portion of the 1884 S.E. Bishop map showing the current project area in relation to the *ahupua'a* of Lāhainā showing the inland ponds at the mouth of Kahoma Stream.

A whole year Alapa'i spent in preparation for the war with Maui. It was in 1738 that he set out for the war in which he swept the country. What was this war like? It employed the unusual method in warfare of drying up the streams of Kau'ula, Kanaha, and Mahoma [sic] (possible reference to Kahoma?) (which is the stream near Lahainaluna). The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapa'i's men kept close watch over the brooks of Lolowalu, Ukumehame, Wailuku, and Honokawai. When Pele-io-holani [an O'ahu Island chief fighting on behalf of Maui and Ka-uhi] heard that Alapa'i was at Lahaina he gathered all his forces at Honokahua and Honolua. At Honokawai an engagement took place between the two armies, and the forces of Alapa'i were slaughtered and fled to Keawawa. There Alapa'i heard that Pele-io-holani had but 640 men against Alapa'i's 8,440 from the six districts of Hawaii ... Pele-io-holani intended to

unite his forces with those of Ka-uhi, but Alapa'i men held Lahaina from Ukumehame to Mala on the north, and in attempting to aid Ka-uhi, Pele-io-holani became involved in difficulty. The hardest fighting, even compared with that at Napili and at Honokahua in Ka'anapali, took place on the day of the attack at Pu'unene ... The two ruling chiefs met there again, face to face, to end the war and became friends again, so great had been the slaughter on both sides ... At the end of the war Kamehameha-nui became ruling chief of Maui. Pele-io-holani retired to Ko'olau on Molokai ... Kamehameha-nui ruled Maui in peace and Alapa'i held the rule over Hawaii, to which he returned after affairs had quieted down on Maui. (Kamakau 1961:74-75)

During the wars of unification, Kamehameha landed and occupied the Lāhainā District from Launiupoko to Māla and all the parts of the lands that had been given over to food patches and cane fields were overrun by men from Hawai'i Island (Kamakau 1961:171). Kamehameha resided at Lāhainā for one year to equip his fleet with food and other provisions supplied by the lands of Maui, Moloka'i, Lāna'i, and Kaho'olawe (Kamakau 1961:188).

### 3.1.4 Mid to late 1800s

With the unification of the Hawaiian Islands in 1791 (Andrews 1865:556) and the arrival of the first Missionaries in 1820 (Andrews 1865:556), western commerce and the Christianization of the Native Hawaiian people swept across Lāhainā. The lands surrounding Lāhainā town were cultivated in commercial sugar (Gilmore 1936:198-203), while the whale trade (Graves et al. 1998), the Irish potato trade in response to the California Gold Rush (Gilman 1906:177), and the establishment of the Lahaina Mission Station and Lahainaluna High School, drew people to the waterfront areas as well as the town itself, ultimately resulting in a population rise (Haun and Henry 2001). This trend made Lāhainā one of the main religious and educational centers for the entire island chain (Kamakau 1961:304).

#### 3.1.4.1 Great Mahele

The Organic Acts of 1845 and 1846 initiated the process of the Great Māhele - the division of Hawaiian lands - which introduced concept of fee simple ownership and private property into Hawaiian society. In 1848 the crown, government, and the *ali'i* and/or *konohiki* (chiefs) received their land titles. The *ahupua'a* of Kelaweā and Paunau were awarded to Victoria Kamamalu by the King (Figure 11) and recorded in Land Commission Award 7713 and Royal Patent 4475, while the lands of Paeohi were given over to the Government of the Hawaiian Kingdom (Figure 12) as "government lands" and a large percentage of lands comprising Wahikuli Ahupua'a were retained for the personal holdings of King Kamehameha III as "crown lands" (see also Figure 8).

*Kuleana* awards for individual parcels within the *ahupua'a* were subsequently granted in 1850. These awards were presented to tenants - native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners - who could prove occupancy on the parcels before 1845. Claims for *kuleana* lands were heard by the Board of Commissioners to quiet Land Titles (Alexander 1890) and granted in the form of a Land Commission Award (LCA). Testimony to establish title to real property was recorded by Native Register - wherein claimants would provide traditional proof of ownership - and by Foreign Register - wherein boundary survey evidence would support traditional claims. There are a total of seven Land Commission Awards for *kuleana* lands within and directly adjacent to the current project area



Table 1. Summary of Land Commission Awards (LCAs) identified within the current project area.

LCA #	Claimant	Ahupua'a	Land Use
393	Kekuelike	Pu'uko'owali, Kelaweā	Houselot = 1 at Pu'uko'owali; <i>lo'i</i> = 15 at Kelaweā; <i>kula</i>
5006:1	Kalena	Kelaweā, Ilikahi	<i>Kula</i> (dryland area) and <i>kalo</i> (taro) at Kelaweā; houselot at Ilikahi
6408	Kalaikini, Ioba	Kelaweā, Ukumehame	patches ( <i>lo'i</i> ?) = 7, pasture section = 1 and houselot = 1 at Kelaweā; <i>mo'o</i> (dryland ridges) = 4 at Ukumehame
6432	Kaninau	Kelaweā, Honokowai	<i>Lo'i</i> = 20 at Kelaweā; <i>'ili</i> = 1 at Honokowai
7724	Poholopu	Wahikuli, Kuholilea	Houselot = 1, <i>kula</i> = 1 and <i>apana</i> = 1 at Wahikuli; <i>lo'i</i> = 33, <i>lauhala</i> patches = 3, <i>'ulu</i> patches = 4, and <i>'uala</i> patches at Kuholilea.
7777	Kaiaino	Kelaweā nui	Houselot = 1, <i>lo'i</i> = 3
9816	Kaumunui	Kelaweā	<i>Kula</i> with houselot = 1 and <i>lo'i</i> = 10

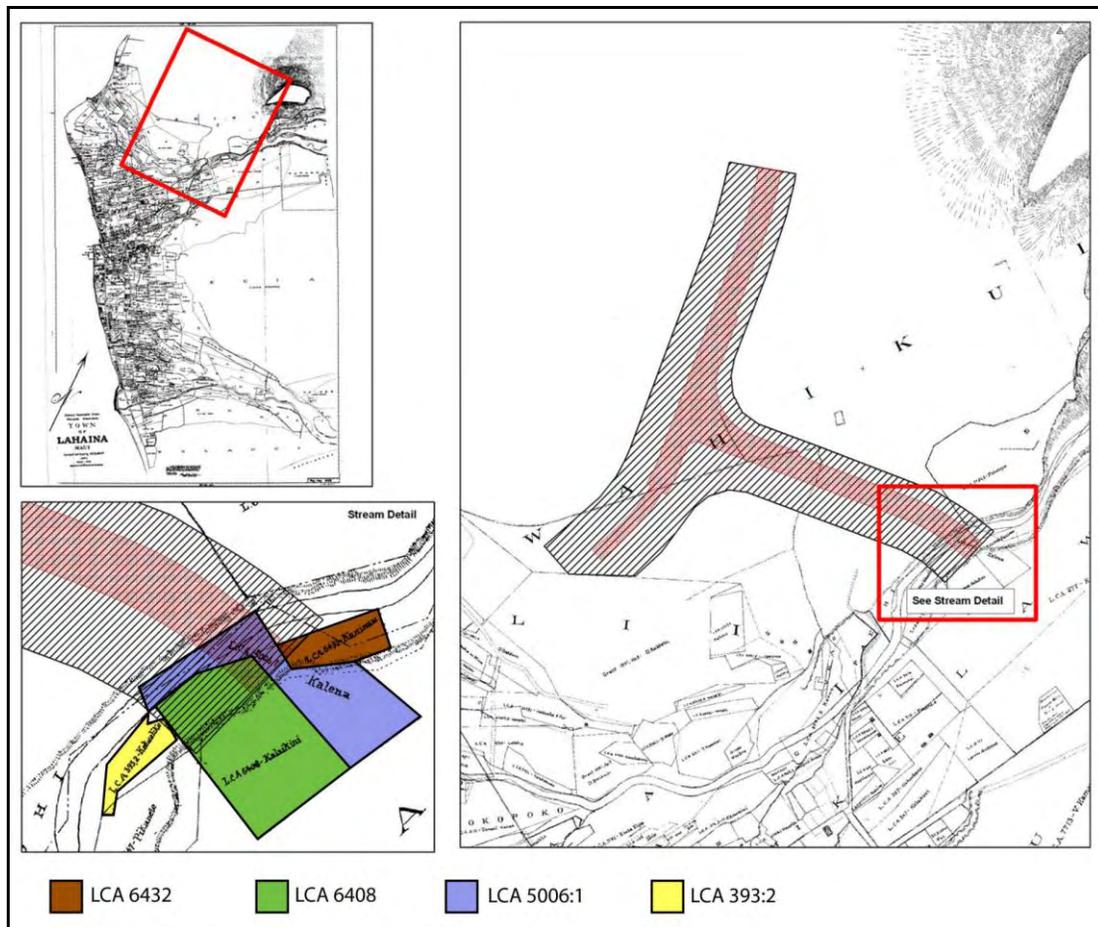


Figure 13. A portion of the 1884 S.E. Bishop map showing the location of Land Commission Awards (LCAs) in relation to the current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch).



Figure 14. A portion of TMK (2) 4-5-015 showing approximate locations of LCAs in relation to the current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch).

### 3.1.4.2 Economic Changes in Lāhainā and the Development of the Commercial Sugar Industry

*Ko* (sugarcane) is believed to have originally been brought to the Hawaiian islands during the initial Polynesian settlement of the island chain. Early Hawaiians cultivated several varieties of *ko*, each with different culturally associated attachments to the many varieties that were grown in different regions of the *ahupua'a*. *Ko* was also considered to be therapeutic and was a primary ingredient of many native compounds (Handy and Handy 1991:183-89).

As the enactment of the Mahele hastened the shift of the Hawaiian economy from a subsistence-based economy to a market-based economy, *ko* would soon become important as a major cash crop. From 1840 to 1850, a cane field and rude mill consisting of three whaling-ship try-pots on adobe and stone mason work with wooden rollers and iron bands, was owned and operated by David Malo in Lāhainā for the production of molasses that was sold primarily for home consumption (Rolph 1917:168-169). As foreign entrepreneurs looked to expand their exportable crops and increase their profits, sugar became the answer and by 1849 Judge A.W.

Parsons was operating a commercial mill in Lāhainā (Jensen 1989). A milestone for the sugar industry of Hawai'i occurred in either 1854 or 1855 when Captain Pardon Edwards brought a variety of sugarcane from the Marquesas to Lāhainā. Originally intended for transport to Charles Titcomb of Hanalei on Kaua'i Island, several stalks of the Marquesan cane were given to Consul Chase and F.A. Oudinot of Lāhainā to plant in their gardens (Royal Gardens, Kew 1894: 419). It was quickly recognized that this variety of cane outperformed the Cuban varieties of sugar cane that were being grown in the Hawaiian Archipelago at that time, as the cane that was introduced by Captain Edwards produced cane with a very sweet quality and a remarkably fast growing time (Royal Gardens, Kew 1894: 418-419). This newly introduced cane came to be known as Lahaina Cane and, to the exclusion of others, was the premier type of sugar cane grown in Hawai'i (Wm. G. Irwin & Co. in and Stubbs 1900: 59 and 66). With the introduction of improved technology and the first steam-driven mill, the next 20 years saw an explosion in the sugarcane industry in Hawaii with over 22 plantations or mills operating on the island of Maui by 1884 (Wilcox 1997:2-5). Two of the 22 plantations in operation toward the end of the 19<sup>th</sup> century, West Maui Sugar Company and Pioneer Mill Company, led the sugar industry in the Lāhainā District.

#### *3.1.4.2.1 West Maui Sugar Company*

In 1864, Lot Kamehameha (King Kamehameha V) ventured into the sugar industry with two established sugar entrepreneurs, F. W. Hutchison, of the Lahaina Sugar Company, and James Makee, of the Rose Ranch sugar plantation in Ulupalakua, to form the West Maui Sugar Company. To start, the King then leased the crown lands in Olowalu and Ukumehame to the West Maui Sugar Company (Olowalu Town, LLC. 2008). An additional tract of 2,194 acres of crown land in Wahikuli was also leased by Lot Kamehameha in 1854, nine years prior to his coronation as king (Figure 15); it is unclear, however, if these lands were included in the lands that were under cultivation by West Maui Sugar Company. Overall, sugar production was fair for the fledgling company, without a mill, however, the crop was sent to the Pioneer mill for processing (Olowalu Town LLC 2008.)

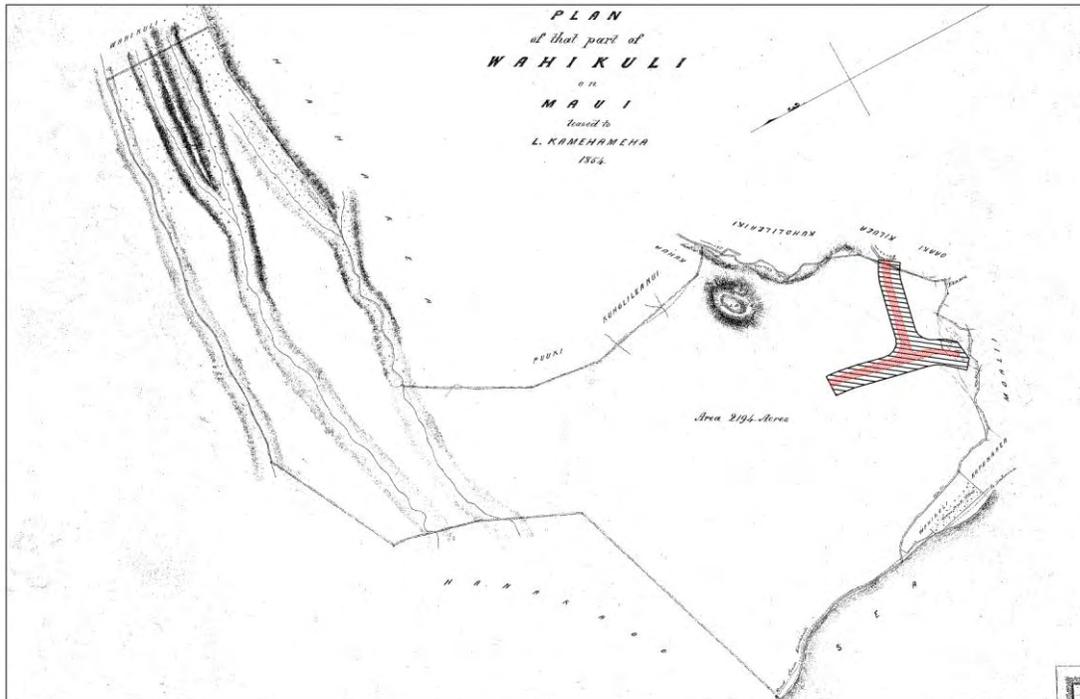


Figure 15. Plan map of Wahikuli lands leased to Lot Kamehameha, Government Registered Map 191.

In the late 1860's Z.S. Spalding became a partner in the West Maui Sugar Company and, taking over as manager, had West Maui Sugar acquire the Lahaina Sugar Company mill to relieve the reliance on the Pioneer Mill Co. mill for processing. Sugar prices, however, would drop in the 1870's. King Kamehameha V blamed the company's financial woes on Spalding who, years before, had been a spy for the U.S. government concerning the U.S. interest in annexing the islands. Finally, after the King threatened to withhold his land leases (Wilcox 1997:127) Z.S. Spalding was dismissed and James Makee's son, Parker Makee, filled in as manager (Olowalu Town, LLC. 2008). Following the death of King Kamehameha V in 1872 the land leases under his name were transferred to the West Maui Sugar Company and two years later the associates of the company would sell the assets of the sugar venture to James Campbell and Henry Turton of the Pioneer Mill Company (Wilcox 1997:127).

#### 3.1.4.2.2 Pioneer Mill Company

In 1852, James Campbell arrived in Lāhainā to start a small sugar plantation and by 1865, Campbell joined with Henry Turton in establishing the Campbell and Turton Company on lands deeded to them by Benjamin Pittman (Condé and Best 1973: 252). In order to increase the amount of land under cultivation and crop yields, the new plantation worked out long-term land leases along with the appurtenant water rights from regional small landowners (Simpich 1974). With the acquisition of lands and water rights that were controlled by the West Maui Sugar Association in 1874 (Forsyth 1900), Pioneer Mill Co. was able to significantly expand its land holdings and crop yields.

In 1877, Harry Turton had bought out his partners and was the sole owner of the Pioneer mill Company (Maui News 1926); by 1879, almost 4,500 acres of land were under contract to the company (Maui News 1926). In 1885, H. Hackfield & Company (later Amfac/JMB), the sugar agency representing the Pioneer Mill Company, purchased the controlling shares in the company and negotiated additional leases to acquire large tracts of land in Kaua'ula. These lands were controlled by the Bernice Pauahi Bishop Estate, and included water sources essential to the expansion of the plantation. Proceedings documented in a 1902 Territorial Report to the U.S. Secretary of the Interior also show that the former Wahikuli lease to Lot Kamehameha was transferred to Pioneer Mill Co.:

Wahikuli. — Area, about 2,807 acres. Has about 1 1/2 miles of coast frontage on west coast of Maui, just north of the town of Lahaina. Extends about 3 miles inland. Cane and grazing land. Value, about \$40,000. Under lease to the Pioneer Mill Company at \$700 per annum. Lease dated April 1, 1890, and to expire April 1, 1913.

By 1890, Pioneer Mill holdings had grown to 10,000 acres of regional watershed, cultivatable land, and transportation right-of-ways (LRF 2008). With increasing acreage under cultivation resulting in higher crop yields, the Pioneer Mill Company was one of the first to put in a rail system for hauling cane from the fields to the mill (Condé and Best 1973: 252). In the early days of the Pioneer Mill Company, the sugar grown along the coast of Lāhainā was wholly dependent on the flow of mountain water. The development of additional water sources and pumping water to areas not previously irrigated became the means of expanding and maintaining sugar cultivation along the alluvial plains of Lāhainā.

### *Drilling for Well Water*

Between 1860 and 1881, aside from limited diversions of the various streams issuing from the valleys back of Lāhainā, Olowalu and Ukumehame, no large-scale development for irrigation water had been attempted by the Pioneer Mill Company or any of the other sugar enterprises of West Maui. The McCandless Brothers, an engineering enterprise from Honolulu, was hired in 1883 to drill the first well for the Pioneer Mill Company at Kā'anapali. While ample water was found, Turton had considered it a failure as he was hoping for an artesian source at Kā'anapali that did not require the more costly expenditure of pumping (McCandless 1936).

In 1896, the Pioneer Mill Company hired the McCandless Brothers again to resume drilling, near their first drilling location. This resulted in the development of nine wells at Kā'anapali, as well as, a system of pumps that would produce a successful source of water at this location. An additional 14 wells were developed in 1900 with 12 more in 1921, for a grand total of 36 wells at the Kā'anapali turbo-electric pumping stations. With this successful development, the McCandless Brothers continued to drill 26 more wells in the vicinity of Lāhainā. The Lāhainā wells were sunk 100 to 300 feet in depth, into formations representing a mixture of, "clay, gravel, and boulders," down to the basalt bedrock" (McCandless 1936).

A particularly successful type of well, the "Maui-type well" is a name applied throughout Hawai'i to a vertical mine-like shaft to the basal water table, with one or more horizontal infiltration tunnels skimming off the fresh water from the underlying salt water (Stearns

1942:126). The substantial increase in the volume of irrigation water from Maui-type wells provided the Pioneer Mill Company (Table 2) with the ability to further expand its cultivated acreage; between 1895 and 1905, the number of acres harvested increased from 525 to 3,000 (Gilmore 1936).

Table 2 Maui-type Wells on Pioneer Mill Co. Lands (adapted from Stearns 1942)

USGS No.	Plant. No.	Name	Date	Elev. (Ft.)	Depth (Ft.)	Capacity m.g.d.	Aquifer
2	F	Honokowai	1921	65	65	5.00	Wailuku basalt
3	D, H	Kaanapali	1897	27	25	15.00	same
4	G	Hahakea	1923	14	12	5.00	same
5	M	Kahoma	1933	322	323	10.00	same
6	L	Wahikuli	1897	26	27	5.00	same
7	C	Pioneer Mill	1897	34	39	10.00	same
8, 9	B, A, E	Wainee	1897	30	31	13.90	same
10	N	Olowalu	1933	165	300	5.25	same
11	O	Olowalu	1905	20	20	3.00	same
12	P	Ukumehame	1934	79	143	4.75	same

### *Tunneling for Perched Water*

In 1898, water sources of the Honokōwai valley were the first to be developed for irrigation, with the installation of a small pump and the construction of a galvanized iron flume (Maui News 1926). In a similar manner, each of the other ditch systems was developed to provide large-scale water resources to fields along the Kahoma, Kanaha, Kaua'ula, Launiupoko, Olowalu and Ukumehame Stream Valleys (Wilcox 1996:134). In order to fully develop each stream valley, a series of tunnels were driven high into the water-bearing valley walls by company engineers (Table 3). According to Stearns (1942), the dike complexes and dike swarms at the headlands of each stream valley were found to contain abundant water. The West Maui dike swarms not only stored water from areas of high rainfall in the mountains, but dispersed water in all directions. The dikes were found to crop out at the head of every major valley and supply practically all the perennial streams (Stearns 1942:165).

Table 3. Tunnels Driven for Perched Ground Water by the Pioneer Mill Company (P.M.Co) (adapted from Stearns 1942)

No.	Owner	Valley	Elev. (ft.)	Yield (gal./day)	Length (ft.)	Geologic Structure/ Perching Formation
13	P.M.Co.	Olowalu	1,710	100,000	3,000	Vent breccias of Wailuku caldera complex cut by dikes
14	P.M.Co.	Olowalu	775	dry		Dike swarm in Wailuku basalt
15	P.M.Co.	Launiupoko	1,425	100,000	1,320	Tunnel cuts through 20 dikes in

No.	Owner	Valley	Elev. (ft.)	Yield (gal./day)	Length (ft.)	Geologic Structure/ Perching Formation
						Wailuku basalt
16	P.M.Co.	Kauaula	2,920	2,000,000	656	through 194 dikes
17	P.M.Co.	Kahoma	1,923	dry	2,500	through 19 dikes
18	P.M.Co.	Kahoma	1,984	1,900,000	3,080	through 47 dikes
19	P.M.Co.	Kahoma	2,350	10,000	739	through 16 dikes
20a	P.M.Co.	Honokowai	1,700	2,000,000	1,250	through 18 dikes
20b	P.M.Co.	Honokowai	1,600	500,000	1,050	through 7 dikes

The successful drilling of Tunnel 16 in 1901 at Kaua'ula produced a steady flow of 4,325,000 gallons in a 24-hour period (Barkhausen 1903). Tunnel 16 was considered relatively short and its cost, at \$3,813.53, was one-third the cost of continuing work on the Kahoma flume. In the year-end plantation report for 1904, a similar drilling project at Tunnel 18 at Kahoma produced a steady flow of over 1.5 million gallons a day. The success of developing water resources by drilling tunnels into lava formations at high elevations to intercept large flows of water carried by lava tubes was a program successfully undertaken at nine other Pioneer Mill Company locations (Wadsworth 1936). Further work by the plantation in 1910 to increase sources for fresh water resulted in the replacement of the Kahoma flume with a tunnel 5,300 feet long, resulting in better capture of storm runoff water (Weizheimer 1911).

### ***The Honokohau Ditch Project***

Additional sources of water were required for the successful expansion of acreage under cultivation. To this end, a large-scale ditch project was proposed which would put the Pioneer Mill Company on par with sugar operations in Maui's central isthmus. The largest water sources on the Lāhainā side of the island were the Honokohau and Honolua streams, on lands owned by Henry Perrine Baldwin and the Honolua Ranch Company. In 1902, construction of the Honokohau Ditch was begun. The ditch started at an elevation of 700 feet amsl, with intakes at Honokohau, Kaluanui, and Honolua streams. The ditch and flumes ran along soft hillsides where landslides frequently choked the ditch and damaged the flumes, but teams of workers kept the waterways clear. Work was completed in May 1904, with capacity averaging 25 million gallons per day (Wilcox 1996).

The Honokohau Ditch supplied water to nine reservoirs with a combined storage capacity of 70 million gallons. Not having to pump water to field elevations at 700 feet amsl represented an immediate savings. As a result, more than 1,000 new acres were placed in irrigation, offsetting nearly \$30,000 in permanent improvement costs (Barkhausen 1905).

### **3.1.5 1900s to the Modern Era**

At the beginning of the 20<sup>th</sup> Century, most of the field jobs were performed by contract gangs. Each type of contract gang was paid at a different rate, which was sometimes dependent on the difficulty of the terrain. Gangs were organized for planting, harvesting, cutting, packing, laying flumes, laying portable railroad track, and other similar field jobs (Eckart 1911).

Preparation of the fields was accomplished by either a tractor/steam plow where the fields are virtually rocky free (approximately 60% of the fields under cultivation in 1934) or via hand preparation with handpicks and shovels in rocky areas that would not be suitable for plowing (approximately 40% of the fields under cultivation in 1934) (Figure 16) (Gilmore 1936:199-200).

With the availability of ample water, one method by which cane was transported to the main railroad lines of the Pioneer Mill railway was by fluming. The Pioneer Mill Company operated flumes averaging about 3,500 feet in length, which required 75,000 to 175,000 gallons of water per hour to flume cane downslope. A full flume gang consisted of 68 men, of whom 24 were assigned to *hapai ko*: carrying the harvested cane to a spot where the cane would be handled by the chute workers. The remaining members of the flume gang comprised: 8 men assigned to the chute, 6 flume carpenters who repaired field breaks and leaks, 6 overseers, and 24 flume workers who cleared jams and unloaded the cane into railroad cars (Carter 1934).

By 1910 the Pioneer Mill Company employed over 1600 workers and cultivated over 8,000 acres of cane (Figure 17). By 1920, the lands under cultivation stretched from Ukumehame to Honokowai. Through the years the company exchanged hands and the new owners kept on the leading edge of industrialization, implementing changes such as increasing the number of rollers in the mill until it reached its peak production of 34,980 tons in 1924. In 1931 the company acquired the Olowalu Sugar Company further increasing its holdings ([http://www2.hawaii.edu/~speccoll/m\\_about.html](http://www2.hawaii.edu/~speccoll/m_about.html)).

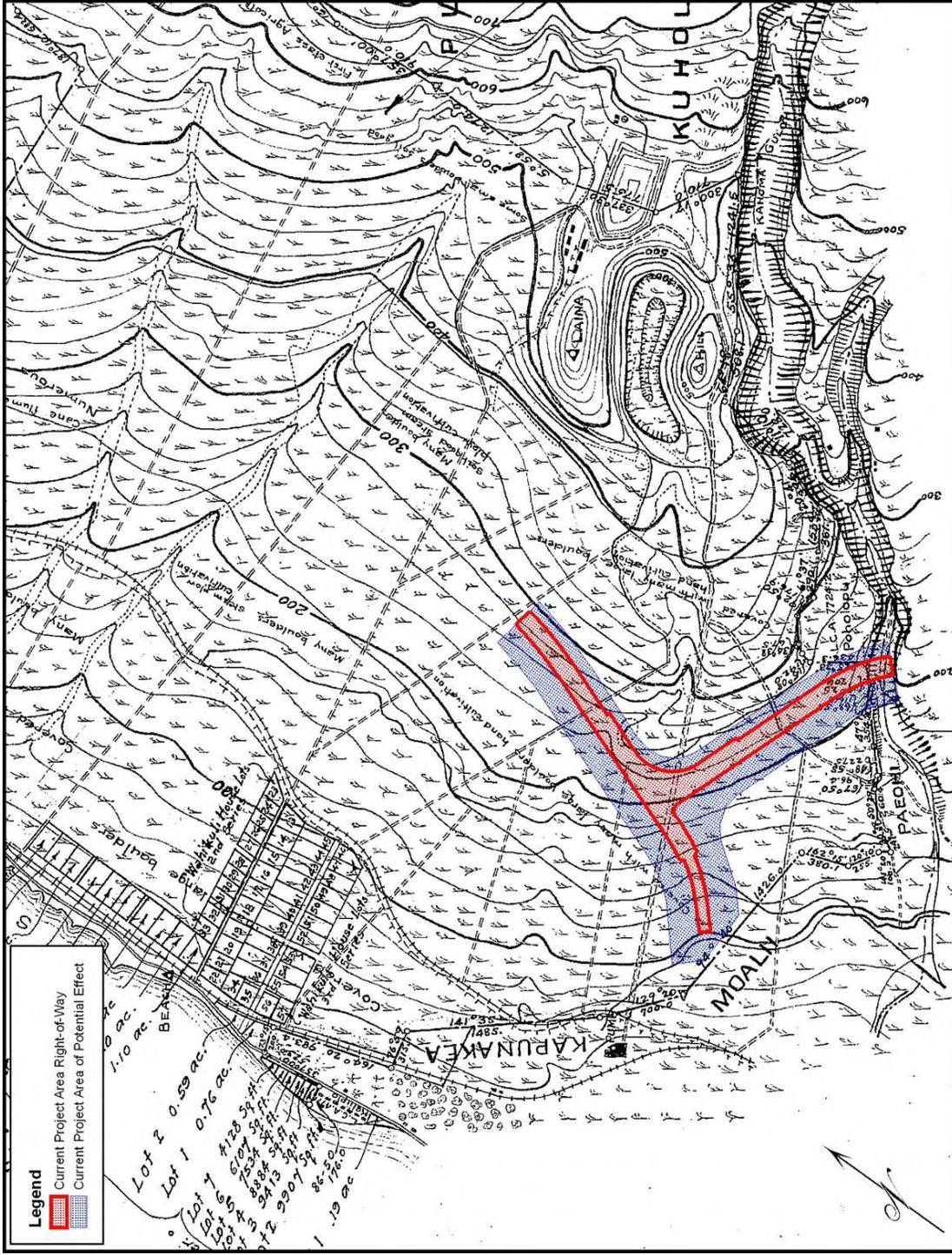


Figure 16. A portion of the 1913 W.E. Wall survey map for Pioneer Mill Co. describing terrain and method of sugar cultivation along the Waiuku plain.

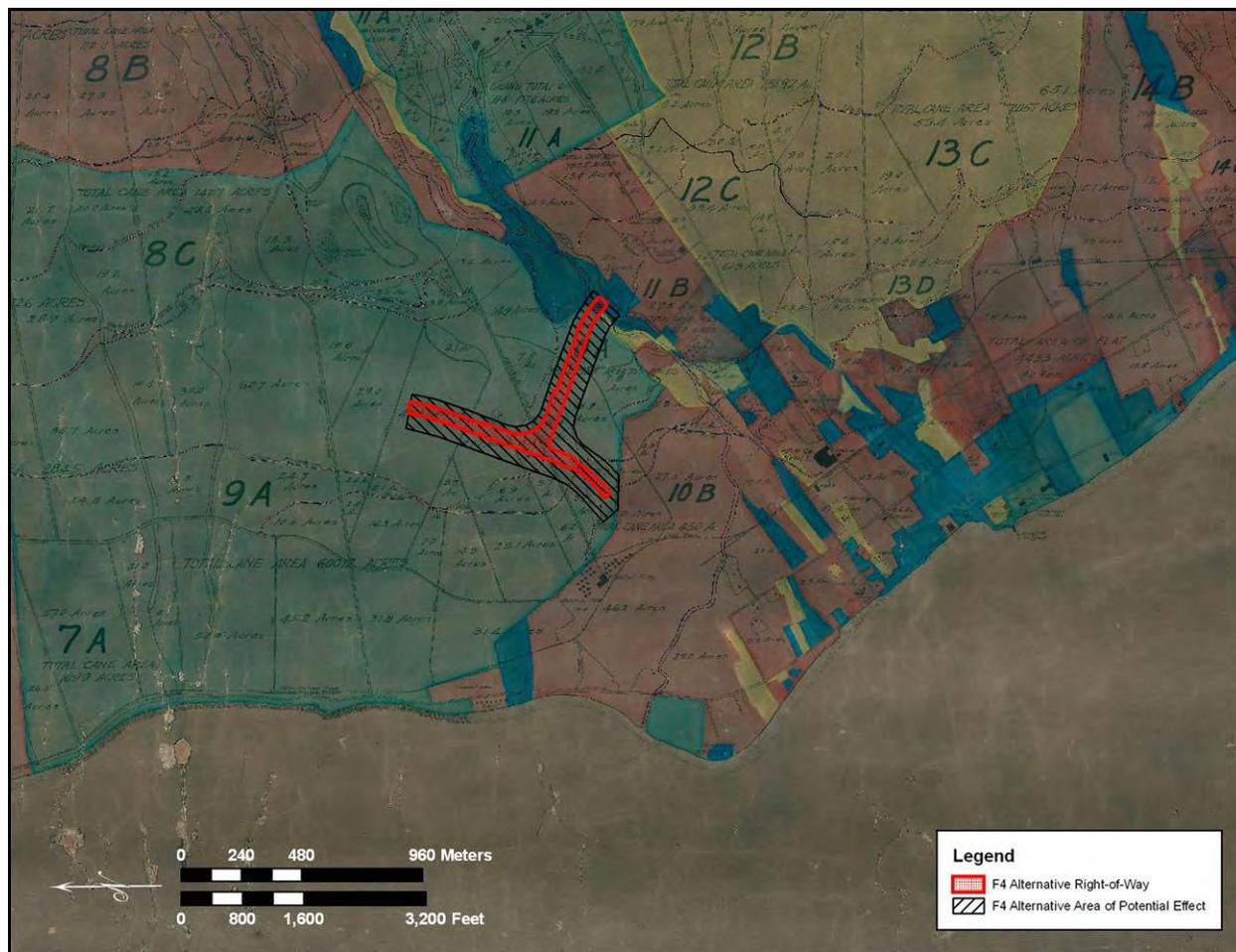


Figure 17. A portion of a 1918 map illustrating lands under cultivation by the Pioneer Mill Company in relation to the current project area, fields delineated alpha-numeric (Wright and Awana 1918) Pioneer Mill Co. lands in red, Government leased lands in Green, Bishop Estate leased lands in yellow, other leasehold lands and lands under other ownership in blue.

Beginning in 1912, a two-year project to completely rebuild the Honokohau Ditch was undertaken by David T. Fleming, manager of the Honolulu Ranch. The new ditch was able to collect and deliver 25 million gallons of water per day - all of which was sold to the Pioneer Mill Company (Wilcox 1996). The much-needed water saved the harvest of 1914: crops that were about to be abandoned due to a drought (Weinzheimer 1914).

By 1930, the Pioneer Mill's power and irrigation water pumping system required a new source for the Kahoma region. A concrete-lined well shaft was constructed to a diameter of 12 feet and sunk 325 feet underground (Watts 1939). A steam plow engine was modified to provide power for an elevator designed to lower workers into the well. The resulting Maui-type well was able to pump fresh water at a rate of 10 million gallons per day.

In the rocky fields that would not allow for plowing, sugar cultivation was accomplished in the following manner:

In these fields the rocks are cleared away and built into a series of stone walls from 5 to 6 feet apart and often 3 feet high. These stone walls form the banks of the cane row; and between these walls the ground is softened up with a pick and the seed then planted. (Gilmore 1936:200)

Gilmore (1936:200) goes on to note that though extremely difficult and time consuming, the soil of these rocky areas were very fertile and yielded between 90 to 100 tons of cane per acre, presumably making it worth the time and manpower to continue cultivation in these labor intensive areas.

By 1940, acreage harvested had peaked at 5,237, including 550 acres harvested from the purchase of the Olowalu Plantation in 1931 (Meyers 1954). After World War II, improvements in heavy equipment and mechanized farming brought on more efficient field clearing and planting methods and from the years 1947 to 1950 Pioneer Mill Company started a rock removal program to increase overall sugar production (Pioneer Mill Company, Ltd 1951). The program used heavy equipment to bulldoze rocks from the fields, which were stacked into large piles that still dot the landscape today (see also Figure 6). Also at this time, many of the terraced fields described above were either abandoned in hard to access areas with a higher degree of slope relief, or cleared via this new machinery. While the railroad had provided an efficient means of transporting sugar prior to the 1950s, by 1952 it was no longer economically feasible to keep the railway operating. In response to the increasing expenses of maintenance and operation, the rail system was replaced with the more efficient cane haul trucks and a feeder conveyer and crane system for loading (Minoru Hinahara in Nishimoto et al. 2003: 101-102).

The Pioneer Mill Company thrived throughout major dips in the American economy; however, all ventures are susceptible to market change and the Pioneer Mill Company was no exception. Faced with foreign competition that had, driven by lower land and labor costs, the company closed down in 1999 (Kubota 1999). Today, fallow fields, the smoke stack, and a six-mile segment of the track are all that remain of the Pioneer Mill Company. In 1970, the Kaanapali & Pacific Railroad used the six-mile segment of track to create a tourist Sugar Cane Train ride *mauka* of Lāhainā Town. Although the sugarcane industry has disappeared from this area of Maui, the impact of the industry changed the landscape of West Maui and the rest of Hawai'i forever.

## 3.2 Previous Archaeological Research

Summaries of archaeological studies within the general area of Lāhainā are listed in Table 4 and illustrated in Figure 10, with a follow-up discussion of archaeological work specific to the current project and study area presented in chronological order.

Table 4. Summary of Previous Archaeology

Reference	Year	Location	Summary of Work												
Walker	1931	Island Wide	Primarily concerned with the identification of monumental architecture or <i>heiau</i> identification.												
			<table border="1"> <thead> <tr> <th>Location</th> <th>Walker Site Number</th> <th>Name</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>Kelaweā</td> <td>10</td> <td>Luakona Heiau</td> <td>Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina</td> </tr> <tr> <td>Māla (Wahikuli)</td> <td>11</td> <td>Halulukoakoa Heiau</td> <td>Large <i>heiau</i> for human sacrifice of which few wall fragments remain.</td> </tr> </tbody> </table>	Location	Walker Site Number	Name	Comment	Kelaweā	10	Luakona Heiau	Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina	Māla (Wahikuli)	11	Halulukoakoa Heiau	Large <i>heiau</i> for human sacrifice of which few wall fragments remain.
Location	Walker Site Number	Name	Comment												
Kelaweā	10	Luakona Heiau	Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina												
Māla (Wahikuli)	11	Halulukoakoa Heiau	Large <i>heiau</i> for human sacrifice of which few wall fragments remain.												
W. Fredericksen and D. Fredericksen	1965	Paunau	Data Recovery: Confirmed the location and construction techniques of the "Brick Palace" of Kamehameha I.												
Connolly	1974	Kahoma Stream	Inventory Survey of Kahoma Stream Flood-Control Project Area, which identifies the "Kahoma Stream Terrace System Complex" of 33 agricultural terraces and a second complex at a higher elevation: the "Haia Terrace System" that is located outside of the project area.												
Davis	1977	Māla Wharf	Archaeological Investigation (Phase II): Identification of 13 previously unidentified burial features and re-identification of 51 burial features noted by the Bishop Museum; re-evaluation of function resulted in updated determinations where 2 features were identified as pushpiles, 4 features identified as pavings, 2 features identified as retaining walls.												
Hammatt	1978	Māla Wharf	Archaeological Investigation and Monitoring: Monitored the exhumation of 90 human burials, three of which were determined to be pre-contact Hawaiian burials, at SIHP 50-50-03-226 (Pu'u Piha Cemetery). Identified a pre-contact cultural material layer likely associated with pre-contact habitation.												
Ahlo and Morgenstein	1980	Mouth of Kahoma Stream	Archaeological Testing: Identified an ' <i>auwai</i> ' possibly associated with Loko o Alamihi; one <i>imu</i> feature, historic era materials, pond sediments associated with Loko o Alamihi.												
Hommon	1982	Waine'e	Reconnaissance: No significant finds.												
W. Fredericksen and D. Fredericksen	1982	Hale Pa'i	Data Recovery: Determined that the original ground level of the printing house structure at Lahainaluna was approximately 1.5 meters below the then current ground surface. Determined that the original structure was likely a combination of traditional Hawaiian architecture and western architecture.												
Kurashina and Sinoto	1984	Puuki, Kuhua 1-3 Ahupua'a	Archaeological Reconnaissance: One early historic-era irrigation gate that regulated Kahoma Stream waters into the fields and remnants of the Pioneer Mill Hospital.												
Watanabe	1987	Kahoma Stream	Archaeological Testing: Investigation of terrace identified as a possible burial; testing identified the feature as a raised ' <i>auwai</i> ' that was later used as a foot path during the historic era.												

<b>Reference</b>	<b>Year</b>	<b>Location</b>	<b>Summary of Work</b>
Barrera	1988	Multiple Ahupua'a	Archaeological Reconnaissance: Identified historic properties associated with agricultural pursuits.
Haun	1988	Moali'i Ahupua'a	Subsurface Archaeological Reconnaissance: A total of 19 backhoe trench excavations resulted in the identification of two areas of potentially intact subsurface cultural deposits dating to the pre-contact era.
Spencer Mason Architects	1988	Lāhainā Town	Architectural Survey: Identification of 15 historic-era structures along Lahainaluna Road and Wainee Street, including the intersection, in excellent to fair condition.
W. Fredericksen et al.	1988b	Panaewa Ahupua'a	Inventory Survey: Excavations of a portion of the "Aus Site" 50-03-1797 were conducted. Based on the scarcity of cultural material remains, initial analysis of the area indicated that it was a low use area.
W. Fredericksen et al.	1988a	Waine'e Ahupua'a	Inventory Survey: Phase I inventory survey at Hale Pi'ula. Did not identify features positively associated with Hale Pi'ula (unfinished stone palace of Kamehameha III); however, 2 oblong structures of an indeterminate function and a portion of the foundation from the old armory building were documented
D. Fredericksen et al.	1989	Panaewa	Data Recovery/ Monitoring: 10 early post-contact to modern-era refuse pits.
Jensen	1989	Wahikuli	Inventory Survey: Documentation of 20 agricultural terraces, 13 burial and possible burial features, seven walled habitation enclosures, one temporary shelter, one historic road, one petroglyph panel, and one platform representing both pre-contact and historic-era use of the area.
Kennedy	1989	Paunau	Limited Subsurface Testing: Artifacts with a time range of early post-contact to modern era.
Riford and Cleghorn	1989	Multiple Ahupua'a	Documentary Assessment: Assessed the potential for surface and subsurface archaeological resources at 10 prospective power plant sites. The site location closest to the project area, former location of Pioneer Mill, noted low potential for pre-contact resources on the surface and moderate potential for buried resources.
W. Fredericksen et al.	1989a	Panaewa	Inventory Survey: Sparse historic-era cultural materials in a disturbed context.
W. Fredericksen et al.	1989b	Paunau	Inventory Survey: Determined that the parcel was open space/lakeshore and that a portion was likely submerged under Loko o Mokuhinia
W. Fredericksen and D. Fredericksen	1990	Panaewa	Monitoring/ Data Recovery: Out-of-context indigenous artifact. No significant finds.
Folk	1991	Kaiehe Ahupua'a, Front Street -- Lāhainā Town	Archaeological Testing: One charcoal lense interpreted as a modern burning episode; gleyed clays marking the location of an ancient shoreline; no additional findings -- no further archaeological work.
Jensen	1991	Panaewa	Inventory Survey: Four pre-contact historic properties containing 28 component features associated with agriculture, habitation, and burial interment and ceremony.

Reference	Year	Location	Summary of Work
Jensen and O'Claray	1991	Wahikuli to Aki	Inventory Survey: Identified 6 water control features associated with historic-era agriculture adjacent to the area of potential effect as defined for the inventory survey. These features were comprised of various sections of a wooden flume and stream crossings in addition to a small and narrow dam.
Pantaleo	1991	Panaewa Ahupua'a, North of Kanaha Stream	Archaeological Survey: Historic foundations (circa 1930) constructed of cement and dressed basalt boulders; barbed-wire fencing; identified as historic-era water tank foundations associated with either ranch activities or water supply for the Lahainaluna teachers' cottages.
Shun	1991	Mouth of Kahoma Stream	Burial Disinterment: Total of 11 separate findings: 10 coffin burials; 1 recovered out of context (Burial 2A) (p10:Table 2). Burials 3, 4, and 6-9 appear to have been incompletely and hurriedly removed prior to disinterment.
Kennedy and Denham	1992	Wahikuli	Inventory Survey: No significant findings.
Donham	1993	Māla Wharf	Field Check: Recovery of inadvertently encountered skeletal remains.
W. Fredericksen and D. Fredericksen	1993	Lāhainā Town	Inventory Survey: Documentation of three historic-era disposal pits.
Jensen	1994	Hanakao'o and Paunau	Inventory Survey: No significant findings.
Robins et al.	1994	Ma'alaea to Paunau	Inventory Survey: Identification of 34 historic properties, including: permanent and non-permanent habitation sites, heiau, shines, travel markers, non-irrigated agricultural sites, historic ranching walls, irrigation canals, burials sites, possible railroad beds from the previous sugar plantation operation.
Heidel et al.	1995	Waine'e	Inventory Survey: No significant findings.
Kawachi	1995	Puunoa/Alamihī; Loko o Alamihī	Archaeological Testing: Confirmation of "dirty" fill deposits within Loko o Alamihī as a part of the reclamation process, historic era artifacts (glass, ceramics) identified between 25-56 cmbs within Trench F. No significant cultural materials documented within the excavated trenches.
Klieger	1995	Lower Waine'e Moku'ula	Data Recovery: Verified the location and condition of the inland island, and royal residence of Moku'ula, verified the nature of the surrounding fresh water pond of Loko o Mokuhinia, documented modifications to the inland island and nature of cultural material remains associated with the occupation of Moku'ula.
Klieger and Clark	1995	Lower Wane'e Moku'ula	Data Recovery: Human burial find at Moku'ula.
Klieger and Somer	1995	Lower Wane'e, Moku'ula	Emergency Archaeological Mitigation: Verified disturbance of Moku'ula cultural deposits during baseball park improvements breaching the island perimeter retaining wall and possible portion of the northern/southern holding pond.

Reference	Year	Location	Summary of Work
Major and Klieger	1995	Pakala	Inventory Survey: Identified two historic properties: SIHP 50-50-03-4118, a subsurface deposit potentially related to pre-contact to early historic habitation of the parcel by Lāhainā <i>konohiki</i> Pikanele, and 50-50-03-4119, a historic-era dwelling.
Sinoto	1995	Puuki, Kuhohileā, Kuhua I-3	Monitoring Report: No significant findings.
Burgett et al.	1996	Moali'i Ahupua'a, Māla Wharf	Data Recovery: Land alterations following the original archaeological inventory survey (Haun 1988) had effectively eliminated the subsurface remains of the cultural deposit slated for data recovery (SIHP 50-50-03-2963).
E. Fredericksen	1997	Pioneer Inn	Monitoring Report: No significant finds.
Hammatt and Shideler	1998	Lahaina Courthouse	Archaeological Monitoring: Identified historic era fill deposit and pig remains. The presence of pig remains is indicative of a possible pre-contact cultural deposit.
D. Fredericksen and E. Fredericksen	1999	Puako	Inventory Survey: Identification of SIHP 50-50-03-4682, a post-contact boundary wall, and -4690, a discontinuous pre-contact cultural deposit, as well as gleyed deposits indicating a probable fishpond deposit associated with the occupation of Moku'ula.
D. Fredericksen and E. Fredericksen	2000a	Waine'e	Inventory Survey: Identified SIHP 50-50-03-5042, two plantation era structural remnants and cultural material associated with the settlement of Waine'e Village.
D. Fredericksen and E. Fredericksen	2000b	Puako	Inventory Survey: Human remains from previously disturbed context.
Haun	2000	Pūehuehu Iki, Pāhoa, and Pola Nui	Inventory Survey: A total of three historic properties associated with both traditional and commercial agricultural endeavors from the later pre-contact era to early historic era (SIHP -4789 and -4795), and historic to late historic (SIHP -4787).
Borthwick and Hammatt	2001	Lahaina Courthouse	Subsurface Archaeological Investigation: Documented a pre-contact subsurface cultural deposit (SIHP 50-50-03-4754) at approximately 1-1.2m below surface.
E. Fredericksen and D. Fredericksen	2001	Puako	Archaeological Monitoring: Four pre-contact to early post-contact historic properties consisting of traditional Native Hawaiian burial interments and cultural deposits with subsurface features indicative of habitation.
Calis	2002	Panaewa	Monitoring Report: One subsurface cultural deposit, 50-50-03-5180, composed of historic-era artifacts (circa 1940-1960).
E. Fredericksen	2002	Paunau, King Kamehameha III Elementary	Archaeological Monitoring: No significant finds.
E. Fredericksen and	2002	Puako	Inventory Survey: One historic property consisting of four post-contact trash pits and one "backyard"

Reference	Year	Location	Summary of Work
D. Fredericksen			waterworn pavement.
W. Fredericksen	2002	Paunau	Archaeological Monitoring: Cultural materials identified during the course of monitoring originated in the 1.2m thick fill deposit that was imported to the project site. Cultural materials ranged from indigenous artifacts (poi pounder handle and conus shell scraper) to historic-era artifacts (crockery, glass, and a clay pipe stem) as well as mammal bone and teeth, marine shell and fish remains. No historically significant in situ cultural remains were identified during monitoring activities.
E. Fredericksen and D. Fredericksen	2003	Multiple Ahupua'a	Inventory Survey: One pre-contact human burial identified below the plow zone (50-50-03-5238).
Formolo et al.	2005	Hanaka'o Ahupua'a <sup>2</sup>	Archaeological Assessment: No significant historic properties identified.
Paraso and Dega	2006	Polanui and Launiupoko	Inventory Survey: Identified a total of 10 historic properties: five are associated with historic era commercial sugar cultivation (50-50-03-4787 [Lahaina Pump Ditch No. 1]; -5950 [17 field clearing mounds]; -5951 [water control features]; -5952 and -5957 [terraces associated with manual sugar cultivation]); two are rock walls associated with historic era ranching activities (50-50-03-2665 and -5954); one is a historic slag scatter (50-50-03-5953); two are activity areas of an indeterminate age (50-50-03-5955 [modified outcrop and coral fragments] and -5956 [cultural material scatter of indigenous and historic era materials]).
Pickett and Dega	2006	Moali'i Kahoma Stream	Archaeological Assessment: No significant historic properties identified.

<sup>2</sup> Project area location erroneously listed as Hanako'o Ahupua'a, actual location within portions of Wahikuli and Moali'i Ahupua'a.

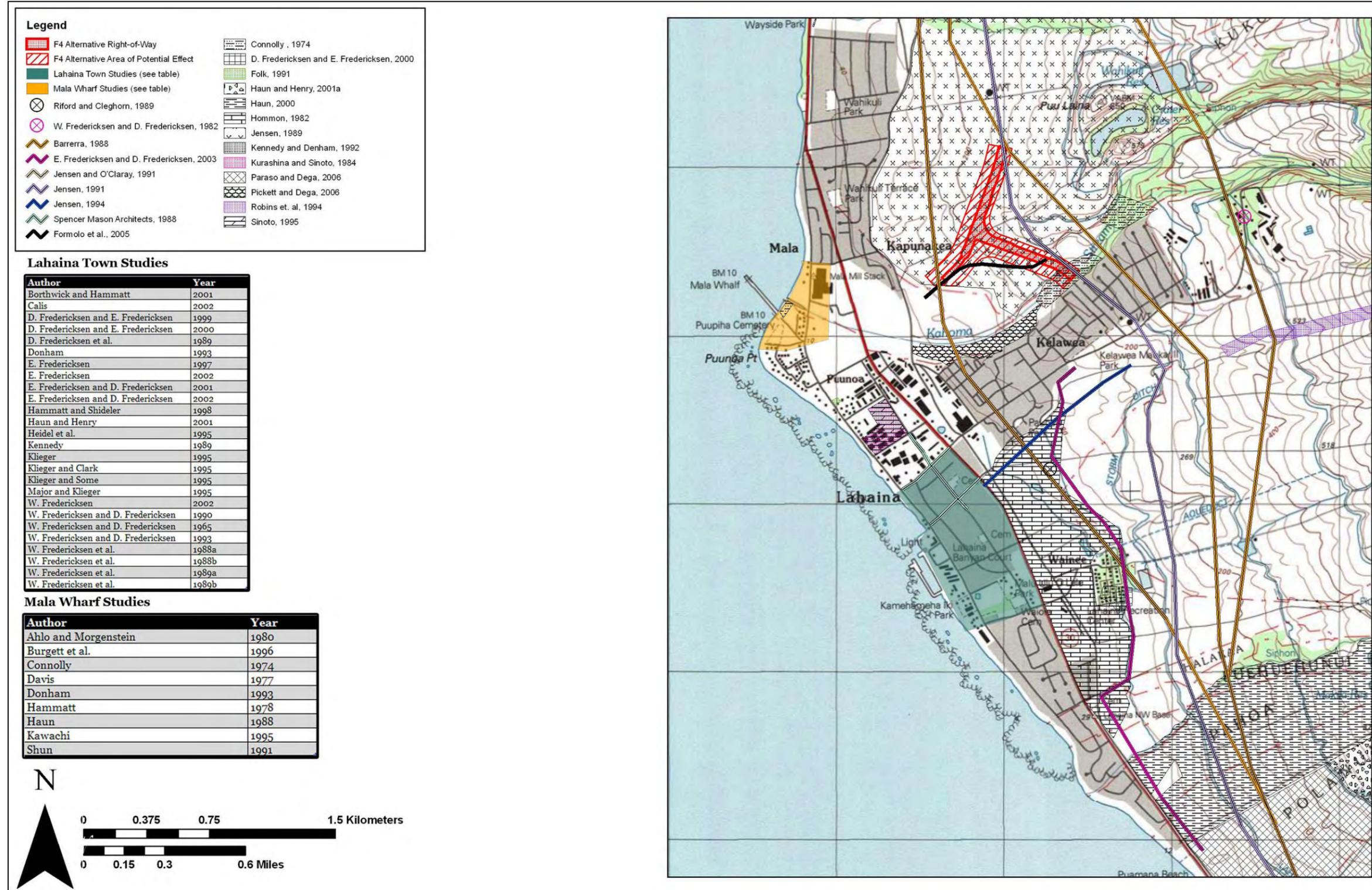


Figure 18. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992), showing current project area location in relation to areas of previous archaeological study.

Robert D. Connolly III (1974) performed a walk-through survey of the Kahoma streambed, as part of the flood-control construction planned for the area by the U.S. Army Corps of Engineers. Near the mouth of Kahoma Stream, Connolly recorded the location of a burial mound (50-50-03-226) within Pu'u Piha Cemetery. At the time of recordation, a total of 23 low stone platforms, one formal headstone, and one cement tomb were noted. Further up Kahoma Gulch, a "major terrace system consisting of 36 individual terraces, two ditches, seven cement structures, and four free-standing walls" was located at a point along the Kahoma Stream just below the confluence of the Kahoma stream and the Kanaha Stream and was recorded as the "Kahoma System" (SIHP 50-50-03-1775). This system represented both traditional Hawaiian agriculture, likely associated with the *kuleana* parcels within the area (see also Section 3.1.4.1 Great Mahele), and a historic-era dairy operation (circa 1900-1920). The survey of the "Kahoma System" was followed by the survey of the "Haia System", located at the confluence of the Kahoma and Kanaha Streams (SIHP 50-50-03-1776). The Haia System, comprised of agricultural terraces much like those of the Kahoma System, as well as habitation structures, was not formally recorded as it was located outside the boundary of the flood-control project.

In 1988, William Barrera conducted an archaeological reconnaissance of three alternative highway corridors, beginning at Launiupoko and ending in Honokowai, for a realignment of Honoapi'ilani Highway to bypass Lāhainā Town. Jensen (1991) conducted a follow-up survey of two additional and partially overlapping corridors (Figure 18). A total of eight sites with 49 component features were recorded during the course of the reconnaissance. These properties consisted of pre-contact habitation features, agricultural features, and petroglyphs, as well as historic features associated with the plantation era.

In August and September of 1989, PHRI, Inc. (Jensen 1989) conducted an archaeological inventory survey of approximately 1,200 acres within Wahikuli Ahupua'a for the Lahaina Master Planned Project, an area which included the lands covered by the overall Lāhainā Bypass, as well as the current project area. This inventory survey, consisting of both an aerial and pedestrian survey, resulted in the identification of a total of 12 historic properties with some consisting of multiple components. These historic properties were identified and recorded within the two stream systems contained within the overall project area and along the sloping lands between the gulches of the stream systems. Ranging from poor to excellent condition, the historic properties identified during the course of the inventory survey were comprised of a range of formal types from both the pre-contact era (burials, ceremonial, habitation, *lo'i* and *kula* agriculture, and recreation) and historic era (primarily agricultural). Traditional agricultural terraces within the Hahakea Gulch and Kahoma Gulch were the predominant historic property type identified within the project area, while burials or burial markers were the next most frequently found site type. Jensen (1989:26) notes, however, that the data may be misleading as all burial and probable burial features were identified as multiple components of a single historic property. The next archaeological site type with a high occurrence rate consists of walled enclosures that likely served as either permanent or semi-permanent habitation. All of the historic properties associated with the Pre-contact Period were recorded in areas that were naturally protected and/or unsuitable for historic era or modern agricultural pursuits. Jensen (1991:26) asserts that the pre-contact features recorded during the course of the inventory survey likely occurred in numerous localities across the project area; however, land altering activities associated with agricultural development likely destroyed much of the surface remnants of such

features. Notably absent throughout the project area were signs of monumental traditional architecture or major platforms that are usually characteristic of a *heiau* as well as pre-contact trail systems linking the *mauka* and *makai* lands.

In June and July of 1991, PHRI, Inc. conducted an additional archaeological inventory survey within the Lahaina Master Planned Project acreage, specific to the seven-mile long corridor for the proposed Lāhainā Bypass (Jensen 1991). During the course of the 1991 archaeological inventory, a total of four historic properties containing 28 component features, three of which had been previously identified during the inventory survey conducted for the Lahaina Master Planned Project, were documented within the Lāhainā Bypass corridor. In addition to the four historic properties located directly within Lāhainā Bypass Corridor, six previously recorded historic properties (Jensen 1989) are located within close proximity and adjacent to the overall project corridor. Of the historic properties above, SIHP 50-50-03-2484 is located within the original Phase IA ROW and *mauka* of the current project area, while SIHP -2485 is located adjacent to, and *mauka* of the original Phase IA corridor (Figure 19). SIHP -2484 was described in both inventory survey reports (Jensen 1989 and 1991) as follows:

Site 2484 is a partial rock enclosure, or an L-shaped wall, located on the south-facing, gently sloping land above Kahoma Stream gulch, near the western end of an agricultural airstrip southwest of “Crater Reservoir” and Puu Laina. Extending 23.4 m north-south, the primary segment of wall was constructed by stacking basalt boulders from 4-5 courses to achieve a maximum wall height of 0.75 m and a wall width which ranges from 0.8 to 1.1 m. The southern end of this segment of wall has largely collapsed, but a section of intact wall segment proceeds westerly from this point for an additional 11.5 m. It could not be determined whether the remainder of an enclosure exists within this area, with the walls having collapsed or been bulldozed, or whether the L-shape of the exiting feature represent the entire original configuration. [Jensen 1989: 16-17 and 1991:24]

Additional vegetation clearing and detailed recording will be necessary in order to accurately map and refine the evaluation of feature “type” and function. However, no obvious concentrations of portable artifacts or other rock features exist within the immediate vicinity of this feature, which has thus only been tentatively identified as a possible habitation area. [Jensen 1989:17]

SIHP-2484 was evaluated as important for information content with a recommendation of further data collection (Jensen 1991:30). Because SIHP-2484 is located along a crucial turn in this section of the Phase IA ROW (Figure 19) it was determined that this historic property would be data recovered due to the necessary removal of this site.

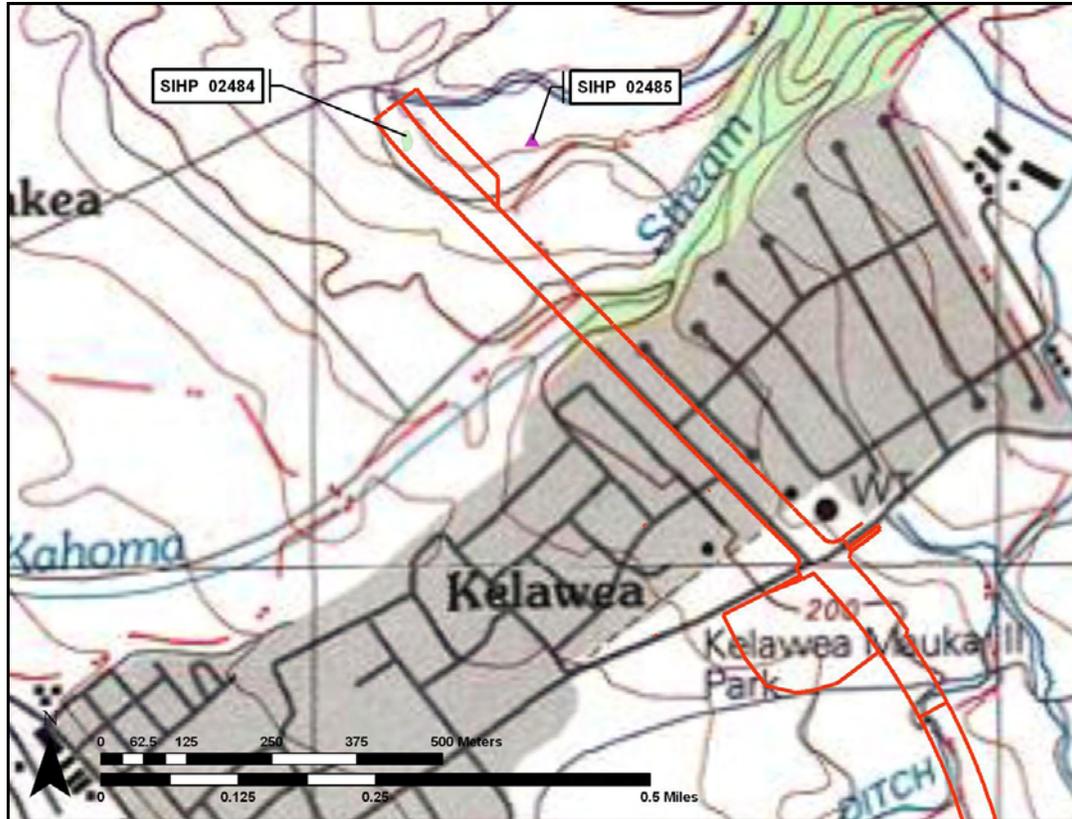


Figure 19. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992), showing previously identified historic properties within and directly adjacent to the original Phase IA ROW.

SIHP -2485 was also documented during the 1989 inventory survey and relocated during the course of the 1991 archaeological inventory of the Lāhainā Bypass corridor. Both inventory survey reports (Jensen 1989 and 1991) describe SIHP -2485 as follows:

Site 2485, located on the south-facing, gently sloping land above Kahoma Stream gulch and southwest of the western end of the existing agricultural airstrip southwest of “Crater Reservoir” and Pu’u Laina, is a rock enclosure which has been tentatively identified as a probable prehistoric habitation area (the enclosure closely resembles known prehistoric remains). The well constructed rock walls enclose a rectangular space which extends approximately 20m north-south by 24m east-west. The wall, constructed on relatively flat ground, is a fairly consistent 1.5m high around the entire periphery of the feature, except in areas where segments have collapsed. The thickness of the wall ranges from 0.9 to 1.8m, the thickest section at the feature’s corners. The perimeter wall has been penetrated by a constructed opening at only one location – near the center of the feature’s north wall.

Although no portable artifacts or midden were observed during the original HFDC [Housing Finance and Development Corporation] inventory survey field work, such material may remain concealed by dense grass and other surface vegetation at the site, or may be present below the surface of the site. [Jensen 1989:17 and 1991:24]

In order to evaluate this possibility and adequately determine feature function, additional vegetation clearing, coupled with detailed recording and data collection, will be necessary at this site. [Jensen 1989:17]

Additional concerns about SIHP -2485 in relation to the Phase IA of the Lāhainā Bypass arose when *kama'aina* testimony indicated that the enclosure contained the family graves of the Pali Ohana (Mr. Jonah Keahi, personal communication May 14, 2007).

During the course of a pre-construction archaeological field inspection by Cultural Surveys Hawai'i, Inc. on May 29<sup>th</sup> and 30<sup>th</sup>, 2007 (Lee-Greig 2007), a system of early historic era agricultural terraces and an associated irrigation system (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified. While the approximate acreage covered by the entire system consists of 30-acres, two acres of this system consisting of over 400 terraces are located within the northern terminus of the original Lāhainā Bypass Phase IA Right-of-Way (ROW). These terrace features are preliminarily interpreted as early historic agricultural features, based on the dimensions of the individual terraces and overall configuration of the system. In addition to the identification of SIHP -6277, other internal features consisting of agricultural terraces and a semi-paved activity area were identified within the previously recorded SIHP -2484 described above.

In February of 2005, Archaeological Services Hawaii, LLC. conducted an archaeological inventory survey of the proposed Keawe Street Extension Project for the County of Maui (Formolo et al. 2005). According to the proposed design, the Keawe Street extension would have started at the current terminus of Keawe Street and extend *mauka* to connect to the original Phase IA ROW (see ). A total of eight backhoe trenches were excavated within the project right-of-way. While no significant historic properties were identified, it was noted that soil depths within trenches excavated at higher elevations were significantly shallower when compared the *makai* portions of their project corridor (Formolo et al. 2005:18). Depth of soils within the *mauka* extent of their project corridor ranged from 0.8-1.7m to bedrock (Formolo et al. 2005:Table II) while the depth of soils within the *maikai* portions of their project corridor ranged from 0.7-1.15 (Formolo et al. 2005: Table II.)

### 3.3 Background Summary and Predictive Model

Based on the traditional knowledge (Fornander 1918-1919 Volume V, Kahā'ulelio 2006, Kamakau 1961, and Pukui 1983) and historic records (Mahele documentation, Arago 1823, Ellis 1826, Nicholson 1881, Stewart 1839, and Waal 1898) researched for this study, as well as archaeological evidence and interpretations (see also Section 3.2 Previous Archaeological Research), we know that the fertile and resource rich lower coastal plain of Lāhainā was home to high ranking *ali'i* during the time period before western contact, and later the seat of government for the Kingdom of Hawai'i following the unification of seven of the eight major Hawaiian Islands in 1791. The abundant resources and *ali'i* residential compounds speak to a rather large pre-contact and post-contact population along the lower reaches of the *kalana* of Lāhainā. Just as important as the coastal resources, the well watered stream valleys also provided a continuous water source for successful agricultural pursuits from the headwaters to the seaward mouth of the stream as evidenced by *kuleana* claims for numerous *lo'i* and sweet potato patches in the native testimony for LCAs within and adjacent to the project right of way as it crosses Kahoma Stream.

The above summary suggests a bimodal traditional settlement pattern where both recurrent and permanent habitation would be present within the stream valleys and along the coastal plain. Archaeological features associated with stream valley settlement would have likely included

habitation enclosures, terraces, and/or platforms, as well as features associated with diversified traditional agriculture (*lo'i* and *kula*) represented by agricultural terracing, agricultural mounds, and traditional water control features (Connolly 1974, Jensen 1989 and 1991, and Robins et al. 1994). Archaeological features associated with coastal habitation and marine exploitation would include habitation enclosures, terraces and/or platforms, and thick cultural material deposits, as well as smaller ceremonial structures, such as stacked-stoned fishing shrines, *ko'a*, and fishpond remnants (Folk 1991, W. Fredericksen 2002, W. Fredericksen and D. Fredericksen 1965, Haun 1988, and Kawachi 1991). It is also likely that human burials would have been placed in the coastal sand dunes and immediately back from the coast (Connolly 1974, Davis 1977, Donham 1993, and Hammatt 1978). *Mauka-makai* trails that would have connected the coastal settlement and resource areas with the more *mauka* stream valley settlement and resource areas seem to have followed the stream bed and cliff sides with crossings along the lower, more accessible points along the course of the stream. The alluvial plains or intermediate zone, where the current project area lies, is rather narrow in this portion of Maui as compared to that along the flanks of Haleakalā. While the traditional landscape of this region has been thoroughly altered by commercial sugar production from the early historic era through modern times, pre-contact features within this intermediate zone may have mirrored that of similar environments elsewhere on Maui Island, consisting of dispersed, low-intensity, dry-land agricultural features, such as mounds and alignments, as well as temporary habitations (Chaffee et al. 1997; Donham 1990; Miura 1982) and trail markers such as *ahu* (stone cairns).

Given that the project area is located in the transitional or barren settlement zone for this area of Maui, it is postulated that pre-contact historic properties representing temporary habitation or work area may be encountered within un-modified areas of the project area, in addition to mounds and/or small terraces related to small scale agriculture. It is also noted that pre-contact human burials have been identified beneath the plow-zone of former sugar cane fields; while usually identified in sandy deposits (D. Fredericksen and E. Fredericksen 2000c) and/or lands that had been previously set aside as *Kuleana* lands during the Mahele (Fredericksen 2003), the possibility of encountering such features are not under-estimated in the present context.

Based on the historic literature and the development of the sugar industry in the Lāhainā area and the immediate vicinity of the project area, historic properties associated with historic era plantation agriculture and infrastructure (e.g. clearing mounds, water control features, and transportation features) are also probable (Paraso and Dega 2006, Jensen and O'Claray 1991).

## Section 4 Results of Archaeological Fieldwork

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Hallett H. Hammatt, Ph.D.; Todd McCurdy, MA; Tanya L. Lee-Greig, MA; Virginia Vega, BA; and Michael Willman, BA completed the field effort for this archaeological inventory survey. The pedestrian portion of the inventory survey was conducted on June 9-10, 2008. Mechanized subsurface testing of former cane lands and two historic to modern-era agricultural pushpiles was conducted on June 19-27, 2008. Geophysical testing followed by mechanical exploration at the base of the northern embankment of the Kahoma Gulch area was conducted on July 7th and 9th, 2008. Overall, a total of 24 person-days were required to complete fieldwork.

### 4.1 Pedestrian Survey Findings

The vegetation of the project area consisted of ankle to knee high grass with small sections of exposed ground surface that resulted in good to moderate ground visibility. Over the course of the pedestrian survey, it became clear that the entire project area had been heavily modified by agricultural activities from the mid- to late-historic period (1890-1950) up until the modern era (Figure 20 and Figure 21). Numerous pushpiles from late-historic era field improvements were evident across the Wahikuli plains, two of which were located within the area of potential effect (APE) for this study (see Section 4.1.1). Additional modifications include overgrown and unimproved haul cane roads (Figure 22), abandoned unlined irrigation ditches, and remnant driscoll and PVC pipe fragments from field irrigation systems.



Figure 20. Current project area, view to north from the edge of Kahoma Gulch.



Figure 21. Current project area, view to north from proposed T-Intersection.



Figure 22 Current project area, view to east-southeast from Keawe Street Extension (note agricultural pushpile, 50-50-03-6492 to the left of frame).

Other modifications noted within the project APE include alterations to the Kahoma Stream Channel resulting from the U.S. Army Corps of Engineers' Kahoma Stream Flood Control Project. These alterations comprise widening the gulch along the northern cliff face to accommodate the redirection of the stream flow for Kahoma Stream, excavation for the construction of a drainage basin and weir at the top of the flood control project, and construction of a maintenance road along the northern cliff face near the top, or *mauka*, end of the drainage basin (Figure 23).

Two historic properties were documented within the project APE; both of which are late-historic era pushpiles associated with commercial sugar agriculture (Table 5). SIHP 50-50-03-6492 is located near the southern extent of the project APE, while SIHP 50-50-03-6596 is located within a shallow drainage channel along the northern terminus of the project APE (Figure 24).

Table 5. Historic Property Identified Within the Current Project Area.

Temporary Field Number	SIHP (50-50-03-)	Site Type	Function	Age	Significance Criteria
CSH-1	6492	Irregularly-shaped pushpile	Agricultural: remnant of mechanized field improvement activity	Historic	D
CSH-2	6596	Irregularly-shaped pushpiles	Agricultural: remnant of mechanized field improvement activity	Historic	D



Figure 23. Orthorectified photo showing modifications to the portion of the Kahoma Stream Channel located within the current project area.

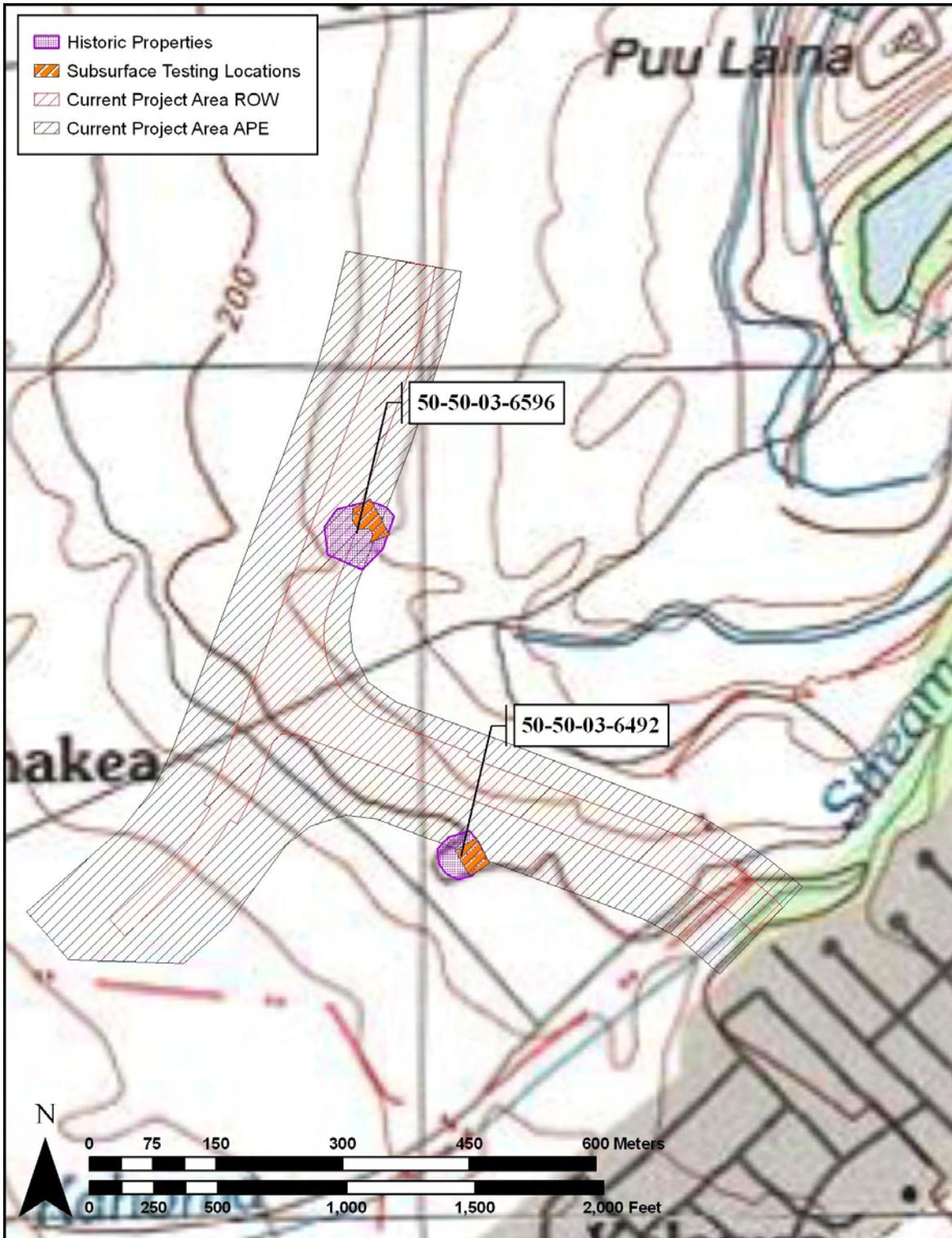


Figure 24. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992), showing historic property locations and testing locations, Modified Extension in red and overall APE in gray crosshatch

#### 4.1.1 SIHP Number 50-50-03-6492 (Figure 25)

<b>Site Type:</b>	Linear Agricultural Pushpile
<b>Site Function:</b>	Agriculture
<b>Dimensions:</b>	Approximately 45m wide by 47m long by 7 to 10m high
<b>Condition:</b>	Good
<b>Age:</b>	Historic
<b>Significance Criteria:</b>	D

**Description:** SIHP 50-50-03-6492 consists of a linear agricultural pushpile located within the southern segment of the current project area. Measuring 45m wide north-south by 47m east-west and approximately 7 to 10m high (Figure 25), this agricultural pushpile is constructed of loosely sorted, small to very large subangular to angular basalt boulders intermixed with large basalt cobbles. The loose construction of the boulders that comprises this historic property results in a fairly unstable surface across the top of the pushpile and the presence of ankle to knee-high grass resulted in moderate to poor surface visibility.

Sparse fragments of white PVC pipe, rusted metal, and concrete were observed on the surface of this historic property. Young *kiawe* and *koa haole* trees, along with patches of *uhaloa* (*Waltheria indica*) and *ilima* (*Sida fallax*) were also present atop and directly adjacent to this historic property.

##### *SIHP 50-50-03-6492 Testing Results*

A 32m by 20m area, totaling 640 square meters, was mechanically tested using an excavator with a thumb attachment (Figure 26, see also Figure 24). Excavation of this pushpile began in the northeast corner of the pile and proceeded in 6 meter (20 foot) sections by removing the rock and soil matrix to the original soil surface.

While there was the presence of a thin A-horizon (0.36m to 0.60 m. thick) of loose silt loam, the majority of the matrix that comprised the rock pile consisted entirely of large boulder fill (Figure 27). The depth of the underlying soil was determined by the excavation of one 3m by 1m wide test pit. Bedrock was encountered approximately 20-30cm (1-2 feet) below the original soil surface (Figure 28). Cultural materials present within the pushpile matrix included historic to modern era trash consisting of pieces of metal cable and sparse fragments of driscoll pipe, PVC pipe, and concrete.

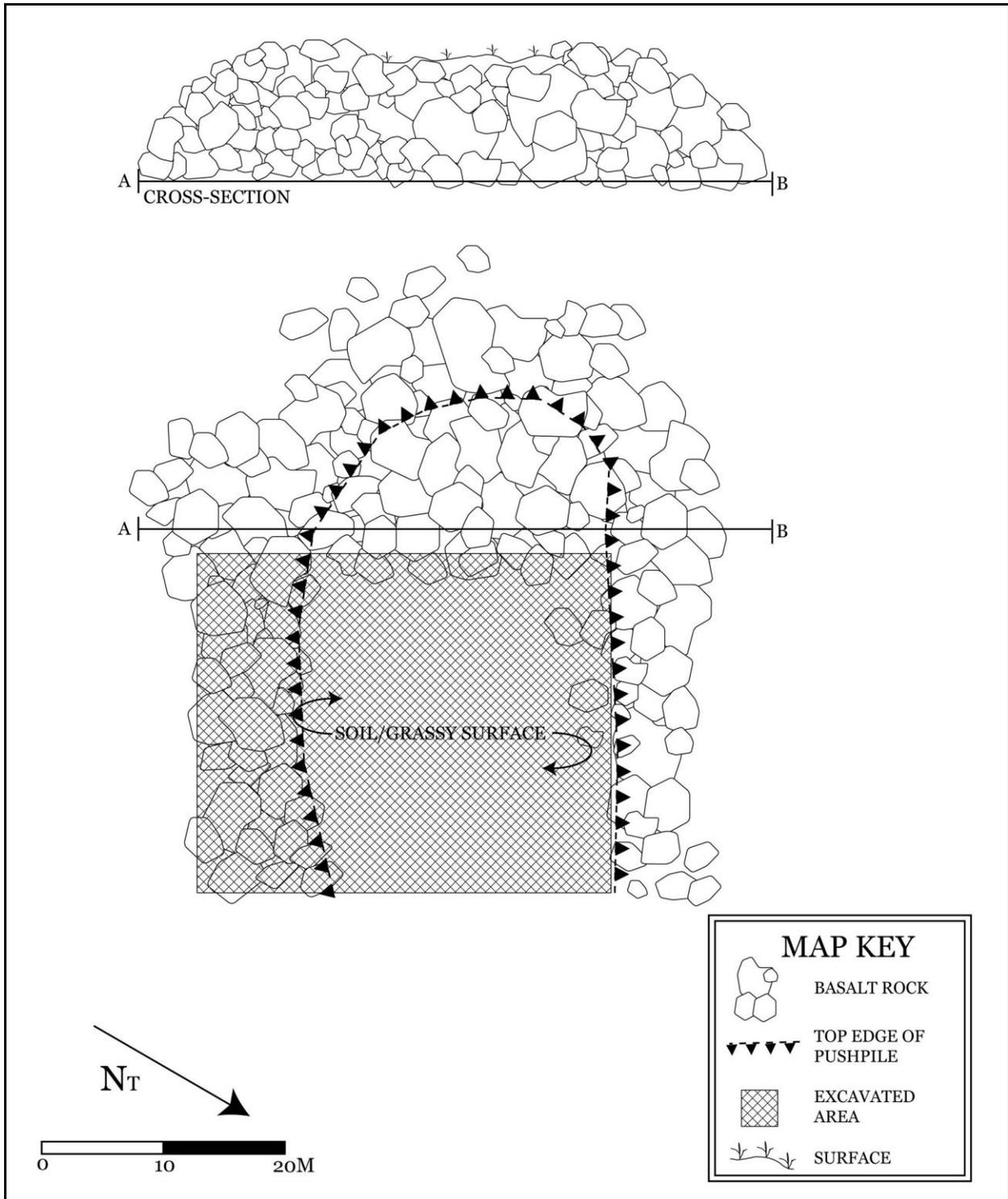


Figure 25. 50-50-03-6492, plan view showing location of testing area in relation to the pushpile.



Figure 26. 50-50-03-6492, general view showing commencement of testing, view to west.

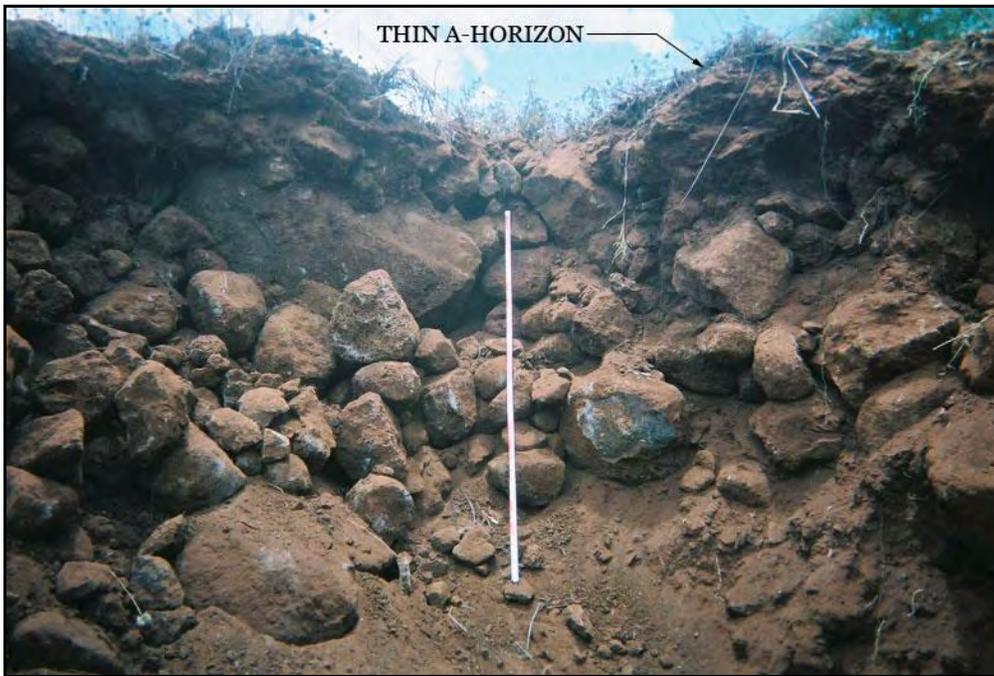


Figure 27. 50-50-03-6492, eastern profile (2m scale center of frame).

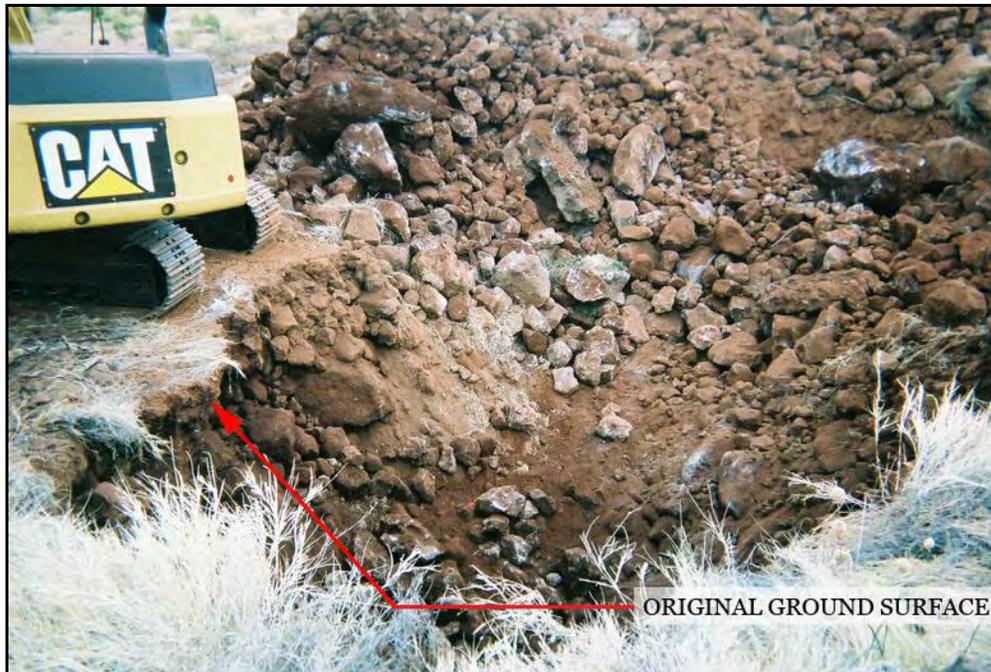


Figure 28. 50-50-03-6492, base of excavation below original ground surface

#### 4.1.2 SIHP Number 50-50-03-6596 (Figure 29)

<b>Site Type:</b>	Irregularly-shaped Agricultural Pushpile
<b>Site Function:</b>	Agriculture
<b>Dimensions:</b>	Approximately 36m wide by 53m long by 10m high
<b>Condition:</b>	Good
<b>Age:</b>	Historic
<b>Significance Criteria:</b>	D

**Description:** SIHP Number 50-50-03-6596 is an irregularly-shaped pushpile, measuring 36m wide east-west by 53m north-south and approximately 10m high (Figure 30), located within the northern segment of the current project area, at the head of a shallow drainage channel. This agricultural pile is constructed of loosely sorted small to medium basalt boulders at the base of the pushpile with large to very large subangular to angular basalt boulders comprising the majority of construction (Figure 31). The sorted nature of the boulders indicates that initial construction of this pile was accomplished through manual stacking of the smaller boulders within the shallow drainage followed by mechanized push of the larger, overlying boulders.

##### *SIHP 50-50-03-6596 Testing Results*

A roughly 50m by 20m area, approximately 1000 square meters, was mechanically tested using an excavator with a thumb attachment (Figure 32, see also Figure 24). Test excavation started in the easternmost portion of the pile. At 6-7 m in depth, the excavator became unstable and further testing in the northeastern portion of the pile was halted due to safety concerns. Testing was moved to the southwest corner. Along the southwest corner, the original escarpment, or edge of the shallow drainage channel, was encountered at approximately 4m in depth (Figure 33) and excavation proceeded to the northeast.

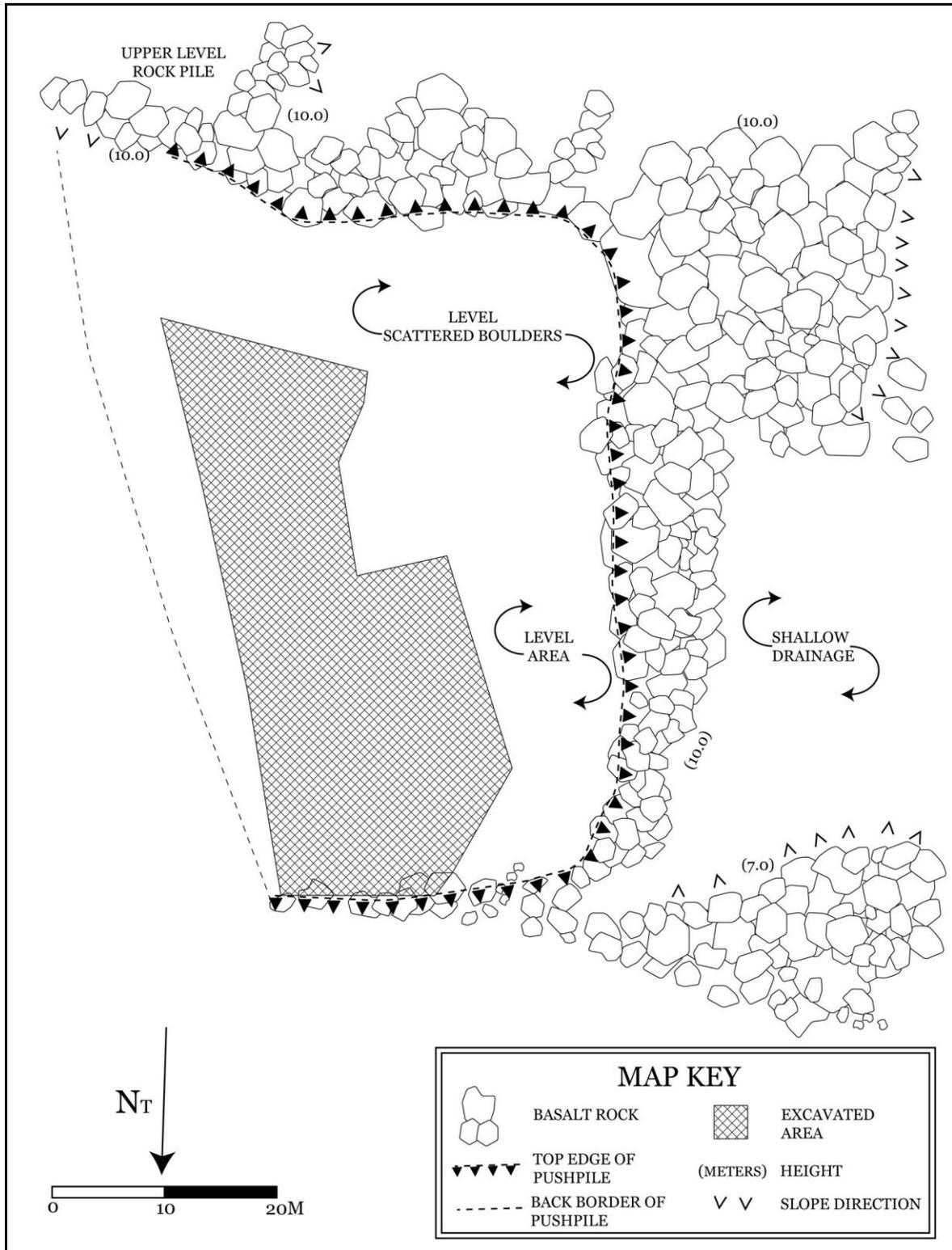


Figure 29. 50-50-03-6596, plan view showing location of testing area in relation to the pushpile.



Figure 30. SIHP 50-50-03-6596, downslope face, view to east.



Figure 31. SIHP 50-50-03-6596, top of pile, view to north-northwest.



Figure 32. 50-50-03-6596, deep excavation at south end of test area, original surface approximately 7-8 meters deep (no scale placed due to unstable surface and safety concerns).



Figure 33. 50-50-03-6596, showing original edge of the shallow drainage.

### *SIHP 50-50-03-6596 Testing Results (continued)*

In general, the construction of SIHP -6596 is like that of SIHP -6492 and consists of a loose network of medium to large boulders within a silt loam matrix underlying a thin A-horizon (0.36m to 0.60m thick) of loose silt loam. No cultural materials, modern or historic era, were observed during the course of excavation.

## **4.2 Subsurface Testing Results of Former Sugar Cane Lands**

A total of 26 backhoe trenches were excavated throughout the current project area. Each trench was oriented in either a north-south or east-west direction in order to obtain the best representative overview of the soil stratigraphy in the area (Figure 34). All trenches averaged 10m (30ft) long by 1m wide (3ft) and were excavated to either bedrock or C Horizon soils. The soil and trench sidewalls were inspected for cultural remains during and after the excavation process. The soil stratigraphy in all of the test trenches was fairly consistent and consisted of a 30-50 cm thick A and Ap (plow zone) soil horizon that contained fragments of remnant irrigation hose associated with sugar cultivation debris and evidence of recent disturbance, followed by a 20-80cm thick culturally sterile B and transitional B/C Horizon, and finally the C Horizon encountered at approximately 50-85cm below surface. Complete soil descriptions of all trenches are presented in Appendix B Soil Descriptions and a representative sample of the soil stratigraphy of each branch of the modified extension is presented below. The numbering convention for the backhoe trenches follows the GPS coordinate points that were taken at both ends of the trench, starting with 1 through 52, hence the trench number would look like 1/2 and correspond to GPS Pt. 1 (southern or western point) and GPS Pt. 2 (northern or eastern point).

### **4.2.1 Southern Branch of the Modified Extension**

A total of 12 backhoe trenches (Trench 5/6, 9/10 through 29/30) were excavated in the southern branch of the modified extension. Most backhoe trenches showed a clear plow zone, or Ap Horizon of strong brown colored (7.5YR 4/6) silt that ranged from 30 to 70cm thick, followed by a developing B Horizon or transitional B/C Horizon where the soils were dark yellowish brown (10YR4/6) silt loam that ranged from 20-140cm thick and were intermixed with decomposing bedrock or saprolitic soils. The following soil descriptions are representative of the soil stratigraphy in the southern branch of the modified extension:

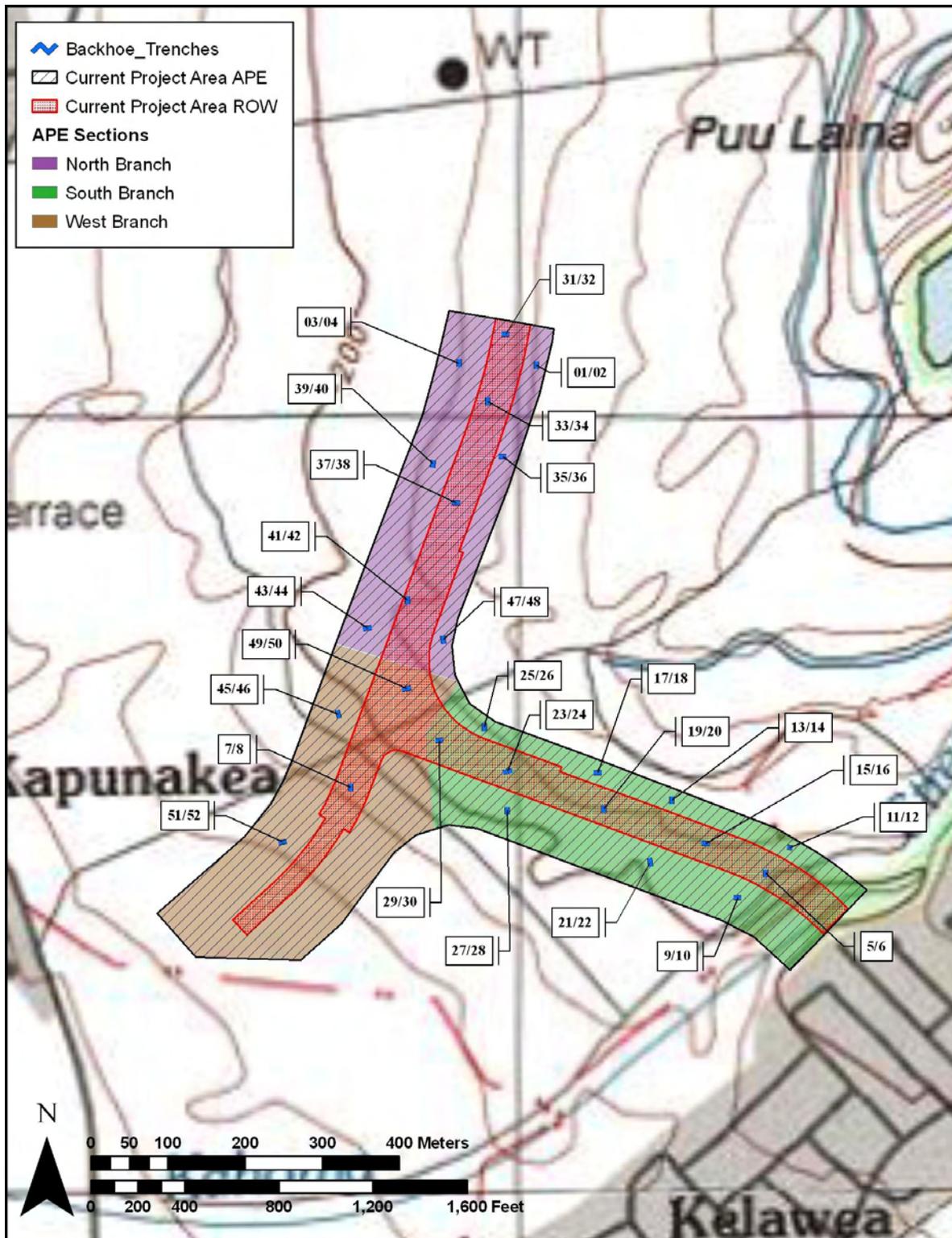


Figure 34. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992) showing backhoe trench locations within the current project area.

#### 4.2.1.1 Backhoe Trench 5/6

Backhoe trench 5/6 was located within the project area ROW, near the northern edge of Kahoma Gulch (Figure 34) and measured 10m by 1.5m oriented in a north-south direction (Figure 35). A total of two stratigraphic layers, an A horizon overlying a transitional B/C horizon, were observed within the soil profile (see soil description below). No cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum of 80 cm below surface (cmbs) and terminated at bedrock.



Figure 35. Backhoe trench 5/6, view to north.

#### Soil Description for Backhoe Trench 5/6 (Figure 36 and Figure 37)

Stratum I (0-55 cmbs)	A Horizon; 7.5 YR 4/6, strong brown; silt; weak, loose dry consistency; non-plastic; no cementation; abrupt wavy lower boundary; extensive roots and rootlets; no basalt cobbles; clear lower boundary.
Stratum II (55-80 cmbs)	B/C Horizon; 10 YR 6/8, brownish yellow; saprolite throughout; structureless; moist consistency; very abrupt lower boundary to basalt ("blue rock") bedrock directly below.

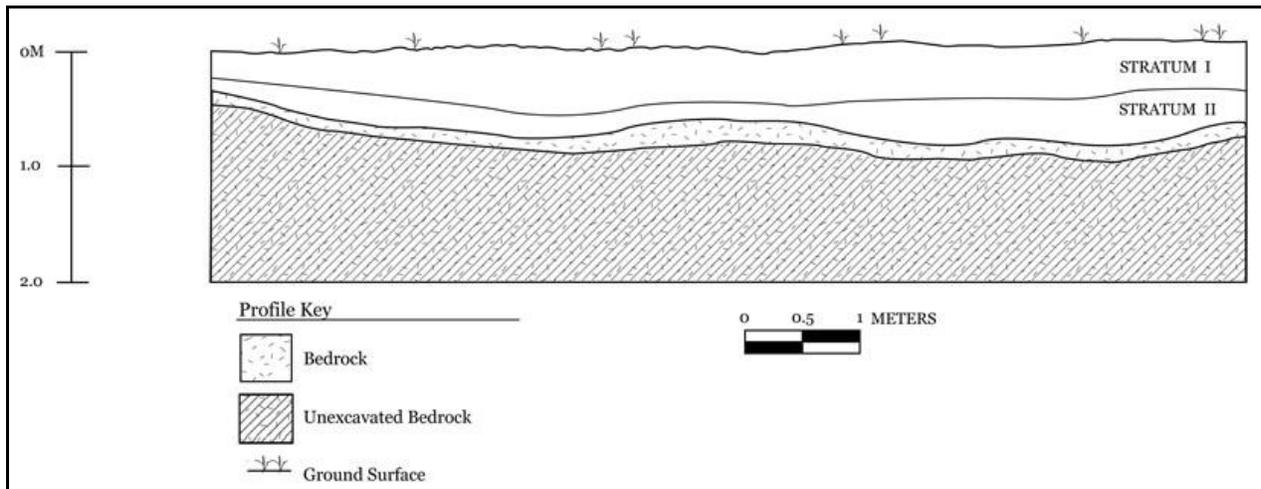


Figure 36. Soil profile for backhoe trench 5/6, west wall.



Figure 37. West wall of backhoe trench 5/6, bedrock at base of excavation.

#### 4.2.1.2 Backhoe Trench 21/22

Backhoe trench 21/22 was located within the project area APE, *makai* of the project ROW (Figure 34) and measured 10m by 1.5m oriented in a north-south direction (Figure 38). A total of three stratigraphic layers, an Ap horizon (A horizon/plow zone) overlying a transitional B/C horizon and followed by a C Horizon of saprolitic soils were observed within the soil profile (see soil description below). Except for black driscoll pipe fragments on the surface, no additional cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum of 100 cmbs and terminated at the C-Horizon.



Figure 38. Backhoe trench 21/22, view to north.

*Soil Description for Backhoe Trench 21/22 (Figure 39 and Figure 40)*

Stratum I (0-40 cmbs)	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; no cementation; abrupt smooth lower boundary; extensive roots/rootlets.
Stratum II (10-60 cmbs)	B/C Horizon; 10 YR 4/4, dark yellowish brown; silt loam; weak, medium, blocky structure; slightly hard dry consistency; friable moist consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary.
Stratum III (50-100 cmbs)	C Horizon; 10 YR 4/4, dark yellowish brown; saprolitic soils – decomposing bedrock.

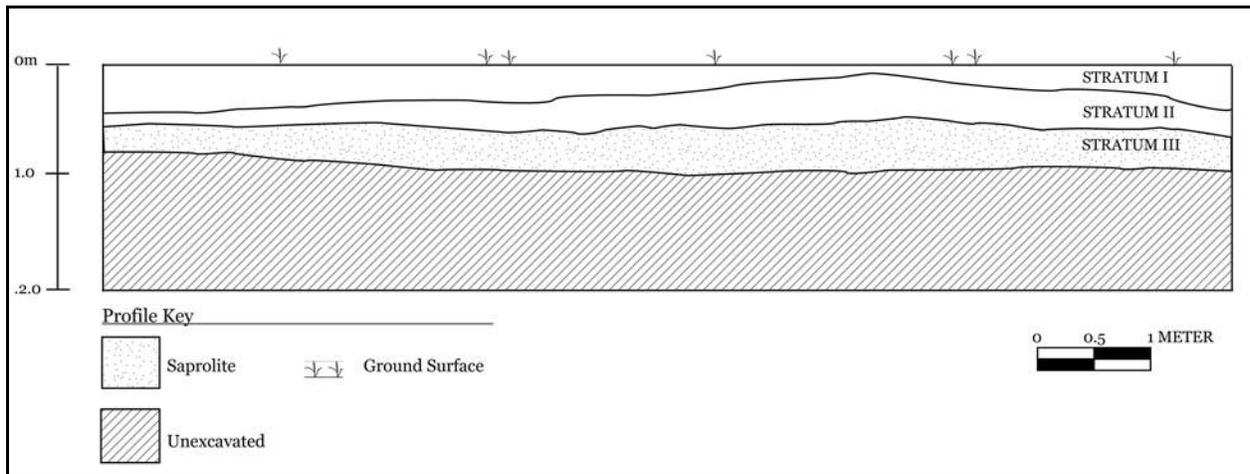


Figure 39. Soil profile for backhoe trench 21/22, west wall.



Figure 40. West wall of backhoe trench 21/22, bedrock at base of excavation.

#### 4.2.1.3 Backhoe Trench 23/24

Backhoe trench 23/24 was located within the project area ROW toward the Keawe Street intersection (Figure 34) and measured 10m by 1.5m oriented in an east-west direction (Figure 41). A total of two stratigraphic layers, an Ap horizon (A horizon/plow zone) overlying a transitional B/C horizon (see soil description below) were observed in the soil profile. A mass of basalt “blued rock” boulders was encountered at approximately 40cmb near the center of the backhoe trench. No cultural materials were observed within the trench sidewalls or during the

course of excavation. Excavation of this trench reached a maximum depth of 110cmbs and terminated at C-Horizon.



Figure 41. Backhoe trench 23/24, view to east.

*Soil Description for Backhoe Trench 23/24 (Figure 42 and Figure 43)*

Stratum I (0-30 cmbs)	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; weak, loose dry consistency; non-plastic; no cementation; abrupt smooth lower boundary; extensive roots and rootlets.
Stratum II (30-110 cmbs)	B/C Horizon; 10 YR 4/4, yellowish brown; silt loam; weak, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; abrupt irregular lower boundary; small basalt cobbles to large basalt boulders common.

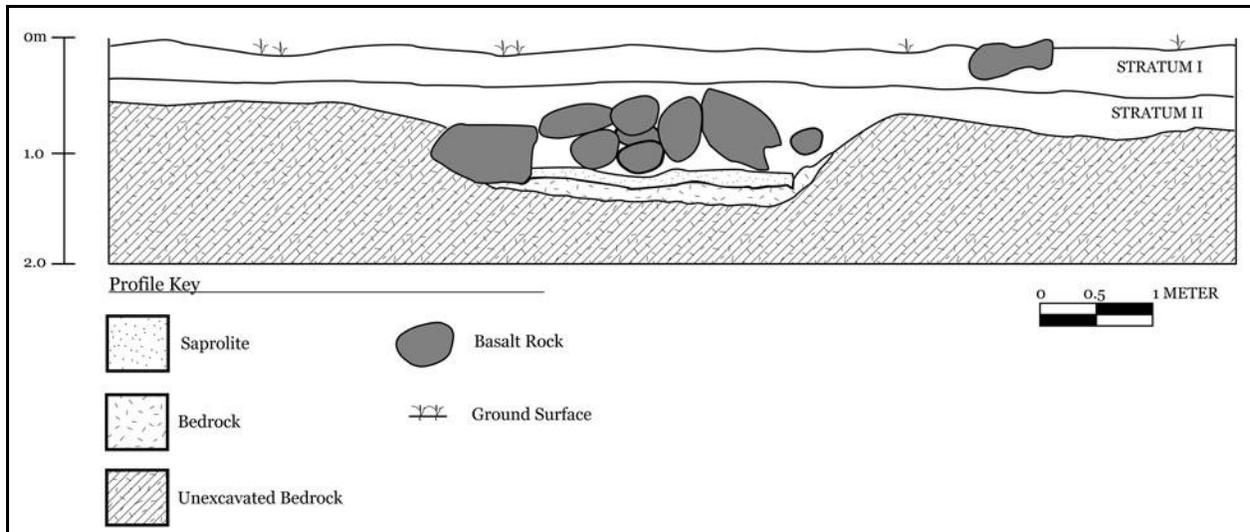


Figure 42. Soil profile for backhoe trench 23/24, north wall.



Figure 43. North wall of backhoe trench 23/24, bedrock at base of excavation.

#### 4.2.2 Western Branch of the Modified Extension

A total of 4 backhoe trenches (Trench 7/8, 45/46, 49/50, and 51/52) were excavated in the western branch of the modified extension. Most backhoe trenches showed a clear plow zone, or Ap Horizon of strong brown (7.5YR 4/6) to dark brown (7.5 YR 3/3) silt that ranged from 30 to 72cm thick, followed by a developing B Horizon or transitional B/C Horizon where the soils were yellowish brown (10 YR 5/8) to dark yellowish brown (10YR4/6) silt loam that ranged from 12-65cm thick and intermixed with decomposing bedrock or saprolitic soils. The following soil descriptions are representative of the soil stratigraphy in the western branch of the modified extension:

#### 4.2.2.1 Backhoe Trench 7/8

Backhoe trench 7/8, oriented in a north-south direction, was centrally located within the project area ROW, between the *makai* (western) terminus of the State-owned portion of the Keawe Street extension and the Keawe Street Intersection with Phase IA of the Lahaina Bypass (Figure 34). Overall, the trench measured 10m by 1.5m and was excavated to a maximum depth of 1.2m (Figure 44). A total of two stratigraphic layers, an A horizon overlying a transitional B/C horizon, were observed within the soil profile (see soil description below). Except for fragments of black driscoll piping, no cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum depth of 65cmbs and terminated at saprolitic C-Horizon soils.



Figure 44. Backhoe trench 7/8, view to north.

#### Soil Description for Backhoe Trench 7/8 (Figure 45 and Figure 46)

Stratum I (0-46 cmbs)	A Horizon; 7.5yr 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; clear wavy lower boundary; extensive grass roots/rootlets.
Stratum II (46-65 cmbs)	B/C Horizon; 10yr 4/6, dark yellowish brown; silt loam; weak, fine, crumb structure; weakly coherent dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; differs from Stratum I primarily in texture (more crumbly/blocky).

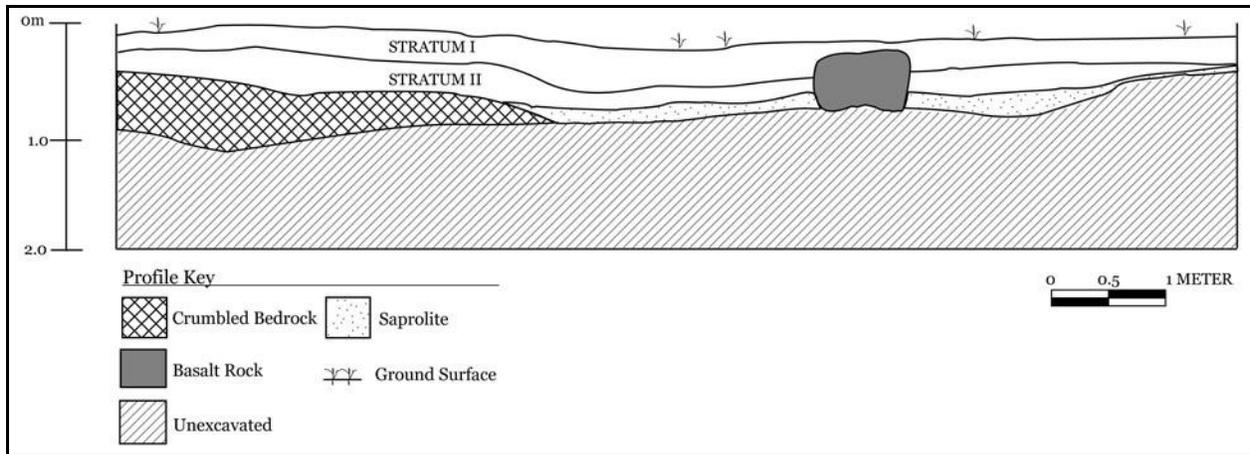


Figure 45. Soil profile for backhoe trench 7/8, east wall.



Figure 46. East wall of backhoe trench 7/8, driscoll pipe within Stratum I, Ap Horizon bedrock at base of excavation.

#### 4.2.2.2 Backhoe Trench 49/50

Backhoe trench 49/50, oriented in an east-west direction following the natural slope of the hillside, was centrally located within the project area ROW at the approximate location of the Keawe Street Intersection with Phase IA of the Lahaina Bypass (Figure 34). Overall, the trench measured 8.0m by 1.5m and was excavated to a maximum depth of 1.2m (Figure 47). A total of three stratigraphic layers, an Ap (plow zone) horizon overlying a transitional B/C horizon and followed by a C-Horizon of saprolitic soils were observed within the soil profile (see soil description below). With the exception of fragments of black driscoll piping observed within

Stratum I, no additional cultural materials were observed within the trench sidewalls or during the course of excavation.



Figure 47. Backhoe trench 49/50, plan view to east.

*Soil Description for Backhoe Trench 49/50 (Figure 48 and Figure 49)*

- |                          |  |
|--------------------------|--|
| Stratum I (0-60cmbs)     | Ap Horizon (plow zone); 7.5 YR 3/3, dark brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary; heavy root mat and subangular basalt cobbles throughout. |
| Stratum II (45-110 cmbs) | B/C Horizon; 10 YR 5/8, yellowish brown; silt loam; moderate, crumb structure; slightly hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; lower boundary unknown.   |
| Stratum III (55-80cmbs)  | C Horizon; 10 YR 6/8, brownish yellow; saprolite; very abrupt lower boundary; basalt (blue rock) bedrock directly below saprolite.   |

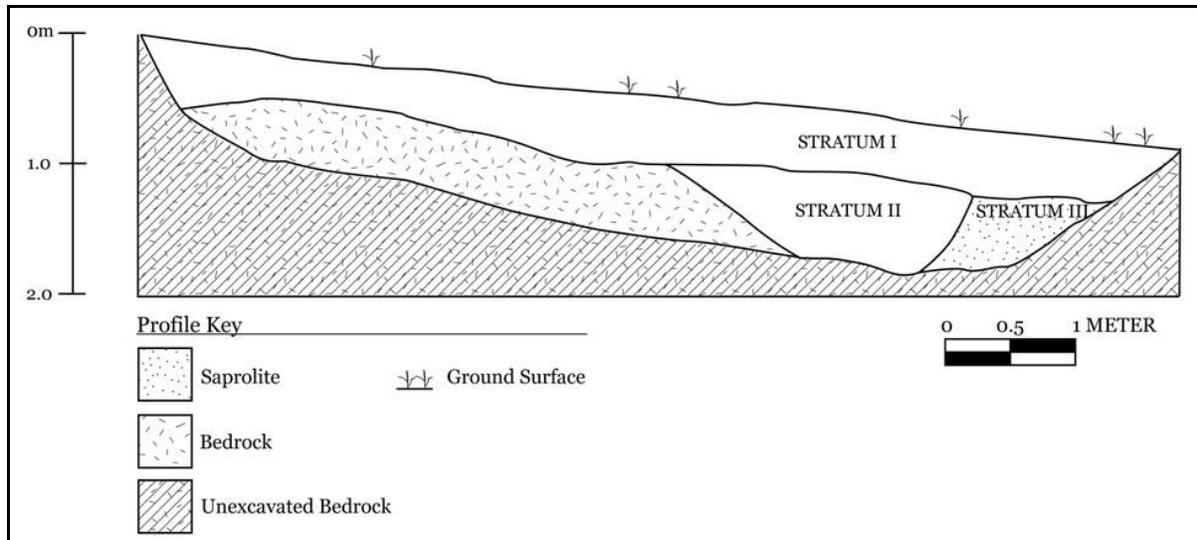


Figure 48. Soil profile for backhoe trench 49/50, south wall.



Figure 49. South wall of backhoe trench 49/50, saprolitic C-Horizon soils base of excavation.

#### 4.2.3 Northern Branch of the Modified Extension

A total of 10 backhoe trenches (Trenches 1/2, 3/4, 31/32 through 43/44, and 47/48) were excavated in the northern branch of the modified extension (Figure 34). Most backhoe trenches showed a clear plow zone, or Ap Horizon, of strong brown (7.5YR 4/6) to dark brown (7.5 YR 3/3) and dark reddish brown (5 YR 3/3) silt that ranged from 40 to 60cm thick, followed by a B Horizon or transitional B/C Horizon where the soils were a yellowish brown (10 YR 5/8) to yellowish red (5 YR 4/6) and dark reddish brown (5 YR 3/3) silt loam that ranged from 40-110cm thick and was intermixed with decomposing bedrock or saprolitic soils. Overall, it

appears that the B Horizon soils were deeper in the northern portion of the current project area with the maximum depth of some the test trenches reaching 1.6m (5ft). The following soil descriptions are representative of the soil stratigraphy in the northern branch of the modified extension:

#### 4.2.3.1 Backhoe Trench 31/32

Backhoe trench 31/32 was located at the northern terminus of the current project area within the project area ROW (Figure 34) and measured 8m by 1.5m. Following the natural slope of the project area, this test trench was oriented in an east-west direction (Figure 50). Three stratigraphic layers, an Ap, or plow zone, horizon overlying a B horizon, were observed throughout the soil profile with a small section of C-Horizon saprolitic soils observed in the western end of the trench profile (see soil description below). No cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum of 80 cm below surface (cmbs) and terminated at bedrock in and C-Horizon soils.



Figure 50. Backhoe trench 31/32, plan view to west.

#### Soil Description for Backhoe Trench 31/32 (Figure 51 and Figure 52)

##### Stratum I (0-50cmbs)

Ap Horizon (plow zone); 5 YR 3/3, dark reddish brown; clay; strong; coarse or thick, blocky structure; extremely hard dry consistency; very sticky wet consistency; plastic; no cementation; abrupt smooth lower boundary; basalt cobble and historical agricultural inclusions.

Stratum II (40-80cmbs) B Horizon; 5 YR 4/6, yellowish red; silt loam; moderate; fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; basalt, cobble and decomposing basalt inclusions.

Stratum III (55-80cmbs) C Horizon; 10 YR 6/8, brownish yellow; saprolite; very abrupt lower boundary; basalt (blue rock) bedrock directly below saprolite

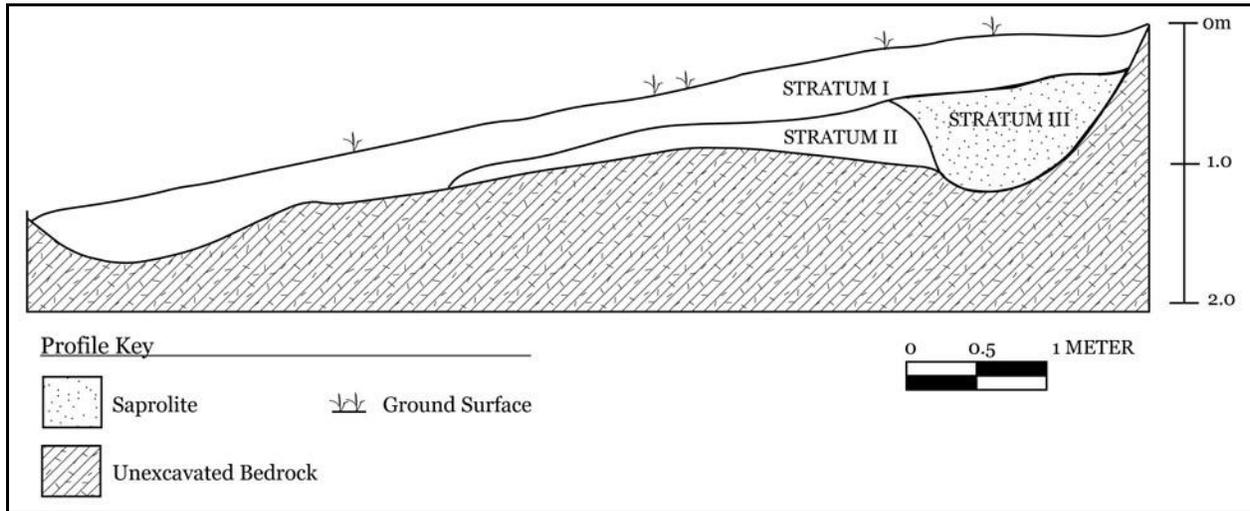


Figure 51. Soil profile for backhoe trench 31/32, south wall.



Figure 52. South wall of backhoe trench 31/32, bedrock at base of excavation

#### 4.2.3.2 Backhoe Trench 37/38

Backhoe trench 37/38 was centrally located between the northern terminus of the current project area and the Keawe Street Intersection with Phase IA of the Lahaina Bypass within the project area ROW (Figure 34). The trench measured 8m by 1.5m, oriented in an east-west direction (Figure 53). A total of two stratigraphic layers, an Ap, or plow zone, horizon overlying a B/C horizon, were observed across the soil profile. A small section of C-Horizon saprolitic soils was observed in the eastern end of the trench profile (see soil description below). With the exception of sparse fragments of remnant driscoll irrigation pipe observed within Stratum I soils, no additional cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum of 160 cmbs and terminated at C-Horizon soils.



Figure 53. Backhoe trench 37/38, plan view to west.

#### Soil Description for Backhoe Trench 37/38 (Figure 54 and Figure 55)

Stratum I (0-50 cmbs)	Ap Horizon (plow zone); 7.5 YR 3/3, yellow brown; sandy clay; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary; cultural material consisted of remnant irrigation hoses.
Stratum II (50-160 cmbs)	B/C Horizon; 10 YR 5/8, yellowish brown; silt loam; moderate, crumb structure; slightly hard dry consistency; non-plastic; no cementation; clear smooth lower boundary; basalt cobbles and decomposing bedrock.

Stratum III (80-140 cmbs) C Horizon; 10 YR 6/8, brownish yellow; saprolite; very abrupt lower boundary; basalt (blue rock) bedrock directly below saprolite.

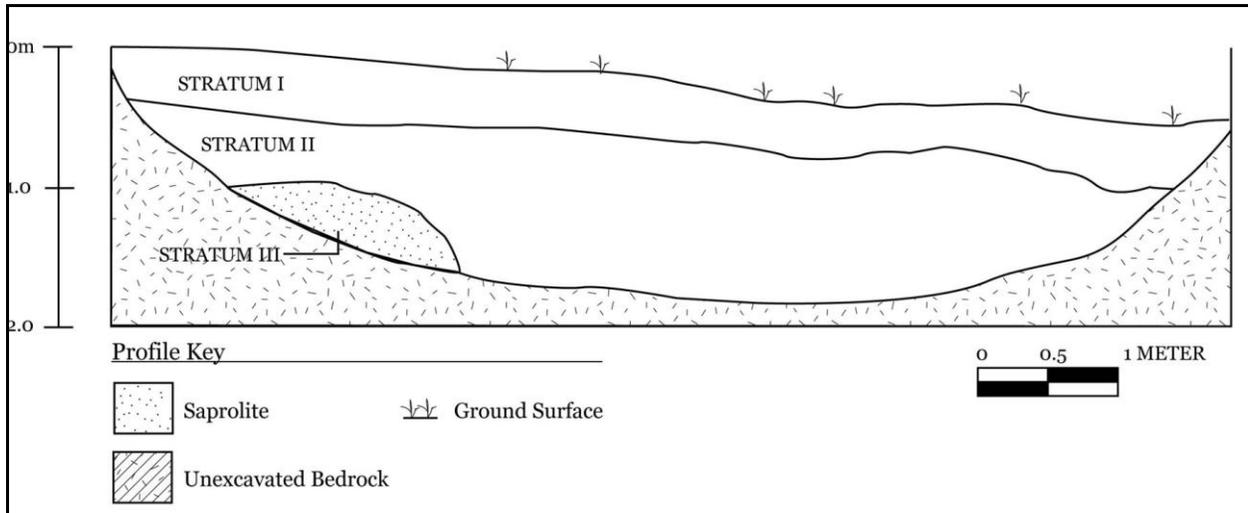


Figure 54. Soil profile for backhoe trench 37/38, south wall



Figure 55. South wall of backhoe trench 37/38, bedrock at base of excavation.

#### 4.2.3.3 Backhoe Trench 41/42

Backhoe trench 41/42 was near the terminus of the current project area and the Keawe Street Intersection with Phase IA of the Lahaina Bypass within the project area ROW (Figure 34). The trench measured 9m by 1.5m, oriented in a north-south direction (Figure 56). The soils of this trench were unique in that there is an apparent disconformity in the soil stratigraphy whereby a

relatively shallow Ap, or plow zone, horizon directly overlies C-Horizon saprolitic soils (see soil description below). With the exception of sparse fragments of remnant driscoll irrigation pipe observed within Stratum I soils, no additional cultural materials were observed within the trench sidewalls or during the course of excavation. Excavation of this trench reached a maximum of 130 cmbs and terminated with C-Horizon soils.



Figure 56. Backhoe trench 41/42, plan view to south.

*Soil Description for Backhoe Trench 41/42 (Figure 57 and Figure 55)*

Stratum I (0-55 cmbs)	Ap Horizon (plow zone); 7.5 YR 3/3, Dark Brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; decomposing basalt throughout the soil matrix; cultural material consisted of remnant irrigation hoses.
Stratum II (30-130 cmbs)	C Horizon; 10 YR 6/1, gray; structureless; decomposing bedrock.

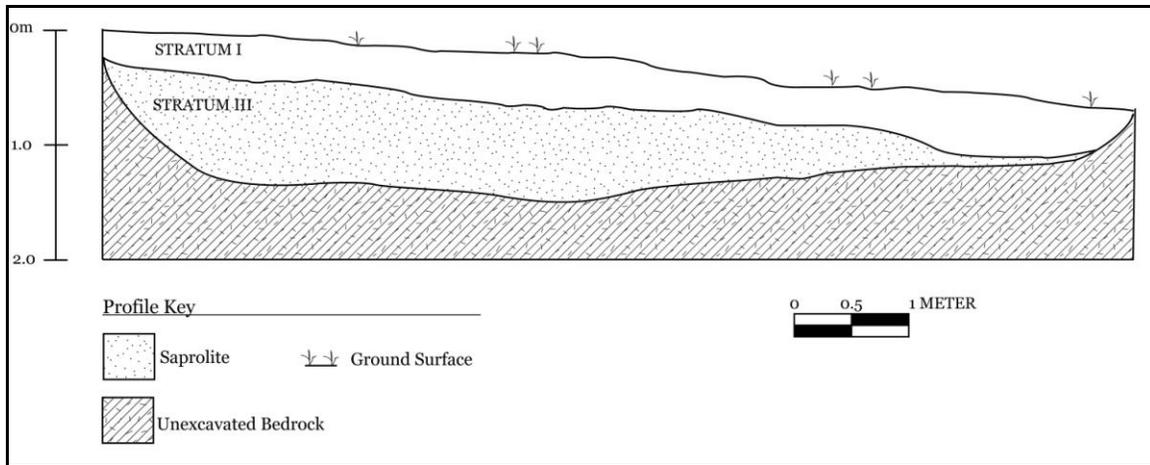


Figure 57. Soil profile for backhoe trench 41/42, west wall



Figure 58. West wall of backhoe trench 41/42, bedrock at base of excavation.

### 4.3 Ground Penetrating Radar (GPR) and Subsurface Testing Results – Northern Embankment of Kahoma Stream

Concerns regarding the possible presence of human burials in the area of the northern shoring towers for the proposed bridge crossing across the Kahoma Stream were raised at several community meetings. As a result, non-destructive testing was initiated due to the potentially sensitive nature any possible finds. The GPR testing program was undertaken on July 9<sup>th</sup> and 10<sup>th</sup>, 2008 by Mr. Aldo De La Haza, Senior Associate at Wiss, Janney, Elstner Associates, Inc. (WJEA) and Tanya Lee-Greig, M.A of CSH with field assistance from Hawaiian Dredging Construction Co (HDCC) (Figure 59 and Figure 60; see also Section 2.1.2.3 for detailed methods and Appendix C GPR Technical Report). Two areas of interest were identified during the course of scanning for subsurface anomalies (Figure 61). The two areas were subsequently tested to verify the presence or absence of sensitive cultural resources (Figure 62).



Figure 59. Assembly of the GPR unit by Mr. Aldo De La Haza that was used during the testing program; field assistant Sonny Domingo of HDCC in left of frame.



Figure 60. GPR Scanning in progress, view to east.

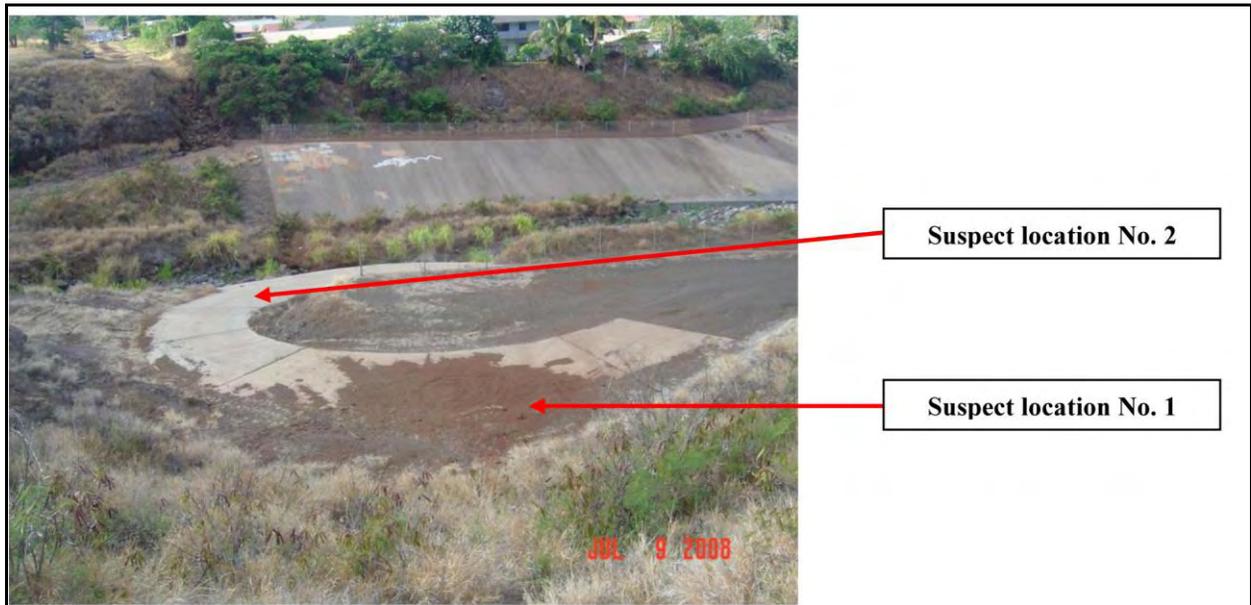


Figure 61. Locations of areas of geophysical interest within the Kahoma Stream Flood Control Project (De La Haza 2008; see also Appendix C)



Figure 62. Areas of interest, post excavation, Area of Interest 1 in the middle ground and Area of Interest 2 left of frame in the background

#### 4.3.1 Area of Interest 1

Area of Interest 1 consisted of an approximately 1.8m (6ft) by 3.5m (11.5ft) area located near the base of the northern embankment of Kahoma Gulch. Verification of the geophysical anomaly was accomplished through mechanical excavation of the area of interest (Figure 62 and Figure 63) to a maximum depth of 2.05 meters. Sediments within the profile of Area of Interest 1 reflected highly modified soil stratigraphy indicative of an area that had been previously backfilled following mass excavation that was likely associated with the construction of the Kahoma Stream Flood Control Project. Strata I through III were typical of sediments that were laid down in preparation for the placement of pavement and/or a roadway, while Stratum IV consisted of imported cinder that was likely brought from the cinder quarry near Pu'u Laina. The underlying bedrock consisting of a large basalt "blue rock" boulder was initially encountered between 65 and 75cm below the top of the concrete pavement that comprises the maintenance road for the Kahoma Stream Flood Control Project. Results of subsurface excavation work indicate that the suspect target identified during GPR scanning is associated with the abrupt change in the soil composition (i.e. the pocket of cinder) and the apparent shallow presence of the large boulder.



Figure 63. Concrete removal and excavation at Area of Interest 1.

*Soil Description for Area of Interest 1 (Figure 64 through Figure 66)*

Stratum I (0–15 cmbs)	Pavement; concrete with gravel aggregate, 6 gauge wire mesh reinforcement.
Stratum II (15-40 cmbs)	Base course; 7.5 YR 5/3, very dark brown; gravel.
Stratum III (40-57 cmbs)	Imported fill; 7.5 YR 3/3, dark brown; silt; weak, fine medium, crumb structure; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; imported soil fill.
Stratum IV (57-205+ cmbs)	Imported fill; 2.5 YR 4/1, dark grey; cinder; weak, coarse/very coarse, crumb structure; loose dry consistency; non-plastic; no cementation.

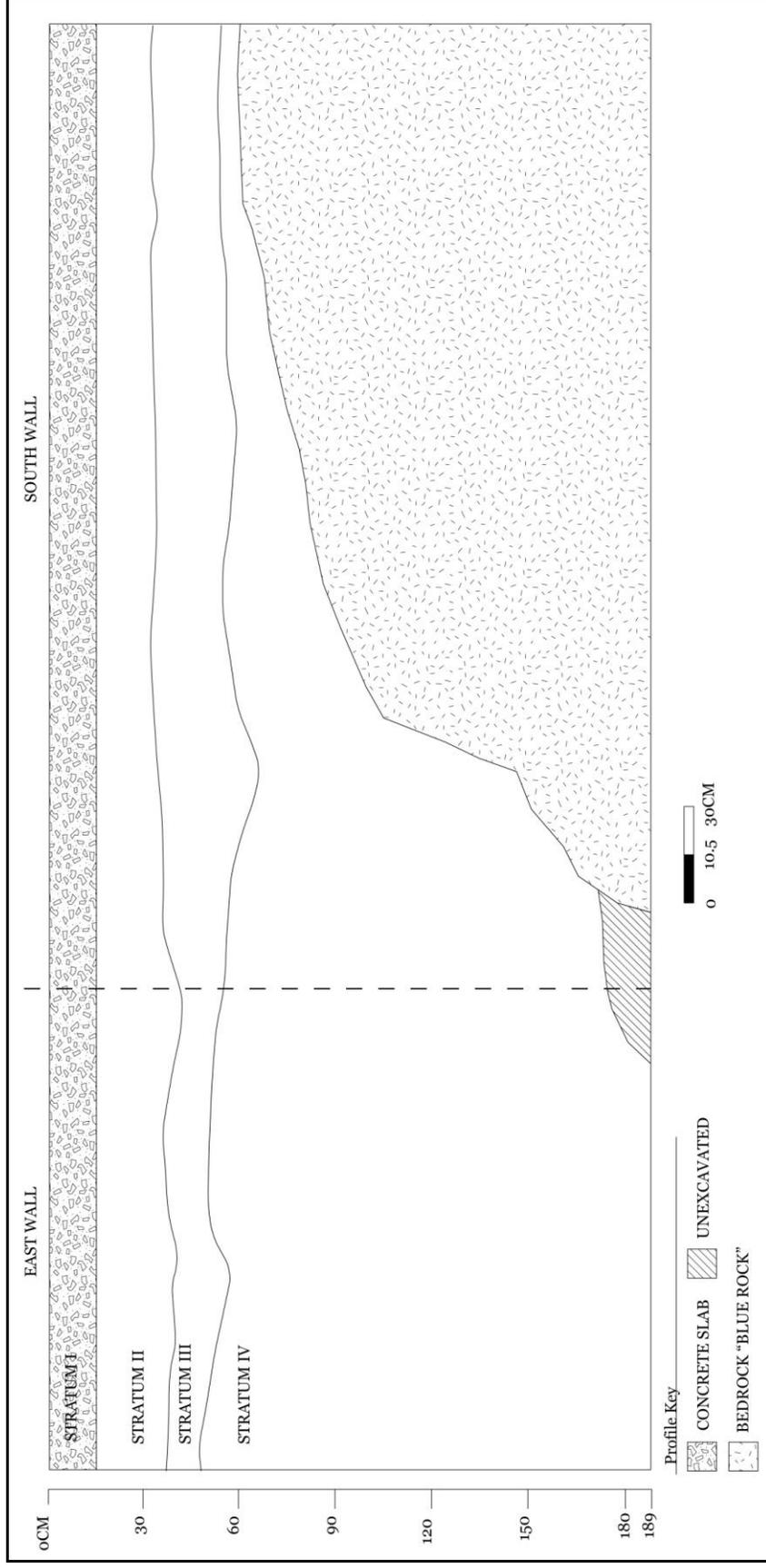


Figure 64. Soil profile for Area of Interest 1, east and south wall



Figure 65. Area of Interest 1, east wall.



Figure 66. Area of Interest 1, south wall.

### 4.3.2 Area of Interest 2

Area of Interest 2 consisted of an approximately 2.5m (8ft) by 2.76m (9ft) area located at the turn in the Kahoma Stream Flood Control Project maintenance road that leads into the stream channel (Figure 61 and Figure 62). This area was excavated to a maximum of 1 meter. Like Area of Interest 1, the sediments within the profile reflected a highly modified soil stratigraphy indicative of an area that had been previously leveled during activities likely associated with the Kahoma Stream Flood Control Project. Unlike Area Interest 1, however, there was no indication that this location was backfilled with imported cinder as only three strata were present. The three strata present within the Area of Interest 2 soil stratigraphy are consistent with that of the first three strata of Area of Interest 1. Results of subsurface excavation work indicate that the suspect target identified during GPR scanning is associated with the presence of a large bedrock boulder (Figure 67).



Figure 67. Area of Interest 2, large bedrock boulder in western end of the test trench, view to north.

#### Soil Description for Area of Interest 2 (Figure 68 through Figure 69)

Stratum I (0-21 cmbs)	Pavement, concrete; cement gravel aggregate 6 gauge wire mesh reinforcement.
Stratum II (21-39 cmbs)	Base course; 7.5 YR 5/3, very dark brown; gravel; structureless, medium, crumb structure; loose dry consistency; loose moist consistency; sticky wet consistency; slightly plastic; no cementation; smooth lower boundary; 95% gravel aggregate base course.

Stratum III (39-100 cmbs) Imported fill; 7.5 YR 2.5/3, very dark brown; silt; weak, medium, granular structure; loose dry consistency; loose moist consistency; sticky wet consistency; slightly plastic; no cementation; unknown lower boundary; 90-95% small-medium angular cobbles.

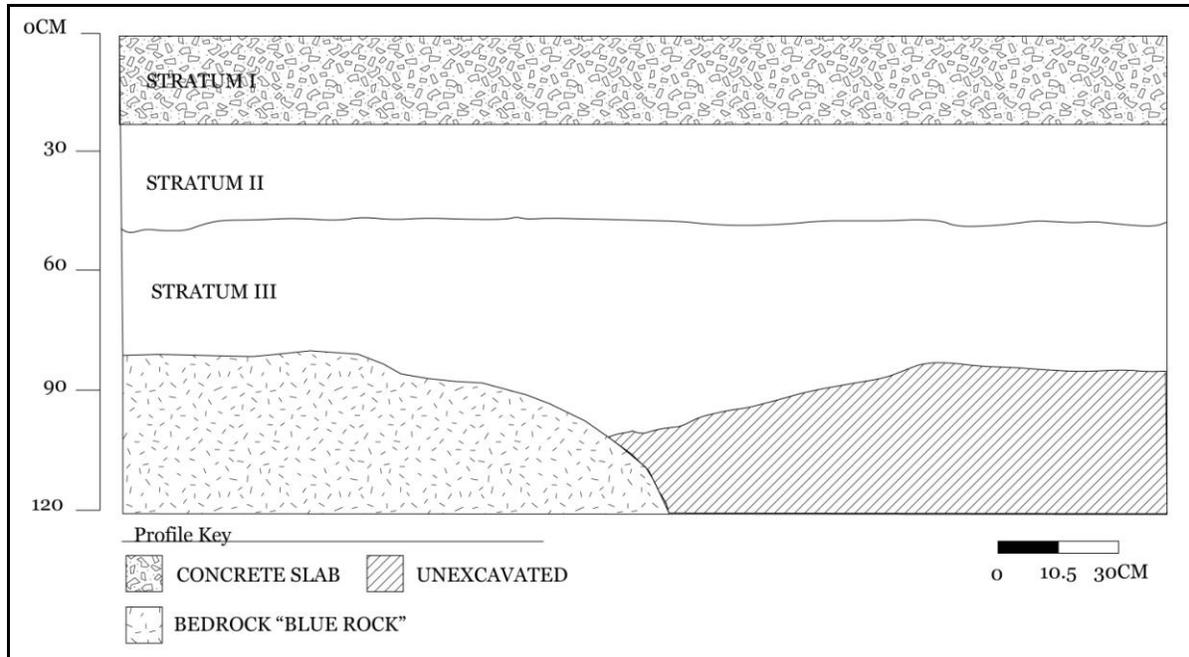


Figure 68. Soil profile for Area of Interest 2, north wall



Figure 69. Area of Interest 2, north wall

## Section 5 Summary and Interpretation

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A review of historic documentation indicates that a bimodal traditional settlement pattern of habitation and land use represented by both recurrent and permanent habitation, in addition to traditional agriculture (*lo'i* and *kula*) would be present within the stream valleys and along the coastal plain of Lāhainā. *Mauka-makai* trails that would have connected the coastal settlement and resource areas with the more *mauka* stream valley settlement and resource areas seem to have followed the stream bed and cliff sides through the alluvial plains with crossings at the lower, and more accessible, points along the course of the stream. The alluvial plains or intermediate zone, where the current project area lies, is rather narrow in this portion of Maui as compared to that along the flanks of Haleakalā. Nevertheless, pre-contact features within this intermediate zone may have mirrored that of similar environments elsewhere on Maui Island and consisted of dispersed, low-intensity, dry-land agricultural features, such as mounds and alignments, as well as temporary habitations (Chaffee et al. 1997; Donham 1990; Miura 1982) and trail markers such as *ahu* (stone cairns).

In the case of the present project area, the pedestrian survey and subsequent subsurface testing program clearly shows that the traditional landscape of this region has been thoroughly altered by commercial sugar production from the early historic era through modern times (Figure 70), as well as by the redirection of the Kahoma Streambed resulting from the Army Corps of Engineers' Kahoma Stream Flood Control Project. No evidence of pre-contact habitation, agricultural use, or transit markers was identified within the current project area. With regard to the Kahoma Stream Terrace System (50-50-03-1775) recorded by Connolly (1974:4-6) that may have extended into the current project area at the proposed bridge crossing for Phase IA (Figure 71), it is clear that construction of the debris basin from the Kahoma Stream Flood Control Project has either eliminated any remnant of the terrace system near the top of the flood control project or covered sites within the original stream course that was backfilled when water flow was redirected by the Army Corps of Engineers.

### 5.1 Summary and Interpretation of Historic Properties Identified within the Current Project Area

Two historic era historic properties were identified during the course of this study; both features are associated with the Pioneer Mill Co. and late historic era sugar cultivation. SIHP 50-50-03-6492 and -6596 are late-historic era agricultural pushpiles associated with field clearing activities and the systematic rock removal program that was initiated in 1947 and completed in 1951. Prior to World War II, much of the sugar cultivation and harvesting within the fields of Lāhainā was accomplished by hand and transport of the harvest was conducted by crane, flume, or manual transport (*hapai ko*) to the waiting rail cars. During the war years, however, Pioneer Mill Co. lost a large portion of its unskilled, adult male laborers as many of them signed on to fight in the war on behalf of the United States (Pioneer Mill Co. 1945: 13). As a result, by the end of 1944 almost 2,000 acres of previously hand cultivated lands were left fallow (Pioneer Mill Co. 1945:13).

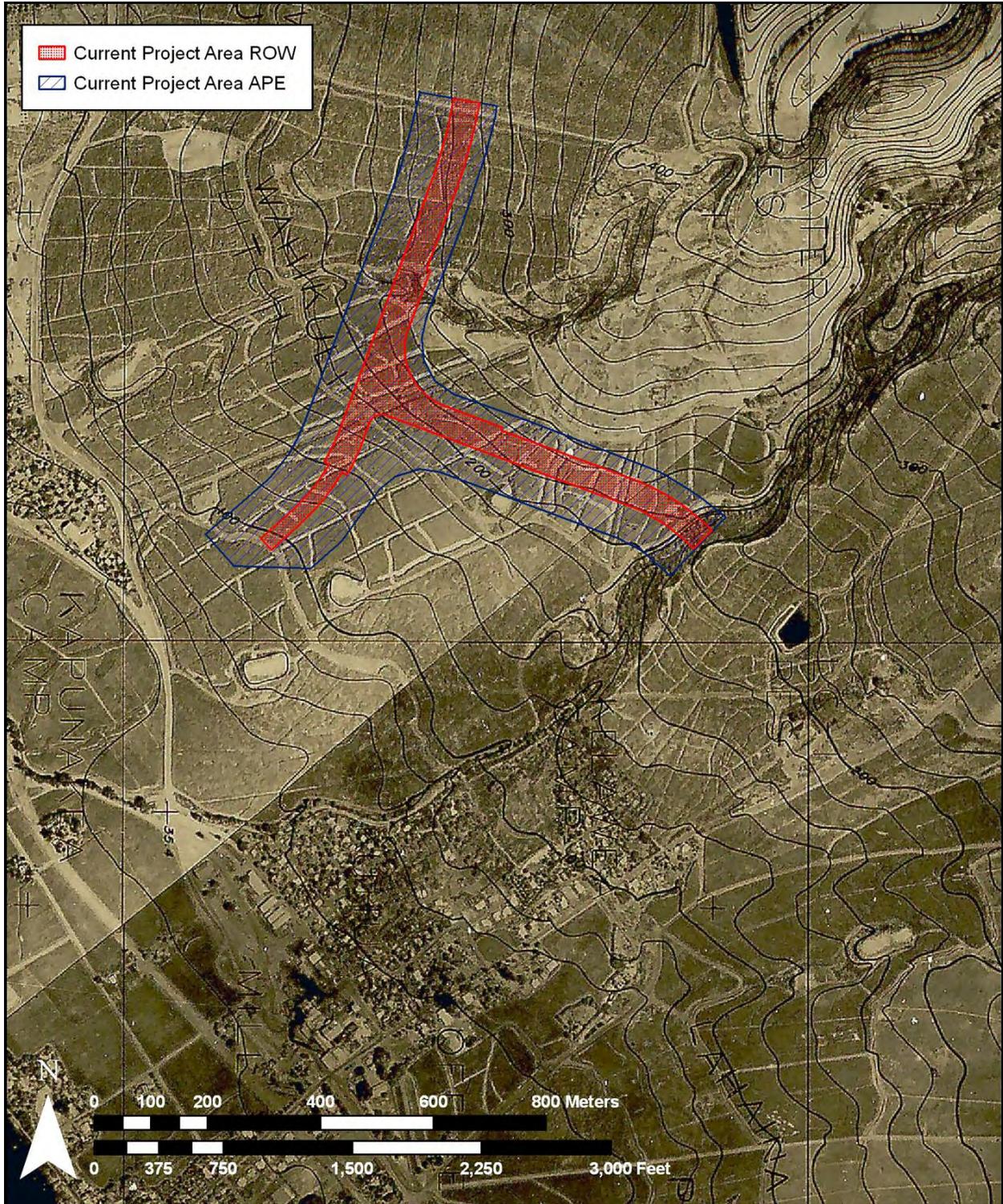


Figure 70. A portion of a 1957 aerial photo mosaic showing the cleared and cultivated fields of Wahikuli following the Pioneer Mill Co. rock removal program in relation to the current project area (Aerial photo mosaic on file at the Hale Pa'i, Lahainaluna High School).

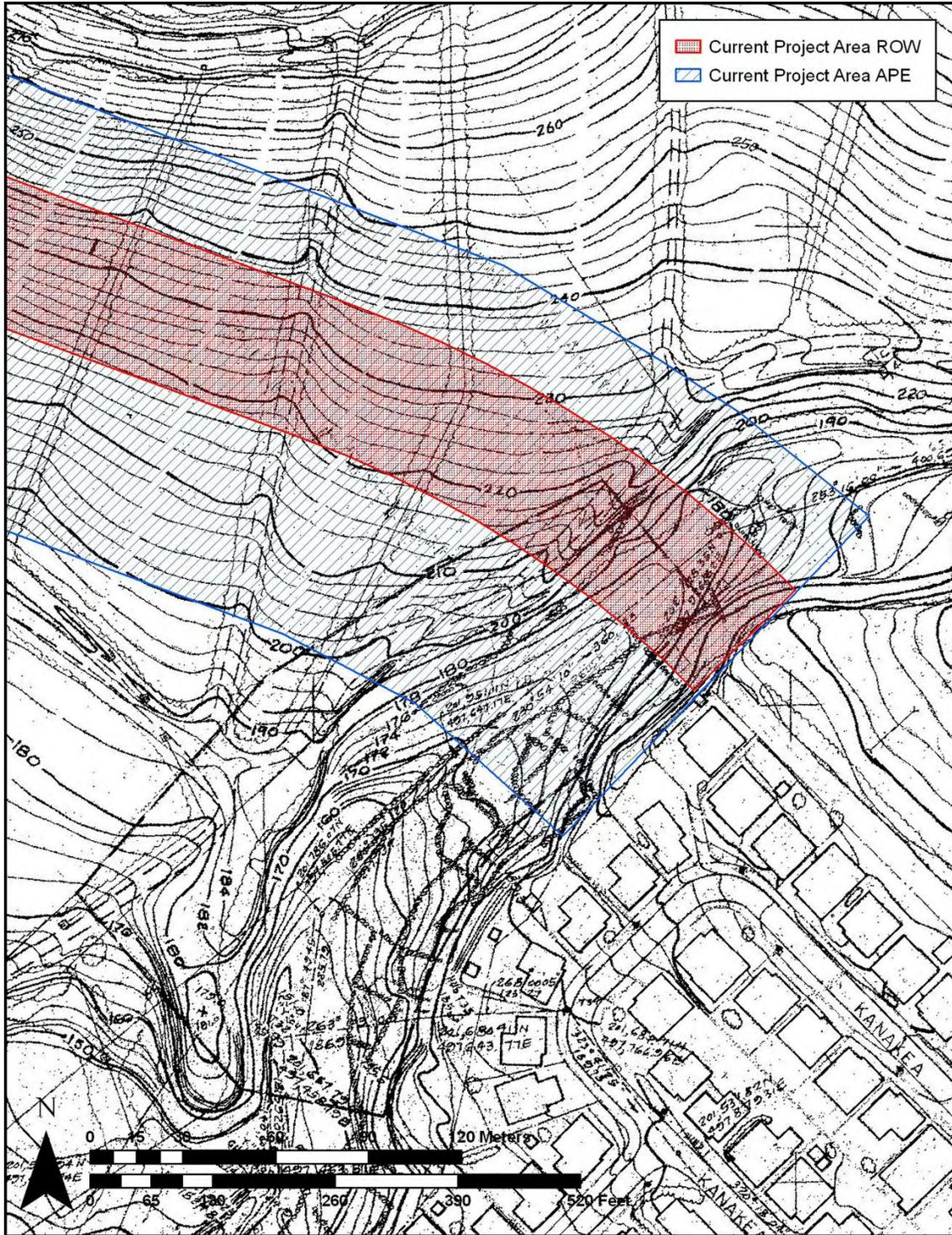


Figure 71. A portion of the topographic survey map produced for the Kahoma Stream Flood Control Project showing approximate location of the current project area in relation to the debris basin and top of the flood control project (heavy dashed line) and the Kahoma Terrace Complex (indicated as rock alignments) (topographic map courtesy of the US Army Corps of Engineers).

With improvements to the heavy equipment for large scale agriculture and the re-direction of company resources and methods into increased mechanization, Pioneer Mill Co. initiated a rock removal program to ease the reliance on hand labor and bring the fallow fields back into production. Mr. Jonah Keahi (*kama'aina* to Lāhainā, personal communication, June 2007) recalls that the Wahikuli fields were fallow until around 1950, a factor that indicates that the lands which comprise the current project area were likely among those lands that were left fallow with the onset of World War II and subsequently cleared through the rock removal program following the end of the war. The clearance of rocks in the sugarcane fields from Ukumehame to Honokowai was accomplished through the use of bulldozers (Mr. Norman Saito, former surveyor with Harold Stearns, personal communication September 2008) and cranes (Pioneer Mill Co. 1946: 2) that pushed and lifted the rocky matrix of the fields into the discrete piles of rocks, of which SIHP -6492 and -6596 are examples. These pushpiles can be seen across the Lāhainā landscape today. It is also possible that the relatively shallow condition of the soils within the project area (see Section 4.2 Subsurface Testing Results of Former Sugar Cane Lands) may be a result of this activity and the push of rocks and soil into these piles (see also Section 4.1.1 SIHP Number 50-50-03-6492).

Paraso and Dega (2006:22) postulate that the stair step fashion in which the mounds were constructed within their Launiupoko project area and the presence of metal cables on the surface of the mounds indicate that the mounds were used to transport sugarcane to the rail system. The surface of the mounds within the current project area; however, are extremely unstable and not suited for use as a loading ramp. While metal cable was also observed atop SIHP -6492, Mr. Norman Saito (personal communication, September 2008) explained that the cable was likely the remnant of a broken crane cable, as equipment cables and hoses broke often and were simply left in the fields following repair and/or replacement. While the mounds within the Launiupoko project area surveyed by Paraso and Dega (2006) may have been used for cane transport, it is unlikely that the pushpiles within the current project area served a similar purpose. SIHP 50-50-03-6492 and -6596 are simply a result of the field clearing activities from 1947 to 1951.

## 5.2 Summary and Interpretation of Former Cane Land Testing

As illustrated in Section 4.2 Subsurface Testing Results of Former Sugar Cane Lands (see also Appendix B), and with the exception of a few trenches along the northern branch of the modified extension, the agricultural soils within the current project area were fairly shallow and consistent with that of the soils described during the 1972 USDA soil survey. A-horizon and Ap-horizon soils averaged between 30 cm to 55 cm, or 1 ft to 1 ½ ft, deep and consisted primarily of silt and silt clay loam. Evidence of commercial agriculture was present within the A-horizon as the depth of the plow zone (Ap) was fairly clear and remnant driscoll irrigation pipe was observed in nearly all trenches.

In 14 of 26 trenches, a developing B Horizon was observed between 40 cm to 60 cm deep, or 1 ½ ft to nearly 2 ft deep. In the northern branch, B-horizon soils were observed up to 1.6 meters, or 5 ft deep in two out of the 10 trenches. The remaining 12 trenches contained A-horizon or Ap-horizon soils directly overlying B/C horizon soils, or soils that were transitional between developing sediment and saprolite. As described by Foote and others (1972), bedrock was encountered between 50 cm and 200 cm, or 1 ½ ft and 3 ft where the C-Horizon was thin. In

general, the soils within the cane land portion of the project area were both very stony and compact in composition and consistent with the findings reported by Formolo and others (2005). It should be further noted that the stony and compact characteristics of the sediments within the project area proved difficult for the excavator during the course of subsurface testing and resulted in damage to the bucket teeth.

### **5.3 Summary and Interpretation of the GPR and Subsurface Testing Program for the Kahoma Stream Area**

Concerns regarding the possible presence of human burials within the current project area, at the location of the northern shoring of the proposed bridge across Kahoma Stream, were raised at several community meetings. In order to verify the concerns of the community in this regard, a program of non-intrusive subsurface exploration and subsequent field verification through mechanical testing was undertaken (see Section 4.3 Ground Penetrating Radar (GPR) and Subsurface Testing Results – Northern Embankment of Kahoma Stream.) Two areas of interest were identified during the course of scanning and subsequent mechanical testing showed stratigraphy that was consistent with an area that had been previously worked over, or blasted and excavated, then prepped for construction of the maintenance road.

The as-built plans for the Kahoma Stream Flood Control Project clearly illustrate that the construction of the top of the flood control project has significantly altered the original stream course and landforms within the current project area (Figure 72). Rock footings, interpreted in this report to mean the rock alignments of the Kahoma Terrace Complex, were either removed for the construction of the debris basin or covered over in the portions of the original stream alignment that was backfilled. The original gulch embankment on the north side of the portion of Kahoma Gulch within the current project area was cut back to accommodate the construction of the debris basin and maintenance road. Station 59+00 through station 61+50 profiles (Figure 73 and Figure 74) shows that approximately 6 m to 7.5 m, or 20 ft to 25 ft, of sediment and bedrock was removed along the northern embankment, while 2 m to 3.5 m, or 7 ft to 12 ft, was removed from the area of the streambed itself.

The heavy equipment operator for the excavator, a former operator for Maeda Construction, the contractor to the Army Corps of Engineers, recalled that the area under the current investigation needed to be broken up with dynamite and that the cinder that was used for construction fill was brought from the cinder quarry above the current project area. The testing results of the current study is consistent with what would be expected when taking into account the construction of the Kahoma Stream Flood Control Project and the recollection of the heavy equipment operator. If there were human burials present along the streambed within the current project area prior to the build-out of the Kahoma Stream Flood Control Project, they have unfortunately been removed either prior to, or as a result of, the final build out and modifications to Kahoma Stream and are likely no longer present.

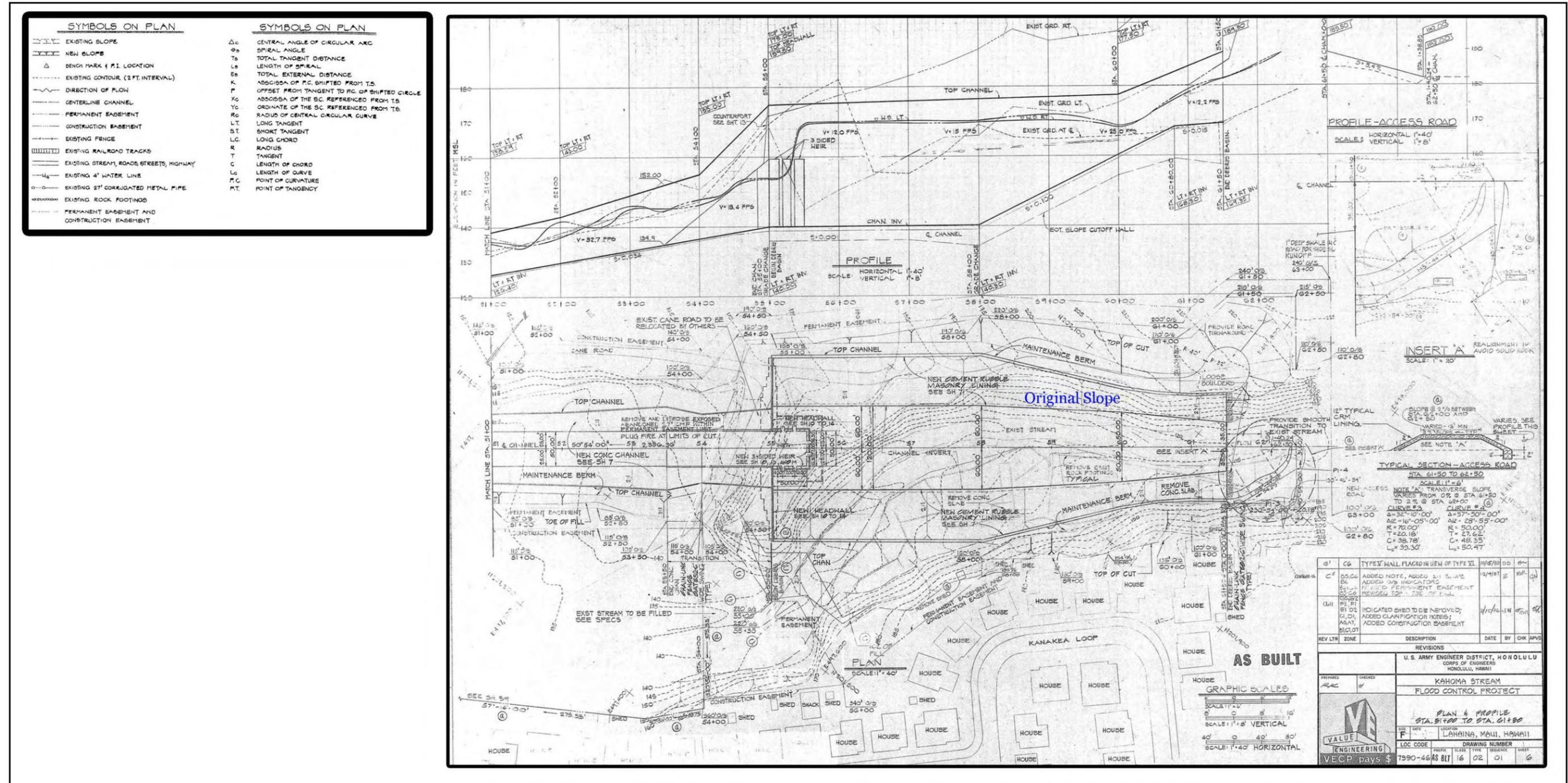


Figure 72. US Army Corps of Engineers' Kahoma Stream Flood Control Project, as built for the debris basin and weir showing original stream course and Kahoma Gulch embankments relative to the build out, planview (Courtesy of Austin Tsutsumi and Associates)

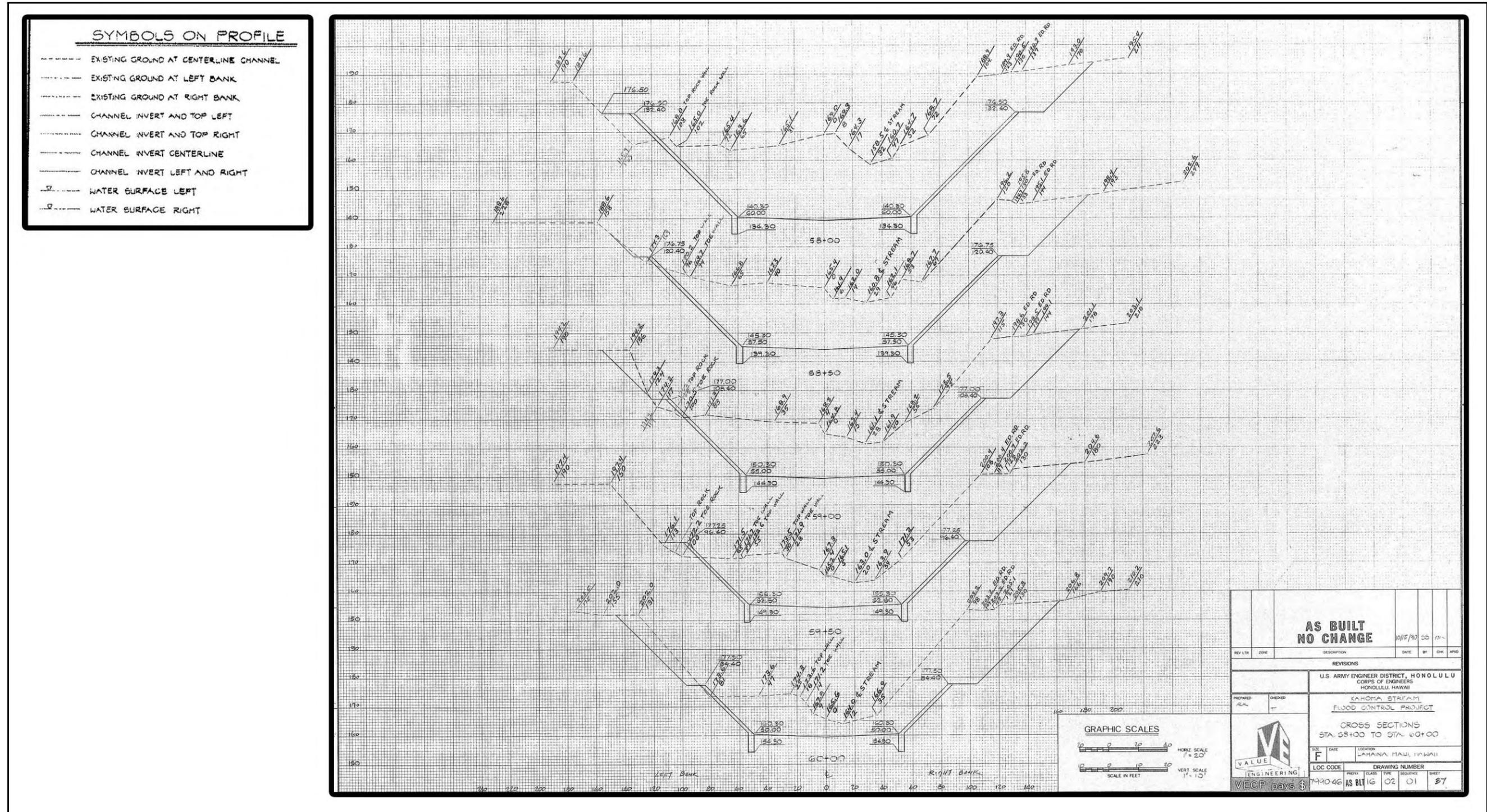


Figure 73. US Army Corps of Engineers' Kahoma Stream Flood Control Project, as built for the debris basin and maintenance road, STA 58+00 to 60+00, showing original embankment profile relative to the build out (Courtesy of Austin Tsutsumi and Associates).

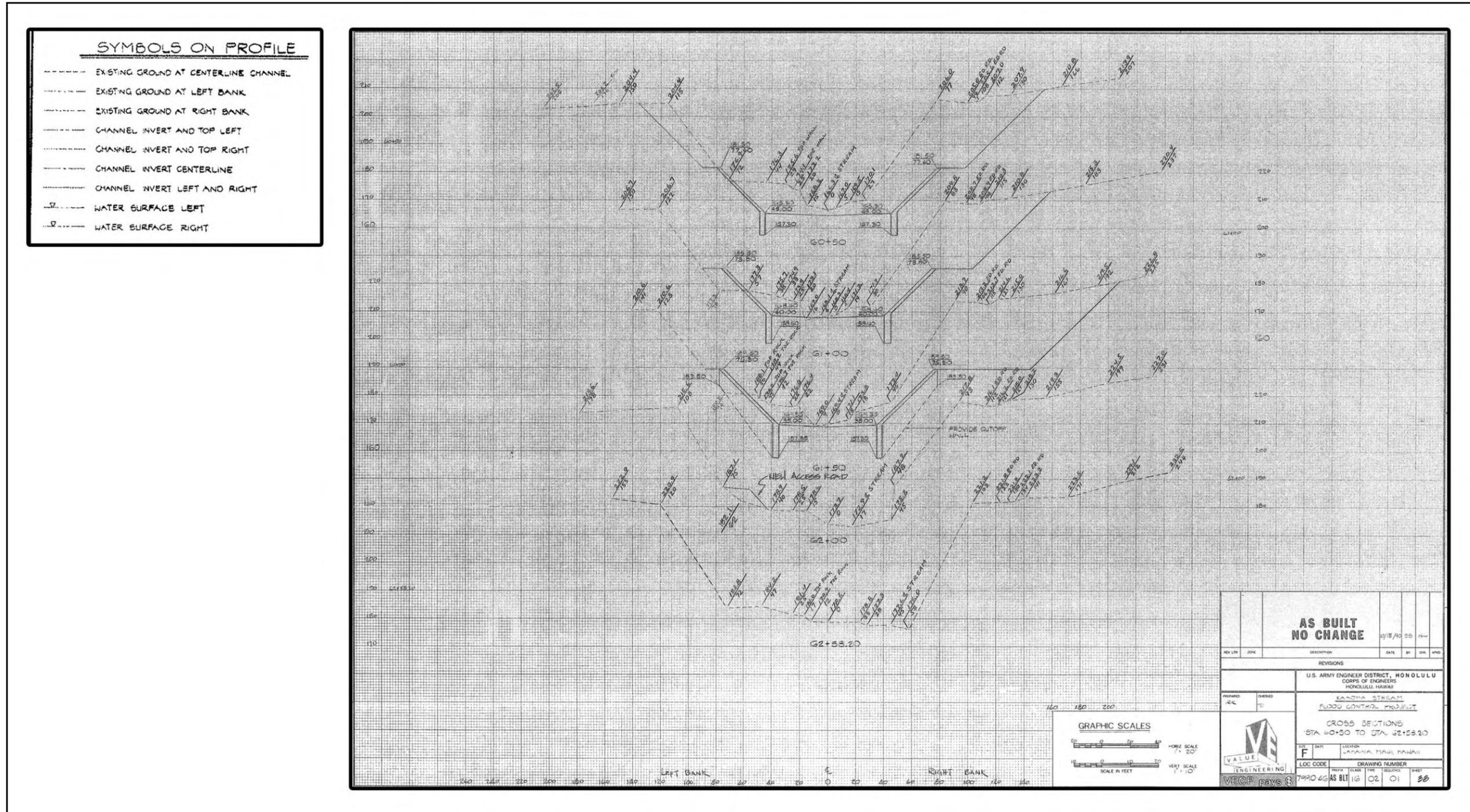


Figure 74. US Army Corps of Engineers' Kahoma Stream Flood Control Project, as built for the debris basin and maintenance and southern access road, STA 60+50 to 62+55.2 showing original embankment profile relative to the build out (Courtesy of Austin Tsutsumi and Associates).

## Section 6 Assessments of Archaeological Significance

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In accordance with the State Department of Land and Natural Resources (DLNR) Chapter 13-284, Hawai'i Administrative Rules (HAR), entitled "Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, Hawai'i Revised Statutes (HRS), Projects"; Chapter 13-284-6 entitled "Evaluation of Significance", states:

- a. Once a historic property is identified, then an assessment of significance shall occur. The agency shall make this initial assessment, or delegate this assessment, in writing, to the SHPD. This information shall be submitted concurrently with the survey report, if historic properties are found in the survey.
- b. To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:
  - A. Sites that are associated with events that have made a significant contribution to broad patterns of our history; or
  - B. Sites that are associated with the lives of persons significant in our past; or
  - C. Sites that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or that represents a significant or distinguishable entity, whose components may lack individual distinction; or
  - D. Sites which have yielded, or may be likely to yield, information important in prehistory or history; or
  - E. Sites which have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events, or oral accounts- these associations being important to the groups' history and cultural identity.

SIHP 50-50-03-6492 and -6596 is considered significant under Criterion D because of the potential to yield information important for understanding the history of the region. As the Pioneer Mill Co. sought to intensify sugar cultivation in Lāhainā by opening up more arable lands, advances in farming and agricultural technology following World War II paved the way for increased mechanization and automation. The increase in plantation mechanization made field preparation easier and less costly. The pushpiles associated with SIHP-6492 and -6596 are the results the plantation's rock removal program where rocky fields, previously cultivated by hand, were successfully cleared and the large boulders that characterized the geology of the southern slopes of the West Maui Mountains piled into large mounds across the lower and upper plains. Similar features of this type continue to dot the landscape from Ukumehame to Honokowai.

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## Section 7 Project Effect and Mitigation Recommendations

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### 7.1 Project Effect

Under Hawai'i state historic preservation legislation, the only two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR Chapter 13-284-7). In the circumstance of the current project area, two historic to modern era pushpiles, SIHP Numbers 50-50-03-6492 and -6596 have been documented within the area of potential effect (APE) for the subject project. These historic properties are recommended as significant only for its information content. We believe that the current inventory survey investigation has adequately recorded the information for SIHP -6492 and -6596, through literature research and oral testimony, as well as locational documentation, written descriptions, photographs, plan view maps to scale, and archaeological testing.

Under the Section 106 of the National Historic Preservation Act, the definition a historic property is as follows (36 CFR PART 800 -- PROTECTION OF HISTORIC PROPERTIES [incorporating amendments effective August 5, 2004] § 800.16 Definitions):

(l)(1) Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Because we believe that the information that makes SIHP Numbers 50-50-03-6492 and -6596 significant has been well documented in this report and other resources cited throughout this report, in addition to the fact that further historic preservation mitigation or data recovery would not add to the body of information concerning these historic properties, it is our opinion that significance criterion D is no longer applicable and as such no longer eligible for the National Register of Historic Places. With this in mind, CSH recommends a project specific effect recommendation of “no historic properties affected.” We believe this is appropriate, despite the potential removal of SIHP Numbers 50-50-03-6492 and -6596 by the proposed project, because the information that would have given these historic properties significance has been recorded.

### 7.2 Mitigation Recommendations

Based on the above evaluation of effect, CSH recommends no further historic preservation work with regard to SIHP 50-50-03-6492 and -6596. It should be noted; however, that the above project effect recommendation applies only to the constructed portions of SIHP 50-50-03-6492 and -6596 and while no additional historic properties were identified in a subsurface context, the possibility of encountering sensitive cultural remains within or beneath these historic pushpiles should not be underestimated. Specific concerns regarding the possibility of burials near Kahoma Stream and within the pushpiles were expressed by the descendants of *kuleana* holders within the Kahoma and Kanaha stream valleys, as well as, Wahikuli Ahupua'a and the native Hawaiian community of Lāhainā. Therefore, CSH, in consultation with SHPD (September 23, 2008), is

recommending on-site archaeological monitoring during all surface alteration and ground disturbing work along Kahoma Stream and during pushpile deconstruction of SIHP 50-50-03-6596 with no further archaeological work recommended for the remainder of the alignment. SIHP 50-50-03-6492 is currently located outside of the project ROW with no construction impacts anticipated for the pushpiles themselves, therefore, no further work with regard to this historic property is recommended. In the event that significant pre-contact or historic deposits (i.e. subsurface concentrations of indigenous or historic era artifacts and or structural remnants) or human burials are exposed during construction, subsurface excavation work and/or surface grading should be halted in the immediate area and the SHPD staff archaeologist and cultural historian for Maui County should be contacted.

### **7.3 Disposition of Materials**

All of the data gathered and generated during the course of this inventory survey are currently being curated and housed at the Maui Office of Cultural Surveys Hawai'i, Inc., 1993 Main Street, Wailuku, HI 96793 with copies on file at the main office of Cultural Surveys Hawai'i, Inc. at 41-1537 Kalaniana'ole Hwy # 200, Waimanalo, HI 96795-1185.

## Section 8 References Cited

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**Ahlo, Hamilton, M and Maurice E. Morgenstein**

1980 *Archaeological Test Excavations near the Mouth of Kahoma Stream, Lahaina, Maui*. Prepared for U.S. Army Corps of Engineers Division Pacific Ocean, Contract No. DACW84-79-C-0012, Mod. No. P00005. Hawaii Marine Research, Inc.

**Alexander, W.D.**

1890 A Brief History of Land Titles in the Hawaiian Kingdom. In *Hawaiian Almanac and Annual for 1891*. Compiled by Thomas G. Thrum, pp. 105-124. Press Publishing Company Print, Honolulu, HI.

**Andrews, Lorrin**

1865 *A Dictionary of the Hawaiian Language to which is Appended an English-Hawaiian Vocabulary and a Chronological Table of Remarkable Events*. Printed by Henry M. Whitney, Honolulu, HI.

**Arago, Jacques**

1823 *Narrative of a Voyage Round the World, in the Uranie and Physicenne Corvettes, Commanded by Captain Freycinet During the Years 1817, 1818, 1819, and 1820 on a Scientific Expedition Undertaken by Order of the French Government in a Series of Letters to a Friend, by J. Arago Draftsman to the Expedition*. Treuttel and Wurtz, Treuttel, Jun and Richter, Soho-Square, London.

**Barkhausen, Louis**

1903 Manager's Report, section, *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1902*, the Bulletin Publishing Company, Honolulu.

1905 Manager's Report, section, *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1904*, the Bulletin Publishing Company, Honolulu.

**Barrera, William**

1988 *Honoapiilani Highway, Maui: Archaeological Reconnaissance*. Chiniago, Inc.

**Bishop, S.E**

1884 *Town of Lahaina Maui* [map]. W.D. Alexander, Surveyor General, Hawaiian Government Survey. Scale = 1:2400, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.

**Borthwick, Douglas F. and Hallett H. Hammatt**

2001 *Archaeological Investigations at Lahaina Court House, Lahaina District, Island of Maui (TMK 4-5-01:9)*. Prepared for Mason Architects. Cultural Surveys Hawai'i, Inc. Kailua, HI

**Burgett, Berdena, Jennifer Robins and Robert L. Spear**

1996 *Data Recovery Excavations at Site 50-50-03-2963 Lahaina, Maui Island, Hawai'i (TMK: 4-5-05:9)*. Prepared for UCT Engineering. Scientific Consultant Services, Inc. Honolulu, HI.

**Buke Mahele**

1848 *Buke Kakau Paa no ka mahele aina i Hooholoia iwaena o Kamehameha III a me Na Lii a me Na Konohiki ana.* Hale Ali'i, Honolulu. Januari 1848. On file at the Archives of Hawaii, Honolulu, HI.

**Calis, Irene**

2002 *Archaeological Monitoring Report: Parking Lot Drainage System Installation Panaewa Ahupua'a District of Lahaina, Island of Maui, Hawai'i [TMK: (2) 4-5-01:33].* Prepared for Wayne I. Arakaki Engineer, LLC. Scientific Consultant Services, Honolulu, HI.

**Carter, J. C.**

1934 Fluming Cane, article, *Reports of the Association of Hawaiian Sugar Technologists*, Hawaiian Printing Company, Honolulu.

**Chaffee, David B., Berdena Burgett, Mike Carson and Robert Spear**

1997 *An Archaeological Inventory Survey of a Portion of the Proposed Expansion of the Maui Research and Technology Park, Kīhei, Maui Island, Hawai'i (TMK 2-2-2:54).* Scientific Consultant Services, Inc., Honolulu, Hawai'i.

**Connolly, Robert D., III**

1974 *Phase I Archaeological Survey of Kahoma Stream Flood-Control Project Area, Lahaina*, prepared for the National Park Service and the U.S. Army Corps of Engineers, by the B.P. Bishop Museum, Honolulu.

**Davis, Bertell**

1977 *Archaeological Investigations at the Mala Wharf Boat-Launch Ramp Area, Lahaina, Maui (Preliminary Progress Report).* Archaeological Research Center Hawaii, Inc. Lawai, HI

**Dodge, F.S.**

1885 *Maui, Hawaiian islands/primary triangulation by W.D. Alexander and S.E. Bishop; topography and boundaries by W.D. Alexander, C.J. Lyons, M.D.Monsarratt [map].* Scale = 1:90,000. Hawaiian Government Survey. On file at the Library of Congress Geography and Map Division, Washington D.C. Digital ID g4382m ha000012 <http://hdl.loc.gov/loc.gmd/g4382.ha000012> (last accessed July 2005)

**Donham, Theresa**

1990 *Archaeological Inventory Survey, Pi'ilani Residential Community, Phase II, Land of Kēōkea, Makawao [Wailuku] District, Island of Maui, (TMK 2-2-02:42 por),* PHRI, Hilo, HI.

1993 *Field Check of Reported Human Skeletal Remains, Mala Wharf, Lahaina. Staff Memorandum 3 November 1993.* Department of Land and Natural Resources, State Historic Preservation Division. Kapolei, HI.

**Eckart, C.F., editor**

1911 Harvesting Contracts, article, *The Hawaiian Planter's Record*, Vol. IV, Hawaiian Sugar Planters' Association, Honolulu.

**Ellis, William**

1826 *Narrative of a Tour through Hawaii, or Owhyhee; with Remarks on the History, Traditions, Manners, Customs, and Language of the Inhabitants of the Sandwich Islands.* Fisher, Son, and P. Jackson, London.

**Folk, William**

1991 "Lahaina (Front Street) Archaeological Test Excavations, TMK 4-5-3:12, Island of Maui." Letter to Bayless Architects 1 March 1991. Cultural Surveys Hawai'i, Inc. Kailua, HI. On file at the Hawai'i State Historic Preservation Division, Kapolei, HI.

**Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens**

1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.* United States Department of Agriculture, Soil Conservation Service, in Cooperation with the University of Hawaii Agricultural Experiment Station. U.S. Government Printing Office, Washington D.C.

**Formolo, Holly Lisa Rotunno-Hazuka, and Jeffrey Pantaleo**

2005 *Archaeological Assessment Report for the Proposed Keawe Street extension Hanaka'o'o Ahupua'a, Lahaina District, Island of Maui TMK 4-4-08:07,13.* Prepared for SEY. Archaeological Services Hawaii, LLC. Wailuku, HI.

**Forsyth, Thomas G.**

1900 Excerpts from the diary of Thomas G. Forsyth, manuscript, in *Lahaina in 1897*, by Arthur Waal, Maui Historical Society, Bailey House Museum, Wailuku, Hawai'i.

**Fredericksen, Demaris L. and Erik M. Fredericksen**

2000a *An Archaeological Inventory Survey of a Front Street Parcel Between the Wharf Cinema Complex and the Banyan Inn Market Place (TMK: 4-6-08: por.4)* Puako Ahupua'a, Lahaina District, Maui Island. Prepared for Activity Mart. Xamanek Researches, Pukalani, HI

2000b *An Archaeological Inventory Survey of the West Side Resource Center (Ka Hale A Ke Ola) Lands of Ko'oka, Waine'e, Pua'anui, Lahaina District, Maui Island (TMK:4-6-15:por.1).* Prepared for Munekiyo, Arakawa, and Hiraga, Inc. Xamanek Researches, Pukalani, HI

2000c *Archaeological Inventory Survey of Makai Portion (Phase 1) of Olowalu Development Parcel, Olowalu Ahupua'a, Lāhainā District, Maui Island (TMK 4-8-03: por, 5).* Xamanek Researches, Pukalani, HI.

**Fredericksen, Demaris L., Walter M. Fredericksen, and Erik M. Fredericksen**

1999 *Archaeological Inventory Survey in the 'ili of Pakala, Puako Ahupua'a, Lahaina District, Maui Island (TMK: 4-6-07:7 and 10).* Prepared for JDI Ltd. Partners. Xamanek Researches, Pukalani, HI.

1989 *Archaeological Data Recovery Report on the Aus Site, Lahaina, Maui Hawaii.* Prepared for Historic Sites Section, Department of Land and Natural Resources. Xamanek Researches, Pukalani, HI

**Fredericksen, Erik**

- 1997 *Archaeological Monitoring Report on the Pioneer Inn Swimming Pool Construction Project (TMK: 4-6-01:08)*. Prepared for Pioneer Inn. Xamanek Researches, Pukalani, HI.
- 2002 *Archaeological Monitoring Report for the King Kamehameha III Elementary School Building B, Building D, and PT 201 Restroom Renovation Project, Puako Ahupua'a, Lahaina District, Maui (TMK: 4-6-02:13&14) (DAGS Job # 55-16-2904)*. Prepared for David P. Ting & Sons, Inc. Xamanek Researches, Pukalani, HI.

**Fredericksen, Erik and Demaris Fredericksen**

- 2001 *Archaeological Monitoring Report for the King Kamehameha III Elementary School Electrical System Upgrade Project, Lahaina Ahupua'a, Lahaina District, Lahaina, Maui (TMK 4-6-02:13, and 4-6-02:14) (DAGS Job #15-16-2159)* Prepared for Lite Electric Inc. Xamanek Researches, Pukalani, HI.
- 2002 *Archaeological Inventory Survey Report for a Portion of Land in Puako Ahupua'a, Lahaina District, Lahaina, Maui (TMK 4-6-08: 53 and 48)*. Xamanek Researches, Pukalani, HI.
- 2003 *An Archaeological Inventory Survey of the Lahaina Watershed Flood Control Project Area Lands of Polanui, Paho, Puehuhunui, Halaka'a, Waine'e, and Puako, Lahaina District, Maui Island TMK: 4-6-13-16, 18, 26 TMK 4-7-01, 02*. Prepared for Munekiyo & Hiraga, Inc. Xamanek Researches, Pukalani, HI.

**Fredericksen, Walter M.**

- 2002 *Archaeological Monitoring Report for the Remodeling Project of the Lahaina Yacht Club, 835 Front Street, Paunau Ahupua'a, Lahaina District, Island of Maui (TMK: 4-5-01:5)*. Prepared for Mr. Brian Blundell. Xamanek Researches, Pukalani, HI.

**Fredericksen, Walter M. and Demaris L. Fredericksen**

- 1965 *Report of the Archaeological Excavation of the "Brick Palace" of King Kamehameha I at Lahaina, Maui (TMK 4-6-01:7)*. Xamanek Researches, Pukalani, HI
- 1982 *Report on the Archaeological Excavation Conducted at Hale Pa'i Site-1981-82 (TMK 4-6-18:5)*. Prepared for the Lahaina Restoration Foundation. Xamanek Researches. Pukalani, HI
- 1990 *Archaeological Data Recovery Report on the Plantation Inn Site, Lahaina, Maui, Hawaii*. Prepared for the Historic Sites Section, Department of Land and Natural Resources. Xamanek Researches, Pukalani, HI.
- 1993 *An Archaeological Inventory Survey on a Parcel of Land Located in the Ahupua'a of Paunau, District of Lahaina, Island of Maui (TMK 4-6-09:12)*. Prepared for Lahaina Divers. Xamanek Researches, Pukalani, HI

**Fredericksen, Walter M., Demaris L. Fredericksen, Erik M. Fredericksen**

- 1988a *Report on the Archaeological Inventory Survey at Historic Site #15, Lahaina, Maui, Hawaii (Revised)*. Prepared for Ormond Kelley, AIA. Xamanek Researches, Pukalani, HI
- 1988b *The Aus Site (50-03-1797) A Preliminary Inventory Survey Report*. Xamanek Researches, Pukalani, HI.
- 1989a *An Archaeological Inventory Survey of the Plantation Inn Site, Lahaina, Maui*. Prepared for Century Investments, Inc. Xamanek Researches, Pukalani, HI
- 1989b *An Archaeological Inventory Survey of a Parcel of Land Adjacent to Malu-ulu-o-lele Park, Lahaina Maui, Hawaii*. Prepared for County of Maui Department of Parks and Recreation. Xamanek Researches, Pukalani, HI.

**Geolabs, Inc**

- 2007 *Preliminary Geotechnical Engineering Report Honoapiilani Highway Realignment, Phase 1A Future Keawe Street Extension to Lahainaluna Road Federal Aid Project No. NH-030-I(35) Lahaina, Maui, Hawaii*. Prepared for Wilson Okamoto Corporation. Honolulu, HI

**Giambelluca, Thomas W. and Thomas A. Schroeder**

- 1998 Climate. In *Atlas of Hawai'i, Third Edition*, edited by Sonia P. Juvik and James O. Juvik, pp. 49-59. University of Hawai'i Press, Honolulu.

**Gilman, Gorham**

- 1906 Lahaina the Early Days in *Hawaiian Almanac and Annual for 1907*. Compiled by Thomas G. Thrum, pp. 168-179. Press Publishing Company Print, Honolulu, HI.

**Gilmore, A. B.**

- 1936 *The Hawaii Sugar Manual*, New Orleans, Louisiana

**Graves, D.K., S.T. Goodfellow, and A.E. Helen**

- 1998 *Archaeological Inventory Survey, Launiupoko Development Parcel, Land of Launiupoko, Lahaina District, Island of Maui (TMK: 2-4-7-01:2)*. Prepared for Launiupolo, LLC. Paul H. Rosendahl, Ph.D, Inc. Hilo, HI.

**Hammatt, Hallett H.**

- 1978 *Archaeological Investigation and Monitoring, Mala Wharf Boat Launch Ramp Area, Lahaina*. ARCH. Lawa'i, HI.

**Hammatt, Hallett H. and David W. Shideler**

- 1998 *Written Findings of Archaeological Monitoring at the Lahaina Courthouse, Lahaina, Lahaina District, Maui Island, Hawai'i*. Cultural Surveys Hawai'i, Inc. Kailua, HI.

**Handy, E.S. Craighill, Elizabeth Green Handy, and Mary Kawena Pukui**

- 1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Revised Edition. Bishop Museum Press, Honolulu, Hawaii.

**Haun, Alan E.**

- 1988 *Preliminary Report upon Completion of Field Work, Subsurface Archaeological Reconnaissance Survey, Lahaina Cannery Makai and Mauka Parcels, Land of Moali'i, Lahaina District, Island of Maui.* PHRI, Paul H. Rosendahl, Ph.D., Inc.Hilo, HI.
- 2000 *Archaeological Inventory Survey Kaua'ula Development Parcel Lands of Pūehuehu Iki, Pāhoa, and Pola Nui District of Lahaina, Island fo Maui (TMK:2-4-7-02:4&7; 2-4-7-03:1).* Prepared for Kauaula LLC. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI

**Haun, Alan E. and Dave Henry**

- 2001 *Archaeological Inventory Survey, TMK: 4-6-7:10 'Ili of Pakala, Land of Puako, Lahaina District, Island of Maui.* Prepared for JDI Ltd. Partners. Haun & Associates, Kea'au, HI.

**Heidel, Melody, William H. Folk, and Hallett H. Hammatt**

- 1995 *An Archaeological Inventory Survey for Waiola Church, Ahuupa'a of Waine'e, Lahaina District, Island of Maui (TMK 4-6-7:16).* Prepared for Tom Cannon, AIA Architects Maui. Cultural Surveys Hawai'i, Inc. Kailua, HI. Hommon, Robert J.
- 1982 *An Archaeological Reconnaissance Survey of an Area Near Waine'e Village, West Maui.* Science Management. Honolulu, HI.

**Hommon, Robert**

- 1982 *An Archaeological Reconnaissance Survey of an Area Near Waine'e Village, West Maui.* Science Management. Honolulu, HI.

**Jensen, Peter M.**

- 1989 *Archaeological Inventory Survey Lahaina Master Planned Project Site, Land of Wahikuli, Lahaina District, Island of Maui.* PHRI Report 653-1006890. Prepared for Housing Finance and Development Corporation State of Hawai'i. PHRI. Hilo, HI.
- 1991 *Archaeological Inventory Survey Honoapiilani Highway Realignment Project Lāhainā Bypass Section – Modified Corridor Alignment. Lands of Honokowai, Hanakao, Wahikuli, Panaewa, Kuia, Halakaa, Puehuhunui, Pahoā, Polanui, and Launiupoko Lahaina District, Island of Maui.* PHRI Report 1064-022092. Prepared for Michael T. Munekiyo Consulting. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.
- 1994 *Archaeological Inventory Survey Lāhainā Bypass Highway New Connector Roads Project Area: Lands of Hanakao'o and Paunau, Lahaina District, Island of Maui.* Prepared for Amfac/JMB Hawaii, Inc. Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Jensen, Peter. M. and Jenny O'Claray**

- 1991 *Supplemental Archaeological Survey Lahaina Master Planned Project Offsite Sewer, Water Improvements, and Cane Haul Road, Lands of Wahikuli, Hanakao'o, Honokawai, Kuhua, Kuholilea, Puou, Pu'uiki, and Aki, Lahaina District, Island of Maui.* Prepared for Housing Finance and Development Corporation, State of Hawai'i. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Kahā'ulelio, Daniel**

- 2005 *Ka Oihana: Hawaiian Fishing Traditions.* Translated by Mary Kawena Pukui and edited by M. Puakea Nogelmeier. Bishop Museum Press. Honolulu, HI.

**Kamakau, Samuel Manaiakalani**

- 1961 *Ruling Chiefs of Hawaii.* Kamehameha Schools Press, Honolulu.

**Kawachi, Carol**

- 1995 *Draft Manuscript of Subsurface Testing for Proposed Mala Wharf Comfort Station.* Internal SHPD Report. Department of Land and Natural Resources, State Historic Preservation Division, Kapolei, HI.

**Kennedy, Joseph**

- 1989 *Archeological Report Concerning Subsurface Testing at TMK: 4-6-08:12, Lahaina Maui.* Letter Report to Mr. John Finney, Pentagram Corporation. 11 January 1989. Archaeological Consultants of Hawaii, Haleiwa, HI.

**Kennedy, Joseph and Tim Denham**

- 1992 *Archaeological Inventory Survey Report for Proposed Baseball Complex Adjacent to the Existing Lahaina Civic/Recreation Center Located at Lahaina, Island of Maui TMK: 4-5-21: 03.* Archaeological Consultants of Hawaii, Inc. Haleiwa, HI

**Klieger, Paul Christiaan (editor)**

- 1995 *Moku'ula: History and Archaeological Excavations at the Private Palace of King Kamehameha III in Lahaina, Maui.* Prepared for Lahaina Restoration Foundation. Anthropology Department, Bishop Museum, Honolulu, HI.

**Klieger, Paul Christiaan and Stephen Clark**

- 1995 *Report on Human Burials at Site 50-50-03-2967, Moku'ula, Lahaina, Maui.* Prepared for the State of Hawaii, Department of Land and Natural Resources, State Historic Preservation Division and Maui County Burial Council. Anthropology Department, Bishop Museum, Honolulu, HI.

**Klieger, Paul Christiaan and Lonnie Somer**

- 1995 *Emergency Mitigation at Malu'ulu o Lele Park, Lahaina, Maui, Hawai'i, Site of Moku'ula, Residence of King Kamehameha III Site 50-50-03-2967; TMK 2-4-6-7 Parcel 2 BPBM 50-Ma-D5-12.* Prepared for County of Maui, Division of Parks & Recreation. Anthropology Department, Bishop Museum. Honolulu, HI.

**Kubota, Gary**

- 1999 "Wainee Tenants Cherish Old Lifestyle." *Honolulu Star Bulletin.* Monday, April 19, 1999.

**Kupau, Summer**

2001 *Exploring Historic Lahaina*, Watermark Publishing, Honolulu, HI.

**Kurashina, Hiro and Aki Sinoto**

1984 *Archaeological Reconnaissance of the Proposed Shopping Center at Lahaina, Maui, Hawai'i*. Bishop Museum. Honolulu, HI.

**Lee-Greig, Tanya L.**

2007 An Archaeological Field Inspection of the Lāhainā Bypass Highway, Phase IA, Keawe Street Extension to Lahainaluna Road, and Current Condition of SIHP Number -2484. Letter Report to Department of Land and Natural Resources, State Historic Preservation Division. June 14, 2007. Cultural Surveys Hawai'i, Inc. Wailuku, HI.

**Lee-Greig, Tanya and Hallett H. Hammatt**

2008 *An Archaeological Inventory Survey Plan for Honoapi'ilani Highway Realignment Phase IA, Future Keawe Street Extension to Lahainaluna Road: Ikena Avenue Alignment with Modified Extension Kelaweā, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels*. Cultural Surveys Hawaii, Inc. Wailuku, HI.

2006 *A Cultural Impact Assessment for the Proposed Pali to Puamana Parkway Polanui Ahupua'a to Ukumehame Ahupua'a, Lāhainā District Maui Island TMK: (2) 4-8-02: multiple parcels, 4-8-03: multiple parcels and 4-7-01: multiple parcels*. Cultural Surveys Hawaii, Inc. Wailuku, HI

**Lucas, Paul F. Nahoa (editor)**

1995 *A Dictionary of Hawaiian Legal Land-Terms*. University of Hawai'i Committee for Preservation and Study of Hawaiian Language, Art and Culture. Native Hawaiian Legal Corporation, University of Hawai'i Press, Honolulu, HI.

**Major, Maurice and P. Christiaan Klieger**

1995 *Historical Background and Archaeological Testing at Pikanele's Kuleana in Lahaina, Maui: An Inventory Survey Report of LCA 310.3 (Royal Patent 1729.2 TMK [2] 4-6-07:13)*. Project 521, MS#091595. Anthropology Department, Bishop Museum, Honolulu, Hawai'i.

**Maui News**

1926 Industrial Edition, December 4, 1926, Volume 26, No. 1366, Maui Publishing Company, Wailuku, Hawai'i.

**McCandless, James Sutton**

1936 *A Brief History of the McCandless Brothers and Their Part in the Development of Artesian Water in the Hawaiian Islands, 1880-1936*. Advertiser Publishing Co., Honolulu.

**Meyers, Fred I.**

1954 *The Gilmore Hawaii Sugar Manual*, Gilmore Publishing Company, New Orleans, Louisiana.

**Miura, Marvin T.**

1982 *Biological and Archaeological Reconnaissance, TMK 2-2-02: Portion of 42, Kihei, Maui, Hawaii*. EISC. Honolulu, HI.

**Nicholson, Capt. H. Whalley**

1881 *From Sword to Share; or a Fortune in Five Years at Hawaii*. W.H. Allen & Co. London.

**Nishimoto, Warren S., Michi Kodama-Nishimoto, Holly Yamada, Cynthia A. Oshiro, and Maria E. Ka'imipono Orr**

2003 *Pioneer Mill Company: A Maui Sugar Plantation Legacy*. Center for Oral History Social Science Research Institute. University of Hawai'i at Mānoa. Honolulu, HI.

**Olowalu Town LLC.**

2008 *West Maui Sugar Association and Olowalu Plantation 1864-1881*. Online Article. <http://www.olowalutown.net/index.cfm?fuseaction=ig.page&PageID=127>

**Pantaleo, Jeffrey**

1991 *Archaeological Survey of the Proposed Lahainaluna Reservoir and Treatment Facility, Lahaina, Maui* [letter report]. Prepared for Michael T. Munekiyo MTM Consulting. Applied Research Group. Wailuku, HI.

**Paraso, C. Kanani and Michael Dega**

2006 *An Archaeological Inventory Survey of 633 Acres in the Launiupoko (Large Lot) Subdivision Nos 3, 4, and 7 Launiupoko and Polanui Ahupua'a District of Lahaina (Formerly Kā'anapali) Island of Maui, Hawai'i [TMK (2) 4-7-01:2 por.]*. Prepared for West Maui Land Company, Inc. Scientific Consultant Services, Inc. Honolulu, HI.

**Pickett, Jenny L. and Michael F. Dega**

2006 *An Archaeological Assessment for 16.8-Acres in Lahaina, Moali'i Ahupua'a, Lahaina District, Maui Island, Hawai'i [TMK (2) 4-5-10-:005 & 006 (por.)]*. Prepared for West Maui Land Corporation. Scientific Consultant Services, Honolulu, HI.

**Pioneer Mill Company, Ltd.**

1945 *Annual Report of the Pioneer Mill Company Limited for the Year Ending December 31, 1944*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.

1946 *Pioneer Mill Company Limited Annual Report for 1945*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.

1951 *Pioneer Mill Company Limited Annual Report for 1950*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.

**Pratt, Linda W and Samuel M. Gon III**

1998 *Terrestrial Ecosystems*. In *Atlas of Hawaii, Third Edition* edited by Sonia P. Juvik and James O. Juvik, pp. 121-129. University of Hawai'i Press, Honolulu.

**Riford, Mary and Paul L. Cleghorn**

1989 *Documentary Assessment of Archaeological Potential of Ten Prospective Power Plant Sites on Maui*. Prepared for Maui Electric Company. Applied Research Group. Honolulu, HI

**Robins, Jennifer J., Robins, William H. Folk and Hallett H. Hammatt**

1994 *An Archaeological Inventory Survey of an Approximately 14.7 Mile Proposed Transmission Line, from Ma'alaea to Lahaina, Maui, Hawai'i*. Cultural Surveys Hawaii, Kailua, HI. Original 1991, Revised 1994.

**Rolph, George M.**

1917 *Something about Sugar Its History Growth, Manufacture and Distribution*. John J. Newbegin Publisher, Sand Francisco, CA.

**Rosendahl, Paul H.**

1994 *Archaeological Treatment Plan for No Adverse Effect Lāhainā Bypass Highway Project Lands of Honokowai, Hanakaoo, Wahikuli, Panaewa, Kuia, Halakaa, Puehuhunui, Pahoā, Polanui, and Launiupoko Lahaina District, Island of Maui*. PHRI Report 1487-031894. Letter to the Don Hibbard, Administrator to the Department of Land and Natural Resources, State Historic Preservation Division PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Royal Gardens, Kew**

1894 *Bulletin of Miscellaneous Information*. Eyre and Spottiswoode, Westminster, S.W., England.

**Shun, Kanalei**

1991 *Archaeological Excavation of Human Bone Remains Kahoma Stream Flood Control Project, Kahoma Stream, Lahaina, Island of Maui*. Prepared for US Army Engineer District, Honolulu, Corps of Engineers, Purchase Order No. DACW83-89-M-0563. Archaeological Associates Oceania, Kaneohe, HI.

**Simpich, Frederick, Jr.**

1974 *Dynasty in the Pacific, a History of Amfac in Hawaii*. McGraw-Hill Book Company, New York.

**Sinoto, Aki**

1995 *Archaeological Monitoring During the Renovation of the Lahaina Center Parking Structure Lahaina, Maui TMK:4-5-02:9*. Prepared for KCOM Corporation. Aki Sinoto Consulting, Honolulu, HI.

**Spencer Mason Architects**

1988 *Historic Site Survey for Lahainaluna Road and Wainee Street Widening Projects (TMK: 4-5-06:8, 4-5-01:33 & 36)*. Spencer Mason Architects, Honolulu, HI.

**Stearns, Harold T., and Gordon A. MacDonald**

1942 *Geology and Ground-Water Resources of the Island of Maui, Hawaii*, Division of Hydrography, Territory of Hawaii, Advertiser Publishing Co., Honolulu.

**Stewart, Charles S.**

1839 *A Residence in the Sandwich Islands*. 5<sup>th</sup> ed. Weeks, Jordan & Company. Boston, MA.

**Stubbs, A.M.**

1900 *Cultivation of Sugar Cane in Two Parts. Part First Sugar Cane: A Treatise on its History, botany and Agriculture*. The Morning News Print. Savannah, GA.

**Territory of Hawai'i**

- 1902 *Report of the Governor of the Territory of Hawaii to the Secretary of the Interior*. September 30, 1902. Executive Chamber, Territory of Hawaii, Honolulu.

**U.S. Department of Agriculture, Natural Resources Conservation Service**

- 2001 *Soil Survey Geographic (SSURGO) database for Island of Maui, Hawaii (hi980)*. U.S. Department of Agriculture, Natural Resources Conservation Service. Fort Worth, Texas. <<http://www.ncgc.nrcs.usda.gov/products/datasets/ssurgo/>> (last accessed March 2005)

**Waal, Arthur**

- 1898 *Lahaina in 1897*. Unpublished manuscript. On file at the Maui Historical Society, Bailey House Museum, Wailuku, Hawai'i.

**Wadsworth, H. A.**

- 1936 A Historical Summary of Irrigation in Hawaii, article, in *Hawaii Sugar Manual*, Gilmore Publishing Company, New Orleans, Louisiana.

**Waihona 'Aina**

- 2000 Mahele Database. Online database, <http://www.waihona.com/>, last accessed June 2007.

**Walker, Winslow Metcalf**

- 1931 *Archaeology of Maui*. Manuscript on file at the Bernice Pauahi Bishop Museum, Honolulu, HI.

**Watanabe, Farley**

- 1987 *Trip Report: archaeological Site Investigation Kahoma Stream Flood Control Project*. CEPOD-ED-PV. Corps. Of Engineers. 25 May 1987.

**Watts, R.G.**

- 1939 Pioneer Mill Company's Power and Pumping System, article, in *Gilmore's Hawaii Sugar Manual 1938-1939*, New Orleans, Louisiana.

**Weizheimer, Ludwig**

- 1911 Manager's Report, section *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1910*, The Bulletin Publishing Company, Honolulu.
- 1914 Drought at West Maui. *The Hawaiian Planter's Record*, Vol. X. Hawaiian Sugar Planters' Association, Honolulu.

**Wilcox, Carol**

- 1997 *Sugar Water, Hawaii's Plantation Ditches*. University of Hawai'i Press, Honolulu, HI.

**Wright, Geo G. and T.Y. Awana**

- 1918 *Pioneer Mill Co. LTD. Cane Fields, Lahaina, Maui* [map]. Scale = 1:500. Pioneer Mill Company, Lahaiana, HI.

# Appendix A Land Commission Awards within the Project Corridor (Waihona 'Aina Corporation 2000)

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No. 0393, Kekuelike.....	2
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**No. 0393, Kekuelike**

Claim Number:	<b>00393</b>	Awarded:	<b>1</b>
Claimant:	<b>Kekuelike</b>	FR:	--
Other claimant:	--	NR:	<b>127v2</b>
Other name:	--	FT:	<b>156v7</b>
Island:	<b>Maui</b>	NT:	<b>38v5</b>
District:	<b>Lahaina</b>	RP:	<b>1672</b>
Ahupuaa:	<b>Puukoowali, Kelawe</b>	Number of Royal Patents:	<b>1</b>
Ili:	--		

**N.R. 127v2**

I, Kekuelike, hereby tell you of my right to my lot at Lahaina. It is at Puukoowali on the northwest of the Government Road, which I enter before the Land Commissioners.

Farewell to the Honorable Ones of the Government.

January 11, 1847, Lahaina.

KEKUELIKE

**F.T. 156v7**

Cl. 393, Kekuelike

Kaluokamano, sworn, I know the lands of the claimant. They consist of a house lot with some lois in Puuhoowali, Lahaina, and a kula land in two pieces in Kelawe, Lahaina.

The claimant received it from Kapiiwi[?] in the days of King Liholiho in 1821, and has held it without dispute ever since.

It is bounded:

Mauka by the Government road leading to Lahaina

Olowalu by the same

Makai by the same

Kaanapali by the Creek of Paunau.

It is fenced and it is the correct boundary.

Claimant received this land of lois, 15 in number, from Pikanele and his grandfather in 1838 and enjoyed them in peace until 1847, when Pikanele took away 3 of them, because the man having them in charge was too old to go to the poalima work.

The piece of 14 lois is bounded:

Mauka by Kalaikini

Olowalu by Kaheekai's land

Makai and Kaanapali by the creek of Moalii.

The piece of 1 lois is bounded:

Mauka by Pikanele's loi

Olowalu by the pali

Makai by Liu's land

Kaanapali by the creek of Moalii.

There is still one new piece, a lot in Kelawe; a very small lot. The claimant received it from Pikanele in 1833 and he has held it without dispute to the present day.

It is bounded:

Mauka by Liu's lot

Olowalu by the pali

Makai by the street

Kaanapali by the creek of Kanaha.

See page 38v5 N.T.

**N.T. 38v5**

No. 393, Kekuelike, SEE page 157 vol. 7

Kaluokamano, sworn, He has seen 4 sections belonging to Kekuelike consisting of a house lot at Puuhoowali and 3 sections at Kelaweia, here are the boundaries:

Section 1 - House lot.

Mauka, Olowalu, and Makai by Government road

Kaanapali by Adjoining Paunau ditch.

Section 2 - 14 patches.

Mauka and Olowalu Kalaikini's land

Makai by big stream

Kaanapali by stream.

Section 3 - 1 patch.

Mauka by Pikanele's land

Olowalu by pali

Makai by Liu

Kaanapali by big stream.

Section 4 - Farming lot.

Mauka by Liu

Olowalu by oali

Makai by Alanini or Alanui

Kaanapali by Kanaha big stream

1st section had been from Kaiheekai (he is new) at the time of Kamehameha II in 1821, no one has objected to him.

Pikanele has taken 2 patches out of 14, at the same time he had taken Kaluaokamano's first section in 1847.

The 4th section also had been from Pikanele at the time of Hoapili in 1839, no one has objected to the 3rd section.

[Award 393; R.P. 1672; Puuhoowali & Kelaweia Lahaina; 2 ap.; 1.21 Acs]

## **No. 5006, Kalena**

Claim Number:	<b>05006</b>	Awarded:	<b>1</b>
Claimant:	<b>Kalena</b>	FR:	
Other claimant:		NR:	<b>227v6</b>
Other name:		FT:	<b>4v6</b>
Island:	<b>Maui</b>	NT:	<b>110v10</b>
District:	<b>Lahaina</b>	RP:	<b>1692,662</b>
Ahupuaa:	<b>Kelaweia, Ilikahi</b>	Number of Royal Patents:	<b>2</b>
Ili:			

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**N.R. 227v6**

Greetings to the Land Commissioners on the Island of Oahu, of the Hawaiian Kingdom: I hereby claim my kihapai and kula land. It is at Lahaina on the Island of maui at Kelewea where I live. The one from whom I received my land was Keaweluaole and I am under him in peaceful possession, with no opposition until this day.

KALENA

Lahaina, Maui

**F.T. 4v7**

No. 5006, Kalena

Keaweluaole, sworn, I know the lands of claimant. They are in Lahainawaena in Ahupuaa of Kalawea, ili of Opiopio, consisting of kula and kalo land. He has a house lot also, separate from the other land farther down. The kula and kalo lie together:

On the Mauka is Pikanele's land  
Olowalu is my land Kukuikapu  
Makai is Pikanele's  
Kaanapali is the creek of Aki.

I gave this land to claimant in 1843. I had it from Hoapilikane in 1832. Claimant has held it without dispute to the present time.

The house lot is fenced and the fence is the true boundary. He had this land from his wife, who had it in time of Kamehameha I. The name of his wife is Kailaa. His title to this house lot was disputed in 1846 for the first time. (Stated August 19th 1850 by Kauhi 5017).

Kenui, sworn, I know these lands well, and have heard the testimony of Keaweluaole.

**N.T. 110-111v10**

No. 5006, Kalena (See page 121), Lahaina, Maui, 3 February 1852

Lui, sworn, I have seen his house site over which there is a dispute between Kauhi and Kelawea - Lahaina, Maui. Several houses for Kalena are standing there.

Mauka by Keaka's house lot  
Olowalu and all around C. Kanaina's land.

Land to Kalena in 1840, from Kaohekanu, his father-in-law. Kaohekanu had received it from Kamakapelapela, his father-in-law. I had first seen him at the time of Liholiho, the king, but he had lived there prior to this, his houses were there. He lived there until he gave it to his son-in-law, Kalena, there were no objections to this. Kalena lived there peacefully to 1851, then Kauhi started to stir for this place. I did not see the old place, but I did see the construction of the old adobe in 1840, on the site which Kauhi is claiming as his place. The house had fallen apart in 1851, but its foundation is still intact. There is [are] disputes over the breadfruit trees, but I have not known who had planted them, probably, Kaululaau.

POSTPONED: Till Timoteo Keaweui is available and for Kauhi and C. Kanaina's objections.

**N.T. 121v10**

No. 5006, Kalena vs. Paahao (from page 110)

Paele, sworn, there is a dispute over this place in Ilikahi, Lahaina, Maui. Kalena's surveying has taken a section of Iilitahi and it has been included in his house lot. I think this is an error.

Timoteo, sworn, Kalena's surveying of his place is correct, the boundary of Kalawea has extended to the houses of Paahao. It is not an error, because this is just as I have known long ago and the natives of Kelawea have indicated similarly. As for the dispute between Kauhi and Kalena, the latter is in the right.

[Award 5006; R.P. 1692; Kelawea Lahaina; 1 ap.; 2 roods 11 rods; R.P. 662; Kelawea Lahaina; .36 Ac.]

**No. 6408, Kalaikini, Lahaina, February 4, 1848**

Claim Number:	<b>06408</b>	Awarded:	<b>1</b>
Claimant:	<b>Kalaikini, Ioba</b>	FR:	
Other claimant:		NR:	<b>367v6</b>
Other name:		FT:	<b>9v7</b>
Island:	<b>Maui</b>	NT:	<b>119v10</b>
District:	<b>Lahaina</b>	RP:	<b>1723</b>
Ahupuaa:	<b>Kelaweā, Ukumehame</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Makanewa</b>		

**N.R. 367-368v6**

Greetings to the land Commissioners: I, Kalaikini, am a resident on the Island of Maui.

I hereby present my /claim for/ my lo`is and my separate `ili at Puaalou in Ukumehame, four lo`i and four potato mo`o.

Two mo`o are in another `ili in the Ahupua`a, also two mo`o are in another separate `ili, this is the land of Makaikē, an `ili, Kelaweā, in Lahaina - the name of that `ili is Kumuniu. These lo`is and the mo`os and this `ili were received from Hoapili wahine in 1839. The witnesses are Davida Malo, Keaweluaole and Maele.

Here is this claim of mine, a house lot at Kailua on Hawaii.

It is at Kianaloli [Hianaloli] in Kailua, being the land of Olohana, from friends. It was received in 1837. Those are my land claims.

Respectfully,

J. KALAIKINI

**F.T. 9v7**

Cl. 6408, Kalaikini, See Page 119 Vol. 10

Claimant has sent in several claims for the same lands but says they are all comprised in this Claim (See 5124)

Keaweluaole, sworn, I know the lands in this Claim. One is in Lahainawaena where Claimant lives in "Kalaweā" Ahupuaa. It is an ili called "Kumuniu." I know Hoapili Wahine gave claimant this land in 1837. I think in compensation for his building her stone house of "Luāhu." He has improved it, and occupied it in peace to this time paying taxes on it. He pays 1 dollar a year to Kekuanāoa as an acknowledgement of Lordship, "Hapaumi."

It is bounded:

Mauka by the ili of "Iaualoa"

Olowalu by my land

Makai by ili of Auwaiolima

Kaanapali by ili of "Opilopilo" my land.

He has also lands at Ukumehame. They consist of 4 ridges of dry land together called Ahupuaa moos. Also 4 kalo patches apart. These and the moos were given to claimant as I have always heard in pay for keeping cattle for Lot Kamehameha or Kekuanāoa. He received them in 1845 and has ever since held them undisputed.

Claimant said he relinquished his claim to land in Hawaii, a house lot in Kailu[a], district of Kailua. He also said that his claim for a house lot at Lahainawaena was heard by Mr. Richards; and a survey was then made of it.

(Nothing of the kind on record under this number. J.H. Smith, Sec. No. 347 delivered)

**N.T. 119v10**

No. 6408, Kalaikini (from page 9, volume 7) 9 February 1852

Polea, sworn, I have seen his land at Kelaweā, Lahaina, Maui - 7 patches and a pasture section in one section of land.

[It is bounded]:

Mauka by Kalena's land

Olowalu by Keaweluaole's land

Makai by Kekuelike's land

Kaanapali by Kalena's land.

Land from Mrs. Hoapili in 1838. No disputes to the present.

[Award 6408; R.P. 1723; Makenewa Ukumehame Lahaina; 2 ap.; 9 acs 1 rood 9 rods (9.3 Acs); Kelaweā Lahaina; 1 ap.; 2.58 Acs]

**No. 6432, Kaninau, Lahaina w/aena/?, 3 February 1848**

Claim Number:	<b>06432</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaninau</b>	FR:	
Other claimant:		NR:	<b>376v6</b>
Other name:		FT:	<b>11v7</b>
Island:	<b>Maui</b>	NT:	<b>25v15</b>
District:	<b>Kaanapali</b>	RP:	<b>1843</b>
Ahupuaa:	<b>Kelaweā, Honokowai</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Wanaloa</b>		

**N.R. 375v6**

Greetings to the Land Commissioners: I hereby enter my claim for lo`is and land. My lois are in Lahaina at Kelaweā, in the lot of Pikanele, above Kapoulu, on the north adjoining the lot of Loreina Anelu /Lorrin Andrews/. One mo`o with 17 lo`i and 3 separate lo`i outside /the mo`o/ which are in the kahawai /valley/ of Kapoulu, making a total of 20 lo`i.

Furthermore, there is an `ili in Honokawai in kaanapali District, Island of Maui. My wahine and I received it from Hana Kaunahi. That is my claim.

Respectfully,  
KANINAU

**F.T. 11-12v7**

Cl. 6432, Kaninau

Claim for 20 kalo patches in Ahupuaa of Kelaweā, Lahaina and an ili at Honokauwai in Kaanapali.

Keaweluaole, sworn, I know part of claimant's lands. He has 17 kalo patches in one lot lying in Kelaweā which he got from Pikanele in 1842. I was witness to the gift. Claimant is a mason & worked for him. Pikanele had this land from Kekuaanoa. This land is not comprised in the ilis kupono. Claimant has held it without dispute.

It is bounded:

Mauka by my land "Kukuikapu"

Olowalu by Kahookanu's land, a yard

Makai by my house lot

Kaanapali by "Kapoulu"

Claimant has also one lot (loi) in the land of Pikanele or Victoria, and 2 others far inland, but they are all in Kelaweā. He had them from Pikanele, and has held them from him ever since in peace. I know of no counter claimant.

Keawahaulu, sworn, I know claimant's Ili in Honokawai. Its name is "Walaloa." He had it from Pikanele in 1842 who had it from Kekuanaoa. Claimant has held it ever since in peace.

The boundaries of this Ili are well known to me but I cannot well describe them. I was witness to the Gift. Claimant had this land for work done for Pikanele.

See page 25 volume 15 (N.T.)

**N.T. 25v15**

No. 6432, Kaninau, from page 11v7

Kaleikini, sworn, says he knows the land claimed by Kaninau, in Kalawaa, Lahaina, and disputed by Pikanele. I live close to it, and know that Pikanele enclosed this piece of land along with his other land in 1840. Pikanele gave Pokai the husband of Kaninau, the privilege of living on this place, under him. Pokai was a mason and was sometimes employed by Pikanele, who also allowed him to live on the place in question but the land belongs to Pikanele.  
(Decided in favor of Pikanele)

[Award 6432; R.P. 1843; Kelawea Lahaina; 1 ap.; .56 Ac.; Wanaloa Honokowai Kaanapali; 1 ap.; .41 Ac.]

## No. 7713\*M, Victoria Kamamalu, Land Division, See Page 569

Claim Number:	<b>07713*M</b>	Awarded:	<b>1</b>
Claimant:	<b>Kamamalu, Victoria</b>	FR:	
Other claimant:		NR:	<b>440v5,569v5</b>
Other name:		FT:	<b>408v3</b>
Island:	<b>Maui</b>	NT:	<b>650v1</b>
District:	<b>Lahaina, Wailuku, Hamakualo</b>	RP:	<b>4475</b>
Ahupuaa:	<b>Waihee, Paunau, Aki, Kelawea, Moalii, Kalua, Haiku, Makapuu, Kawela, Onouli, Kaumanu, Kahalehili, Kaeleku, Honokolani, Kawaipapa, Niupalu, Palemo, Pakakia, Kahuakamalii, Ihuula, Oloewa, Papalauhau, Mokae, Puekahi, Puuiki, Kapohoe, Pukuilua, Kaou, Hal</b>	Number of Royal Patents:	<b>1</b>

Ili:

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**N.R. 440-444v5**

Opukaula, `Ili, Waimano, Ewa, Oahu  
 Kilauluna, `Ili, Waimano, Ewa, Oahu  
 Hananau, `Ili, Waimano, Ewa, Oahu  
 Kananelu, `Ili, Waimano, Ewa, Oahu  
 Pohe, `Ili, Waimano, Ewa, Oahu  
 Kaulu, `Ili, Waimano, Ewa, Oahu  
 Kapuna, `Ili, Waimano, Ewa, Oahu  
 Poupouwela, `Ili, Manaiki, Ewa, Oahu  
 Kapaloa, `Ili, Waiawa, Ewa, Oahu  
 Panio, `Ili, Waiawa, Ewa, Oahu  
 Kuhialoko, `Ili, Waiawa, Ewa, Oahu  
 Kahoai, `Ili, Waiawa, Ewa, Oahu  
 Papaa, `Ili, Waiawa, Ewa, Oahu  
 Kaohai, `Ili, Waiawa, Ewa, Oahu  
 Kalona, `Ili, Waiawa, Ewa, Oahu  
 Kuhiawaho, `Ili, Waiawa, Ewa, Oahu  
 Kapuiahululu, `Ili, Waiawa, Ewa, Oahu

2.

Haleaka, `Ili, Waiawa, Ewa, Oahu  
 Piloaumo, `Ili, Waiawa, Ewa, Oahu  
 Kionaole, `Ili, Waiawa, Ewa, Oahu  
 Hanakehau, `Ili, Waiawa, Ewa, Oahu  
 Kapopou, `Ili, Waiawa, Ewa, Oahu  
 Kalimukele, `Ili, Waiawa, Ewa, Oahu  
 Kumuulu, `Ili, Waiawa, Ewa, Oahu  
 Hapuna, `Ili, Kalihi, Kona, Oahu  
 Waiaula, `Ili, Kalihi, Kona, Oahu  
 Kalaeopohaku, `Ili, Kapalama, Oahu  
 Kauluwela, `Ili, Honolulu land, Oahu  
 Kanewai, `Ili, Waikiki, Oahu  
 Kapaakea, `Ili, Waikiki, Oahu  
 Komoawaa, `Ili, Waikiki, Oahu  
 Waialae, `Ili, Waikiki, Oahu

3.

Halawa, Ahupua`a, Koolau, Molokai

Kaa, Ahupua`a, Lanai

Kelawe, Ahupua`a, Lahaina, Maui  
 Moalii, Ahupua`a, Lahaina, Maui  
 Aki, Ahupua`a, Lahaina, Maui  
 Paunau, Ahupua`a, Lahaina, Maui  
 Waihee, Ahupua`a, West Puuli, Maui  
 Kalua, `Ili, Wailuku, Maui  
 Haiku, Ahupua`a, Hamakualoa, Maui  
 Makapuu, Ahupua`a, Hana, Maui  
 Kawela, Ahupua`a, Hana, Maui  
 Onouli, Ahupua`a, Hana, Maui  
 Kaumanu, Ahupua`a, Hana, Maui  
 2 Kahalehili, Ahupua`a, Hana, Maui  
 3 Kaeleku, Ahupua`a, Hana, Maui  
 Honokalani, Ahupua`a, Hana, Maui  
 Kawaipapa, Ahupua`a, Hana, Maui  
 5 Niupalu, Ahupua`a, Hana, Maui  
 2 Palemo, Ahupua`a, Hana, Maui  
 3 Pakakia, Ahupua`a, Hana, Maui  
 2 Kahuakamalii, Ahupua`a, Hana, Maui  
 Ihuula, Ahupua`a, Hana, Maui  
 Oloewa, Ahupua`a, Hana, Maui  
 4 Papalauhau, Ahupua`a, Hana, Maui  
 4 Moka, Ahupua`a, Hana, Maui  
 Puekahi, Ahupua`a, Hana, Maui  
 Puuiki, Ahupua`a, Hana, Maui  
 3 Kapohoe, Ahupua`a, Hana, Maui  
 Pukuilua, Ahupua`a, Hana, Maui  
 2 Kaou, Ahupua`a, Hana, Maui  
 Halehana, Ahupua`a, Hana, Maui  
 Kaukuhalahala, Ahupua`a, Hana, Maui  
 2 Piapia, Ahupua`a, Hana, Maui  
 Koakapuna, Ahupua`a, Hana, Maui  
 Kawaalua, Ahupua`a, Hana, Maui  
 Pueokahi, Ahupua`a, Hana, Maui  
 Pueokauiki, Ahupua`a, Hana, Maui  
 Pohakanele, Ahupua`a, Hana, Maui  
 Ahuakaio, Ahupua`a, Hana, Maui  
 Kihapuhala, Ahupua`a, Hana, Maui

Papahawahawa, Ahupua`a, Hana, Maui  
 Muolea, Ahupua`a, Hana, Maui  
 Puuhaoa, Ahupua`a, Hana, Maui  
 Kahalawe, Ahupua`a, Hana, Maui  
 Ohia, Ahupua`a, Hana, Maui  
 Kolokole, Ahupua`a, Hana, Maui  
 Kapuomahuka, Ahupua`a, Hana, Maui  
 Mahulua, Ahupua`a, Hana, Maui  
 Poopoo, Ahupua`a, Hana, Maui  
 Lapalapaiki, Ahupua`a, Hana, Maui  
 Waieli, Ahupua`a, Hana, Maui  
 Paihala, Ahupua`a, Hana, Maui  
 Kalihi, Ahupua`a, Hana, Maui  
 Kakiweka, Ahupua`a, Hana, Maui  
 Kailihiakoko, Ahupua`a, Hana, Maui  
 Puukohola, Ahupua`a, Hana, Maui  
 Kahalawe, Ahupua`a, Hana, Maui  
 Puaaluu, Ahupua`a, Hana, Maui

Kahua, Ahupua`a, Kohala, Hawaii  
 Honokane, Ahupua`a, Kohala, Hawaii  
 Holualoa 1,2, Ahupua`a, Kona, Hawaii  
 Kahaluu, Ahupua`a, Kona, Hawaii  
 Keopunui, Ahupua`a, Kona, Hawaii  
 Keauhou, Ahupua`a, Kona, Hawaii  
 Honuaino, Ahupua`a, Kona, Hawaii  
 2 Honokua, Ahupua`a, Kona, Hawaii  
 Haukalua 1, 2, Ahupua`a, Kona, Hawaii  
 Pakini, Ahupua`a, Kau, Hawaii  
 Keauhou, `Ili, KapapalaKau, Hawaii  
 Kahuai, Ahupua`a, Puna, Hawaii  
 Kauhaleau, Ahupua`a, Puna, Hawaii  
 Kauaea, Ahupua`a, Puna, Hawaii  
 Piopio, Ili in Waiakea, Puna, Hawaii  
 Kalalau, Ahupua`a, Puna, Hawaii  
 Honohononui, `Ili in Waiakea, Puna, Hawaii  
 Pahoehe, Ahupua`a, Puna, Hawaii  
 Onomea, Ahupua`a, Puna, Hawaii  
 Alae, Ahupua`a, Puna, Hawaii  
 Kekelani, `Ili in Waimanu, Hamakua, Hawaii  
 Kuilei, Ahupua`a, Puna, Hawaii

**N.R. 569v5**

0No. 7713, Victoria Kamamalu, from page 440

Victoria Kamamalu's lands in the Mahele by the Mo`i, in the month of January 1848, continued:

Huleia, a district of Kauai, however, the Government cattle shall graze there.  
 Makaweli, Ahupua`a, Kona, Kauai  
 Places unsuitable for the soldiers and the fort  
 Maunalua, `Ili, Waimanalo, Koolaupoko, Oahu  
 Pahoa, `Ili, Waianae, Waianae, Oahu  
 Kaluanui, Ahupua`a, Koolauloa, Oahu  
 Kawailoa, Ahupua`a, Waialua, Oahu  
 Paalaa, Ahupua`a, Waialua, Oahu  
 Kaelepulu, `Ili, Kailua, Koolaupoko, Oahu  
 Kikiwelawela, `Ili, Kaneohe, Koolaupoko, Oahu

**F.T. 408-411v3**

No. 7713, V. Kamamalu

No. 10474, N. Namauu

No. 7716, R. Keelikolani

No. 7714B, M. Kekuaiwa

No. 7712, M. Kekuanaoa [7712B]

A True Copy

(Sig). A. G. Thurston

Clerk Interior Department.

Copy of the Division of Lands agreed upon in Privy Council August 27, 1850

Kekuanaoa and his children to receive Fee simple titles for those lands here set off to them- they resigning to the Gov. all title to the other lands granted them in the Buke Mahele.

No. 7713, Ko Victoria Kamamalu mau aina ma ke ano Alodio

Honokane, Ahupuaa, Kohala, Hawaii

Kahua, Ahupuaa, Kohala, Hawaii

Keopu, Ahupuaa, Kona, Hawaii

2 Holualoa, Ahupuaa, Kona, Hawaii

Kahaluu, Ahupuaa, Kona, Hawaii

Keauhou, Ahupuaa, Kona, Hawaii

Honuaino, Ahupuaa, Kona, Hawaii

Honokua, Ahupuaa, Kona, Hawaii

Pakini, Ahupuaa, Kau, Hawaii

Keauhou, Ili is Kapapala, Kau, Hawaii

Kahuwai, Ahupuaa, Puna, Hawaii

Kauwalehau, Ahupuaa, Puna, Hawaii

Kauaea, Ahupuaa, Puna, Hawaii

Honohononui, ili o Waiakea, Hilo, Puna, Hawaii

Piopio, ili o Waiakea, Hilo, Puna, Hawaii

Kalalau, Ahupuaa, Puna, Hawaii

Pahoehoe, Ahupuaa, Hilo, Hawaii

Alae, Ahupuaa, Puna, Hawaii

Onomea, Ahupuaa, Puna, Hawaii

Kuilei, Ahupuaa, Hamakua, Hawaii

Kekelani, ili no Waimanu, Hamakua, Hawaii

Kalua, Ahupuaa, Wailuku, Maui

Waihee, Ahupuaa, Puali, Kom. [Komohana]

Aki, Ahupuaa, Lahaina, Maui

Paunau, Ahupuaa, Lahaina, Maui

Kelawea, Ahupuaa, Lahaina, Maui

Halawa, Ahupuaa, Koolau, Molokai

Kaa, Ahupua, Kona, Lanai

Maunalua, ili no Waimanalo, Koolaupoko, Oahu

Kaelepulu, ili no Kailua, Koolaupoko, Oahu

Kikiwelawela, Ahupuaa, Heeia, Koolaupoko, Oahu

Kaluanui, Ahupuaa, Koolauola, Oahu

Kawaihoa, Ahupuaa, Wailua, Oahu

Paalaa, Ahupuaa, Waialua, Oahu

Waiawa, Ahupuaa, Ewa, Oahu  
 Pahoa, ili no Waianae, Waianae, Oahu  
 He mau ili ma Waimano, Ewa, Oahu  
 Poupouwela, ili in Mananaiki, Ewa, Oahu  
 Kumuulu, no Waiiau, Ewa, Oahu  
 Kapuna no Kalihi, Kona, Oahu  
 Waiaula no Kalihi, Kona, Oahu  
 Kalaepohaku no Honolulu, Kona, Oahu  
 Kauluwela no Honolulu, Kona, Oahu  
 Kapaakia no Waikiki, Kona, Oahu  
 Komowaa no Waikiki, Kona, Oahu  
 Kanewai no Waikiki, Kona, Oahu  
 Waiialae no Waikiki, Kona, Oahu

Makaweli, Ahupuaa, Kauai  
 Huleia, Puna, Kauai  
 Kikiaola, Waimea, Kauai

Ko ke Aupuni hapakolu loko o ko V. Kamamalu mau aina. Makapuu, Kawela, Oniuli, Kaumanu, 2 Kahalehili, Kaeleku, Honokalani, Kawaiipapa, 5 Niumalu, 2 Palemo, 2 Pakakea, Nahuakamarii, Ihuuloi, Hoewaa, 2 Papauhau, Hamoa, 3 Mokae, Puekahi, Puuiki, 3 Pohue, Pukuilua, Haou, Halehana, Kaukuhalahala, Peapea, Koakupuna, Kawalua, Pueokauiki, Pohakanele, Ahuakaio, Kihapuhala, Papahawahawa, Muolea (The above ahupuaa in Hana, Maui) Moalii Ahupuaa Lahaina Maui.

**F.T. 538-539v3**

No. 7713, M. Kekuaanoa (for Victoria), 1 April 1854, Counter the government

A. Paki, sworn, for the Government, Knows that the fish pond called "Kawa", in Honolulu, was broken up in the year 1847 & the materials of the wall taken to help to construct the wall or breakwater erected by the Government on the west side of the harbor. The Government got permission from M. Kekuaanoa to take the materials of the wall of "Kawa" to make the Breakwater. He did not give the Government any portion of the soil of "Kawa," or of "Kaakaukukui." The land on which now stands the Government slaughter House, occupied by John Meek, is a portion of the ili of "Kalui." [?] I do not know what title the Government has to that place, but I have heard that Kekualoa had given it to the Government - this I state as hearsay only.

G.P. Judd, sworn, for Government, says, I was the Hawaiian Minister of Finance in the year 1847, and remember when the wall was built from the present lime kiln House running over to the land of sea & Sumner, Known as Kohololoa." It was built to prevent the filling up of the Harbor of Honolulu. It was thought advisable to remove a part of the wall of a fish pond in "Kawa," which I supposed belonged to the Government. Finding, however, that it was claimed by M. Kekuaanoa, for Victoria, Mr. Young and I applied to him for the privilege of removing it, which he granted to us, and accordingly it was removed under the direction of Piikoi and the stones put into the new wall first named, and my impression is that we built a new partition wall for the Governor's fishpond. I will not be certain however. Piikoi will know. Piikoi ran a plow through the fish pond to give direction to the stream and divert it from the harbor. I never knew of any definite cession of the fish pond or other land to the Government, but I think Kekuaanoa consented that the Government should divide the fish pond, in Privy Council. I didn't know that he claimed the land where the wall runs from the Lime Kiln, but I don't recollect that he said anything particular about it.

See P. 548. [about Pearl Harbor]

**F.T. 548v3**

No. 7713, M. Kekuaanoa (V. Kamamalu), April 19, 1854, counter the Government, from page 538

Keone Ana, sworn says, I have nothing to testify to in reference at the claim of M. Kekuaanoa in Kaakuukukui, pertaining to the wall built to protect the harbor from filling in, which wall runs from the Lime Kiln to Sea & Sumner's land.

I am sure he gave it to Government in 1847, but I will not swear anything about it until I have laid the matter before the Privy Council, as to "Kaliu," he said he had nothing to say.

To page 555

**F.T. 555-557v3**

No. 7713, M. Kekuaanoa (for V. Kamamalu) from page 538, counter the Government

Keoni Ani, sworn, presents a plan which he says was made by Order of the King in Council, in the year 1848, perhaps, and placed in my charge, as minister of the Interior. The plan shows two rows of lots laid out from the Beach seaward. The Government built the wall or breakwater in the year 1847, I think. The Government claimed no more land as I understood the matter than what is shown on the plan. When the wall was built by the Government no opposition was made to its erection by any private party. The wall was erected by the Government to prevent the harbor from being filled up with the mud washed down by the Nuuanu River. When this wall was built the wall of the loko called "Kawa" was taken down and the size of the loko reduced. After the wall was built, this plan was made by the Government and laid before the Privy Council, who resolved to sell the lots as laid out for the benefit of the Treasury. Two of the lots were accordingly disposed of with the approval of the Privy Council, to Louis Gravier. After that, a proposition was made in Privy Council to sell some of the lots to a steam boat company, but at the suggestion of M. Kekuaanoa, the proposition was dropped. Kekuaanoa advising the Council that they were disposing of the Government property too fast. After the report of a committee appointed by the Privy Council on the subject of the filling up of the harbor, the Council resolved to remove the wall of the loko called "Kawa" and M. Kekuaanoa assented.

I do not know to whom the land really belonged. I have always seen this, that when the government wanted a piece of land for their purposes, the konohikis have always given their consent. A. Paki, who had charge of Kaliu, and M. Kekuaanoa, who had charge of Kaakaukukui were both in Privy Council at the time referred to. I consider that the place where this wall is built belonged to the Government previous to that time, because by law, the papakoa and the harbor belongs [sic] to the Government. All the chiefs were in Council at the time these things were transacted. The place where the wall is built is papa koa, perhaps, mud perhaps.

Iona Kapena, sworn, says the names of the land lying between the wall of the Government and the loko called "Kawa" are Kaakaukukui and Kaliu. I pointed out the boundary line between Kaakaukukui and Kaliu a few days ago to Messers Lee and Robertson. The boundary has been well known to me ever since I was a boy. The breakwater or wall is built on the land of Kaakaukukui.

M. Kekuaanoa states that he never understood before that the Government meant to take this place now in dispute. I have heard the testimony of Young, who says the Government took it. I gave my consent to the Government to remove the wall of Kawa and for the materials, but I did not intend that the Government should take away any part of Kaakaukukui.

**N.T. 598-599v3**

No. 7713, V. Kamamalu - protest

M. Kekuaanoa and Mahuka were the persons who settled the land of V. Kamamalu with objections to C. Kanaina's rights to that property over which there was a dispute. Below are the statements of witnesses clarifying their /two/ rights.

Kumuhonua, sworn, I have seen the place over which there is a dispute between C. Kanaina and V. Kamamalu, Kaanaenui is the name. I have seen that it is the center for Waialae. The boundaries as I have seen from Kaiahaki to Kauhaki, from there to Pohakuuamiumi, then to Kaananiau and run directly to Puukuaka; from there to Kalohupale; Kapahulu is on this side and from there run directly to Kupikipikio point.

Mt. Leahi is for Kapahulu.

The boundaries of the land Kekio: on the mauka direction of Makahuna road is the taro land, detached and following to the sea of Kapua and the coconut grove.

Poo wahine: I am a native of Waiale and since I was very young and at the time of Kahekili, I have known that place over which there is a dispute. Keanaenui is the name and it is the center of Waialae. I have known the boundaries as they are at Kuialauahi to Aumeume Rock, to Kaananiau, to Mount Kuaka and from there to Kalahu to the lae of Kupikipikio. Those are the boundaries which separate Waialae from Kapahulu. Mt Leahi is for Kapahulu.

The land Kekio runs from mauka of Makahuna Street, then separated to the extreme makai to the sea and the coconut grove.

Kuapuu, sworn, I am a land child of Waialae and I have seen the boundaries of Waialae as they were pointed out to me by my parents, from Kuahaki to Kauhaki, therefrom to Aueume Rock and so on just as Poo has related here.

The boundaries of Kekio run from mauka of Makahuna road, then it separates until the extreme makai of Kapua sea and a road called Kukii. The report given of this survey is imperfect because he had taken Waialae's pasture.

Kaula, sworn, I have not been a native very long, but I have heard the same thing from my older brother whose name is Hanakinau, as the reports given by those people above. I had heard these things after the death of Kaahumanu I.

Hehea, sworn, I am a land child of Waialae and have seen the boundaries of Waialae exactly as those witnesses have related above.

The boundaries of the land, Kekio by name, of Keekapu, are exactly as the statements given

**N.T. 373-375v10**

No. 7713, Victoria Kamamalu, Waianae, 17 August 1854

Testimony on the boundary between the ahupuaa of Waianae and the ili of "Pahoa."

Nahinu, sworn, says the ili of Pahoa is but small. The loko, makai, belongs to this ili. The boundary of the piece is dispute runs along to the eastward of an enclosure belonging to Kaapuiki, and up through the coconut grove and along a stone wall to some hau trees, and then up mauka and across to the east corner of the land, and from thence running makai to the loko.

This ili consists of three pieces, first, the fish pond; second, the piece which I have tried to describe; third, the mauka piece undisputed.

I learned these boundaries from my ancestors who lived here from ancient times.

Cross examined. I accompanied Kekuanaoa and M. Hopkins when they suspected [inspected?] the boundary line in question. I saw the marks made at that time on the coconut trees by order of Kekuanaoa, in presence of M. Hopkins. The line marked out by them on the northwest side, runs farther mauka than that described by me in my testimony.

Ohule, sworn, says he knows the middle Mana of Pohao about which the present dispute exists. It is only of late that I have heard that the boundary was disputed. This middle piece is bounded: Mauka by a stone wall. The western boundary runs up through the coconut grove and then runs to the southward, and then at the corner of what used to be a wauke patch, turns seaward and runs down to the hau trees and the stone wall. I was born on this land. The land on which stand the church and parsonage belongs to the ahupuaa of Waianae.

Kaapuiki, sworn, says when I came here to live, the boundaries of the middle piece of Pahoa were nearly the same as have been described by the preceding witnesses. Afterwards, when the law was made to restore the ancient boundaries of all the lands, Kulepe, the then tax officer, gave to "Pahoa" the land now claimed by Victoria, on the southeast side of the coconut grove, and disputed by the King. I was luna of Waianae when that arrangement was made by Kulepe. I was under Kekuanaoa. The people who live on the disputed land formerly went to the labor days on Waianae," but of late they labor on "Pahoa."

Kulepe, sworn, says, "Pahoa" consists of two pieces; the fish pond forming the part of the mauka piece. I have lived here about 15 years. I was appointed tax officer of Waianae in 1841. In 1850, the boundaries of the makai piece of "Pahoa" were pointed out to me by three kamaainas, who are all now dead. In the same year, Hopkins and Kekuanaoa came down here but I did not accompany them when they went round this land. I do not know anything myself of the true boundary, except what I heard from these kamaainas in 1850. About 1841, I restored a lihi of "Pahoa," which lies between the fish pond and the stone wall, and was claimed for "Pahoa," on account of some coconut trees. This was the only lihi of "Pohoa" restored by me. The people who formerly lived on the land now in dispute used to do konohiki labor for the ahupuaa of "Waianae."

Molea, sworn, confirms in full, the testimony of Nahinu and Ohule.

[Award 7713; (Maui) R.P. 4475; Kalua Waihee Wailuku, 1 ap. (Ap. 23); Iliaina; Puali Waihee Wailuku; R.P. 4475; Paunau Lahaina; 1 ap.; ahupua`a (Ap. 26); Aki Lahaina; 1 ap.; ahupua`a (Ap. 25); Kelawea Lahaina; 1 ap.; ahupua`a (Ap. 27); (Island

of Hawaii) R.P. 4475; Keopu, Honuaino, Holualoa, Keauhou Kona and Keauhou Kau, Kuilei Hamakua, Honokane & Kahua Kohala, Honohonou, Piopio, Kalalau; Kekelani, R.P. 4475 & 6856, Kahaluu; R.P. 6857, Honokua; R.P. 6865, Haukalua; R.P. 4475, 6883 & 8220, Kauaea R.P. 6884, Kahuwai Puna; R.P. 4475 & 6887 Pakini nui Kau; R.P. 4475 & 8117 Onomea; R.P. 4475 & 8199 Kaueleau; R.P. 4475 & 6860 Pahohoe Hilo; R.P. 4475 & 6864 Alae Hilo; (Molokai) R.P. 4475 Halawa, Molokai 1 ap. Ahupuaa; (Oahu) R.P. 227 Kamoaaa, Waikiki; no R.P. for Kanewai Manoa; R.P. 4475, Waialaenu, Maunala, Waiawa, Poupouwela, Mananaiki, Hapuna & Waialua Kalihi; Waimano, Waiau; R.P. 4475 & 7834, Kalaepohaku Kapalama; R.P. 4475 & 7805 Kaluanui; R.P. 4775 & 7793, Kauluwela; R.P. 4475 & 7789, Kapaakea; R.P. 4475, Kikiwelawela Heeia, Kawailoa Waialua, Paalaa Waialua, Kaelepulu Koolaupoko; (Lanai) R.P. 4475, Kaa; (Kauai) Kikiaola Waimea, R.P. 4476 Makaweli; R.P. 4477, Haiku, Nawiliwili, Niumalu; R.P. 4480, Kalapaki, R.P. 4481, Hanamaulu; R.P. 4482 Kipu & Mahaulepu; See 7713 for Oahu, Kauai, Lanai, Hawaii and Molokai]

## No. 7724, Poholapu, Lahaina, February 2, 1848

Claim Number:	<b>07724</b>	Awarded:	<b>1</b>
Claimant:	<b>Poholopu/Poholapu</b>	FR:	
Other claimant:		NR:	<b>440v5</b>
Other name:		FT:	<b>113v7</b>
Island:	<b>Maui</b>	NT:	<b>6v5</b>
District:	<b>Lahaina</b>	RP:	<b>1688</b>
Ahupuaa:	<b>Kuholilea, Wahikuli</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Kahoma</b>		

**N.R. 440v5**

Greetings to the Land Commissioners: I have been delayed in writing because of my illness.

I have a taro land which is spread out, with 33 lo`i in it, and in it are 3 lauhala clumps and four breadfruit -- three of which I planted with my own hands. In this taro land I have some kulas planted in sweet potatoes; they are not large.

My land is in the Ahupua`a of Kuholilea, and this is where there are the separate streams of Lahainaluna /and Kuholiea/ and these streams unite towards the sea.

This land was in ancient times given to my makuakane, from the time when Kamehameha I was living. That was when we, that is, my makuakane, began to farm this land. He was the first konohiki who "ate" Kuholilea\*.

Kamehameha I gave it to Hanape, who gave it to my makuakane. When Kamehameha I died, Hanape was dispossessed, and also my makuakane became a kanaka /subject/ under the new konohiki, having returned to him the right to the place made by his own hands. From thence my makuakane occupied it, and a lihi /edge/ of the land became mine. That is my first thought.

Furthermore, I have another thought, about a lot which is mine, since Kalaikoa gave it to Aha, and Aha gave it to me. I have held it from thence until Kaenaena, the new konohiki, and he has given it to me /again/. My house stands there, and I believe that place is mine.

POHOLAPU

/Claimant probably means that his makuakane was the first konohiki to take sustenance from the land after Kamehameha I became the ruler./

**F.T. 113v7**

**Cl. 7724, Poholapu**

Kanalu, sworn, I know the lands of the claimant. They are in "Kuholilea," and "Wahikuli." His house lot is in Wahikuli and one piece of kula and another small piece in Wahikuli, both in Lahaina.

The house lot in Wahikuli he received from Aha before 1839 and his title has never been disputed.

The lands in Kuholilea were received from Lakai long before 1839 and have been in his undisputed possession ever since.

The house lot is bounded:

Mauka by the high pali  
Olowalu by the creek of Lahainaluna  
Makai by the yard of Kamapuni  
Kaanapali by the pasture of Kamapuni.

The piece of 34 lois and kula in Kuholilea is bounded:

Mauka by Opunui  
Olowalu by part creek  
Makai by the lois of Kukapu  
Kaanapali by Wahikuli.

The piece of 3 lois is bounded:

Mauka by the lois of Kalualani  
Olowalu by the lois of Kaenaena  
Makai by the lois of Kukapu  
Kaanapali by Kukapu's and Kauainoa's lois.

The one small loi is bounded:

Mauka by Kukapu's  
Olowalu by the same  
Makai by Kanaina's  
Kaanapali by Kekoko's.

The next is one loi and kula is bounded:

Mauka by Alanui  
Olowalu by Halualani  
Makai and Kaanapali by Kukapu's land.

**N.T. 6v5**

**No. 7724, Poholopu**

Kanalu, sworn, He has seen Poholopu's interests a house lot in Ahikuli ahupuaa and 4 taro patches in Huholilea ahupuaa. The boundaries of the five sections are:

Section 1 - House lot.

Mauka and Olowalu by Pali  
Makai by I. Kalaikini's land  
Kaanapali by Ditch

Section 2 - Taro.

Mauka by Opunui's land  
Olowalu by Stream  
Makai by Kukapu's land  
Kaanapali by Ahikili land.

Section 3 - 3 patches.

Mauka by Kalualani's land  
Olowalu by Kaenaena's land  
Makai by Kukapu's land  
Kaanapali by Kauainoa Kukapu's land.

Section 4 - Patch.

Mauka, Olowalu by Kukapu's land  
Makai by Kanaina's land  
Kaanapali by Kekoko's land.

Section 5 - 1 patch.  
 Mauka by Road  
 Olowalu by Kalualani's land  
 [no makai or Kaanapali sides given]

Aha had given the house lot of the first section in 1839. The sections in Kuholilea were received in 1839 also, no one has objected.

[Award 7724; R.P. 1688; Kahoma Kuholilea Lahaina; 1 ap. 2 Acs 12 rods; Wahikula Lahaina; 1 ap.; 12 Acs; family says name should be Poholopu 6/19/2007]

## No. 7777, Kaiaino, Lahaina w/aena/ February 3, 1848

Claim Number:	<b>07777</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaiaino</b>	FR:	
Other claimant:	Naomi/Kanui, daughter	NR:	<b>444v6</b>
Other name:		FT:	<b>170v7</b>
Island:	<b>Maui</b>	NT:	<b>53v5</b>
District:	<b>Lahaina</b>	RP:	<b>8269, 8272</b>
Ahupuaa:	<b>Kelaweua nui</b>	Number of Royal Patents:	<b>2</b>
Ili:			

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### N.R. 444v6

Greetings to the Land Commissioners: I, Kaiaino, hereby enter my claim for my house lot and my lo'i, in Lahaina, in Kelaweua Nui. This is my message.

Respectfully,  
 KAIAINO

### F.T. 170-171v7

Cl. 7777, Kaiaino, See Cl. 10667, page 132

Liu, sworn, The claimant is dead, but his only child, Kanui, his daughter is his heir. He died in 1848 with the measles and so did his wife Nalima. Kanui, I should say is an adopted child. He has one true child a little girl which Kanui takes care of. It is a baby.

It is a house lot in "Kelaweua," including 2 lo'is. Kaiaino received this land from Kanui, mother of Nalima in 1842. Nalima lived under Kapihenui, who has sent in a claim for this same lot. (See Kapihenui's claim. I heard a few days since Kapihenui now occupies the house lot. There were 33 lo'is, but Pikanele took away one in 1845 and he has lately thrown down Kaenui's house. Kaenui has two lo'is in this lot now dry. Kapihenui said she was still wishing that Kanui should live there and have the two lo'is if she desired them).

The claimant had also 3 lo'is in separate pieces outside of the house lot which he received from Niuli in 1835 which he held until 1845 in peace when Pikanele took them away owing to his great power and has held them to this day, although the Luna Auhau, and the Premier, John Young, have both decided that they should be restored to her (See Pikanele's claim No. 10667).

Pikanele was called up and upon being questioned said that Kaiaino gave him one of these lo'is, and the other two he had not taken away, but he had no proof that Kaiaino had given him these lo'is. Pikanele further said, Kaiaino had put in a claim for these lo'is, but that he had not (See claim No. [left blank]).

The Commission were of the opinion after all they heard to [?] that the claimant Kaiaino was the one truly entitled to these 3 lo'is.

The witness then proceeded to give the boundaries:

The first piece is bounded:  
 Mauka by Pikanele's loi

Olowalu by Mr. Peck's lot  
Makai by Pikanele's  
Kaanapali by Kaluaokamano's land.

The second piece of 3 lois is bounded:  
Mauka by the creek of Kapoulu  
Olowalu by the same  
Makai by Kaumunui's land  
Kaanapali by "Wahikuli."

**N.T. 53-54v5**

No. 7777, Kaiaino

Liu, sworn, Kaiaino had died of leprosy in 1848, and had bequested to Naomi, his daughter, a land section at Kalawea with 2 patches. Kaiaino had received this from his wife at the time of Liholiho. In 1842 Kaiaino had lived with Nalima in that lot under Papihenui. Recently this interest has been made to Kapihenui. Pikanele had bought one of these patches from Nawai and he also has destroyed Naomi's house. These 3 patches are in Kapihenui's lot all in the same area. Kaiaino had been from Kamakapelapela. Maele had given this interest Kanakapelapela in 1838. Pikanele had said that he has taken these patches for himself because of his role as a konohiki.

Work on this claim was done before the tax assessor and the secretary of interior John Young when they had ruled it for Kaiaino. The land commissioners had also opposed in the same way, in that the 3 patches outside (of the lot) and the single patch on the inside which Pikanele had bought from Nawai and expecting the Friday lot were for Kaiaino. Both Pikanele and Kaninau had become destitute.

Here are the boundaries:

Section 1 - 1 patch outside.  
Mauka by Pikanele's lot  
Olowalu by Peke's land  
Makai by Pikanele's lot  
Kaanapali by Kaluaokamano.

Section 2 - 2 patches.  
Mauka and Olowalu by Kapoulu stream  
Makai by Kaumunui  
Kaanapali by Ahikuli ahupuaa.

[Award 7777; R.P. 8269; Kelawea Lahaina; 1 ap.; 2 roods 12 rods; R.P. 8272; Kelawea Lahaina; 3 ap.; 1 rood 14 rods; See 481 disputed case]

**No. 9816, Kaumunui, June 6, 1849**

Claim Number:	<b>09816</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaimunui</b>	FR:	
Other claimant:		NR:	<b>508v6</b>
Other name:		FT:	<b>98v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1164, 4468</b>
Ahupuaa:	<b>Kelaweua</b>	Number of Royal Patents:	<b>2</b>
Ili:			

**F.T. 98v7**

Kapihenui, sworn, I know the lands of the claimant. They are in "Kelaweua," Lahaina. they consist of one kalo land of 10 lois, and one kula with a house on it.

The claimant had them from Hoapili in his early days, and has held them without dispute ever since.

The kalo land is bounded:  
 Mauka by Pikanele's land  
 Olowalu by the Creek of Kapoulu  
 Makai by Paeohi's lois  
 Kaanapali by the pali.

The other piece is bounded:  
 Mauka by Kanaina's land  
 Olowalu and Makai by Pikanele's land  
 Kaanapali by Kuailike's land.

[Award 9816; R.P. 1164; Kelaweua Lahaina; 1 ap.; .62 Ac.; R.P. 4468; Kelaweua Lahaina; 1 ap.; 2 roods 14 rods; See 9811 for Native Register document]

# Appendix B Soil Descriptions

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Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
North Branch	1/2	I	0-55	Ap Horizon (plow zone); 5YR 3/3, dark reddish brown; strong, coarse, blocky structure; extremely hard dry consistency; very sticky wet consistency; plastic; no cementation; abrupt smooth lower boundary
North Branch	1/2	II	50-110	B Horizon; 5YR 4/6, yellow red; silt loam; moderate, fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt abundant 10YR 6/6 brownish yellow decomposing sandstone mixed in
North Branch	3/4	I	0-45	Ap Horizon (plow zone); 5YR 3/3, dark reddish brown; clay; strong, coarse, blocky structure; extremely hard dry consistency; very sticky wet consistency; plastic; no cementation; abrupt smooth lower boundary; plow zone
North Branch	3/4	II	40-110	B/C Horizon; 5YR 4/6, yellowish red; silt loam; moderate, fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; also abundant 10YR 6/6 brown yellow, saprolitic mixing.
North Branch	31/32	I	0-50	Ap Horizon (plow zone); 5 YR 3/3, Dark Reddish Brown; clay; strong, coarse or thick, blocky structure; extremely hard dry consistency; very sticky wet consistency; plastic; no cementation; abrupt smooth lower boundary; Basalt cobble and historical agricultural inclusions
North Branch	31/32	II	40-80	B Horizon; 5 YR 4/6, yellowish red; silt loam; moderate, fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; Basalt, cobble and decomposing basalt inclusions
North Branch	31/32	III	55-80	C Horizon; 10 YR 6/8, brownish yellow; saprolite; very abrupt lower boundary; basalt (blue rock) bedrock directly below saprolite
North Branch	33/34	I	0-45	Ap Horizon (plow zone); 5 YR 3/3, Dark Reddish Brown; clay loam; strong, coarse or thick, blocky structure; extremely hard dry consistency; very sticky wet consistency; plastic; no cementation; abrupt smooth lower boundary; Cobble and historic agricultural inclusions
North Branch	33/34	II	40-90	B Horizon; 5 YR 3/3, dark reddish brown; silt loam; moderate, fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; abrupt Basalt cobble and deteriorating basalt inclusions

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
North Branch	35/36	I	0-50	Ap Horizon (plow zone); 5 YR 3/3, Dark Reddish Brown; clay; moderate, medium, blocky structure; very hard dry consistency; very sticky wet consistency; plastic; no cementation; clear boundary Basalt cobble and hisotric agricultural inclusions (irregular notes)
North Branch	35/36	II	40-85	B Horizon; 5 YR 4/6, yellowish red; silt loam; moderate, fine, blocky structure; hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt lower boundary Basalt cobbles and decomposing basalt inclusions
North Branch	37/38	I	0-50	Ap Horizon (plow zone); 7.5 YR 3/3, Yellow Brown; sandy clay; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary; cultural material consisted of remnant irrigation hoses
North Branch	37/38	II	50-160	B Horizon; 10 YR 5/8, yellowish brown; silt loam; moderate, crumb structure; slightly hard dry consistency; non-plastic; no cementation; clear smooth lower boundary; Basalt cobbles and decomposing bedrock
North Branch	37/38	III	80-140	C Horizon; 10 YR 6/8, brownish yellow; saprolite; very abrupt lower boundary; basalt (blue rock) bedrock directly below saprolite
North Branch	39/40	II	60-160	B Horizon; 5 YR 4/8, yellowish red; silt loam; moderate, blocky structure; slightly hard dry consistency; non-plastic; no cementation; clear smooth lower boundary; decomposing basalt intermixed with the soil matrix
North Branch	41/42	I	0-55	Ap Horizon (plow zone); 7.5 YR 3/3, Dark Brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; decomposing basalt throughout the soil matrix; cultural material consisted of remnant irrigation hoses.
North Branch	41/42	II	30-130	C Horizon; 10 YR 6/1, gray; structureless; decomposing bedrock
North Branch	43/44	I	0-50	Ap Horizon (plow zone); 5 YR 3/3, dark reddish brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear lower boundary
North Branch	43/44	II	25-60	B/C Horizon; 10 YR 6/1, gray; saprolite; saprolite structure;
North Branch	43/44	III	60+	C Horizon; layer of unconsolidated bedrock/basalt cobble that overlies saprolitic

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
				bedrock
North Branch	47/48	I	0-40	Ap Horizon (plow zone); 5 YR 3/4, dark reddish brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear lower boundary; cultural material consisted of fragments of remnant irrigation hoses
North Branch	47/48	II	40-110	B/C Horizon 5 YR 4/6, yellow red; silt loam; moderate, blocky structure; slightly hard dry consistency; non-plastic; no cementation; lower boundary unknown
South Branch	5/6	I	0-55	A Horizon; 7.5 YR 4/6, strong brown; silt; weak, loose dry consistency; non-plastic; no cementation; abrupt wavy lower boundary; extensive roots and rootlets; no basalt cobbles; clear lower boundary.
South Branch	5/6	II	55-80	C Horizon; 10 YR 6/8, brownish yellow; saprolite; structureless; moist consistency; very abrupt lower boundary to basalt ("blue rock") bedrock directly below.
South Branch	9/10	I	0-50	A Horizon; 10yr 4/6, strong brown; silt; structureless, loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt wavy lower boundary; extensive roots and rootlets
South Branch	9/10	I/II (mottle)	40-60	2.5yr 4/8, red; silt loam; weak, fine, granular structure; loose dry consistency; non-plastic; no cementation; very abrupt irregular lower boundary
South Branch	9/10	II	50-190	B/C Horizon; 10yr 6/8, brownish yellow; decomposing saprolitic bedrock
South Branch	11/12	I	0-30	A Horizon; 5YR 4/6, silt; structureless, fine, single grain structure; loose dry consistency; non-plastic; no cementation; clear
South Branch	11/12	II	30-50	B Horizon; 7.5YR 4/6, silt loam; weak, weakly coherent dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt irregular lower boundary;
South Branch	11/12	III	50-160	C Horizon; 5YR 4/4, reddish brown; silt loam; strong, coarse or thick, blocky structure; very hard dry consistency; very firm moist consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt wavy lower boundary; possibly weakly formed saprolite
South Branch	13/14	I	0-32	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; non-plastic; no cementation; clear smooth lower

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
				boundary; extensive roots and rootlets
South Branch	13/14	II	32-65	B Horizon; 10 YR 4/4, yellowish brown; silt loam; weak, fine, blocky structure; weakly coherent dry consistency; non-plastic; no cementation; clear distinguished from stratum I primarily on texture -- much more blocky
South Branch	15/16	I	0-70	Ap Horizon (plow zone); 10 YR 4/6, yellowish brown; silt; weak, loose dry consistency; non-plastic; no cementation; abrupt extensive roots and rootlets
South Branch	15/16	II	70-80	B/C Horizon; 10 YR 5/8, yellowish brown; silt loam; weak, weakly coherent dry consistency; non-plastic; no cementation; abrupt wavy lower boundary; mottled with 10 YR 6/6 silt loam; some soil mixed with saprolite; the underlying bedrock is very undular
South Branch	17/18	I	0-50	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; weak, fine, granular structure; loose dry consistency; non-plastic; no cementation; clear smooth lower boundary; extensive roots and rootlets
South Branch	17/18	II	50-95	B Horizon; 10 YR 4/6, dark yellowish brown; silt loam; weak, medium, blocky structure; weakly coherent dry consistency; non-plastic; no cementation; abrupt smooth lower boundary; crumbled basalt in bottom of stratum; bedrock very wavy/undular
South Branch	19/20	I	0-70	Ap Horizon (plow zone) 7.5 YR 4/6, strong brown; silt; structureless, fine, single grain structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; clear irregular lower boundary; extensive roots/rootlets
South Branch	19/20	II	70-100	C Horizon; decaying basalt; topography of lower boundary unknown
South Branch	21/22	I	0-40	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; no cementation; abrupt smooth lower boundary; extensive roots/rootlets
South Branch	21/22	II	40-60	B Horizon; 10 YR 4/4, dark yellowish brown; silt loam; weak, medium, blocky structure; slightly hard dry consistency; friable moist consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; distinguished from stratum I mostly on texture -- it is more blocky
South Branch	23/24	I	0-30	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; weak, loose dry consistency;

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
				non-plastic; no cementation; abrupt smooth lower boundary; extensive roots and rootlets
South Branch	23/24	II	30-110	B/C Horizon; 10 YR 4/4, yellowish brown; silt loam; weak, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; abrupt irregular lower boundary; small basalt cobbles to large basalt boulders common
South Branch	25/26	I	0-30	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; weak, fine, granular structure; weakly coherent dry consistency; non-plastic; no cementation; clear smooth lower boundary
South Branch	25/26	II	30-51	B Horizon; 10 YR 4/4, dark yellowish brown; silt loam; weak, fine, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; unknown lower boundary; Differed from Stratum I primarily by texture
South Branch	25/26	III	51-85	C Horizon; decomposing saprolitic soils
South Branch	27/28	I	0-40	Ap Horizon(plow zone); 7.5 YR 4/6, strong brown silt; silt; structureless, fine, granular structure; loose dry consistency; non-plastic; no cementation; abrupt extensive roots and rootlets
South Branch	27/28	II	40-80	B Horizon; 10 YR 4/6, dark yellowish brown; silt loam; weak, weakly coherent dry consistency; non-plastic; no cementation; clear scattered basalt rocks
South Branch	29/30	I	0-40	Ap Horizon (plow zone); 7.5 YR 4/6, strong brown; silt; weak, weakly coherent dry consistency; non-plastic; no cementation; clear smooth lower boundary; grass roots and rootlets
South Branch	29/30	II	40-50	B Horizon; 10 YR 4/4, dark yellowish brown; silt loam; weak, medium, crumb structure; weakly coherent dry consistency; non-plastic; no cementation; abrupt irregular lower boundary; Very thin in western portion of trench. Also occasionally mixed in with below saprolite.
West Branch	7/8	I	0-46	A Horizon; 7.5yr 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; clear wavy lower boundary; extensive grass roots/rootlets
West Branch	7/8	II	46-65	B/C Horizon; 10yr 4/6, dark yellowish brown; silt loam; weak, fine, crumb structure;

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
				weakly coherent dry consistency; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary; differs from Stratum I primarily in texture (more crumbly/blocky).
West Branch	45/46	I	0-72	Ap Horizon; 7.5 YR 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; clear wavy lower boundary;
West Branch	45/46	II	72-101	B Horizon; 10 YR 4/6, dark yellowish brown; silt loam; weak, medium, crumb structure; weakly coherent dry consistency; friable moist consistency; non-sticky wet consistency; non-plastic; no cementation; lower boundary unknown
West Branch	49/50	I	0-60	Ap Horizon (plow zone); 7.5 YR 3/3, dark brown; sandy clay loam; moderate, medium, crumb structure; slightly hard dry consistency; slightly plastic; no cementation; clear smooth lower boundary
West Branch	49/50	II	45-110	B/C Horizon; 10 YR 5/8, yellowish brown; silt loam; moderate, crumb structure; slightly hard dry consistency; non-sticky wet consistency; non-plastic; no cementation; lower boundary unknown
West Branch	51/52	I	0-30	A Horizon; 7.5 YR 4/6, strong brown; silt; structureless, fine, granular structure; loose dry consistency; loose moist consistency; non-sticky wet consistency; non-plastic; no cementation; clear smooth lower boundary; extensive grass roots/rootlets
West Branch	51/52	II	30-42	B/C Horizon silt loam; weak, medium, granular, crumb structure; weakly coherent dry consistency; friable moist consistency; non-sticky wet consistency; non-plastic; no cementation; lower boundary unknown; very similar to Stratum I but more crumbly/blocky
Kahoma Stream	Area of Interest 1	I	0 - 15	Pavement; concrete; cement with favel aggregate, 6 guage wire mesh reinforcement
Kahoma Stream	Area of Interest 1	II	15-40	Base coarse 7.5 YR 5/3, very dark brown; gravel;
Kahoma Stream	Area of Interest 1	III	40-57	Imported Fill; 7.5 YR 3/3, dark brown; silt; weak, fine medium, crumb structure; non-sticky wet consistency; non-plastic; no cementation; abrupt smooth lower boundary;

Portion	Backhoe Trench	Stratum	Depth (cmbs)	Soil Description
				imported soil fill
Kahoma Stream	Area of Interest 1	IV	57-205+	Imported Fill; 2.5 YR 4/1, dark grey; other (cinder); weak, coarse/very coarse, crumb structure; loose dry consistency; non-plastic; no cementation;
Kahoma Stream	Area of Interest 2	I	0 - 21	Pavement, concrete; cement gravel aggregate 6 guage wire mesh reinforcement
Kahoma Stream	Area of Interest 2	II	21-39	Base coarse; 7.5 YR 5/3, very dark brown; gravel; structureless, medium, crumb structure; loose dry consistency; loose moist consistency; sticky wet consistency; slightly plastic; no cementation; smooth lower boundary; 95% gravel aggregate base coarse
Kahoma Stream	Area of Interest 2	III	39-100	Imported Fill; 7.5 YR 2.5/3, very dark brown; silt; weak, medium, granular structure; loose dry consistency; loose moist consistency; sticky wet consistency; slightly plastic; no cementation; unknown lower boundary; 90-95% small-medium angular cobbles

# Appendix C GPR Technical Report

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Wiss, Janney, Elstner Associates, Inc.  
330 Pfingsten Road  
Northbrook, Illinois 60062  
847.272.7400 tel | 847.291.5189 fax  
www.wje.com

Via Email: leegreig@culturalsurveys.com

August 8, 2008

Ms. Tanya L. Lee-Greig  
Office Manager  
Cultural Surveys Hawai'i, Inc.  
1993 Main Street, Wailuku  
Maui, HI 96763

Re: Lahaina Bypass Nondestructive Test Inspection  
WJE No. 2008.1816.0

Dear Ms. Lee-Greig:

At the request of The Cultural Surveys Hawai'i Company, (CSH), Wiss, Janney, Elstner Associates, Inc. (WJE) has performed a nondestructive test inspection at the Lahaina Bypass Project in Lahaina, Maui, Hawai'i. The purpose of this inspection work is to determine whether there are human burial sites at the specified area.

#### **BACKGROUND**

We understand that a new bridge over the Kahoma Stream has been proposed as part of the Lahaina Bypass Road Improvement Project. We also understand that some of the construction work includes performing excavations in an area that may have been used by local residences as an interment site. Figure 1 shows an overall view of the area of concern.

Prior to performing the fieldwork, WJE briefly reviewed the soils boring report prepared by Geolabs, Inc., which indicates the presence of a vesicular basalt rock at a depth of 2 ft near the Kahoma Stream area.

Fieldwork for this investigation was performed during the week of July 7, 2008.

#### **NONDESTRUCTIVE TEST METHODS**

The ground-penetrating radar (GPR) test method was used to nondestructively identify potential burial locations. GPR scans were conducted at nominal 3ft intervals. An approximate 4,350 sq.ft. area was surveyed.

#### **Ground Penetrating Radar**

A Sir-2000 radar unit with 400 MHz frequency antenna was used to collect the data. The Sir-2000 is manufactured by Geophysical Survey Systems, Inc. (GSSI) of North Salem, New Hampshire.

GPR detects the arrival time and energy level of a reflected electromagnetic pulse. It is commonly used in archaeological and geological surveys, to locate utility lines, find voids within concrete or beneath slabs-on-grade, and embedded reinforcing bars.

Headquarters & Laboratories—Northbrook, Illinois  
Atlanta | Austin | Boston | Chicago | Cleveland | Dallas | Denver | Detroit | Honolulu | Houston  
Los Angeles | Minneapolis | New Haven | New York | Princeton | San Francisco | Seattle | Washington, DC



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Figure 1- Overall view of the survey site

**TEST RESULTS**

The GPR test results indicated two potential underground targets within the survey area. These two areas are also shown in Figure 1. Similarly Figures 2 and 3 are GPR linescans showing the potential suspect targets for location 1 and 2, respectively. To verify the findings of the GPR test results the two suspect areas were subsequently excavated. In the location No. 1, a large boulder was found at a depth of about 2½ ft. In addition, a darker color fill material, different than the surrounding soil was identified, as shown in figures 4 and 5. In location No. 2, a large boulder was also found at a depth of about 2 ft (See Fig 6).

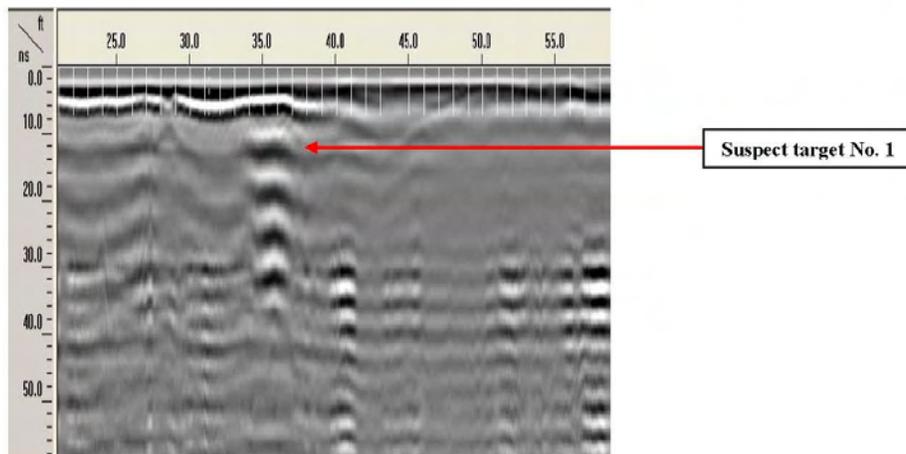


Figure 2 - GPR linescan showing a potential target in the ground

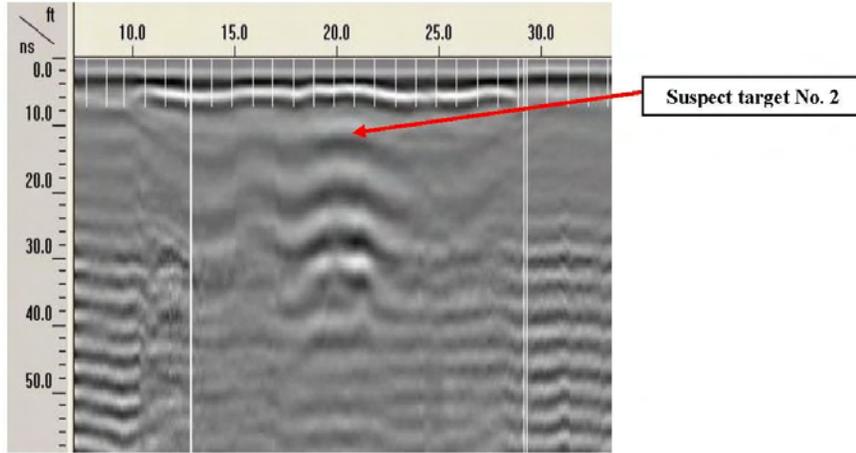


Figure 3 - GPR linescan showing a potential target in the ground



Figure 4 - Boulder found in exploratory opening No.1



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Figure 5- Dark fill material found in exploratory opening No.1



Figure 6- Large boulder found in exploratory opening No.2



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**CONCLUSION**

Wiss, Janney, Elstner Associates, Inc. conducted a GPR survey to locate potential human interment locations. The results of the GPR testing indicated two suspect locations. The suspect locations were subsequently excavated to verify the noted conditions. Visual observation at the two excavated openings showed that the potential targets observed in the GPR linescans are reflections from large embedded boulders. In addition, a dark color fill material was also observed in the suspect location No. 1.

Feel free to call us if you have any comments or questions.

Very truly yours,

WISS, JANNEY, ELSTNER ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'Aldo O. De La Haza', written over a horizontal line.

Aldo O. De La Haza  
Senior Associate



# Appendix H

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*Cultural Impact Assessment for the Lāhainā Bypass Modified  
Alignment from Kahoma Stream to the Keawe Street Extension  
Kelaweā, Paeohi and Wahikuli Ahupua‘a  
Lāhainā District; Island of Maui*

Cultural Surveys Hawai‘i, Inc.

Final, February 2009



**Cultural Impact Assessment for the  
Lāhainā Bypass Modified Alignment from  
Kahoma Stream to the Keawe Street Extension  
Kelaweā, Paeohi and Wahikuli Ahupua‘a; Lāhainā District;  
Island of Maui  
TMK: (2) 4-5-021,010, 015, and 031: Multiple Parcels**

**Prepared for  
Wilson Okamoto Corporation  
State of Hawai‘i Department of Transportation**

**Prepared by  
Colleen P.M. Dagan, B.S.  
Anna Cordova, B.A.  
Tanya Lee-Greig, M.A.  
Auli‘i Mitchell, B.A.  
Robert Hill, B.A.  
and  
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.  
Wailuku, Hawai‘i  
(Job Code: PANAEWA-7)  
February 2009**

**FINAL**

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## Acknowledgements

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Cultural Surveys Hawai‘i (CSH) would like to extend our thanks and gratitude to the people who have contributed their time and personal knowledge to this study. Without the assistance of many people, this study would not have been possible. Mr. Keoki Freeland of the Lahaina Restoration Foundation deserves a special thank you for the use of the foundation’s archival resources and allowing us the privilege of digitizing many of the historic maps included in this report. Many thanks go out to the Maui/Lāna‘i Islands Burial Council and Ms. Apolei Bargamento of the Native Hawaiian Historic Preservation Council for their last minute accommodations and efforts in adding us to their agendas on short notice. Mahalo to Mr. Stan Solamillo of the Maui County Cultural Resource Commission for his continued support of the CIA process. CSH would also like to thank Mr. Eric “Coach” Sodetani for taking time out of his day and enabling us to get a glimpse of the project area through his father’s eyes. The families of Haia, Pali, Kapu, and Kailihou warrant recognition and appreciation for the time and energy exercised in meeting with CSH and for sharing their *mana‘o* on the project. Much gratitude is expressed to the following people in particular who put their time and effort toward sharing their personal knowledge and opinions: Mr. Akoni Akana, Mr. James Haia, Sr., Mr. Edwin Lindsey, Uncle Moki Keahi, and Mr. John Kuia. Mr. Foster Ampong, who spent a great amount of his own time and contributed significantly to our understanding of the project area and special concerns with regard to contemporary native Hawaiian issues, we are very grateful for all of Mr. Ampong’s efforts. Most importantly, CSH would like to extend a very special *mahalo* to each *kupuna* who participated in this study. We understand that the nature of these interviews can be emotionally taxing. These *kupuna* have our greatest respect and abundant gratitude for sharing their memories and *kōkua* with CSH and the public. *Mahalo nui* Mr. Jonah Keahi, Ms. Mabel “Momi” (Kailihou) Jaentsch, Uncle Charlie Makekai, Ms. Myra Kanoelehua (Pali) Keli‘ipio, and Mr. Henry Ah Ying Kau Aki.

## Management Summary

<b>Date</b>	November 2008 (DRAFT)
<b>Project Number (s)</b>	CSH Job Code: PANAEWA 7 Federal Aid Project No.:NH-030-1(35)R
<b>Project Location</b>	North of Kahoma Stream and east of Honoapi'ilani Highway, Kelawea, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels. This area is depicted on the 1992 Lāhainā USGS 7.5-minute topographic quadrangle.
<b>Land Jurisdiction</b>	Government, State of Hawaii
<b>Agencies</b>	Federal: Federal Highway Administration (FHWA) State: Hawaii Department of Transportation (HDOT) Hawai'i Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD)
<b>Project Description</b>	<p>In May of 2007, a system of over 400 early historic era agricultural terraces (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified along the northern terminus of the Lāhainā Bypass Phase IA Right-of-Way (ROW). As the historic preservation review process for the Lāhainā Bypass Section of the Honoapi'ilani Highway Realignment Project had been completed (December 22, 1992 [Log No.: 7126; Doc No.: 9212AG52]; March 3, 1994 [Log No.: 10704; Doc No.: 9402KD28]; October 6, 1994 [Log No.: 12728; Doc No.: 9409KD32]; June 2, 1994 [Log No.: 11460; Doc No.: 9406RC04]; and June 2, 1994 [Log No.: 11459; Doc No.: 9406RC05]) and Phase IA had entered into the construction stage, SIHP-6277 was reported as an inadvertent find per HAR §13-280-3 (b). Due to the inadvertent discovery of a historic property and per the regulatory statutes of a federally funded undertaking, Section 106 consultation and Department of Transportation Act Section 4F alternatives analysis with regard to SIHP -6277 was conducted.</p> <p>The State of Hawai'i Department of Transportation has identified a possible feasible and prudent avoidance alternative and is proposing to realign the northern terminus of the Phase IA section of the Honoapi'ilani Highway -- Lāhainā Bypass (commonly referred to as the "mini-bypass") in an effort to completely avoid SIHP -6277. The proposed realignment would include skewing the bridge downstream to a T-intersection that would feed traffic to both the Keawe Street Extension and future phases of the Lāhainā Bypass (Phase IC).</p>
<b>Region of Influence (ROI)</b>	<p>The area of direct effect for the proposed undertaking is considered as the construction footprint of the 200 ft. right-of-way (ROW), in addition to approximately 100 ft along the upslope or <i>mauka</i> extent of the ROW and 200 ft. along the down slope or <i>makai</i> extent of the ROW to account for areas of cut and fill.</p> <p>When assessing the presence or absence of direct, indirect, and cumulative effects of the project on the traditional cultural practices of this region,</p>

	<p>traditional use and access to resources from the mountains to ocean, or <i>mauka</i> to <i>makai</i> must be taken into consideration. As such, the ROI for this undertaking is defined as the geographic area encompassing the <i>mauka</i> reaches of Kahoma and Kanahā Valleys, the agricultural banks of the Kahoma Stream (from the confluence of the Kahoma and Kanahā Streams seaward), forested areas and fallow fields of the southfacing exposures of the West Maui Mountains above and including Wahikuli Ahupua'a, and coastal portions of Lāhainā near the mouth of the Kahoma Stream</p>
<b>Regulatory Context</b>	<p>As a federally funded project on state lands, this undertaking is subject to both Federal and State of Hawai'i Environmental Regulations. With regard to Federal regulations, this undertaking is subject to the National Environmental Protection Act (NEPA) 40 Code of Federal Regulation [CFR] Part 1500-1508. With regard to State of Hawai'i Environmental Regulations, this undertaking is subject to Hawai'i Administrative Rules (HAR) Title 11 Chapter 200-4(a) and Chapter 343 of the Hawai'i Revised Statutes (HRS).</p>
<b>Fieldwork Effort</b>	<p>Field work was conducted by Colleen P.M. Dagan, B.S.; Anna Cordova, B.S.; Auli'i Mitchell, B.A.; and Tanya Lee-Greig, M.A. and consisted of interviews with cultural specialists and individuals who have cultural knowledge of the study area including lineal descendants of those Hawaiian's who inhabited the Kahoma and Kanahā Valleys and Kahoma Stream areas.</p>
<b>Consultation Results</b>	<p>This cultural impact assessment found evidence of traditional agriculture, including <i>lo'i</i> agriculture, in the study area. Traditional access trails were identified in the study area some of which may be partially intact in the Kahoma and Kanahā Valleys. Although the traditional landscape, as well as the historic landscape, has been dramatically altered by modern development, consultation found evidence of well traveled routes from the coast up into the above mentioned valleys. In addition, consultation further confirmed the existence of traditional burial grounds in the study area. The Haia Cemetery continues to be visited by the descendants of those buried there for the purpose of paying their respects and maintenance.</p> <p>The primary cumulative effect identified during the course of this study is the assertion that the proposed project will open up West Maui to rampant development across the alluvial plain -- a process that will, in the opinion of those consulted for this study, further marginalize native Hawaiian culture. Others see the proposed project as a beneficial alternative route that would address the emergency and safety needs of the larger community.</p> <p>See Section 5 Results of Community Consultation, Informal, and Formal Kama'āina Interviews and Section 6 Traditional Cultural Practices for complete discussion.</p>
<b>Recommendations</b>	<p>In the event that the proposed undertaking is approved in the currently planned location, the following issues with regard to potential immediate adverse effects must be addressed:</p> <ul style="list-style-type: none"> <li>• <i>Mauka to makai</i> access needs to be maintained.</li> </ul>

	<ul style="list-style-type: none"> <li>• Precautionary measures to limit the amount of silt or dust resulting from construction activities need to be taken to prevent shoreline and off-shore fishing ground degradation and contamination.</li> <li>• Concerns regarding collapse of historic properties and the potential for uncovering previously unidentified sensitive historic properties within the proposed project corridor should be addressed.</li> </ul> <p>With regard to reducing the impact of potentially adverse cumulative effects the following suggestions were put forward:</p> <ul style="list-style-type: none"> <li>• Setting aside a burial reinterment area for <i>kupuna iwi</i> that were disinterred during the USACE Kahoma Stream Flood Control Project (Pietrusewsky et al. 1989, Pietrusewsky and Douglas 1990, and Shun 1991) and reinterred at the Honokahua Burial Site (Donham 1993), either within the original project corridor or near SIHP 50-50-03-2484, L-shaped walled enclosure, and -6277, terrace complex, as a means of closure.</li> <li>• Stewardship agreements with regard to the preservation of SIHP - 2484 and -6277 were also brought up as a potential means to perpetuate and maintain the culture and history of the area in the face of oncoming development.</li> <li>• Maintaining the agricultural designations for lands that were formerly in sugar cane to retain the rural feel of the area and promote self-sustaining agriculture.</li> <li>• Opening up a dialogue between the large landowners of West Maui, various government agencies or stakeholders, and willing participants within the native Hawaiian community regarding the need to maintain and perpetuate the host culture and provide for the growing community of Lāhainā.</li> </ul> <p>See Section 7 Summary and Recommendations for complete discussion.</p>
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## Section 1 Introduction

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The Honoapi'ilani Highway Realignment, Lāhainā Bypass Project is a State of Hawai'i Department of Transportation (HDOT) project that will be constructed in three segments (Phases IA through IC) (Figure 1). Phase IA is the first phase of the build-out for the Lāhainā Bypass Project and includes a half-mile long section from Ikena Avenue to the future Keawe Street Extension with a bridge crossing at Kahoma Stream. At the request of Wilson Okamoto Corporation (WOC), and in consultation with the Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD), Cultural Surveys Hawai'i, Inc. (CSH) conducted a cultural impact assessment of the lands surrounding the modified extension of Phase IA of the Honoapi'ilani Highway Lāhainā Bypass (hereafter referred to as Phase IA) road corridor and a portion of the Keawe Street extension.

The area of direct effect for the proposed undertaking is considered the construction footprint of the 200 ft. right-of-way (ROW), in addition to approximately 100 ft along the upslope or *mauka* extent of the ROW and 200 ft. along the down slope or *makai* extent of the ROW to account for areas of cut and fill.

When assessing the presence or absence of direct, indirect, and cumulative effects of the project on the traditional cultural practices of this region, traditional use and access to resources from the mountains to ocean, or *mauka* to *makai*, must be taken into consideration. As such, the region of influence (ROI) for this undertaking, herein after referred to as the "study area", is defined as the geographic area encompassing the *mauka* reaches of Kahoma and Kanahā Valleys, the agricultural banks of the Kahoma Stream (from the confluence of the Kahoma and Kanahā Streams seaward), forested areas and fallow fields of the southfacing exposures of the West Maui Mountains above and including Wahikuli Ahupua'a, and coastal portions of Lāhainā near the mouth of the Kahoma Stream.

### 1.1 Project Background

In May of 2007, a system of over 400 early historic era agricultural terraces (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified along the northern terminus of the Lāhainā Bypass Phase IA Right-of-Way (ROW). As the historic preservation review process for the Honoapi'ilani Highway Realignment Lāhainā Bypass Project had been completed (December 22, 1992 [Log No.: 7126; Doc No.: 9212AG52]; March 3, 1994 [Log No.: 10704; Doc No.: 9402KD28]; October 6, 1994 [Log No.: 12728; Doc No.: 9409KD32]; June 2, 1994 [Log No.: 11460; Doc No.: 9406RC04]; and June 2, 1994 [Log No.: 11459; Doc No.: 9406RC05]) and Phase IA had entered into the construction stage, SIHP-6277 was reported as an inadvertent find per HAR §13-280-3 (b). While the size of the entire system is 30 acres, two acres of the system containing over 400 terraces are located within the northern terminus of the original Lāhainā Bypass Phase IA ROW. Due to this inadvertent discovery of a potentially significant historic property, and per the regulatory statutes of a federally funded undertaking (Section 106 of the National Historic Preservation Act [NHPA] and Section 4f of the Department of Transportation Act [DTA],) HDOT investigated other realignment alternatives to see if avoidance of SIHP - 6277 was feasible.

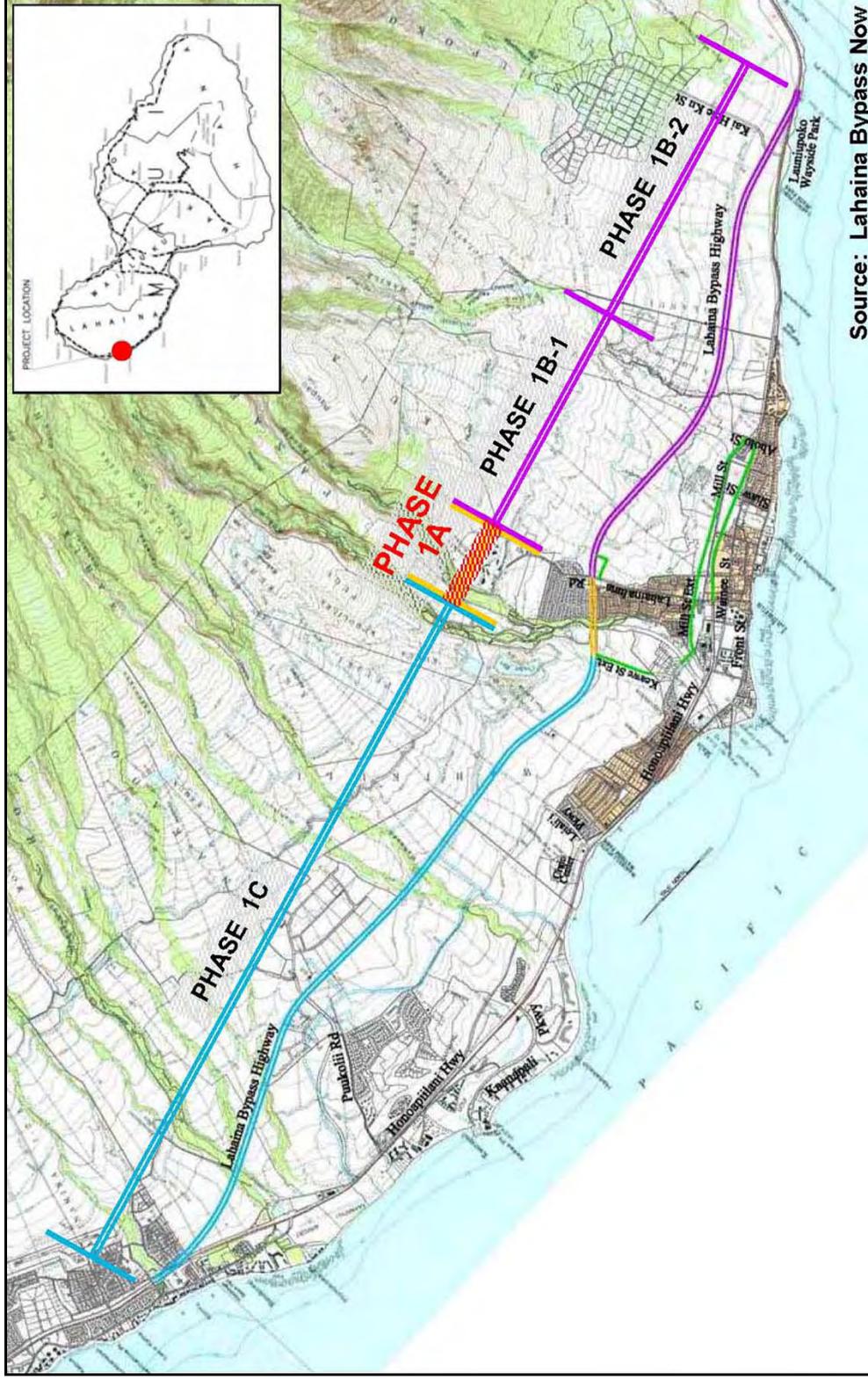


Figure 1. Topographic map showing Lāhainā Bypass, Phase IA in red (graphic courtesy of Wilson Okamoto Corporation)

Cultural Impact Assessment for the Lāhainā Bypass Modified Alignment from Kahoma Stream to the Keawe Street Extension

TMK (2) 4-5-021, 010, 015 and 031: Multiple Parcels

As a result of the evaluation of possible avoidance alternatives, the State of Hawai'i Department of Transportation (HDOT) has identified a potentially feasible and prudent avoidance alternative that proposes to realign the northern terminus of the Phase IA road corridor in an effort to completely avoid SIHP -6277. This proposed modification would include skewing the bridge downstream to a T-intersection that would then feed traffic to both the Keawe Street Extension and future phases of the Lāhainā Bypass roadway (Phase IC). As a result of this amendment to the original Lāhainā Bypass road corridor through the Phase IA section, a cultural impact assessment (CIA) was required and includes, but is not limited to, an approximate 55-acre Area of Potential Effect (APE). This acreage includes the proposed right-of-way (ROW) and a surrounding buffer zone as well as the reconfigured northern terminus of the road corridor to include a portion of the Keawe Street realignment. In addition, lands surrounding the Kahoma and Kanahā Valleys as well as lands surrounding the seaward portions of Kahoma Stream have been included and hereafter referred to as the current study area. As a federally funded project on state lands, this undertaking is subject to both Federal and State of Hawai'i Environmental Regulations. With regard to Federal regulations, this undertaking is subject to the National Environmental Protection Act (NEPA) 40 Code of Federal Regulation [CFR] Part 1500-1508. With regard to State of Hawai'i Environmental Regulations, this undertaking is subject to Hawai'i Administrative Rules (HAR) Title 11 Chapter 200-4(a) and Chapter 343 of the Hawai'i Revised Statutes (HRS).

The current study area is located east and west of Honoapi'ilani Highway, and includes the lands of the Kahoma and Kanahā Valleys, the agricultural banks of the Kahoma Stream (from the confluence of the Kahoma and Kanahā Streams seaward) including coastal portions of Lāhainā surrounding the mouth of the Kahoma Stream. The study area aims to incorporate *ahupua'a* located in the above mentioned valleys, their alluvial plains down to the coastal lands. (Figure 2, Figure 3 and Figure 4).

The bypass right-of-way (ROW) is considerably smaller than the cultural impact assessment study area. The ROW for the bypass includes a portion of the Kahoma Gulch where the temporary bridge shoring will be located, as well as fallow sugar cane lands north of Kahoma Gulch. In order to account for areas of cut and fill, the area of potential effect (APE) that was covered during an archaeological inventory survey (*An Archaeological Inventory Survey Report for the Realignment of a Section of the Honoapi'ilani Highway Phase IA, Kelaweā, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island. Draft TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels. Lee-Greig, Hammatt and Hill 2008*) that extends out from the ROW limits by approximately 100 ft along the upslope or *mauka* extent of the ROW and 200 ft. along the down slope or *makai* extent of the ROW. The approximate total area covered by the APE equaled about 22 Hectares (55 Acres) including the ROW.

This cultural impact assessment was performed in accordance with the guidelines for assessing cultural impacts as set forth by the Environmental Council of the Hawaii State Department of Health Office of Environmental Quality Control (OEQC) (Hawaii State Department of Health Office of Environmental Quality Control 1997) as part of the environmental assessment for the DOT.

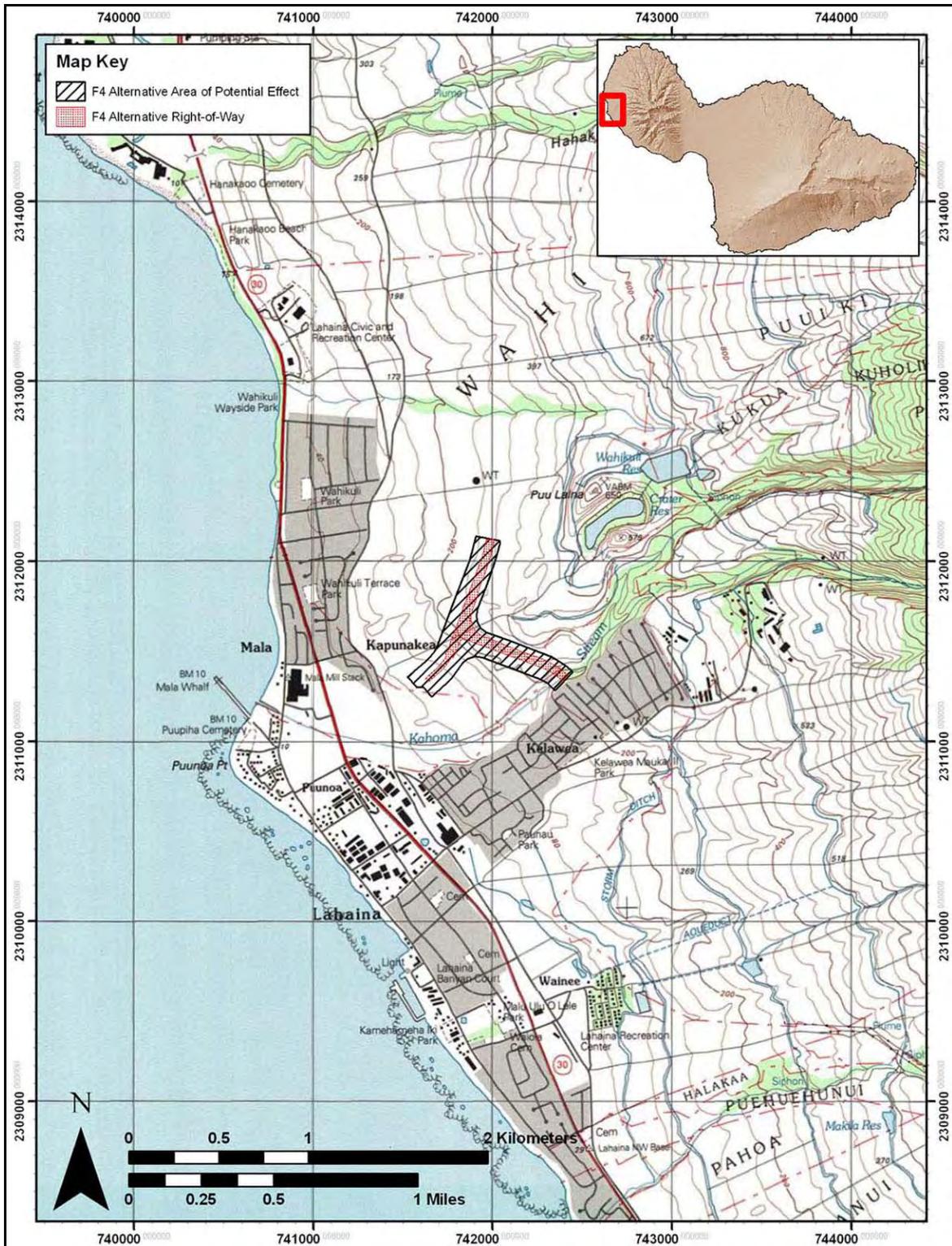


Figure 2. A portion of the USGS 7.5 topographic, Lāhainā Quadrangle (1992), showing project area location.

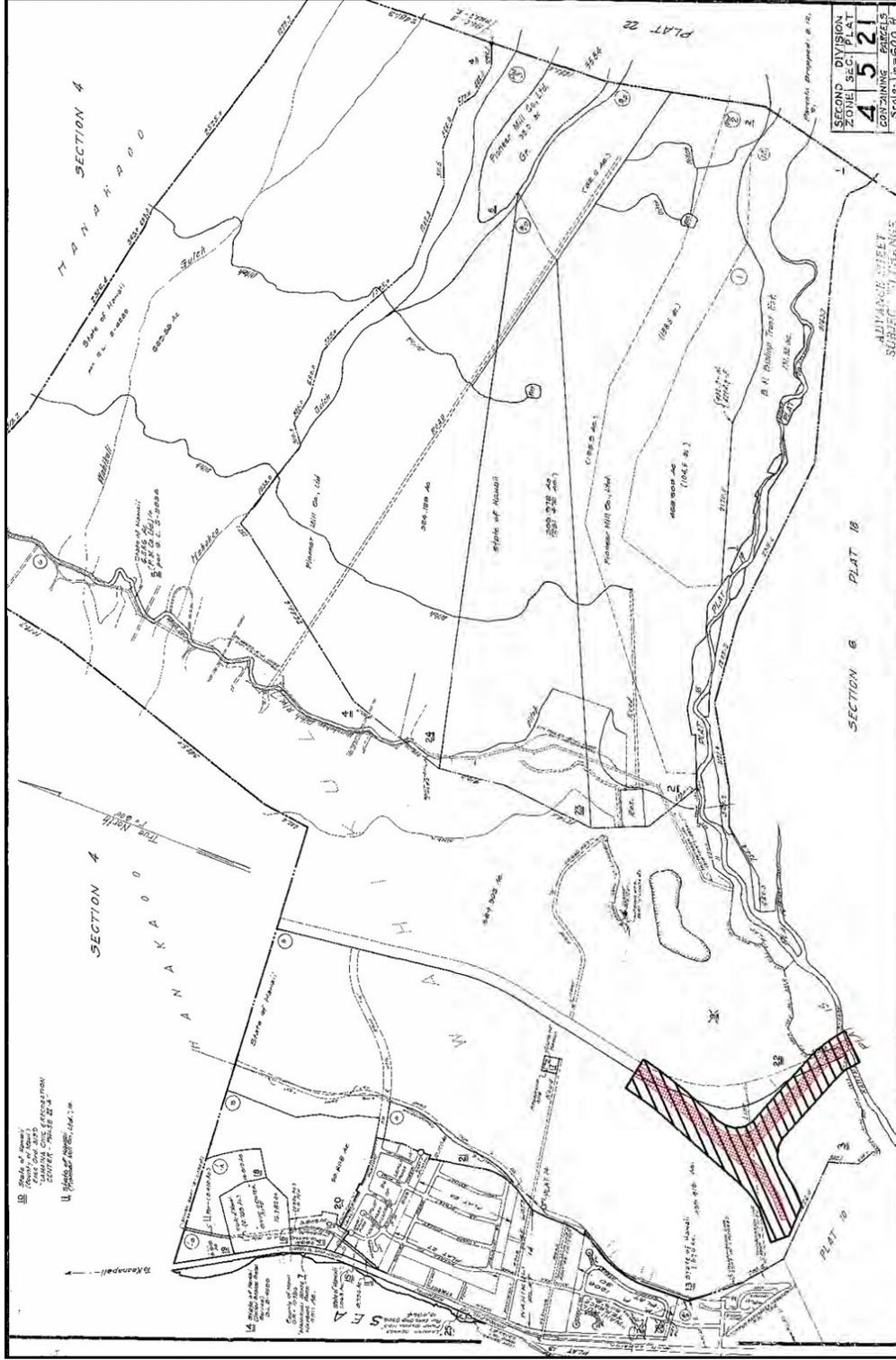


Figure 3. TMK (2) 4-5-021 showing approximate location the current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch)

Cultural Impact Assessment for the Lāhainā Bypass Modified Alignment from Kahoma Stream to the Keawe Street Extension

TMK (2) 4-5-021, 010, 015 and 031: Multiple Parcels



## 1.2 Scope of Work

The following scope of work served as the framework within which this study was conducted:

1. Examination of historical documents, Land Commission Awards, historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources or agricultural pursuits as may be indicated in the historic record.
2. A review of the existing archaeological information pertaining to the sites on the property as they may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the study area and identify present uses, if appropriate.
3. Interviews or consultations which could include group meetings as well as formal and/or informal individual interviews (e.g. meetings with *kama'aina* from Lahaina and those descendants of the families from Lāhainā, Kahoma and Kanahā Valley; consultation with Hawaiian cultural practitioners and formal Hawaiian organizations and civic clubs).
4. Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified.

## 1.3 Environmental Setting

### 1.3.1 Natural Environment

The current project area is approximately located at the 200-ft. elevation above mean sea level and ranges in distance from the coastline between 0.9 km and 1.7 km. The soils of the lands covered by the current project area are generally described as the Honolua-Olelo Association (USDA Natural Resources Conservation Service 2001). This soil association consists of deep, gently sloping to moderately steep, well-drained soils that have fine-textured subsoil, on intermediate uplands (Foote et al. 1972:8). More specifically, the soil units within the boundaries of the current project area include Rock Land (rRK), Rough Broken and Stone Land (rRS), Wahikuli Very Stony Silty Clay 3 to 7% slopes (WdB), and Stony Silty Clay 7 to 15% slopes (WcC) (Figure 5). At the time of the 1972 soil survey (Foote et al. 1972) Wahikuli silty clay soils were primarily used for sugar cane with small acreages used as homesites (USDA Natural Resources Conservation Service 2001).

Soil borings associated with the original Phase IA alignment were made to assess the subsurface conditions within the overall project corridor and may provide insight into the soil conditions of the reconfigured alignment of Phase IA (Geolabs Inc. 2007).

The general stratigraphic profile for soils within the original Phase IA alignment consists of a surface layer, ranging from 1 to 16.5 feet thick, overlying C-Horizon saprolite and basalts extending to the maximum explored depth of 84.5 feet (Geolabs Inc. 2007). This layer consisted of fill materials (loose to dense sands with gravel and very stiff to hard clays and silts), as well as clinker and residual soils generally composed of loose to dense silty gravel and hard sand silt

respectively (Geolabs Inc. 2007). Four of 17 borings encountered colluvial and cinder deposits above the C-Horizon.

Average annual rainfall at this elevation on the western slope of the West Maui Mountains reaches up to 15 inches per year (Giambelluca and Schroeder 1998) with cooler temperatures and heavier rainfall occurring in the winter months and warmer temperatures and lighter rainfall occurring during the summer months. During the pre-contact era, these soils and level of rainfall would likely have supported a lowland dry and mesic forest, woodland, and shrubland. According to Pratt and Gon (1998: 127), this type of native environment would have provided medicinal plants for *la'au lapa'au* (traditional Hawaiian medicine) and hardwoods for building and carving material, as well as *pili* grass for use in thatching. Pratt and Gon (1998: 127) go on to point out that some mesic areas were cleared and converted to dryland *kalo* (taro) and *'uala* (sweet potato) agriculture. After years of historic and modern era sugarcane agriculture, the natural environment of the former cane lands within the current project area now consists entirely of various species of introduced grasses on the ridge tops with small stands of *'ilima* (*Sida fallax*) and *koa haole* (*Leucaena* and *leucocephala*) scattered throughout. Within Kahoma Gulch, *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and Century Plants (*Agave americana*) are present.

### 1.3.2 Built Environment

The built environment of the study area consists of a section of the Kahoma Stream flood control improvements within Kahoma Gulch. The study area is bordered by the Kelawea Mauka residential subdivision to the south and includes the Lāhainā Industrial Area to the west (Figure 6). Within Kahoma Gulch, the primary built feature within the current study area consists of a basalt rock and mortar spillway, as well as a utility road that runs along the northern edge of the concreted portion of the streambed that comprises the flood control project. The built environment features of the Kelawea Mauka residential subdivision consists of two-lane asphalt roads with concrete curbing, sidewalks, and single family homes, while the industrial area consists primarily of concrete and steel warehouses and associated connector roads. Coastal portions of the study area include portions of Lāhainā Town which includes housing, asphalt roadways, and portions of the Lāhainā Historic District. The study area also includes Mala boat harbor and Pu'u Piha Cemetery.

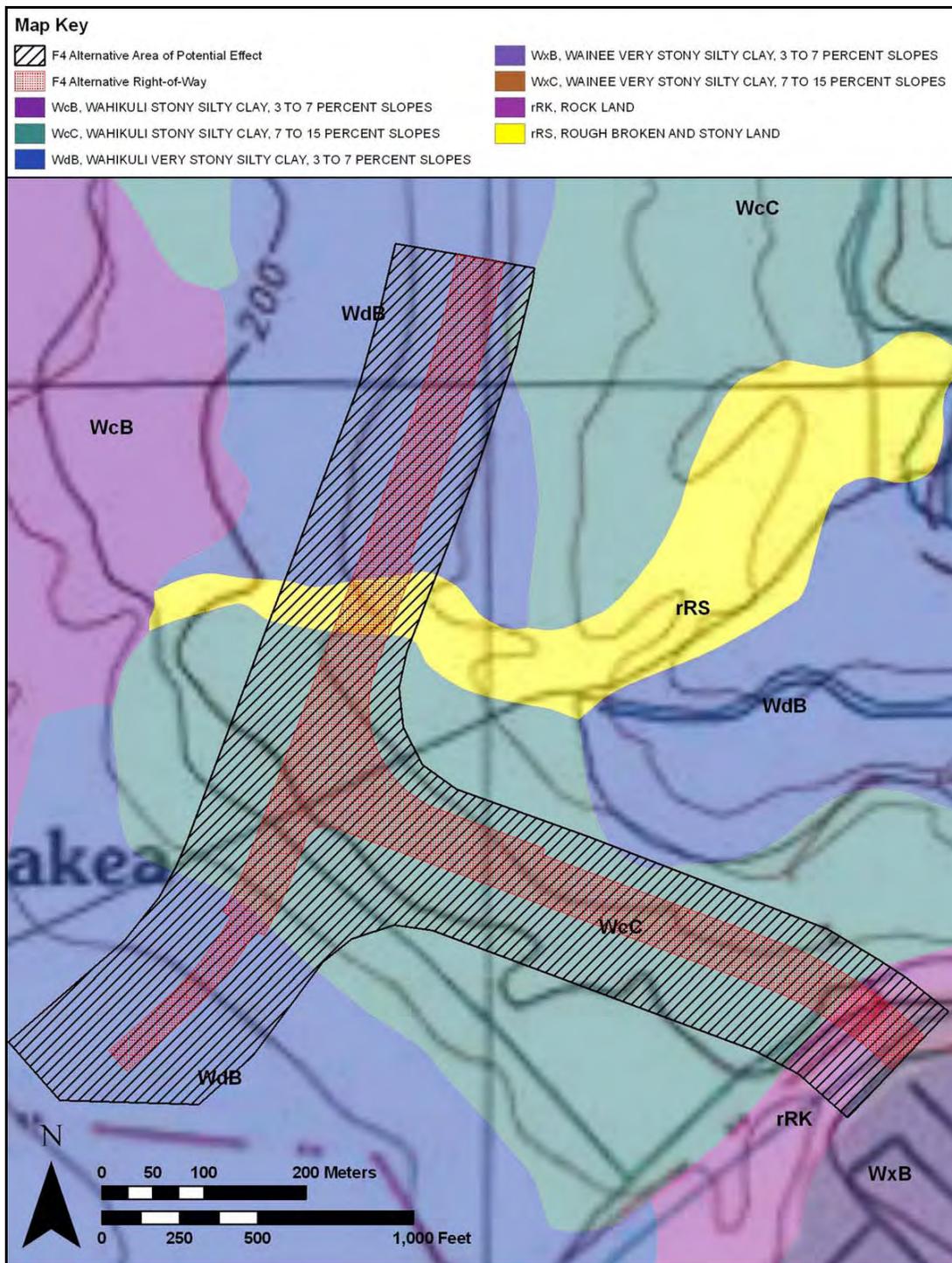


Figure 5. A portion of the 1992 Lāhainā 7.5-minute USGS topographic quadrangles, showing the current project area relative to the local soil series (U.S. Department of Agriculture, Natural Resources Conservation Service 2001)



Figure 6. A portion of the Lāhainā orthophoto showing the natural and built environment in relation to the current project area (photo courtesy of Wilson Okamoto Corporation).

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## Section 2 Methods

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This section details the methods used by CSH personnel during the fieldwork and preparation of this cultural impact assessment. Interviews and consultation was conducted by lead researcher, Colleen Dagan, B.S. and contributing researchers Auli'i Mitchell, B.A.; Anna Cordova, B.A.; and Tanya L. Lee-Greig, M.A. under the overall guidance of Hallett H. Hammatt, Ph.D. Field interviews and consultations were accomplished over a four month period from June 2008 to October 2008. Document research was conducted by the researchers named above with contributions from Robert H. Hill, B.A.

### 2.1 Document Review and Research

Numerous published and unpublished accounts, surveys, reports, maps and photographs found in public and private collections pertaining to Lāhainā and the study area were investigated by Cultural Surveys Hawai'i Inc. English language historical documents, maps, and archaeological studies were researched at the DLNR/SHPD library, the Survey Office of the Department of Accounting and General Services (DAGS), the Lahaina Restoration Foundation Archives at the Hale Pa'i, the Maui County Planning Department, and the Cultural Surveys Hawai'i (CSH) library; in addition to private collections held by others in the community. Land Commission Award Claims were studied using historic maps and cross referenced with the Waihona 'Aina online database ([www.waihona.com](http://www.waihona.com)). Hawaiian newspaper resources and other Hawaiian language documents were researched using *Ulukau: The Hawaiian Electronic Library* ([www.ulukau.org](http://www.ulukau.org)) and translated by Mr. Auli'i Mitchell, B.A.

### 2.2 Scoping and Community Outreach

#### 2.2.1 Government Agencies, Advisory Councils, and Local Community Organizations

In order to identify individuals with knowledge of the traditional cultural practices of the area of potential effect for the proposed project as it relates to this study, CSH initiated contact with government agencies, advisory councils, and local community organizations (See Section 4 Community Consultations). Letters and project area maps showing the location of the modified Keawe Street extension for the Lahaina Bypass Phase IA Realignment were mailed out with the following accompanying text:

On behalf of the State of Hawaii Department of Transportation (HDOT) and Wilson Okamoto Corporation (WOC), Cultural Surveys Hawai'i Inc. (CSH), a Hawai'i-based archaeological company, is conducting a Cultural Impact Assessment (CIA) for Phase IA of the Honoapi'ilani Highway Realignment, also referred to as the Lahaina Bypass Phase IA. The study area includes an approximate 55-acre Area of Potential Impact (APE). This acreage includes the proposed right-of-way (ROW) for the alternative and a surrounding buffer zone. The study area is located in the foothills of the West Maui Mountains northeast of Lahaina, in lands once used by the Pioneer Mill for sugarcane cultivation. The study area crosses the ahupua'a of Kelaweā, Paeohi, and Wahikuli. The highway

corridor includes a portion of the Kahoma Gulch where temporary bridge shorings will be located.

In May of 2007, a system of over 400 early historic era agricultural terraces (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified along the northern terminus of the Lahaina Bypass Phase IA ROW. Due to the inadvertent discovery of SIHP-6277, and per the regulatory statutes of a federally-funded undertaking, Section 106 of the Historic Preservation Act and Section 4(f) of the Department of Transportation Act alternatives analysis were conducted.

The HDOT has identified a possible feasible and prudent avoidance alternative and is proposing to realign the northern terminus of the Phase IA section of the Honoapi'ilani Highway – Lahaina Bypass in an effort to completely avoid SIHP-6277. The proposed realignment would include skewing the bridge downstream to a T-intersection that would accommodate traffic to both the Keawe Street Extension and future phases of the Lahaina Bypass (Phase IC). The APE will approximately equal 22 hectares or 55 acres, which includes buffer zones of approximately 100 ft. along the upslope or mauka extent of the ROW and 200 ft. along the downslope or makai extent of the ROW.

The purpose of the cultural impact assessment is to evaluate potential impacts to traditional cultural practices as a result of the proposed project.

We are seeking your kōkua or help and guidance regarding the following aspects of our study:

General history and present and past land use of the study area.

Knowledge of cultural resources within the project area which may be impacted, including traditional plant gathering sites, historic sites, archaeological sites, and burials.

Knowledge of traditional gathering practices in the area – both past and ongoing.

Cultural associations of the project area, such as legends and traditional uses.

Referrals of kūpuna or elders who might be willing to share their cultural knowledge of the project area and the surrounding ahupua`a lands.

Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the Honoapi'ilani Realignment area.

We invite you to contact us, Anna M. Cordova B.A. and/or Colleen Dagan B.S., at 1-808-242-9882. You may also contact us by e-mail at [acordova@culturalsurveys.com](mailto:acordova@culturalsurveys.com) or [cdagan@culturalsurveys.com](mailto:cdagan@culturalsurveys.com) if you have any information you would like to share.

Follow up was conducted with a combination of both, phone calls and e-mail messages. At least three follow up calls/e-mails were made to each contact over the course of approximately one month. If, after three follow-up attempts, CSH did not receive a response from the contact, the effort was noted as “attempted”, or “A”, in the community contact table

### **2.2.2 Individuals with Lineal Ties to the Lands within the Current Study Area**

As a result of the initial community outreach by WOC with regard to the discovery of SIHP 50-50-03-6277 within the original Lāhainā Bypass Phase IA ROW, several individuals with lineal ties to the lands within the current study area came forward (see also Section 4 Community Consultations: Table 6). The introductory letter mailed by CSH to lineal descendants was less formal than the letter shown in Section 2.2.1 above, but also included a personal introduction of the researcher in the following manner:

My name is Colleen Dagan and I work for Cultural Surveys Hawaii. Ms. Anna Cordova, Ms. Tanya Lee-Greig and I will be conducting a Cultural Impact Assessment for Phase IA of the Lahaina Bypass. I am writing to introduce myself and also explain the first steps of our study.

I have mailed a copy of this letter to all the lineal descendants of the Haia, Kailihou and Pali families that placed their names on a sign-in form from a meeting conducted by Wilson Okamoto Corporation on February 13, 2008. Please feel free to share this letter with any other family members who might want to contribute or participate in this study.

The purpose of this cultural impact assessment is to evaluate any potential impacts to traditional cultural practices and cultural resources that may result from the proposed project. The area of focus for this study are the Ahupua'a of Kelaweā, Paeohi and Wahikuli and greater Kahoma/Wahikuli area.

We are seeking your kōkua or help and guidance regarding the following aspects of our study:

General history and present and past land use of the study area.

Knowledge of cultural resources within the project area which may be impacted, including traditional plant gathering areas, traditional planting areas, historic sites, archaeological sites, and burials.

Knowledge of traditional gathering practices in the area – both past and ongoing.

Cultural associations of the project area, such as legends and traditional uses.

Referrals of kūpuna or elders who might be willing to share their cultural knowledge of the project area and the surrounding ahupua'a lands.

Any other cultural concerns the families might have related to Hawaiian cultural practices within or in the vicinity of the Honoapi'ilani Realignment area.

If there is anything you might like to share, please contact any one of us, Anna M. Cordova B.A., Tanya Lee-Greig M.A. and/or me, Colleen Dagan B.S., at 1-808-242-9882. You may also contact us by e-mail at [acordova@culturalsurveys.com](mailto:acordova@culturalsurveys.com), [leegreig@culturalsurveys.com](mailto:leegreig@culturalsurveys.com) or [cdagan@culturalsurveys.com](mailto:cdagan@culturalsurveys.com). I understand there are several concerned family members and I will be making follow up phone calls over the next few weeks.

Detailed figures of the proposed Bypass and Phase IA modification have been included (Figures 1-5).

Additionally, names of potential community contacts were also provided by colleagues at CSH and from the lead researcher Colleen Dagan's personal contacts with individuals from the study area (see also Section 4 Community Consultations: Table 6).

The follow-up process was identical to the process described above (see Section 2.2.1 Government Agencies, Advisory Councils, and Local Community Organizations) in that CSH made at least three attempts to contact individuals.

### **2.3 Group Consultation, Informal Interviews, and Formal Interviews**

Interviews were conducted either in a group setting (Section 5.1.1), informally via telephone, or as a part of a formal sit-down interview between the researchers and the participating individual. Handwritten notes of all consultations and interviews were made by the researchers, and with the permission of the participants, formal interviews were recorded using either a Sony ICD-SX25 Digital Voice Recorder or Olympus VN-4100PC.

Transcriptions of recorded interviews were completed by Mr. Auli'i Mitchell, B.A., Ms. Anna Cordova, B.A. and Ms. Sarah Wilkinson, B.A using the Sony Digital Voice Editor Software. All consultation and informal interview notes and formal interview transcriptions were reviewed by each participant for clarification and accuracy prior to inclusion in this study. Segments of interviews in which the interviewee chose to withdraw have been indicated by ellipsis (...) while a double dash (--) indicates either a pause in speech or unfinished thought. Authorized transcriptions from formal interviews and associated release forms are included in Appendix C .

### **2.4 Responses, Constraints, Limitations, and Potential Biases**

Cultural Surveys Hawai'i has responded to all inquiries, letters and e-mails as needed. Responses to formal inquiries are included in Appendix B below. When working with practitioners of traditional Hawaiian culture, it is important to note that there is a level of confidentiality and privacy that comes with traditional cultural practices and the ties that bind people to the land. There is also a relatively high level of mistrust of Western societal values and processes by some who were contacted as a part of this study. As a measure of respect for the participants of this study, subject matter and shared information that was considered sensitive to the participants were either amended or omitted from interviews and notes as instructed by the person who shared that information.

It should be further noted that three of the contributing researchers to this study are of Hawaiian ethnicity, one of whom has ancestral ties to the study area, while one is of Navajo and Apache ethnicity. While CSH aims to produce an unbiased document by limiting the work strictly to the documentation of traditional knowledge, practices, and cultural issues, some of the approaches to consultation and the language of this document may reflect a slight bias toward indigenous world views rather than an impartial empirical analysis of the data.

## Section 3 Background Research

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The workings of traditional Hawaiian land tenure are often reflective of the socio-political intricacies of particular places that were favored among the *ali'i* (ruling class), and the area surrounding the *kalana* of Lāhainā is illustrative of that fact. The *moku o loko*, or *moku* as it is most commonly called, literally means “to cut across, divide, separate” (Lucas 1995:77). When used as a term of traditional land tenure, a *moku* is akin to a political district, an overall land division that can contain smaller divisions of land such as *'okana*, *kalana*, *ahupua'a*, *'ili*, and *mo'o*. Lāhainā Moku, located on the south facing flank of Mauna o E'eka, or the West Maui Mountains as it is commonly called today, consists of multiple *ahupua'a* that extend from Ukumehame at the southern end to Hanakao'o along the northern end

The term *kalana* literally translates to mean a thing loosened or released – “to loosen” (*kala*) with the nominal suffix of “*na*” added at the end (Handy et al. 1991:47). In reference to land tenure, *kalana* is a term that is sometimes interchanged or synonymous with the term *'okana*, which is a sub-division of land that is smaller than a *moku* (Alexander 1890 and Lucas 1995:47). On Maui Island, W.D. Alexander (1890) observes that there are five *'okana* or sub-districts within Hāna Moku, while Lāhainā is termed a *kalana*. Handy and others (1991:47) speculate that the land divisions that were designated as *kalana* were politically released from the *'okana* or even *moku* that they had been a part of during the original division of the islands. These land divisions were then given as separate domains to *ali'i* of first rank, remaining as autonomous heritages. Curtis Lyons, a surveyor during the Mahele, specifically states that the *kalana* of Lāhainā belonged to no *moku* (in Handy et al. 1991:47). While the formal boundaries of the *kalana* of Lāhainā within Lāhainā Moku have never been surveyed, it is possible that the area comprising the *kalana* encompassed the fertile strip of lands along the coastline, stretching from Puamana to Māla, and inner reaches of the stream valleys, from Kaua'ula to Wahikuli.

The geographic arrangement of the typical *ahupua'a* within the traditional Hawaiian land tenure system is commonly thought of as a “pie-shaped” unit of land that extends from the coastline to the mountains. In this sense, the tenants of an *ahupua'a* may be permitted access to resources and carry out subsistence practices that would include marine resources and fishing rights in the coastal area, arable lands for crop cultivation, as well as, water and timber rights in the planting zones, and valuable bird catching privileges at the higher elevations (Handy et al. 1991:48). As indicated by Maly and Maly (2007:82), however, the distribution and geographic boundaries of the *ahupua'a* of Lāhainā are somewhat unique in Hawaiian Islands.

Within their cultural landscape study, Maly and Maly (2007:8) note that many of the *ahupua'a* of the Lāhainā area are small and often configured as detached parcels, or *lele*, that do not run in the typical *mauka to makai* “pie-shaped” manner. One section of an *ahupua'a* may be situated near the coastline, another section bearing the same *ahupua'a* name may be within the upper reaches of the stream valleys, while still another section might be found within the mid-elevation areas – all of which are separated by intervening *ahupua'a* bearing different names. This configuration of *lele ahupua'a* as described by Maly and Maly (2008:82) is comparable to the *ahupua'a* configuration within the ROI for this study.

The area of direct effect for the proposed undertaking is located on the east facing slopes of Mauna E'eka, or the West Maui mountains, in the traditional *moku* of Lāhainā. More

specifically, the construction footprint for the proposed undertaking is located adjacent to the *kalana* of Lāhainā and is almost entirely located within Wahikuli Ahupua‘a (Figure 7), with portions crossing Paeohi and Kelaweā Ahupua‘a (Figure 8). With regard to overall region of influence; however, the study area also includes the following *ahupua‘a* that are located within and along the agricultural banks of Kahoma and Kanahā Stream, from the upper elevations to the confluence of the two streams and extending to the mouth of Kahoma Stream at Māla (Table 1 and Figure 9 to Figure 14):

Table 1. Ahupua‘a within the Region of Influence

<b>Kahoma Valley Ahupua‘a</b>	<b>Kahoma Stream Below the Confluence/ Coastal Lāhainā Ahupua‘a</b>	<b>Kanahā Valley Ahupua‘a</b>
Kuholilea	Kainehe	Kelaweā
Puunoa 1	Kukuikapu	Kalimaohe
Puunoa 2	Kelaweā	Nakalepo
Puunoa 3	Paeohi	Puunoa 3
Puako	Wahikuli	Paeohi
Aki	Uhao	Moalii
Kuia	Aki	Panaewa
Kuhua	Kuhua 1	Moanui
Paunau	Kuhua 2	Waianae
Puou	Kuhua 3	Kopili
	Kuholilea	Kapunakea
	Aupokopoko	Lapakea
	Moalii	Aki
	Puunoa 1	Uhao
	Puunoa 2	
	Puunoa 3	
	Nakalepo	
	Hanakaoo	
	Moanui	
	Lapakea	
	Panaewa	
	Opaiula	
	Kopili	
	Alamihi	
	Kuia	

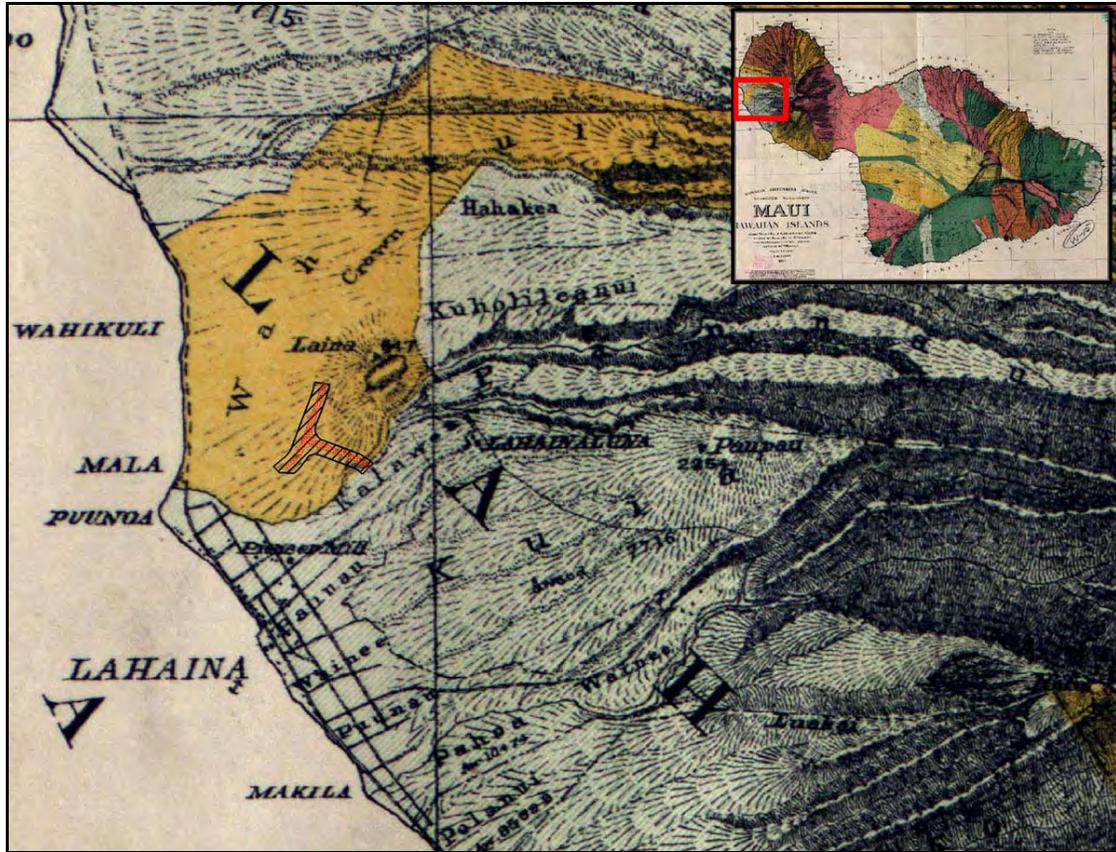


Figure 7. A portion of the F.S Dodge map (1885) showing the approximate location of the current project area in relation to Wahikuli Ahupua'a (crown lands in yellow, government lands in green).

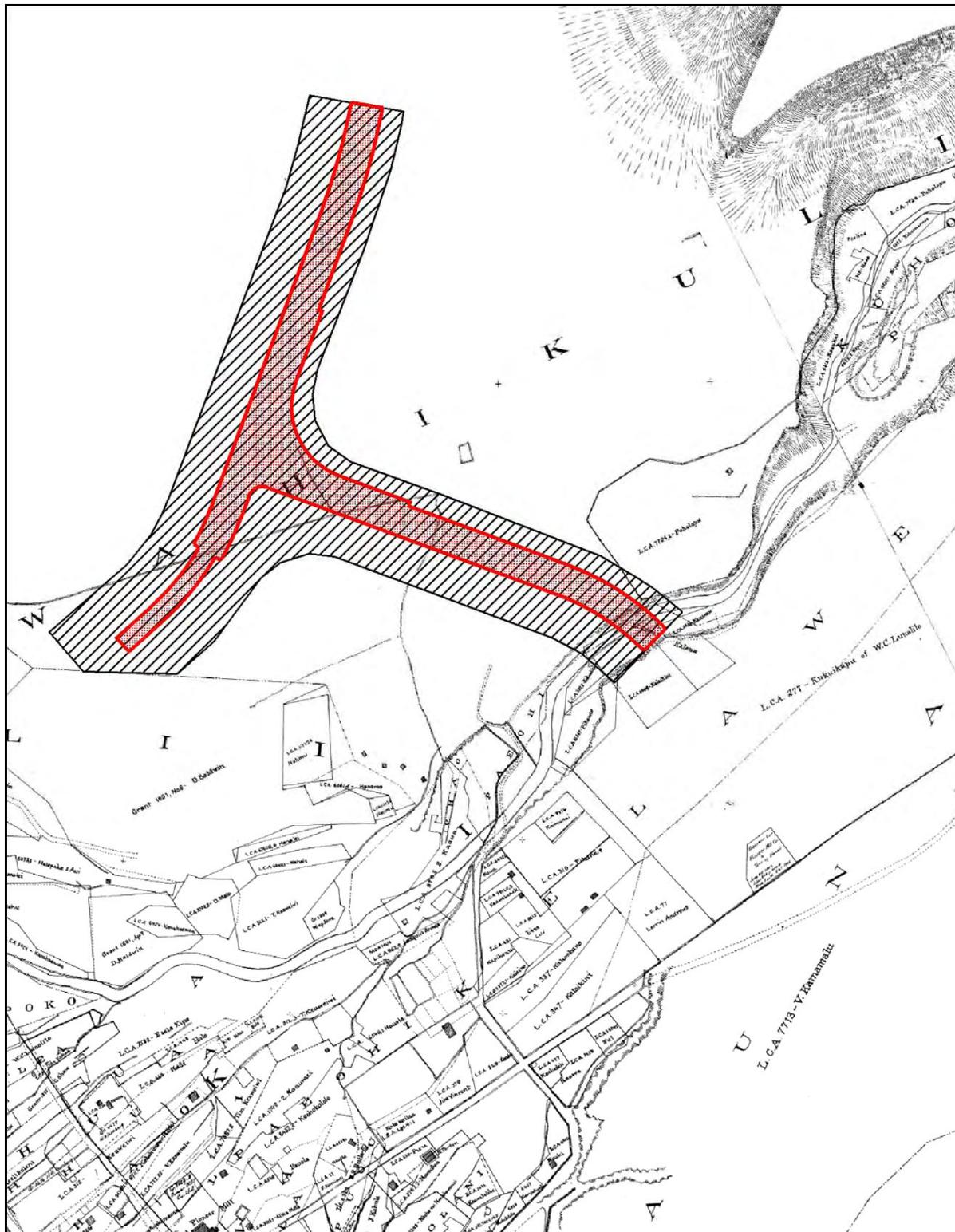


Figure 8. A portion of the 1884 S.E. Bishop map showing the current project area in relation to the *ahupua'a* of Lāhainā.

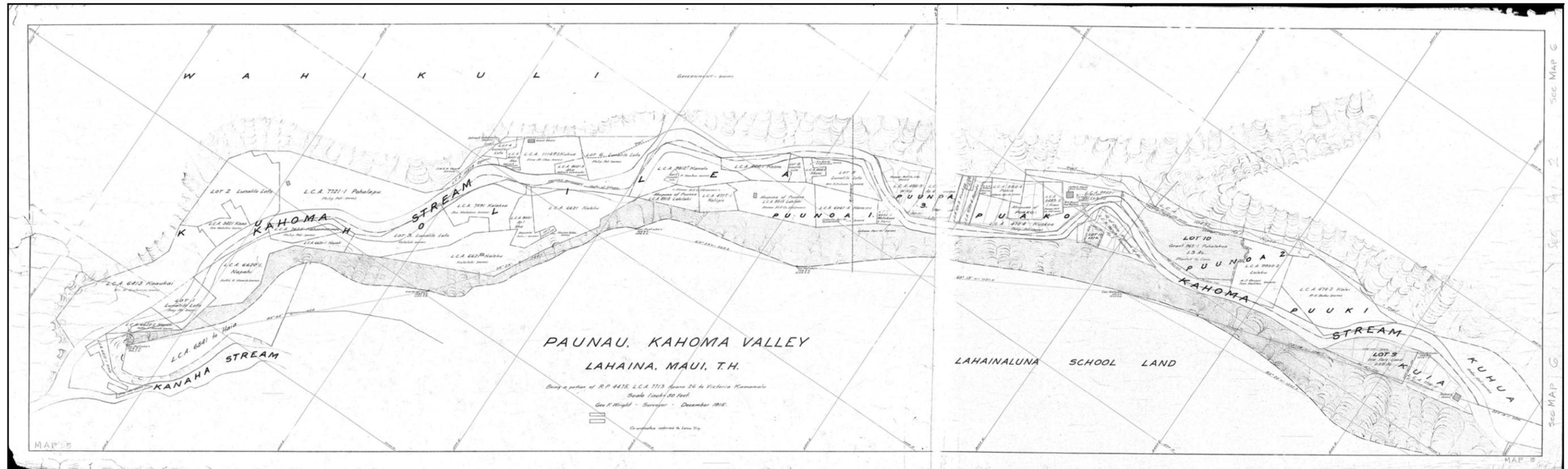


Figure 9. Kahoma Valley above the confluence of Kahoma and Kanahā Streams illustrating the *lele* configuration of *ahupua'a* in the Lāhainā area (Wright, G. 1915, map on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i).

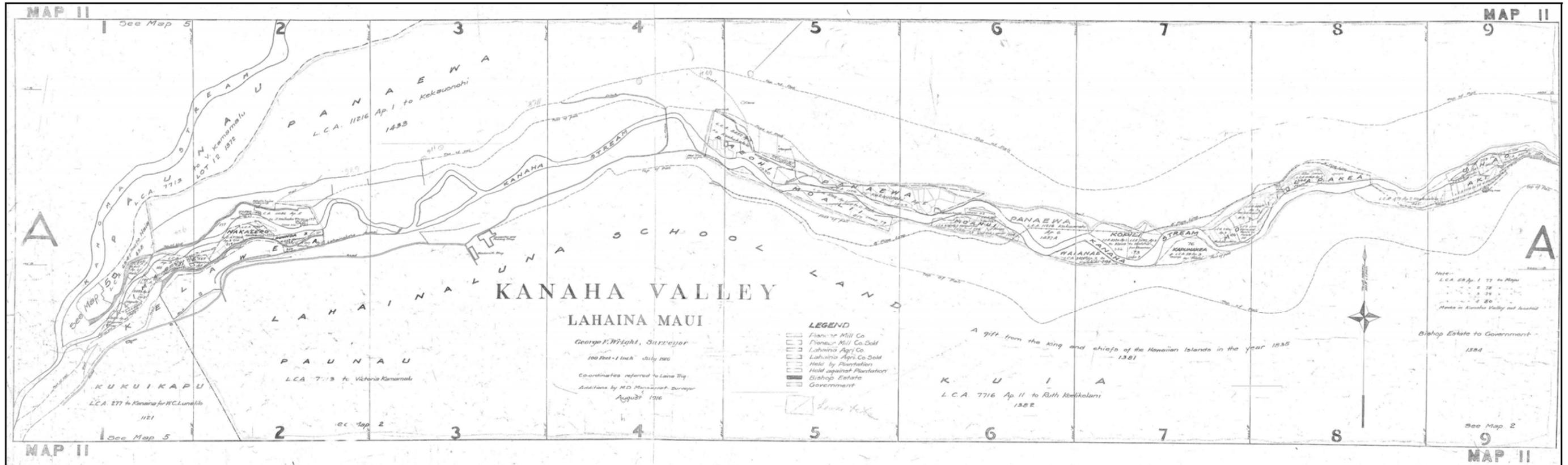


Figure 10. Kanahā Valley above the confluence of Kahoma and Kanahā Streams illustrating the *lele* configuration of *ahupua'a* in the Lāhainā area (Wright, G. 1916, map on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i).



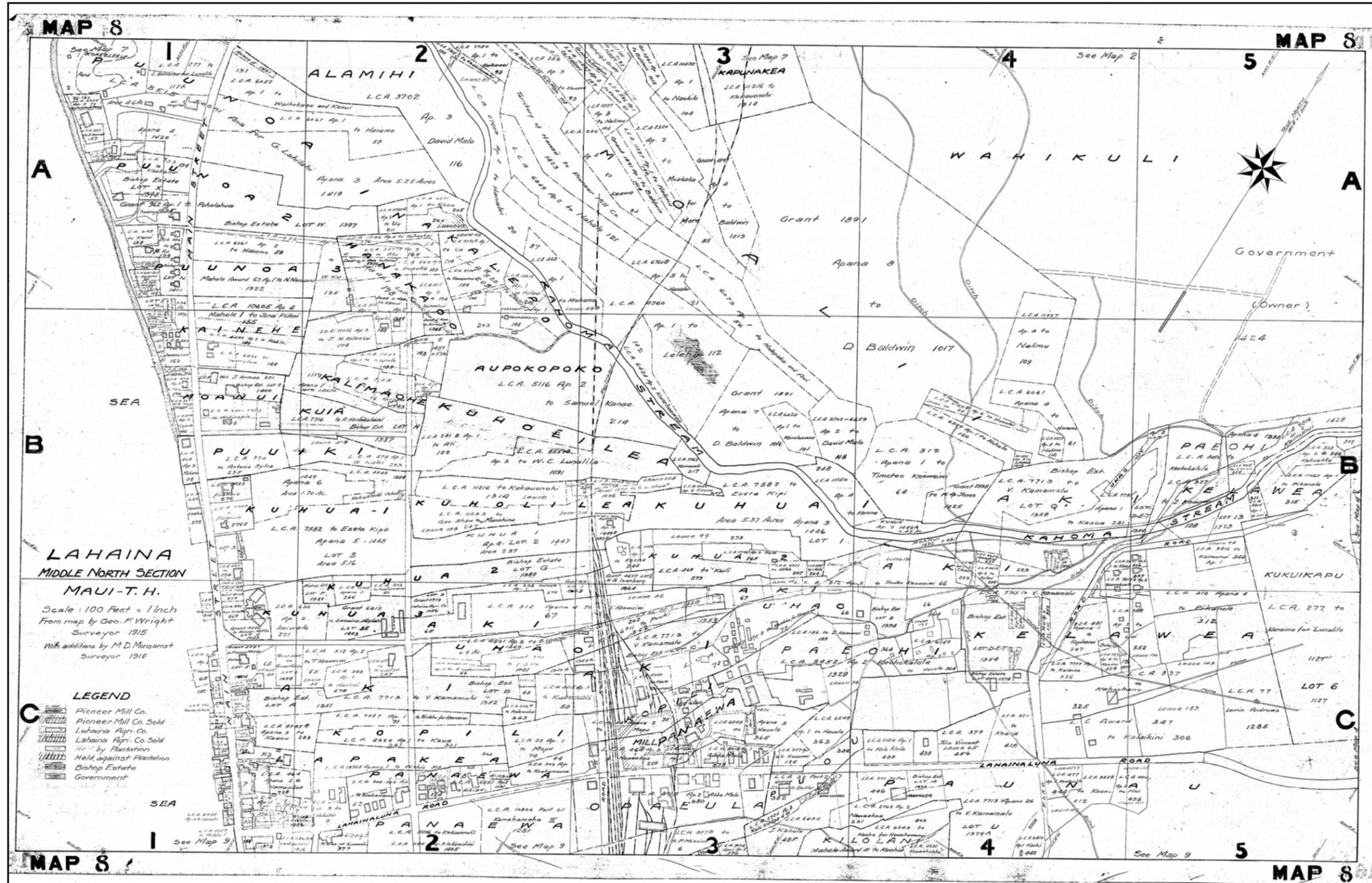


Figure 12. Kahoma Stream approaching the mouth of the stream illustrating the *lele* configuration of *ahupua'a* in the Lāhainā area and complexity of traditional Hawaiian land tenure in the fertile coastal strip and *kalana* of Lāhainā (Wright, G. 1915, map on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i).

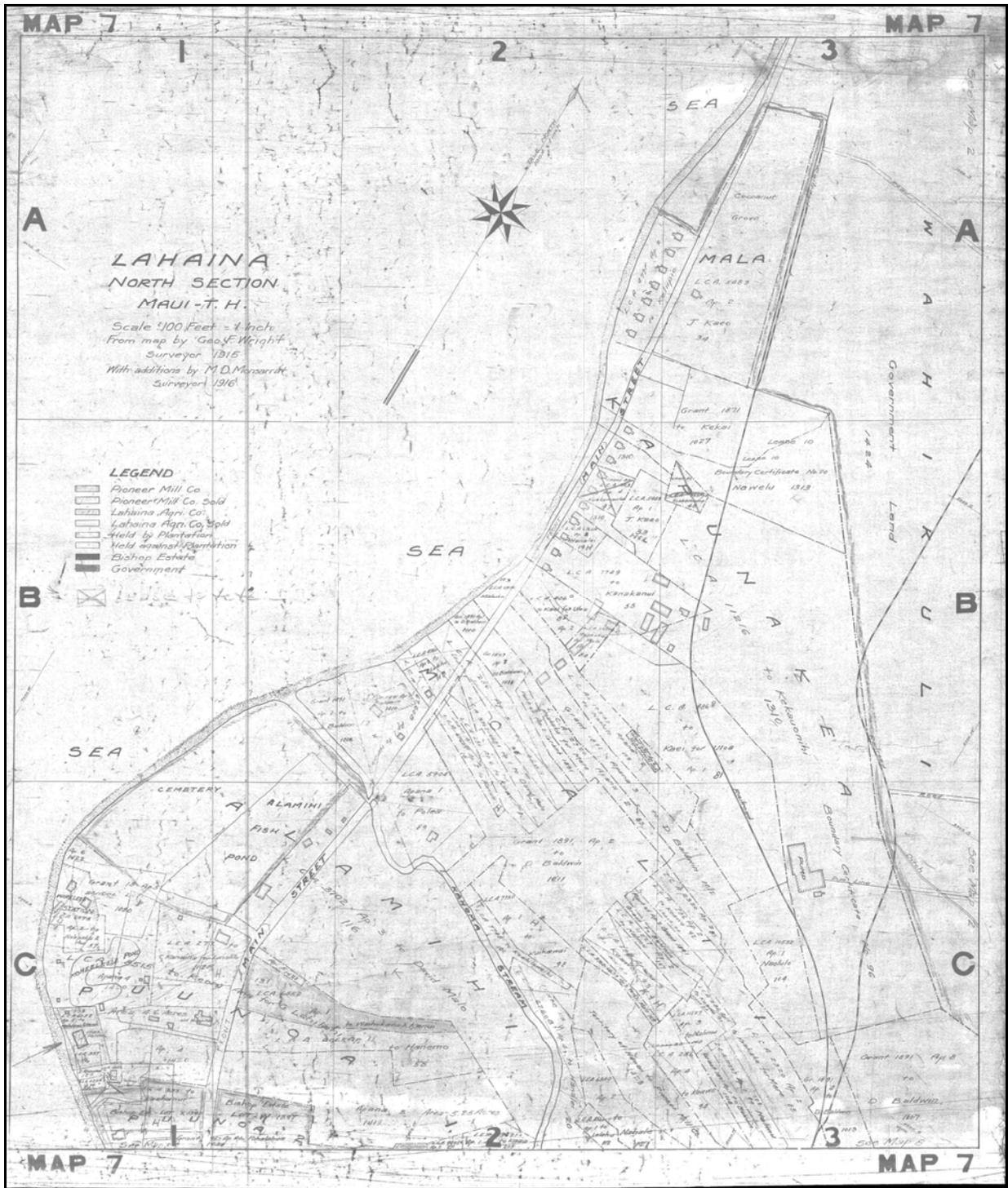


Figure 13. Kahoma Stream as it empties into the ocean, illustrating the *lele* configuration of *ahupua'a* in the Lāhainā area and complexity of traditional Hawaiian land tenure in the fertile coastal strip and *kalana* of Lāhainā (Wright, G. 1915, map on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i).

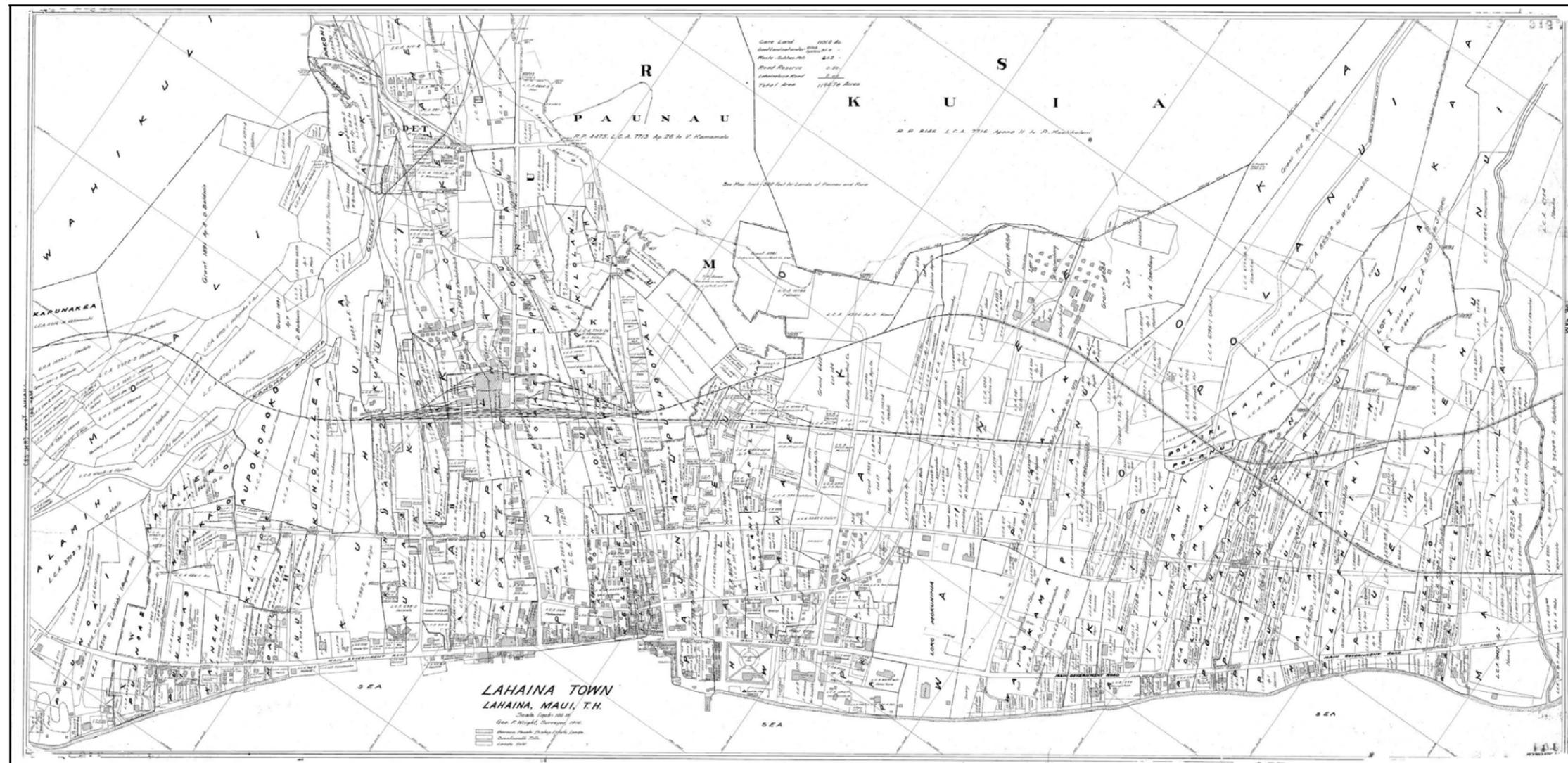


Figure 14. Panoramic Lahaina Town map, including the plains above Lāhainā Town, illustrating the complexity of traditional Hawaiian land tenure in Lāhainā (Wright, G. 1916, map on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i).

### 3.1 Traditional and Historic Background

The *kalana* of Lāhainā has been known by three other names in times past. The oldest name was said to have been Na-hono-a-Pi'ilani, the lands of Pi'ilani as it was surrounded by other islands (G.H. Hanakauluna in Sterling 1998: 37). Lāhainā then becomes known as Lele, a name that has been acknowledged as the ancient name of Lāhainā (Sterling 1998: 34 and 37) in the story of Kamalalawalu and Halemano in their flight from the O'ahu Chief Aikanaka in the legend of Halemano (Fornander 1918-1919, Volume 5 Part II: 238) and in the Legend of Pupukeya as home to Maui Chief Kamalalawalu (referred to frequently as Kama), a contemporary of Kakuhihewa on O'ahu (Fornander 1918-1919, Volume 5 Part II:436). A third name for Lāhainā is mentioned in the story *Relating to Kekaa* (S. Kaha in Fornander 1918-1919, Volume 5 Part II: 540-544) where Kekaa is noted as the capital of Maui when Kaalaneo was reigning over West Maui. Fornander speculates that the name of Kekaa predates that of Lele as the story predates the introduction of breadfruit, the primary food source that is referred to when speaking of the area as Lele (Fornander 1918-1919, Volume 5 Part II: 540, Footnote 2; H.L. Sheldon in Sterling 1998: 35.)

In 1898, D. Kahalelio composed the following verses which provide a vivid description of Lāhainā-lalo (lower Lāhainā). In his lyrical way, D Kahalelio conveys to the reader the majestic view from the *mauka* regions of Lahainaluna upon the village of Lāhainā below and notes the names of prominent Hawaiian scholars who are associated with the building of Lahainaluna School, “The never fading light of Lahaina” and “The starlight of the Pacific ocean”:

There which a platform was constructed the treasured remains of the precious nation that is time past. No buildings at this time, the sea later destroyed and a very small sector close by, never known (seen) by the new students of Lahaina, and the editor of this paper. Of those writers the ones who know in the times of Timotea Keaweiki. At the burial wake of Kalani Nahienaena, the road was covered at the sea, from this meeting house until the Luakini of Wainee, but not a government road, this is a little road upland, Number 2 of the roads, and that is an upland road one can walk up of Lahaina, ascending, you go inland from the road near the shore, and then you come upon the little road, going that way until the Luakini Stone of Wainee. This is the beginning of the burial procession, from sea to the Luakini, there later the multitudes organized, when the majority finished the funeral was ending inside of the Luakini. It was the first and last time to come, the people wept many tears. Reverend W. Richard is the one who is overseeing the religious service appealing to Kalani Nahienaena.

A responsible and righteous father, Akulamoku is his name who told me, “A state of circumstance and regret, a new place for her, great is his love for his foster daughter (Nahienaena) and sorrow.” When the congregation prayer ended her body was re-entered at the site of Moku'ula, the resting home of the district chiefs from the time of Kamehameha to the end of Kamehameha III. The tomb was entrusted for the young chiefs in the year 1885 perhaps, in the time of the appointment of the Editor of the *Lei Rose O Hawaii*, the coming of Princess Pauahi Bishop to Lahaina, it may be possible that all the bones of the royalty ones

will be brought to the cemetery of the Luakini of Wainee to join the bodies of Hoapili the man and Hoapili the woman.

## Section 2

Thus, the Lahainaluna School was built in the year 1831. This is the high school of the Lahainaluna. Thus, something else to glorify the village of Lahaina, and called by him of the high position, he said, “The Endless Flame to the Kauaula Winds.” If one climbs, look toward the town of Lahaina, a broad and real beautiful for one to look at, and his relinquishing of the site to the town of Lahainaluna, at one time called, “The Shining Star of the Pacific Ocean,” and so is called the town of Lahaina, Lahaina-below, this is the two divisions of Lahaina, here finally, the high school was the second school built in the Hawaiian Government, also the school that burned in the year 1860, and the adobe house which slept the students, it was built on the southeast side of the school house, great is the difference if you look out towards the town in the night, at the dazzling lights, and so the living house of the teacher, and the lush kukui groves called, “The kukui grove of Kaneaweli, the never ending flame to the kauaula kamakani (wind).” And inside this school rose the renowned persons of knowledge, a known by the multitudes from Hawaii to Niihau. Of the famed Lahainaluna in this section 2, SP Kalama Waiawaawa, with the land surveyor, the sailor, like this storied place about him and his position.

It is unclear when the current place-name of Lāhainā was given to this area. J.N.K. Keola is quoted by Albert Pierce Taylor (in Sterling 1998:16-17) as attributing the name to a thin-haired chief who lived at Kaua‘ula Valley and felt annoyed at the effects of the scorching rays of the sun. This chief gazed up and cursed at the sun say:

“He ku hoi keia o kala haina!” (What an unmerciful sun!)

The words of this chief resonated with the people on Maui and this area has since taken its name “La-haina” from this chiefly outburst. Pukui and others (1974:127) give the literal meaning of Lāhainā as “cruel sun” and note that the area is said to have been named for droughts. A notation by Sterling (1998:16) following the recollection of the meaning of the name by Mrs. Pia Cockett attributes the literal translation to the time of Chief Hua of Lāhainā whose killing of his priest brought on a terrible drought.

### 3.1.1 Drought and the Lesson of Hua

There is an ancient proverb, or *‘olelo no‘eau*, that warns others to not talk too much of one’s king and is a reminder that trouble will follow those who destroy the innocent (Pukui 1983:194 [1811]):

*Ko‘ele na iwi o Hua i ka lā.*

The bones of Hua rattled in the sun.

According to the story retold by Fornander (1918-1919 Volume V: 514-516), Hua was a chief of Lāhainā who had forsaken his *kahuna*, or priest, Luaho'omoe and caused a drought throughout the Hawaiian Islands:

There lived here in Lāhainā a chief named Hua ... he desired to get some ua'u squabs to eat; then he sent some men up to the mountains above Oloalu [sic] to get some squabs to satisfy his desire. He did not wish for birds from the beach. When the birds were obtained, they were to be taken to the priest for him to ascertain where the birds came from; if he should give out the same information as the men had given to the chief as to the source of the birds, then he would be safe; if he should give a contrary answer, he would be killed. The name of this priest was Luahoomoe and he also had children. When the men went up, they could not find any mountain birds at all, so they decided to get some shore birds. When they caught some, they daubed the feathers red with dirt so that the chief would think the birds came from the mountain. When they returned and handed the birds to the chief, he was exceedingly glad because he thought the birds came from the mountain. The chief told the men to take them to the priest for his inspection. The priest perceived, however, that the birds came from the seashore. Then the chief said to the priest: "You shall not live, for you have guessed wrongly. I can very well see that these are mountain birds." Then and there an imu was prepared in which to bake the priest.

Before he was placed in the imu, however he said to his children: "You two wait until the imu is lighted, and when the smoke ascends, should it break for the Oloalu mountains, that indicates the path; move along; and where the smoke becomes stationary, that indicates where you are to reside ... Then the priest was cast into the oven and the opening closed up tightly. The smoke arose and darkened the sky ... after the priest had been in the imu for two days, he reappeared and sat by the edge of the imu unknown to any one; the chief thinking all the time that he was dead; but it was not so.

When the smoke ascended and leaned towards the Oloalu [sic] mountains, the two sons went off in that direction; the cloud pointed towards Hanaula, and there it stood still, so the two sons ascended to the place and resided there...

Then the whole of Maui became dry; no rain, not even a cloud in the sky, and people died from lack of water. The smoke that hung over Hanaula became a cloud, and rain fell there.

Hua, the chief, lived on, and because of the lack of water and food he sailed for Hawaii, the home of his elder brother; but because Hawaii also suffered from lack of water and food he came back and lived at Wailuku. Wailuku also did not have any water, and that caused the chief to be crazed, so he leaned against the edge of the precipice and died, and that was the origin of the saying "The bones of Hua rattle in the sun."

Fornander further notes that the saying, “The bones of Hua rattle in the sun,” refers to the chief whose wickedness won him the ire of his people. In an ultimate show of disregard, they let his body lie where he fell so that his bones bleached in the sun and rattled in the wind. Hence the above proverb warning others to not destroy the innocent as Hua had destroyed Luaho‘omoe and in that caused great suffering to people of Hawai‘i and ultimate desecration of his bones by his own people.

Hua, the island chief who reigned over Maui prior to the 10<sup>th</sup> century, is credited with constructing the first *heiau* on the island beginning in Lāhainā. Of the six *heiau* that are documented in Lāhainā, Hua was responsible for the construction of at least two, while his descendent namesake, Hua-nui-kalalailai, built the third *heiau* only two generations later.

### 3.1.2 Legendary Accounts Associated with Wahikuli

#### 3.1.2.1 *The Origins of Pu‘ulaina, Eeke, and Lihau*

Pu‘ulaina, a hill or crater located within Wahikuli Ahupua‘a, is situated approximately 614 meters or a little over 1/3 of a mile *mauka* of the northern terminus of the current project area. There are two accounts regarding the origins and significance of this *pu‘u* (hill). Fornander (1918-1919 Volume V: 532-534) recounts the following regarding the birth of Pu‘ulaina:

...some say it was begotten by two mountains, Eeke (the summit crater of the West Maui Mountains) and Lihau (the mountain top back of Olowalu). Eeke was the husband and Lihau was the wife. They were real persons, but it will be shown later the reason for their being changed to mountains. After they had lived as man and wife, a child was born to them, a son, the subject of this story which we are considering. But after some time Eeke became entangled, for he saw a beautiful woman, Puuwaiohina from Kauaula, and they committed adultery. Because of this, Lihau thought to choke the child to death, so that the two of them could go and do mischief; this caused them to quarrel. Eeke took the child to his mother, Maunahoomaha, and left him with her. After that their god, Hinaikaulau, placed a restriction over them; they were not to live together, nor were they to have any intercourse with others; but ten days after this order, Eeke again committed adultery with Puuwaiohina above referred to, who was a younger sister to Lihau. Because of this their god punished them by making Eeke a mountain and Puuwaiohina a mountain ridge; that is the ridge prominent at Kauaula.

After that, Lihau was possessed with love for their child, so she asked Maunahoomaha for permission to meet her son, that was agreeable to her mother-in-law, and when she met her child she was glad. When she realized what a handsome man her favorite son had grown to be, she gave him for husband to Molokini, one of the noted beauties of that time, because she was the wife intended for him ...

However, arriving on Maui, this was one of Pele’s (the fire goddess) cruel deed; one of her younger sisters saw how handsome Puulaina was, so she asked Molokini to let her have him for husband. The other refused, for she was greatly

in love with her own husband; so she (Molokini) was changed into a little island, and she has remained so to this day.

When Lihau heard of this, she grieved for her daughter-in-law, so she went to consult Pele on the matter. But Pele replied gruffly: "If that is the case, then I say to you that you will die; also your son." Lihau was there and then changed into a hill where Pele resided for some time; the son also died. But the one whose was the desire, earnestly entreated and begged that her husband be spared. But the red-bleary-eyed (Makole-ulaula, an epithet applied to Pele) did not wish it that way. That was how the son became a hill and has remained such until this day.

Captain Henry Whalley Nicholson (1881:40) relates the following Pele story regarding Pu'ulaina as she made her way through the Hawaiian Archipelago:

On Pele's first arrival at Hawaii Nei, she dwelt on the island of Kauai. Thence she went to Kalaupapa (Molokai), and lived in the crater of Kahua-Ko at that place. Subsequently she departed for Puulaina, near Lahainaluna (on the Island of Maui), and excavated that crater.

Fornander goes on to recount an alternative story regarding the naming of Pu'ulaina following the creation of that hill by Pele:

This was the reason for so naming it (Pu'ulaina): At that time a chief was living on the other side of the hill, and because he was tired of seeing it standing there obstructing his view, and preventing him from seeing the breadfruit grove of Lahaina, he ordered his men to go and construct a ti-leaf house on its top; and the hill was called Puulai. And because it was slightly to those viewing it from Lahaina it was called Puulaina [Fornander 1918-1919 Volume V: 536.]

Fornander (1918-1919 Volume V: 536) further notes that the chief who had constructed the *ti* leaf house atop Pu'ulaina also constructed a larger *heiau* on the far, *makai*, side of the hill – a place where people frequently died and were buried on the side of the hill. It is said that because there was such a great number of dead buried there and because the dirt slid down when the graves were being dug, this side of the hill was named Puuheehee (sliding hill). Jeanne Booth Johnson in Elspeth Sterling's *Sites of Maui* (1998: 43) recalls the presence of remnants (three rock mounds) of an old *heiau* atop Pu'ulaina that was reportedly dedicated to Pele; this *heiau* is possibly the same as that mentioned in the story related by Fornander.

Pu'ulaina was also a central feature in a conversation recorded in *Ka Nupepa Kuokoa, Honolulu, April 19, 1862* where the deceptive words of the *Kahuna* encouraged people to go and gather at this place called Pu'ulaina, with the thought of finding gold and money.

### 3.1.2.2 The Stories of Halulukoakoa Heiau

Thomas Maunapau wrote a series of newspaper articles about his visit to Lāhainā (Maunupau 1921-24 in Walker 1931), and wrote about a legend associated with a *heiau* at Wahikuli at the southeast corner of the coconut grove at Māla (Walker Site 11, see Previous Archaeological

Research Section 3.2). Winslow Walker collected this article for his research, and included it in his notes:

At one time a temple was located there known as Halulukoakoa. The story goes that a Hawaiian youth Kaili was seized by warriors of a West Maui chieftain at Kahakuloa. Kaili was taken in a canoe around the western end of the island for the sacrifice at the temple. His sister, Nailima saw the capture and skirted the cliffs of the island, keeping her eyes on the canoes which were in the open sea. She arrived at Lahaina and learned that her brother had been taken to the temple. She withdrew to the outskirts of the settlement, sat down upon a stone and commenced to cry.

Pueo the owl god appeared suddenly and learned the cause of her grief. He told her to pray to all the gods for her brother's deliverance while he went to the sacrifice. Here the owl-god unbound the victim from the sacrificial stone and bade him walk backwards from the temple. At first the youth did not understand, but the owl-god circled and beat his wings. Finally conveying his meaning to the youth. After walking backwards for several miles under the owl-god's guidance, he found the sister.

He immediately heard warriors approaching and hid under the stone upon which Nailima was sitting. When the warriors arrived they asked if a man had been seen passing that way, saying they were searching for Kaili. The sister said she had seen no one. The warriors then fell upon the footprints of Kaili and followed them, little knowing they would lead them back to the temple (Walker 1931: 68).

Thomas Thrum (in Sterling 1998:43) gives an account of another story related to Halulukoakoa Heiau as a shelter, or place of refuge:

Halulukoakoa, a coral structure, is famed traditionally as having given shelter to Wahine-o-Manua, a very beautiful young woman who fled from her husband in consequence of constant ill treatment. Regardless of the rigid kapu of the heiaus against women being allowed within its sacred walls, she hid herself therein and watched those searching for her. On their departure she ventured forth and on reaching the road an owl god appeared to her as guarding and guide, and by the clapping of its wings led to the pursued girl through the brush till she reached the large stone mauka of Kekaa, Kaanapali, where it left her and she lay down and slept till morn, when she arose and departed. The stone is known as Pohaku o Wahine o Manua.

### 3.1.3 Traditional Accounts

As emphasized by E.S. Craighill and Elizabeth Handy in the following summary, the *ali'i* and *maka'āinana* were attracted to Lāhainā Moku by its natural resources and geographic position:

Lāhainā District was a favorable place for the high chiefs of Maui and their entourage for a number of reasons: the abundance of food from both land and sea;

its equable climate and its attractiveness as a place of residence; it had probably the largest concentration of population, with its adjoining areas of habitation; easy communication with the other heavily populated areas of eastern and northeastern West Maui, 'The Four Streams' (Na Wai Eha), and with the people living on the western, southwestern and southern slopes of Haleakala; and its propinquity to Lanai and Molokai. (Handy and Handy 1972:492)

### 3.1.3.1 Agricultural Endeavors

With regard to the wealth of resources at Lāhainā, Handy and others note that the main taro lands of Lāhainā were watered by two large streams, the Kahoma Stream (which the current project area crosses) and Kanahā Stream (a tributary to the Kahoma Stream) which run far back into the valleys (Handy et al. 1991: 492). Early descriptions indicate that both dry-land (*kula*) and pond-field (*lo'i*) methods of cultivation, were equally employed in the Lāhainā area (Menziess 1793 in Handy et al. 1991:492-493). The English missionary William Ellis (1826:46) offers the following description upon seeing Lāhainā for the first time:

The appearance of Lahaina from the anchorage is singularly romantic and beautiful ... (t)he level land of the whole district, for about three miles, is one continued garden, laid out in beds of taro, potatoes, yams, sugar cane, or cloth plants. The lowly cottage of the farmer is seen peeping through the leaves of the luxuriant plantain and banana tree, and in every direction, white columns of smoke ascend, curling up among the wide-spreading branches of the bread-fruit tree.

While discussing the fishing traditions of Hawai'i, Daniel Kahā'ulelio (2006:91) describes the environment of Lāhainā in the following manner:

Lahaina was like the Garden of Eden in productiveness from one end to the other. There was none to compare with it before the days of the sugar plantation; this was sure.

In an unpublished manuscript about life in Lāhainā in 1897, Arthur Waal former *luna* for Pioneer Mill Sugar Company and postmaster for the Lāhainā post office makes the following observation about the population and subsistence practices of native Hawaiians in Lāhainā:

Lahaina has a mixed population. Many natives had their own kuleanas, up in the valleys where they grew taro, sweet potatoes, vegetables and bananas. Most all of them had chickens and pigs (Waal 1898:5).

I saw the last remaining grass huts in Lahaina, one was near the Kilipaki Village camp on the beach out Kaanapali way, and the other one in Kahumana (Kahoma?) gulch occupied by a very old Hawaiian with a thick, heavy white beard and hair. This Hawaiian, George Kukaia, was a wonderfully health specimen of the old type Hawaiian. Nearby was his taro patch and fruit bearing trees (Waal 1898:6 and 6A [Figure 15])

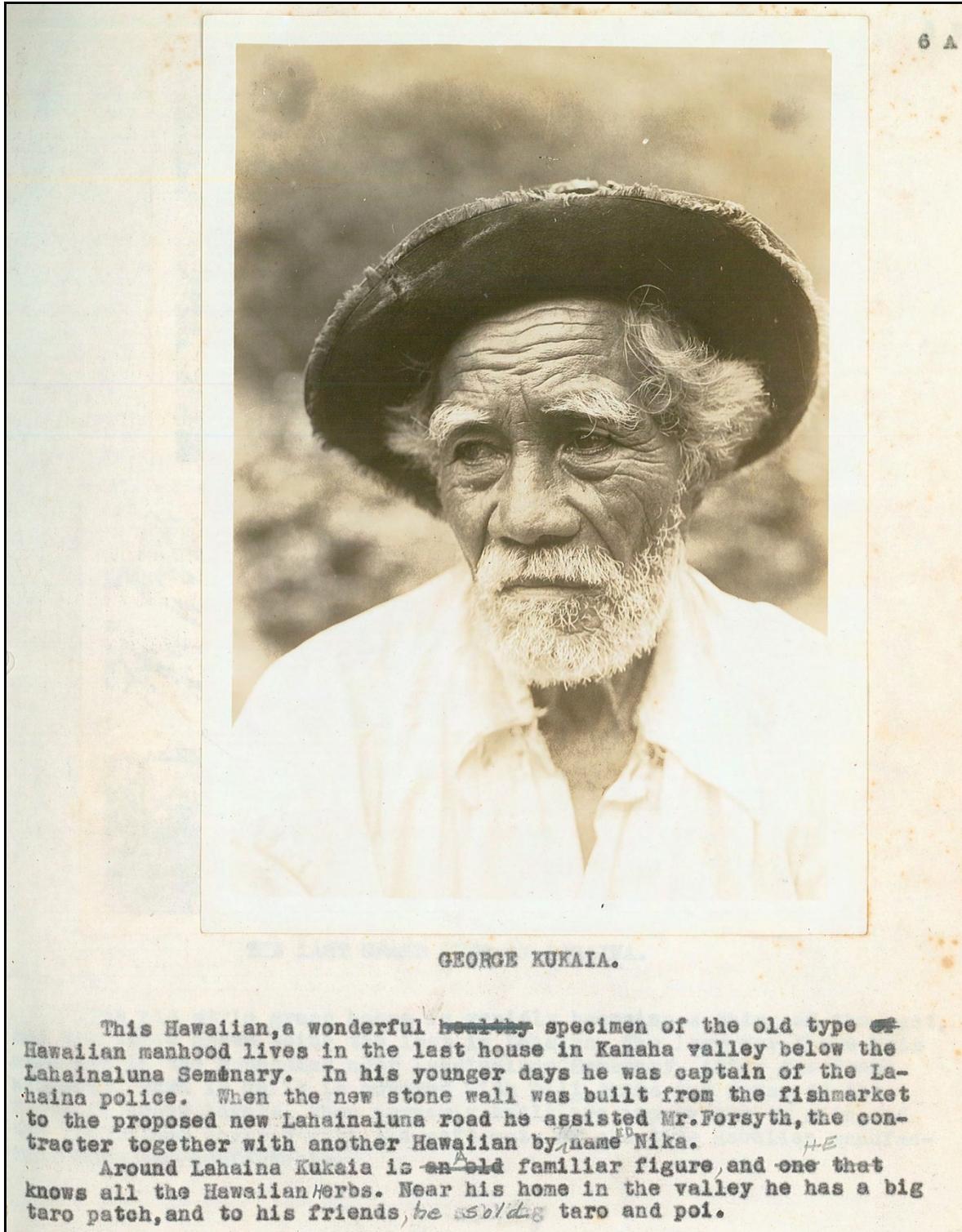


Figure 15. Photograph of George Kukaia and excerpt from Waal (1898:6)

Other observations note the rather abrupt shift in vegetation and cultivation, as well as the apparent severity of the landscape along the alluvial plains with a rise in elevation. Jacques

Arago, a draftsman aboard the *Uranie* and *Physicienne* under the command of Captain Freycinet during a French scientific expedition of the Pacific during the years 1817-1820 notes the following about the Lāhainā area:

The space cultivated by the natives of Lahaina is about three leagues in length, and one in its greatest breadth. Beyond this, all is dry and barren; everything recalls the image of desolation. Nevertheless, the soil and its resources are the same; whence therefore this apparently culpable neglect? It is a natural consequence of the mode of reasoning adopted by these people; they have all that is necessary at hand, what advantage would there be in seeking superfluities from afar? .... Superfluities are thrown away on these people. Twenty acres of land will not produce them a better dinner than their square of taro. (Arago 1823: 120)

The missionary Charles Stewart elaborates on the above description by noting that

... (t)he land is watered entirely by conducting the streams, which rush from the mountains, by artificial courses, on every plantation. Each farmer has a right, established by custom, to the water every fifth day. The pathways, which are very narrow, are usually along the sides of these water trenches. The number of inhabitants is about two thousand five hundred.

The land begins to rise rather abruptly about three fourths of a mile from the sea, and towers into lofty mountains, three rude elevations of which, immediately east of Lahaina, are judged to be four thousand five hundred, or five thousand feet, above the level of the ocean. From the first swell of the rising ground, almost to the summits of these mountains, there is nothing to be seen but the most dreary sterility and sunburnt vegetation, intersected by gloomy ravines and frightful precipices. [Stewart 1839:140]

Pukui (1983:172, proverb 1594) offers the following '*olelo no 'eau* about the plains, "sunburnt vegetation" above Lāhainā town:

Ka-ua Pa'ūpili o Lele

The Pili-soaking rain of Lele

In this saying, Pukui mentions that the plains of Lāhainā were once covered with *pili* grass in the ancient days and that when the Pa'ūpili rains came, the grass was well soaked. She makes an additional mention of the magnificence of Lāhainā in association with the Pa'ūpili rain (Pukui 1983, proverb 1703):

Keikei Lahaina i ka ua Pa'ūpili.

Majestic Lahaina in the Pa'ūpili rain.

### 3.1.3.2 Fishing and Other Aquatic Resources

While the valley floors and low-lying coastal plain provided a good environment and ample water for agricultural crops, the coastal reefs, offshore waters, and inland ponds were rich in aquatic resources (E.S.C Handy in Sterling 1998:17.) The inland ponds or *loko* of Aimakalepo, Unahiole, and 'Alamihi near the mouth of Kahoma (Figure 16), and the famed royal fishpond of Mokuhinia at Waine'e likely provided a reliable fish resource that was likely supplemented by offshore communal or family fishing. As a part of Winslow Walker's 1930 island-wide survey of Maui Island, a *kama'āina* of Lāhainā, J.K. Napaepae noted that the pond at Māla, Alanuhi (Alamihi?) was primarily for mullet (Walker 1931:299.)

Daniel Kahā'ulelio (2006:9) notes a particular fishing ground, Kapuali'ili'i, for *lau* fishing that extended from Keawaiki (present day Lāhainā Harbor) to 'Uha'ilio Pt., about ¾ of a mile along the Lāhainā shore. In this manner of communal fishing smaller fish and *kakakī* (a type of *kala* or unicorn fish) were the primary catches. The shoreline of Lāhainā is again singled out for *kala kū* fishing where Kahā'ulelio (2006:217) notes that this type of fish would feed on the *limu kala* found in the shallow waters and, when seen by fishermen, were quickly surrounded with two or three finger mesh nets. Other types of fish and marine resources often sought in the waters off of Lāhainā include *mahimahi*, *aku*, *iheihei*, *puhiki'i*, *he'e*, *weke*, *akule*, and many others (Kahā'ulelio 2006; Tommy Kekona, *kama'āina* to Lāhainā personal communication 2008).

### 3.1.3.3 Politics and Warfare

Flanked by excellent fishing grounds and surrounded by fertile lands, Lāhainā was the primary seat of the *ali'i* of West Maui (Handy et al. 1991) and later was the center of government for the Kingdom of Hawai'i. The desirability of Lāhainā lands and resources is also reflected in the political and warfare history of the area. While Hāna, on the extreme eastern end of Maui Island, was a center of traditional Hawaiian political strife during the expansion period and into the early historic period, Lāhainā was no stranger to warfare.

During battles fought between Ka'uhi of Maui and Alapa'i of Hawai'i, the Hawai'i Island warriors attacked the food resources of Lāhainā by drying up the streams of Kaua'ula, Kanahā, and Kahoma and laying waste to the *lo'i* fields and brooks:

Ka-uhi with his war leader Ku-ka-e'a and other warriors opened the attack against Kamehameha-nui. It was a great battle from which the forces of Kamehameha-nui fled before those of Ka-uhi...There the fighting men of Kamehameha-nui were slaughtered. Kamehameha-nui fled to Alapa'i's canoe ... Alapa'i returned to Hawaii, taking Kamehameha-nui with him, and made ready to come back and overrun the place and take Ka-uhi prisoner.

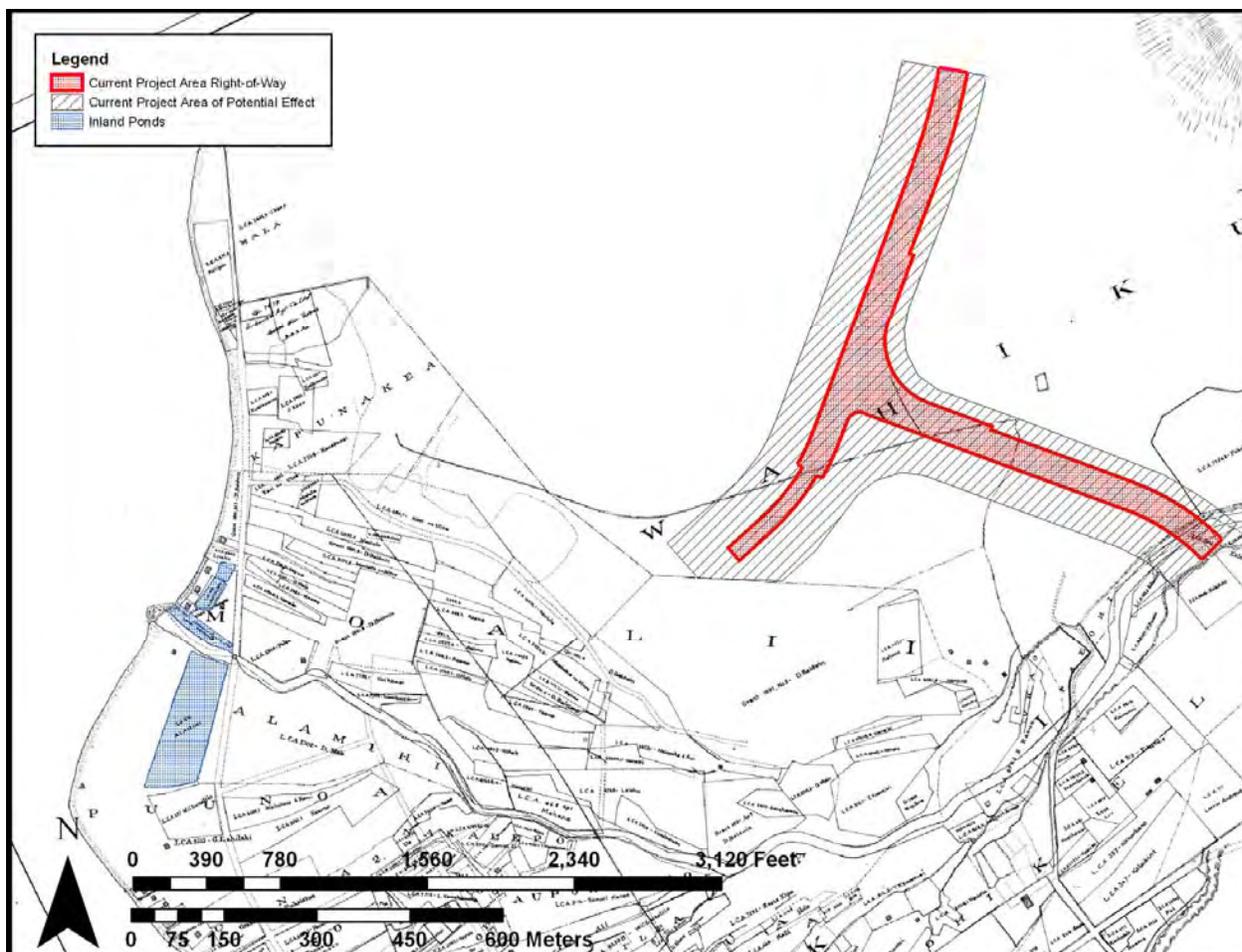


Figure 16. A portion of the 1884 S.E. Bishop map showing the current project area in relation to the *ahupua'a* of Lāhainā showing the inland ponds at the mouth of Kahoma Stream.

A whole year Alapa'i spent in preparation for the war with Maui. It was in 1738 that he set out for the war in which he swept the country. What was this war like? It employed the unusual method in warfare of drying up the streams of Kaua'ula, Kanaha, and Mahoma [sic] (possible reference to Kahoma?) (which is the stream near Lahainaluna). The wet taro patches and the brooks were dried up so that there was no food for the forces of Ka-uhi or for the country people. Alapa'i's men kept close watch over the brooks of Lolowalu, Ukumehame, Wailuku, and Honokawai. When Pele-io-holani [an O'ahu Island chief fighting on behalf of Maui and Ka-uhi] heard that Alapa'i was at Lahaina he gathered all his forces at Honokahua and Honolulu. At Honokawai an engagement took place between the two armies, and the forces of Alapa'i were slaughtered and fled to Keawawa. There Alapa'i heard that Pele-io-holani had but 640 men against Alapa'i's 8,440 from the six districts of Hawaii ... Pele-io-holani intended to unite his forces with those of Ka-uhi, but Alapa'i's men held Lahaina from Ukumehame to Mala on the north, and in attempting to aid Ka-uhi, Pele-io-holani became involved in difficulty. The hardest fighting, even compared with that at Napili and at

Honokahua in Ka'anapali, took place on the day of the attack at Pu'unene ... The two ruling chiefs met there again, face to face, to end the war and became friends again, so great had been the slaughter on both sides ... At the end of the war Kamehameha-nui became ruling chief of Maui. Pele-io-holani retired to Ko'olau on Molokai ... Kamehameha-nui ruled Maui in peace and Alapa'i held the rule over Hawaii, to which he returned after affairs had quieted down on Maui. (Kamakau 1961:74-75)

During the wars of unification, Kamehameha landed and occupied the Lāhainā District from Launiupoko to Māla and all the parts of the lands that had been given over to food patches and cane fields were overrun by men from Hawai'i Island (Kamakau 1961:171). Kamehameha resided at Lāhainā for one year to equip his fleet with food and other provisions supplied by the lands of Maui, Moloka'i, Lāna'i, and Kaho'olawe (Kamakau 1961:188).

Kahoma and Kanahā would again figure into the warfare history of Hawai'i once more, after the unification of the Hawaiian Islands by Kamehameha I and during the reign of King Kamehameha III. This time, the stream valleys above Lāhainā would serve as a refuge rather than strategic military tactic. S.M. Kamakau recalls the following attack on Lāhainā by a British warship:

The following lines take place after Boki returns from Waialua, the King Kamehameha III is inside his newly built chiefly residence, called Kahaleluhe, a Russian war ship anchors in line with the famous ship, Kamehameha. The warship bears a letter from Alexander of Russia, the kind of Russia to Kamehameha III. In the same year.....

In this year Lāhaina was fired upon by a British warship commanded by Captain Clark, and the breadfruit trees were withered by the shots. The people retreated into the valleys of Kau'ula, Kanaha, and Kahoma. [Ka Nupepa Kuokoa. KA MOOLELO O NA KAMEHAMEHA. NA S.M. KAMAKAU. HELU 73.-NO KA NOHO ALII ANA O KAUIKEAOULI MALUNA O KE AUPUNI, A UA KAPAIA O KAMEHAMEHA III: translation by Auli'i Mitchell, B.A.]

### 3.1.4 Mid to late 1800s

With the unification of the Hawaiian Islands in 1791 (Andrews 1865:556) and the arrival of the first Missionaries in 1820 (Andrews 1865:556), western commerce and the Christianization of the Native Hawaiian people swept across Lāhainā. The lands surrounding Lāhainā town were cultivated in commercial sugar (Gilmore 1936:198-203), while the whale trade (Graves et al. 1998), the Irish potato trade (Gilman 1906:177), and the establishment of the Lahaina Mission Station and Lahainaluna High School, drew people to the waterfront areas as well as the town itself. The increase in trade and commerce within Lāhainā town and educational opportunities of Lahainaluna ultimately resulted in a population rise (Haun and Henry 2001). This trend made Lāhainā one of the main religious and educational centers for the entire island chain (Kamakau 1961:304).

### 3.1.4.1 The Great Māhele

The Organic Acts of 1845 and 1846 initiated the process of the Great Māhele - the division of Hawaiian lands - which introduced concept of fee simple ownership and private property into Hawaiian society. In 1848 the crown, government, and the *ali'i* and/or *konohiki* (chiefs) received their land titles. The *ahupua'a* of Kelaweā and Paunau were awarded to Victoria Kamāmalu by the King (Figure 18) and recorded in Land Commission Award 7713 and Royal Patent 4475, while the lands of Paeohi were given over to the Government of the Hawaiian Kingdom (Figure 17) as “government lands” and a large percentage of lands comprising Wahikuli Ahupua'a were retained for the personal holdings of King Kamehameha III as “crown lands” (see Figure 7 above).

*Kuleana* awards for individual parcels within the *ahupua'a* were subsequently granted in 1850. These awards were presented to tenants - native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners - who could prove occupancy on the parcels before 1845. Claims for *kuleana* lands were heard by the Board of Commissioners to quiet Land Titles (Alexander 1890) and granted in the form of a Land Commission Award (LCA). Testimony to establish title to real property was recorded by Native Register - wherein claimants would provide traditional proof of ownership - and by Foreign Register - wherein boundary survey evidence would support traditional claims. A total of thirty-nine Land Commission Awards for *kuleana* lands within study area have been researched (Table 2). Because the study area contained a high density of LCA, research for this report focused on LCA claimed by ancestors of certain individuals interviewed during the community consultation process (see Section 5). In addition, random LCA were included in the research in an effort to attain an understanding of overall agricultural practices of the area. LCA research included areas located within Kahoma and Kanahā Valleys, and along the Kahoma Stream from the confluence of the two streams *makai* to the coastal portions of Lahaina, surrounding, but not limited to, the mouth of the Kahoma Stream. Figure 19 represents LCA that were located along Kahoma Stream near the proposed bridge abutment and in the area of potential direct effect.

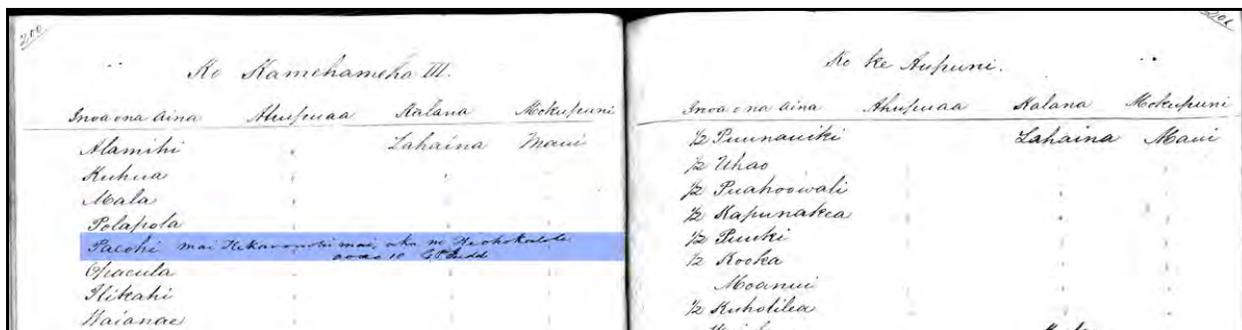


Figure 17. Excerpt from the Buke Mahele (1848:200-201) showing transfer of Paeohi Ahupua'a, located within the area potential of direct effect, to the Government.



Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
1961	00470	Kuokoa, <i>wahine</i> (Philip Pali Owner)	<p>One <i>'āpana</i>, [section] at Puako, bounded: <i>mauka</i> [mountainward] by Pahia's land; Olowalu [east] by A.W Person's land; <i>makai</i> [seaward] by foot path; and Kā'anapali [west] by ascending and descending steps (F.T.166v7).</p> <p>In addition, four other <i>'āpana</i>, [sections]. The first bounded: <i>mauka</i> [mountainward] by Kalua's land; Olowalu [east] by Pahia's land; <i>makai</i> [seaward] by Kalua's land; and Kā'anapali [west] by Kalua and paki's land (F.T.166v7).</p> <p>The second bounded: <i>mauka</i> [mountainward] by Kaua's land; Olowalu [east] by Kamaiewa's land; <i>makai</i> [seaward] by A.W. Person's land; and Kā'anapali [west] by Pelupelu, Ku (F.T.166v7).</p> <p>The third bounded: <i>mauka</i> [mountainward] by Mumuku; Olowalu [east] by Pu'unoa land; <i>makai</i> [seaward] by Pu'unoa land; and Kā'anapali [west] by Pali (F.T.166v7).</p> <p>The fourth bounded: <i>mauka</i> [mountainward] by Pahia's land; Olowalu [east] by Kahoma Stream; <i>makai</i> [seaward] by Mumuku land; and Kā'anapali [west] by Kalua and Kaeo's land (F.T.166v7).</p>	<p>Award for 5 <i>'āpana</i> at Puako: together totaling 4 acres, 3 rods and 2 rods.</p> <p>Award includes 1 house lot, 1 patch and pasture lot, 1 <i>mo'o</i> [narrow strip of land], 1 <i>'āpana</i> containing 3 patches, and 1 <i>'āpana</i> of taro land.</p>
1205	00477F	Keli'ipio, P.	<p>Claim for one <i>'āpana</i>, [section] of <i>kula</i> land [a house lot] at Wahikuli, Lāhainā, bounded: <i>mauka</i> [mountainward] by the government road;</p>	<p>The award of 1.80 acres of taro land consisted of two <i>'āpana</i>: both in Pu'unoa. The award of one house lot in Wahikuli measured 1 acre, 2 rods and 3 rods.</p>

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
			Olowalu [east] by Luaikai; <i>makai</i> [seaward] by the sea shore; and Kā'anapali [west] by Mr. Chandler's house lot (F.T. 197-198v7). In addition, two <i>āpana</i> , [sections] of taro land at Pu'ūnoa, consisting of seven <i>lo'i</i> worked as pō'alima since 1842. (N.T. 77-78v5). A lot in Lipuu, Honokohau, Kā'anapali District was also claimed.	One lot in Honokohau was also awarded (R.P. 6471).
3535	00502	Pupuka	Claim is for one house lot <i>āpana</i> , [section] of land in the <i>ahupua'a</i> [land division] of Pu'ūnoa. This land was given by Mahune. The land is bounded: <i>mauka</i> [mountainward] by Kaluae's lot; Olowalu [east] by the same; <i>makai</i> [seaward] by Mahua's land; and Kā'anapali [west] by "Kuholilea," seven <i>lo'i</i> are connected with this (F.T. 158-159v7). Additional claims were made for six <i>āpana</i> , [sections] in Hanaka'ō'ō Ahupua'a: including <i>kalo</i> lands, a house lot and two parcels of <i>kula</i> land.	Award of one <i>āpana</i> at Pu'ūnoa and two <i>āpana</i> at Hanaka'ō'ō together measuring 1 acre, 2 roods and 23 rods.
5632	00520	Daniel Ii	Claim is for one house lot <i>āpana</i> , [section] of land in the <i>ahupua'a</i> [land division] of Nakalepo, and cultivated land in Wai'anae. This land was given by Hoapilikane in 1835. (F.T. 74v15).	Award of two <i>āpana</i> at Nakalepo, and Wai'anae, Lāhainā, measuring 6 acres, 12 rods.
	02037	Wahie	Claim made for one <i>āpana</i> that included a ditch in Lāhainā. Claim established ownership in the time of "Ali'i Keeaumoku," and included the testimony of two witnesses (N.R. 333v3).	Claim for the house lot was not awarded.
	02777	Mabele and Kaimo, deceased. Claimants are Malule, for Kalola, and Paahao, son of	Claim is for one house lot <i>āpana</i> , [section] of land in the <i>ahupua'a</i> [land division] of 'Ilikahi. This land was given by Kanaina. The land is bounded: <i>mauka</i> [mountainward] by the pō'alima lots of Kanaina; Olowalu [east] by the Kahula's yard; <i>makai</i> [seaward] by the yard of Paoao or Kanaina;	Award of one <i>āpana</i> at Pūnāwai, Moali'i, Lāhainā, measuring 1 rood, 20 rods, [to] Malule for Kalola.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
5604	03421B	Kaino.	<p>and Kā'anapali [west] by yard and Kalena (F.T.155v6).            An additional claim is for two 'āpana, [section] in Moali'i Ahupua'a, the first of <i>kalo</i> land bounded:  <i>mauka</i> [mountainward] by Kekualolo's land;            Olowalu [east] by the same;  <i>makai</i> [seaward] by Kiakaka's land;            and Kā'anapali [west] by Kauoi's land.</p> <p>The second additional claim is for one 'āpana, [section] of <i>kula</i> land [a house lot] at Pūnāwai, Moali'i, bounded:  <i>mauka</i> [mountainward] by Keawe's land;            Olowalu [east] by Naakaka's;  <i>makai</i> [seaward] by the government road;            and Kā'anapali [west] by Niuhili's land (F.T.155v6).</p>	
		Kaaa	<p>One 'āpana, [section] of <i>kula</i> land at Nakalepo, bounded:  <i>mauka</i> [mountainward] by a stream;            Olowalu [east] by the konohiki;  <i>makai</i> [seaward] by the government road;            and Kā'anapali [west] by Unale's land (F.T. 32v15).</p> <p>In addition, an 'āpana, of <i>kula</i> land in Kuholilea, bounded:  <i>mauka</i> [mountainward] by the konohiki's land;            Olowalu [east] by the watercourse;  <i>makai</i> [seaward] by Kaaikai's land;            and Kā'anapali [west] by the konohiki (F.T.106-107v15).            And, an 'āpana, of <i>kula</i> land in Kelaweā, bounded:  <i>mauka</i> [mountainward] by Pikanele's land;            Olowalu [east] by Kaanaana's land;  <i>makai</i> [seaward] by the main road;            and Kā'anapali [west] by the same (F.T.106-107v15).</p>	Award of one 'āpana in Nakalepo, measuring 0.56 acres, one 'āpana in Kuholilea, measuring 0.30 acres, and one 'āpana in Kelaweā, measuring 26 rods.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
1678	03422B	Kekahuna	One house lot <i>'āpana</i> , [section] of land in the <i>ahupua'a</i> [land division] of Uhao. This land was given during the time of Kinau to Kekahuna, according to Timoteo Keaweiwi. The land, containing two houses, is bounded: <i>mauka</i> [mountainward] by "Aki;" Olowalu [east] by the same; <i>makai</i> [seaward] by the <i>konohiki</i> ; and Kā'anapali [west] by a stream (F.T.376v3). In addition, one <i>'āpana</i> , [section] of taro land in Uhao Ahupua'a, bounded: <i>mauka</i> [mountainward] by Namauu's land; Olowalu [east] by the same; <i>makai</i> [seaward] by Puuki's land, government land; and Kā'anapali [west] by Kaleipaihala's land (N.T. 112v10)	Award of 1.25 acres consisting of 2 <i>'āpana</i> : one house lot and one <i>'āpana</i> with 17 taro patches (Waihona 2002).
5615 and 1960	04320	Kaua for Keaweiwi	One <i>'āpana</i> , [section] of kula land [a house lot] at Puako, bounded: <i>mauka</i> [mountainward] by the <i>kula</i> of Maulukoi; Olowalu [east] by Pahala; <i>makai</i> [seaward] by <i>kalo</i> land called Alapai; and Kā'anapali [west] by Paunau and small portion of Wai'anae (F.T.14-15v7).  In addition, lands in Kopili given to Kaua by Hoapiii and Nahienaena (N.R.163-164v6).	Award of one <i>'āpana</i> measuring 1 rood, 20 rods; two <i>'āpana</i> of 2 acres, 4 rods, and one <i>'āpana</i> measuring 9 acres, 1 rood, 24 rods: all in Puako (Waihona 2002).
	5006	Kalena	<i>Kula</i> (dryland area) and <i>kalo</i> (taro) at Kelaweā, one house lot at Iiikahi.	Claim was awarded.
1842	05017	Kauhi	One <i>'āpana</i> , [section] at Lāhainā, bounded: <i>mauka</i> [mountainward] by yard of Kalena; Olowalu [east] by Keawelaole's land; <i>makai</i> [seaward] by large <i>kalo</i> patch [wetland taro] once owned by Hoapiii "in old times;" and Kā'anapali [west] by Ukehiki's yard, fenced with "adobies,"	0.52 acres (Monsarrat 1916). Award consisted of two <i>'āpana</i> : one house lot in Lāhainā and one <i>kalo</i> patch in Kelaweā (Waihona 2002).

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
1833 Panaewa and 1871 Aupoko- poko	05116M	Kanae, Samuela	where the fence is the true boundary (F.T.3-4v7).  In addition, one <i>'āpana</i> , [section] at Kelaweā, bounded: <i>mauka</i> [mountainward] by Lahainaluna School lands; Olowalu [east] by Lahainaluna School lands; <i>makai</i> [seaward] by land of Kahookane  One <i>'āpana</i> , [section] of farming land in the <i>'ili</i> [land division] of Aupokopoko. This land was given by Hoapili Kane to Kanae in 1835.  One <i>'āpana</i> , [section] of <i>kula</i> land [a house lot] at Lāhainā, at Panaewa, bounded: <i>mauka</i> [mountainward] by Kapaakea's lot; Olowalu [east] by the same; <i>makai</i> [seaward] by the government road; and Kā'anapali [west] by Kuakamauna's lot (F.T.152v7).  Seven patches ( <i>lo'i</i> ?), one pasture section and one house lot at Kelaweā.	Awards include the <i>'āpana</i> at Aupokopoko of 6.58 acres and the <i>'āpana</i> at Lāhainā, in Panaewa, of 0.07 acres.
	06408	Kalaikini, Ioba		Claim was awarded.
	06432	Kaninau	20 <i>lo'i</i> at Kelaweā.	Claim was awarded.
1212	06437	Kaiwipalupalu	One <i>'āpana</i> , [section] of <i>kula</i> land [a house lot] and a <i>kalo</i> patch at Paunau, bounded: <i>mauka</i> [mountainward] by Kaiki's lot; Olowalu [east] by Lāhaināluna road; <i>makai</i> [seaward] by yard of Kahalelola; and Kā'anapali [west] by Kanaina's yard (F.T.11v7).	One <i>'āpana</i> of 0.25 acres.
	06498	Kakio	Kakio's claim for five <i>mo'o</i> [one <i>mo'o 'āina</i> is a smaller land division than an <i>'ili</i> , normally planted in wetland taro], one <i>paukū</i> [land division smaller than a <i>mo'o</i> ] of taro, four bread fruit trees and one <i>'āpana</i> [section] of land including a house lot is located in Kainehe Ahupua'a.  One <i>'āpana</i> , [section] of <i>kula</i> land [a house lot] bounded: <i>mauka</i> [mountainward] by "Hanaka 'ō 'ō;"	Award for land at Kainehe: two <i>'āpana</i> measuring 3 rods and 2 rods.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
1674	06541	Haia	<p>Olowalu [east] by my land and a path; <i>makai</i> [seaward] by the government road; and Kā'anapali [west] by Pu'unoa.</p> <p>The second <i>'āpana</i>, [section] of <i>kalo</i> land bounded: <i>mauka</i> [mountainward] by Kalimaoha; Olowalu [east] by the high <i>pali</i>; <i>makai</i> [seaward] by the creek of Kahoma; and Kā'anapali [west] by the same (F.T.108-109v7).</p> <p>One <i>'āpana</i>, [section] of <i>kula</i> land [a house lot] at Paunau, bounded:</p> <p><i>mauka</i> [mountainward] by the cattle yard at Lahainaluna; Olowalu [east] by the <i>pali</i> and the creek; <i>makai</i> [seaward] by the high <i>pali</i>; and Kā'anapali [west] by the high <i>pali</i> (F.T.46v7).</p> <p>In addition, one <i>'āpana</i>, [section] of <i>kalo</i> land at Paunau, bounded: <i>mauka</i> [mountainward] by the land of Napahu; Olowalu [east] by the <i>lo'i</i> of Kauaa; <i>makai</i> [seaward] by the <i>lo'i</i> of Puipui and Kahina; and Kā'anapali [west] by Kuholelea (F.T.46v7).</p>	<p>One <i>'āpana</i> (Wright 1915). 1.45 acres (Waihona 2002).</p> <p>The <i>'āpana</i>, [section] of <i>kula</i> land [house lot] with three <i>lo'i</i> was awarded.</p> <p>The second <i>'āpana</i> of seven <i>lo'i</i> was not awarded.</p>
1722	06621	Nalehu (Kalaluhi Owner)	<p>Nalehu's claim is for three <i>'āpana</i>; <i>'āpana</i> 1 contains of 32 <i>lo'i</i>; <i>'āpana</i> 2 contains one <i>lo'i</i>; <i>'āpana</i> 3 is <i>kula</i> land. In addition to <i>taro lo'i</i>, there are three sweet potato <i>kula</i>, eight <i>lau hala</i> trees, and a house lot.</p> <p><i>'Āpana</i> 1 is bounded <i>mauka</i> [mountainward] by my land, Olowalu [east] by "Puunoa", <i>makai</i> [seaward] by Aha's land, Kā'anapali [west] by the creek of Kahoma.</p> <p><i>'Āpana</i> 2 is bounded <i>mauka</i> [mountainward] by my land, Olowalu [east] by "Puunoa", <i>makai</i> [seaward] by Kanaina's <i>poalima</i></p>	<p>Award for one <i>'āpana</i> at Kuholilea.</p>

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
			Kā'anapali [west] by my land.	
			'Āpana 3 is bounded, <i>mauka</i> [mountainward] by Aha's land, Olowalu [east] by the <i>pali</i> of "Paunau", <i>makai</i> [seaward] and Kā'anapali [west] sides by Kanaina's <i>poalima</i> .	
	06783	Kauhi	<p>One 'āpana, [section] of <i>kula</i> land [a house lot] at Haleu, Polanui, bounded:</p> <p><i>mauka</i> [mountainward] by the road leading to Olowalu;</p> <p>Olowalu [east] by the land of John White;</p> <p><i>makai</i> [seaward] by the land of Makuahine;</p> <p>and Kā'anapali [west] by my <i>kula</i> (F.T.55v7).</p> <p>In addition, two 'āpana, [sections] of taro land at Polanui, the first section bounded:</p> <p><i>mauka</i> [mountainward] by the stream of Alio;</p> <p>Olowalu [east] by the <i>pali</i> [cliff];</p> <p><i>makai</i> [seaward] by the creek of Alio;</p> <p>and Kā'anapali [west] by the same (F.T.55v7).</p> <p>the second section bounded:</p> <p><i>mauka</i> [mountainward] by Ilikalu;</p> <p>Olowalu [east] by the high <i>pali</i> [cliff];</p> <p><i>makai</i> [seaward] by the stream of Polanui;</p> <p>and Kā'anapali [west] by the high <i>pali</i> and stream (F.T.55v7).</p>	Claim for the house lot and taro patches was not awarded.
	07587	Kealoha, Luisa for Keawe'iwi	One 'āpana, [section] of land in Kopili, Lāhainā.	Claim was not awarded.
1887	07591	Kalakoa (Ane Makekau Owner)	<p>Claim for one parcel that includes 18 taro <i>lo'i</i> with some <i>kula</i> on its left bank located in the valley of Kahoma.</p> <p>It is bounded <i>mauka</i> [mountainward] by my land, Olowalu [east] by the <i>kula</i> of Paunau, <i>makai</i> [seaward] by the road leading to Kā'anapali, Kā'anapali [west] by the Creek of Kahoma.</p>	One 'āpana awarded in Kuhoileia <i>ahupua'a</i> of .73 acres.
1747	07625	Kahoo-maemae	One 'āpana, [section] of land cultivated with 9 taro <i>lo'i</i> at	The award was for 1 'āpana consisting of

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
		(Philip Pali Owner)	Kuholilea, bounded: <i>mauka</i> [mountainward] by the pō 'ālima <i>lo'i</i> of Kanaina; Olowalu [east] by his land, son of Kapaki; <i>makai</i> [seaward] by the same; and Kā'anapali [west] by creek of Kahema (F.T.118v7).	1 rood and 17 rods.
	07713	Kamamalu, Victoria	Ownership of some 26 'āpana: mostly large portions of Alamihī, Paunau, Aki Moali'i, and Kelaweā Ahupua'a of Lāhainā.	
	07721	Pohalapu	No record in Waihona Aina (Ms. Vikki Creed explained that she believes this LCA number to be incorrectly written on map).	
	07724	Poholopu	One house lot, one <i>kula</i> and one 'āpana at Wāhikuli; 33 <i>lo'i</i> ; 3 <i>lauhala</i> patches, 4 'ulu patches and 'uala patches at Kuholilea.	Claims were awarded.
8279	07762	Kaninaualii Kaleoku	One 'āpana, [section] of land cultivated with taro <i>lo'i</i> at Kuhuai Ahupua'a [listed as Aupokopoko in the Native Testimony], during the time of Hoapilikane (N.T.45v15).	One 'āpana measuring 1 rood, 17 rods.
	07777	Kaiaino	One house lot, and 3 <i>lo'i</i> at Kelaweā Nui.	Claim was awarded.
1732	08021	Kekai, Manuia	One 'āpana, [section] of <i>kalo</i> land [for wetland taro] at Kuholilea, bounded: <i>mauka</i> [mountainward] by Nalehu's land; Olowalu [east] by Paunau; <i>makai</i> [seaward] by my [Aha's] land; and Kā'anapali [west] by creek at Kahoma (F.T.161v7).  One 'āpana, [section] of land at Kuholilea, bounded: <i>mauka</i> [mountainward] by Nalehu's land; Olowalu [east] by Paunau land; <i>makai</i> [seaward] by Kalekoa; and Kā'anapali [west] by Kahoma Stream (N.T.45v5).  And, one 'āpana, [section] of taro land at Kuholilea, taken by Opunui without cause, planted in taro, and returned to Aha (owned by Manuia Kekai) (N.T.117v10).	Three 'āpana, 0.54 acres, with 34 taro <i>lo'i</i> .

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
4388	08452M	Keohokalole, Analea, <i>wahine</i>	Multiple claims for land parcels located in Kula, Hāna and Lāhainā, as well as the island of Hawai'i. Only the Lāhainā claims will be listed. Claim of ownership of Paeohi Ahupua'a. Claim for a <i>mālā</i> (garden) of <i>hala</i> in Kuhua Ahupua'a.	Award by Royal Patent (R.P. 4388) of Paeohi Ahupua'a.
1864	09780B	Kuumiūmi	One <i>āpana</i> , [section] of taro land consisting of 27 <i>lo'i</i> at Aki Nui, bounded: <i>mauka</i> [mountainward] by the creek of Kahoma; Olowalu [east] by the <i>pali</i> ; <i>makai</i> [seaward] by Palula and Kauhi's land; and Kā'anapali [west] by the creek of Kahoma (F.T.157v7).  In addition, one <i>āpana</i> , [section] of <i>kula</i> land at Paunau, with one <i>lo'i</i> , bounded: <i>mauka</i> [mountainward] by Kekahuna; Olowalu [east] by Kahoma Stream; <i>makai</i> [seaward] by Kekahuna; and Kā'anapali [west] by Kekahuna (N.T.40-41v5).	Award for land at Aki Nui: 1 <i>āpana</i> of 2 roods and 32 rods. Award for land at Paunau: 1 <i>āpana</i> of 6 rods. Total: 0.74 acres.
3455	09795B	Kaaua	One <i>āpana</i> , [section] of <i>kula</i> land [a house lot] at Waiieiki, Aki Nui, bounded: <i>mauka</i> [mountainward] by Kaua; Olowalu [east] by Wahie's land, foreigners' land; <i>makai</i> [seaward] by Ilae's land; and Kā'anapali [west] by Namau's land (N.T.71v5).  In addition, one <i>āpana</i> , [section] of <i>kalo</i> land at Aki Nui, bounded: <i>mauka</i> [mountainward] by Z. Kaauwai's land; Olowalu [east] by Kapoulu Stream; <i>makai</i> [seaward] by Uhao Ahupua'a; and Kā'anapali [west] by Moali'i Ahupua'a (N.T.71v5).	Award of three <i>āpana</i> measuring 3.75 acres, 20 rods.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
			And, one <i>'āpana</i> , [section] of taro land at Aki Nui, bounded: <i>mauka</i> [mountainward] by Napohaku's land ; Olowalu [east] by a stream; <i>makai</i> [seaward] by a stream; and Kā'anapali [west] by a cliff (N.T.258v13).	
	09816	Kaumunui	One <i>kula</i> with house lot and 10 <i>lo'i</i> at Kelaweā.	Claim was awarded.
1861	09950	Leleku (M.J. Recard and Sam Kailihou Owners)	One <i>'āpana</i> , [section] of taro land consisting of 21 <i>lo'i</i> at Pu'unoo, bounded: <i>mauka</i> [mountainward] by Palula; Olowalu [east] by the creek of Kahoma; <i>makai</i> [seaward] by the pō'alima of the konohiki; and Kā'anapali [west] by Kuholike (F.T.130v7).  In addition, one <i>'āpana</i> , [section] of <i>kula</i> land at Puako, with one <i>lo'i</i> , bounded: <i>mauka</i> [mountainward] by Paunau 2; Olowalu [east] by the creek of Kahoma; <i>makai</i> [seaward] by the <i>lo'i</i> of Kaeko; and Kā'anapali [west] by Kuholike (F.T.130v7).	Award for land at Pu'unoo: one <i>'āpana</i> of 2 roods and 30 rods. Award for land at Puako: one <i>'āpana</i> of 1 rood, 10 rods.
1676	10465	Nalehu	Nika Kailihou's House located in <i>'āpana</i> one, <i>mauka</i> parcel of Pu'unoo Ahupua'a.  One <i>'āpana</i> , [section] containing a house lot, five ponds, eight breadfruit trees, 15 cultivated <i>mo'os</i> , 14 coconut trees and a clump of <i>lau hala</i> .  Located in Waiokama, bounded <i>mauka</i> [mountainward] by the Alanui Aupuni, Olowalu [east] by the lot of Kukokelele, <i>makai</i> [seaward] by the sea shore, and Kaanapali [north] by the foreigner who tried to shoot Kekaulueki; his Hawaiian name is Kokana.	Award for land at Pahoa Lahaina; 3 <i>'āpana</i> of 2 Acres 3 roods and 10 rods
1882	10579	Opunui (J.W. and M. Recard)	Claim for one parcel of <i>kalo</i> land containing 18 <i>lo'i</i> including one <i>poalima lo'i</i> .	Awards for land in Kuholilea <i>ahupua'a</i> called Pu'ulaina.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
1729	10667	Pikanele, K.	<p>It is bounded <i>mauka</i> [mountainward] by Elemakule's <i>lo'i</i> Olowalu [east] by the creek of Kakoma <i>makai</i> [seaward] by Poholopu's land Kā'anapali [west] by the high pali.</p> <p>Claim is for two '<i>āpana</i>, [sections] of <i>kalo</i> land in the <i>ahupua'a</i> of Kelaweā. Claims for land in Wai'anae Nui, Lua 'ehu, Wai'anae, Polapola and Wanaloa, Lāhainā, and Waie'e, Wailuku were also registered.</p> <p>The first Kelaweā '<i>āpana</i> containing kīhāpai [land division smaller than a paukū: see LCA 6498] <i>lo'i</i> is bounded: <i>mauka</i> [mountainward] by the <i>pali</i>; Olowalu [east] by the same and the <i>kula</i> of Kanaina; <i>makai</i> [seaward] by Keawehuali's land; and Kā'anapali [west] by creek of Kelaweā. This '<i>āpana</i> has 6 taro <i>lo'i</i>.</p> <p>The second Kelaweā claim is for one '<i>āpana</i> with 8 <i>lo'i</i> is bounded:</p> <p><i>mauka</i> [mountainward] by Kalaikini's land; Olowalu [east] by the land occupied by Keaweluoli; <i>makai</i> [seaward] by the lot of Kualike; and Kā'anapali [west] by the creek of Kelaweā. (F.T.132-134v7).</p>	<p>Awards for lands in Wai'anae Nui, Lua 'ehu, Wai'anae, Polapola and Wanaloa, Lāhainā. Awards include the two '<i>āpana</i> described at left: the first measuring 2 roods, 25 rods and the second measuring 1 acre.</p>
1752	10968	Wahie	<p>One '<i>āpana</i>, [section] of kula land [a house lot] at Lapakea, bounded:</p> <p><i>mauka</i> [mountainward] by old government road; Olowalu [east] by Hikiau's land, foreigners' land; <i>makai</i> [seaward] by makai government road; and Kā'anapali [west] by Ilae's house lot, Kana's house lot (N.T.119v10).</p> <p>In addition, one '<i>āpana</i>, [section] of <i>kula</i> land at Lapakea,</p>	<p>Two '<i>āpana</i> totaling 3.1 acres, being the second and third '<i>āpana</i> described at left (Waihona 2002). The house lot '<i>āpana</i> is located in Lapakea Ahupua'a, near the intersection of Lāhaināluna Road and Main [Front] Street (Monsarrat 1916 Lāhainā Middle North Section). The second '<i>āpana</i> is located in Lapakea Ahupua'a, along the north bank of Kanahā Stream, high in the mountains behind</p>

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
3581	11086	Kaiheekai, J.H.	<p>bounded:  <i>mauka</i> [mountainward] by Mapu's land;  Olowalu [east] by Hikiau's land;  <i>makai</i> [seaward] by old road;  and Kā'anapali [west] by "Kopili" Kaana's land (N.T.119v10).</p> <p>In addition, one <i>'āpana</i>, [section] of taro land at Lapakea, bounded:  <i>mauka</i> [mountainward] by "Lapakea," Hikiau's land ;  Olowalu [east] by "Aki," a stream;  <i>makai</i> [seaward] by "Kaula," Keanu's stream;  and Kā'anapali [west] by Hikiau's land (N.T.119v10).</p>	Lāhainā (Monsarrat Kanahā Valley 1916).
			<p>Claim is for three <i>'āpana</i>, [sections] of <i>kalo</i> land in the <i>ahupua'a</i> of Hanaka'ō'ō. A claim for <i>kalo</i> land in Pu'ūho'owali was also registered.</p> <p>The first Hanaka'ō'ō <i>'āpana</i> containing nine <i>lo'i</i> is bounded:  <i>mauka</i> [mountainward] by the Paahao <i>lo'i</i> ;  Olowalu [east] by the creek;  <i>makai</i> [seaward] by Uilama's <i>lo'i</i> ;  and Kā'anapali [west] by the <i>pali</i> of Paunau.</p> <p>The second Hanaka'ō'ō claim is for one <i>'āpana</i> of <i>kalo</i> land bounded:  <i>mauka</i> [mountainward] by Kahele's land;  Olowalu [east] by pō'alima land;  <i>makai</i> [seaward] by Uilama's <i>lo'i</i> ;  and Kā'anapali [west] by Pupuka's land.</p> <p>The third Hanaka'ō'ō claim is for one <i>'āpana</i> of <i>kalo</i> land bounded:  <i>mauka</i> by Pitman's land;  Olowalu by Kalimaohē's land;</p>	Award for land both at Hanaka'ō'ō and Pu'ūho'owali: four <i>'āpana</i> of 3 acres, 1 rood and 3 rods.

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
2651	11150	Keone, <i>wahine</i>	<p><i>makai</i> [seaward] by "Paunau;" and <i>Kā'anapali</i> [west] by Pu'unui (F.T.135-136v7).</p> <p>One <i>'āpana</i>, [section] of kula land [a house lot] at Moali'i, bounded:</p> <p><i>mauka</i> [mountainward] by Imiewale's land; Olowalu [east] by Alaala's land, foreigners' land; <i>makai</i> [seaward] by Hale's lot; and <i>Kā'anapali</i> [west] by "Kahuanui"</p> <p>In addition, one <i>'āpana</i>, [section] of <i>kalo</i> [taro] land at Kuhua, bounded:</p> <p><i>mauka</i> [mountainward] by a watercourse; Olowalu [east] by a watercourse; <i>makai</i> [seaward] by Wahine's land; and <i>Kā'anapali</i> [west] by same (F.T.68v15).</p>	Four <i>'āpana</i> at Moali'i and Kuhua, Lāhainā totaling 1 acre, 3 rods and 21 rods.

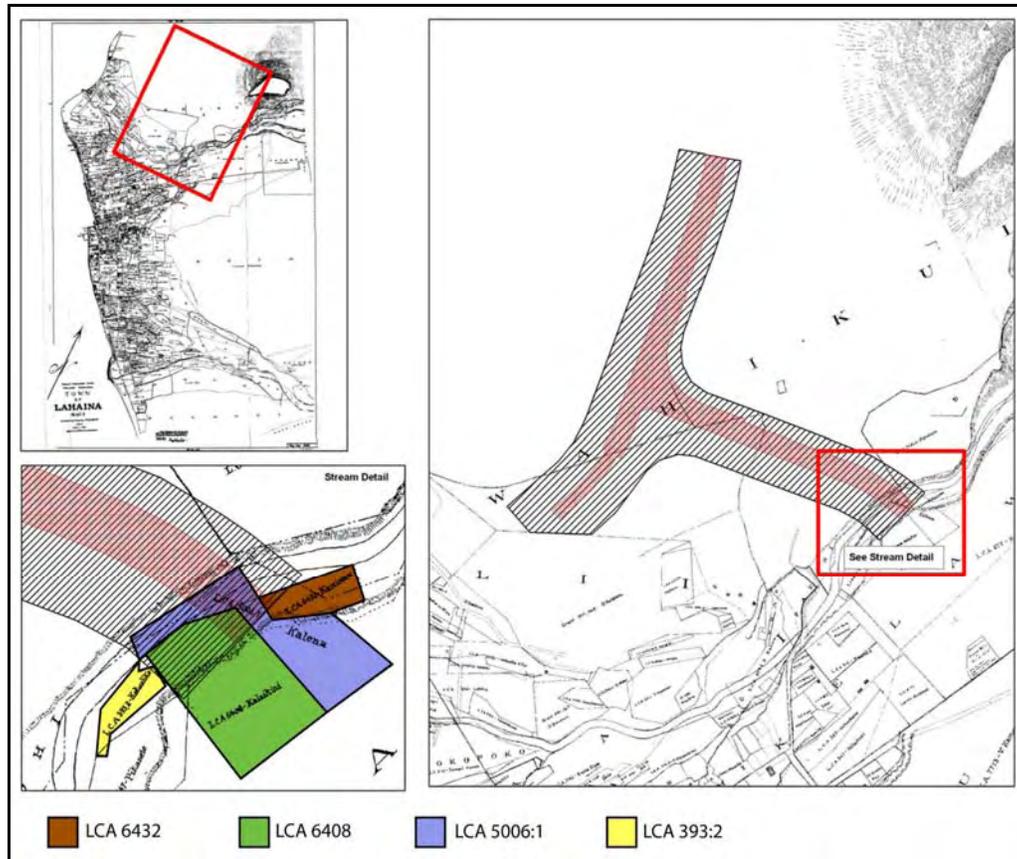


Figure 19. A portion of the 1884 S.E. Bishop map showing the location of Land Commission Awards (LCAs) in relation to the current project area, Alternative F4 ROW (in red) and overall APE (in cross-hatch).

### 3.1.4.2 Economic Changes in Lāhainā and the Development of the Commercial Sugar Industry

*Ko* (sugarcane) is believed to have originally been brought to the Hawaiian islands during the initial Polynesian settlement of the island chain. Early Hawaiians cultivated several varieties of *ko*, each with different culturally associated attachments to the many varieties that were grown in different regions of the *ahupua'a*. *Ko* was also considered to be therapeutic and was a primary ingredient of many native compounds (Handy and Handy 1991:183-89).

As the enactment of the Māhele hastened the shift of the Hawaiian economy from a subsistence-based economy to a market-based economy, *ko* would soon become important as a major cash crop. From 1840 to 1850, a cane field and rude mill consisting of three whaling ship try-pots on adobe and stone mason work with wooden rollers and iron bands, was owned and operated by David Malo in Lāhainā for the production of molasses that was sold primarily for home consumption (Rolph 1917:168-169). As foreign entrepreneurs looked to expand their exportable crops and increase their profits, sugar became the answer and by 1849 Judge A.W. Parsons was operating a commercial mill in Lāhainā (Jensen 1989). A milestone for the sugar industry of Hawai'i occurred in either 1854 or 1855 when Captain Pardon Edwards brought a variety of sugarcane from the Marquesas to Lāhainā. Originally intended for transport to Charles Titcomb of Hanalei on Kaua'i Island, several stalks of the Marquesan cane were given to Consul

Chase and F.A. Oudinot of Lāhainā to plant in their gardens (Royal Gardens, Kew 1894: 419). It was quickly recognized that this variety of cane outperformed the Cuban varieties of sugar cane that were being grown in the Hawaiian Archipelago at that time, as the cane that was introduced by Captain Edwards produced cane with a very sweet quality and a remarkably fast growing time (Royal Gardens, Kew 1894: 418-419). This newly introduced cane came to be known as Lāhainā Cane and, to the exclusion of others, was the premier type of sugar cane grown in Hawai'i (Wm. G. Irwin & Co. in and Stubbs 1900: 59 and 66). With the introduction of improved technology and the first steam-driven mill, the next 20 years saw an explosion in the sugarcane industry in Hawaii with over 22 plantations or mills operating on the island of Maui by 1884 (Wilcox 1997:2-5). Two of the 22 plantations in operation toward the end of the 19<sup>th</sup> century, West Maui Sugar Company and Pioneer Mill Company, led the sugar industry in the Lāhainā District.

#### *3.1.4.2.1 West Maui Sugar Company*

In 1864, Lot Kamehameha (King Kamehameha V) ventured into the sugar industry with two established sugar entrepreneurs, F. W. Hutchison, of the Lahaina Sugar Company, and James Makee, of the Rose Ranch sugar plantation in Ulupalakua, to form the West Maui Sugar Company. To start, the King then leased the crown lands in Olowalu and Ukumehame to the West Maui Sugar Company (Olowalu Town, LLC. 2008). An additional tract of 2,194 acres of crown land in Wahikuli was also leased by Lot Kamehameha in 1854, nine years prior to his coronation as king (Figure 20); it is unclear, however, if these lands were included in the lands that were under cultivation by West Maui Sugar Company. Overall, sugar production was fair for the fledgling company, without a mill, however, the crop was sent to the Pioneer mill for processing (Olowalu Town LLC 2008.)

In the late 1860's Z.S. Spalding became a partner in the West Maui Sugar Company and, taking over as manager, had West Maui Sugar acquire the Lahaina Sugar Company mill to relieve the reliance on the Pioneer Mill Co. mill for processing. Sugar prices, however, would drop in the 1870's. King Kamehameha V blamed the company's financial woes on Spalding who, years before, had been a spy for the U.S. government concerning the U.S. interest in annexing the islands. Finally, after the King threatened to withhold his land leases (Wilcox 1997:127) Z.S. Spalding was dismissed and James Makee's son, Parker Makee, filled in as manager (Olowalu Town, LLC. 2008). Following the death of King Kamehameha V in 1872 the land leases under his name were transferred to the West Maui Sugar Company and two years later the associates of the company would sell the assets of the sugar venture to James Campbell and Henry Turton of the Pioneer Mill Company (Wilcox 1997:127).

#### *3.1.4.2.2 Pioneer Mill Company*

In 1852, James Campbell arrived in Lāhainā to start a small sugar plantation and by 1865, Campbell joined with Henry Turton in establishing the Campbell and Turton Company on lands deeded to them by Benjamin Pittman (Condé and Best 1973: 252). In order to increase the amount of land under cultivation and crop yields, the new plantation worked out long-term land leases along with the appurtenant water rights from regional small landowners (Simpich 1974). With the acquisition of lands and water rights that were controlled by the West Maui Sugar Association in 1874 (Forsyth 1900), Pioneer Mill Co. was able to significantly expand its land holdings and crop yields.



## Drilling for Well Water

Between 1860 and 1881, aside from limited diversions of the various streams issuing from the valleys back of Lāhainā, Olowalu and Ukumehame, no large-scale development for irrigation water had been attempted by the Pioneer Mill Company or any of the other sugar enterprises of West Maui. The McCandless Brothers, an engineering enterprise from Honolulu, was hired in 1883 to drill the first well for the Pioneer Mill Company at Kā‘anapali. While ample water was found, Turton had considered it a failure as he was hoping for an artesian source at Kā‘anapali that did not require the more costly expenditure of pumping (McCandless 1936).

In 1896, the Pioneer Mill Company hired the McCandless Brothers again to resume drilling, near their first drilling location. This resulted in the development of nine wells at Kā‘anapali, as well as, a system of pumps that would produce a successful source of water at this location. An additional 14 wells were developed in 1900 with 12 more in 1921, for a grand total of 36 wells at the Kā‘anapali turbo-electric pumping stations. With this successful development, the McCandless Brothers continued to drill 26 more wells in the vicinity of Lāhainā. The Lāhainā wells were sunk 100 to 300 feet in depth, into formations representing a mixture of, “clay, gravel, and boulders,” down to the basalt bedrock” (McCandless 1936).

A particularly successful type of well, the “Maui-type well” is a name applied throughout Hawai‘i to a vertical mine-like shaft to the basal water table, with one or more horizontal infiltration tunnels skimming off the fresh water from the underlying salt water (Stearns 1942:126). The substantial increase in the volume of irrigation water from Maui-type wells provided the Pioneer Mill Company (Table 3) with the ability to further expand its cultivated acreage; between 1895 and 1905, the number of acres harvested increased from 525 to 3,000 (Gilmore 1936).

Table 3. Maui-type Wells on Pioneer Mill Co. Lands (adapted from Stearns 1942)

USGS No.	Plant. No.	Name	Date	Elev. (Ft.)	Depth (Ft.)	Capacity m.g.d.	Aquifer
2	F	Honokowai	1921	65	65	5.00	Wailuku basalt
3	D, H	Kaanapali	1897	27	25	15.00	same
4	G	Hahakea	1923	14	12	5.00	same
5	M	Kahoma	1933	322	323	10.00	same
6	L	Wahikuli	1897	26	27	5.00	same
7	C	Pioneer Mill	1897	34	39	10.00	same
8, 9	B, A, E	Wainee	1897	30	31	13.90	same
10	N	Olowalu	1933	165	300	5.25	same
11	O	Olowalu	1905	20	20	3.00	same
12	P	Ukumehame	1934	79	143	4.75	same

### *Tunneling for Perched Water*

In 1898, water sources of the Honokōwai valley were the first to be developed for irrigation, with the installation of a small pump and the construction of a galvanized iron flume (Maui News 1926). In a similar manner, each of the other ditch systems was developed to provide large-scale water resources to fields along the Kahoma, Kanahā, Kaua'ula, Launiupoko, Olowalu and Ukumehame Stream Valleys (Wilcox 1996:134). In order to fully develop each stream valley, a series of tunnels were driven high into the water-bearing valley walls by company engineers (Table 4). According to Stearns (1942), the dike complexes and dike swarms at the headlands of each stream valley were found to contain abundant water. The West Maui dike swarms not only stored water from areas of high rainfall in the mountains, but dispersed water in all directions. The dikes were found to crop out at the head of every major valley and supply practically all the perennial streams (Stearns 1942:165).

Table 4. Tunnels Driven for Perched Ground Water by the Pioneer Mill Company (P.M.Co) (adapted from Stearns 1942)

No.	Owner	Valley	Elev. (ft.)	Yield (gal./day)	Length (ft.)	Geologic Structure/ Perching Formation
13	P.M.Co.	Olowalu	1,710	100,000	3,000	Vent breccias of Wailuku caldera complex cut by dikes
14	P.M.Co.	Olowalu	775	dry		Dike swarm in Wailuku basalt
15	P.M.Co.	Launiupoko	1,425	100,000	1,320	Tunnel cuts through 20 dikes in Wailuku basalt
16	P.M.Co.	Kauaula	2,920	2,000,000	656	through 194 dikes
17	P.M.Co.	Kahoma	1,923	dry	2,500	through 19 dikes
18	P.M.Co.	Kahoma	1,984	1,900,000	3,080	through 47 dikes
19	P.M.Co.	Kahoma	2,350	10,000	739	through 16 dikes
20a	P.M.Co.	Honokowai	1,700	2,000,000	1,250	through 18 dikes
20b	P.M.Co.	Honokowai	1,600	500,000	1,050	through 7 dikes

The successful drilling of Tunnel 16 in 1901 at Kaua'ula produced a steady flow of 4,325,000 gallons in a 24-hour period (Barkhausen 1903). Tunnel 16 was considered relatively short and its cost, at \$3,813.53, was one-third the cost of continuing work on the Kahoma flume. In the year-end plantation report for 1904, a similar drilling project at Tunnel 18 at Kahoma produced a steady flow of over 1.5 million gallons a day. Developing water resources by drilling tunnels into lava formations at high elevations to intercept large flows of water carried by lava tubes was a program successfully undertaken at nine other Pioneer Mill Company locations (Wadsworth 1936). Further work by the plantation in 1910 to increase sources for fresh water resulted in the replacement of the Kahoma flume with a tunnel 5,300 feet long, resulting in better capture of storm runoff water (Weizheimer 1911).

## The Honokohau Ditch Project

Additional sources of water were required for the successful expansion of acreage under cultivation. To this end, a large-scale ditch project was proposed which would put the Pioneer Mill Company on par with sugar operations in Maui's central isthmus. The largest water sources on the Lāhainā side of the island were the Honokohau and Honolua streams, on lands owned by Henry Perrine Baldwin and the Honolua Ranch Company. In 1902, construction of the Honokohau Ditch was begun. The ditch started at an elevation of 700 feet amsl, with intakes at Honokohau, Kaluanui, and Honolua streams. The ditch and flumes ran along soft hillsides where landslides frequently choked the ditch and damaged the flumes, but teams of workers kept the waterways clear. Work was completed in May 1904, with capacity averaging 25 million gallons per day (Wilcox 1996).

The Honokohau Ditch supplied water to nine reservoirs with a combined storage capacity of 70 million gallons. Not having to pump water to field elevations at 700 feet amsl represented an immediate savings. As a result, more than 1,000 new acres were placed in irrigation, offsetting nearly \$30,000 in permanent improvement costs (Barkhausen 1905).

### 3.1.5 1900s to the Modern Era

At the beginning of the 20<sup>th</sup> century, most of the field jobs were performed by contract gangs. Each type of contract gang was paid at a different rate, which was sometimes dependent on the difficulty of the terrain. Gangs were organized for planting, harvesting, cutting, packing, laying flumes, laying portable railroad track, and other similar field jobs (Eckart 1911). Preparation of the fields was accomplished by either a tractor/steam plow where the fields are virtually rocky free (approximately 60% of the fields under cultivation in 1934) or via hand preparation with handpicks and shovels in rocky areas that would not be suitable for plowing (approximately 40% of the fields under cultivation in 1934) (Figure 21) (Gilmore 1936:199-200).

With the availability of ample water, one method by which cane was transported to the main railroad lines of the Pioneer Mill railway was fluming. The Pioneer Mill Company operated flumes averaging about 3,500 feet in length, which required 75,000 to 175,000 gallons of water per hour to flume cane downslope. A full flume gang consisted of 68 men, of whom 24 were assigned to *hapai ko*: carrying the harvested cane to a spot where the cane would be handled by the chute workers. The remaining members of the flume gang comprised: 8 men assigned to the chute, 6 flume carpenters who repaired field breaks and leaks, 6 overseers, and 24 flume workers who cleared jams and unloaded the cane into railroad cars (Carter 1934).

By 1910 the Pioneer Mill Company employed over 1600 workers and cultivated over 8,000 acres of cane (Figure 22). By 1920, the lands under cultivation stretched from Ukumehame to Honokowai. Through the years the company exchanged hands and the new owners kept on the leading edge of industrialization, implementing changes such as increasing the number of rollers in the mill until it reached its peak production of 34,980 tons in 1924. In 1931 the company acquired the Olowalu Sugar Company further increasing its holdings ([http://www2.hawaii.edu/~speccoll/m\\_about.html](http://www2.hawaii.edu/~speccoll/m_about.html)).

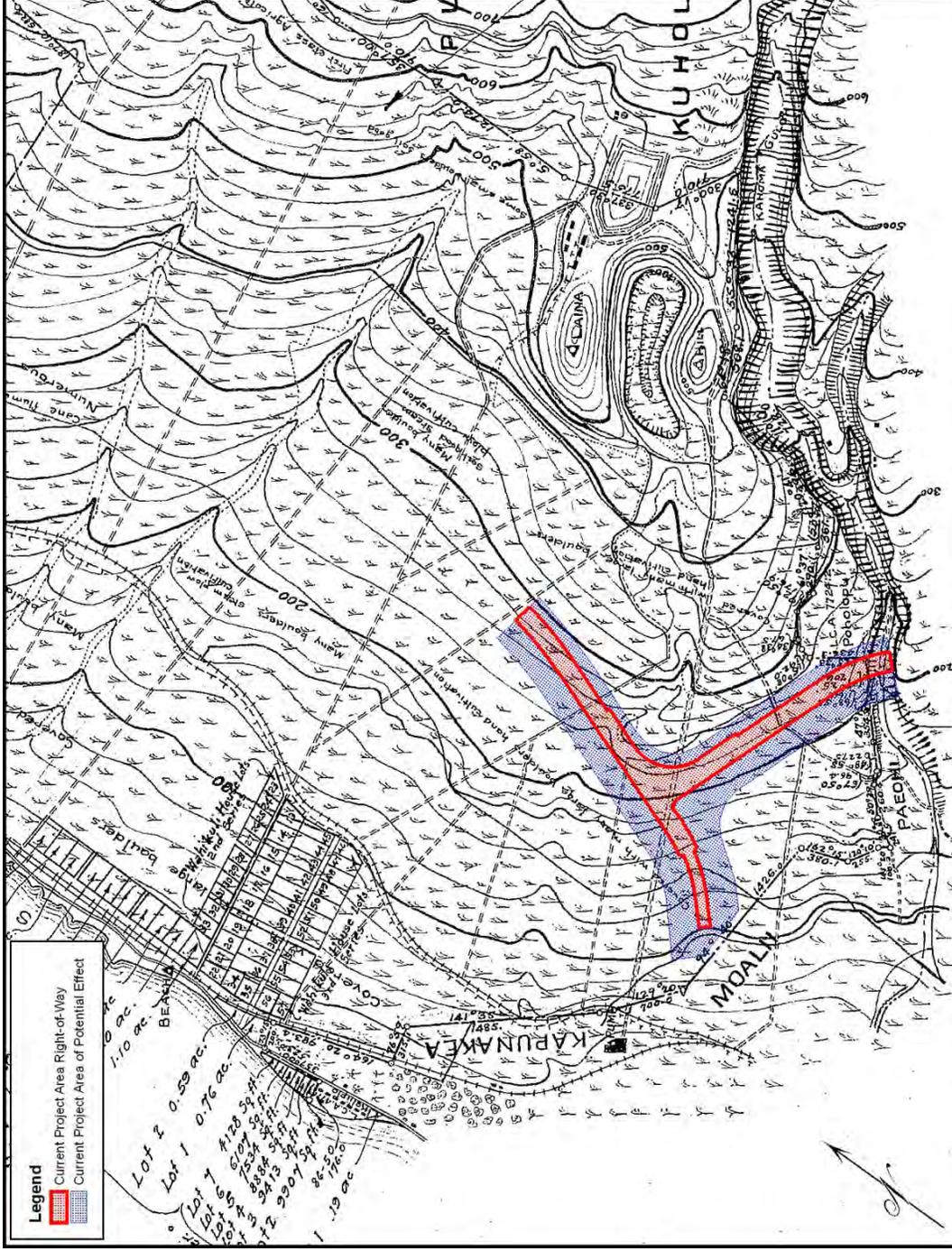


Figure 21. A portion of the 1913 W.E. Wall survey map for Pioneer Mill Co. describing terrain and method of sugar cultivation along the Wahikuli plain.

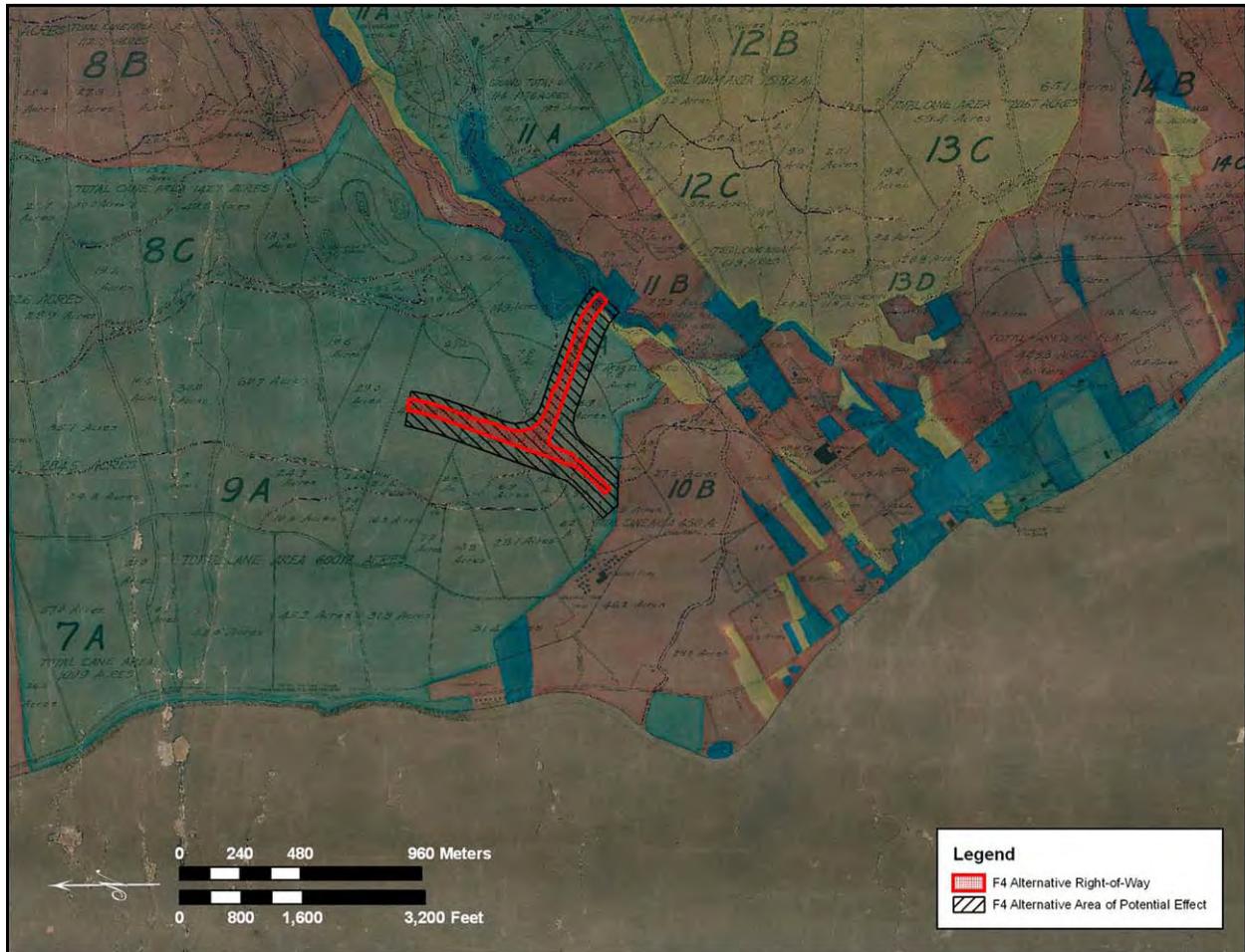


Figure 22. A portion of a 1918 map illustrating lands under cultivation by the Pioneer Mill Company in relation to the current project area, fields delineated alpha-numerically (Wright and Awana 1918) Pioneer Mill Co. lands in red, Government leased lands in Green, Bishop Estate leased lands in yellow, other leasehold lands and lands under other ownership in blue.

Beginning in 1912, a two-year project to completely rebuild the Honokohau Ditch was undertaken by David T. Fleming, manager of the Honolulu Ranch. The new ditch was able to collect and deliver 25 million gallons of water per day - all of which was sold to the Pioneer Mill Company (Wilcox 1996). The much-needed water saved the harvest of 1914: crops that were about to be abandoned due to a drought (Weizheimer 1914).

By 1930, the Pioneer Mill's power and irrigation water pumping system required a new source for the Kahoma region. A concrete-lined well shaft was constructed to a diameter of 12 feet and sunk 325 feet underground (Watts 1939). A steam plow engine was modified to provide power for an elevator designed to lower workers into the well. The resulting Maui-type well was able to pump fresh water at a rate of 10 million gallons per day.

In the rocky fields that would not allow for plowing, sugar cultivation was accomplished in the following manner:

In these fields the rocks are cleared away and built into a series of stone walls from 5 to 6 feet apart and often 3 feet high. These stone walls form the banks of the cane row; and between these walls the ground is softened up with a pick and the seed then planted. (Gilmore 1936:200)

Gilmore (1936:200) goes on to note that though extremely difficult and time consuming to plant, the soil of these rocky areas were very fertile and yielded between 90 to 100 tons of cane per acre, presumably making it worth the time and manpower to continue cultivation in these labor intensive areas.

By 1940, acreage harvested had peaked at 5,237, including 550 acres harvested from the purchase of the Olowalu Plantation in 1931 (Meyers 1954). After World War II, improvements in heavy equipment and mechanized farming brought on more efficient field clearing and planting methods and from the years 1947 to 1950 Pioneer Mill Company started a rock removal program to increase overall sugar production (Pioneer Mill Company, Ltd 1951). The program used heavy equipment to bulldoze rocks from the fields, which were stacked into large piles that still dot the landscape today (see also Figure 6). Also at this time, many of the terraced fields described above were either abandoned in hard to access areas with a higher degree of slope relief, or cleared via this new machinery. While the railroad had provided an efficient means of transporting sugar prior to the 1950s, by 1952 it was no longer economically feasible to keep the railway operating. In response to the increasing expenses of maintenance and operation, the rail system was replaced with the more efficient cane haul trucks and a feeder conveyer and crane system for loading (Minoru Hinahara in Nishimoto et al. 2003: 101-102).

The Pioneer Mill Company thrived throughout major dips in the American economy; however, all ventures are susceptible to market change and the Pioneer Mill Company was no exception. Faced with foreign competition that had lower land and labor costs, the company closed down in 1999 (Kubota 1999). Today, fallow fields, the smoke stack, and a six-mile segment of the track are all that remain of the Pioneer Mill Company. In 1970, the Kaanapali & Pacific Railroad used the six-mile segment of track to create a tourist Sugar Cane Train ride *mauka* of Lāhainā Town. Although the sugarcane industry has disappeared from this area of Maui, the impact of the industry changed the landscape of West Maui and the rest of Hawai'i forever.

### 3.2 Previous Archaeological Research

Summaries of archaeological studies within the general area of Lāhainā are listed in Table 5 and illustrated in Figure 23, with a follow-up discussion of archaeological work specific to the current project and study area presented in chronological order.

Table 2. Summary of Land Commission Awards (LCAs) Identified within the potential area of direct effect; as well as, LCAs within the ROI that may be connected to individuals consulted as a part of this study (Waihona Aina 2002).

Royal Patent Number	LCA Number	Claimant(s)	Lands of the Claimant(s)	Lands Awarded and Acreage
5640, 5638, 5699, 8364	00277	W.C. Lunaililo	William C. Lunaililo claims 17 house lots and 17 'āpana throughout Lāhainā.	Award 277; No. R.P. ; Ilikahi Lahaina; 1 ap.; 97 rods or 2 rods 7 rods (Location index); Pakala Lahaina; 1 ap.; 3 rods 10 rods; Puunoa Lahaina; 1 ap.; 2 Acs 1 rod 10 rods; no R.P.; Paunau Lahaina; 2 ap (Ap. 2); 69 Acs; R.P. 5699; Luaehu & Loinui; 2 ap.; 2 Acs 3 rods 37 rods; Land Patent 8364; Paunau & Kelaweā Lahaina; 1 ap.; 69 Acres; See 395 for protest to 277; see also Award 8559.
	00295	Kauhi	House lot, in Paehi, Lāhainā. It was adjacent to a taro <i>lo'i</i> , that, according to native testimony (N.T. 85v2) of Ukikihi, was subdivided away from the house lot by Boki, former governor of O'ahu, this action was reinforced by Hoapii-Wahine, wife of the governor of Maui.	Claim for the house lot was not awarded.
2650, 1179, 1180	00312	Keaweiwi, Timoteo	One 'āpana, [section] at Waiokama, bounded: <i>mauka</i> [mountainward] by Nalehu; Olowalu [east] by Malokuakea; <i>makai</i> [seaward] by Nalehu; and Kā'anapali [west] by Napahi's house lot (N.T.12v15).  In addition, many 'āpana, [sections] at Aki, Kuhua, Uhao, Moali'i and Akiaole (N.T.195v2)	Award for land at Waiokama: one 'āpana of 16 rods. At Kuhua: one 'āpana of 0.43 acres. At Uhao: three 'āpana of 1.36 acres. At Moali'i: two 'āpana of 7.62 acres. At Aki: one 'āpana of 6 acres, 2 rods, 10 rods. At Akiaole: one 'āpana of 3.47 acres
1715	00333	Kaahanui	Lands of this claim were located <i>makai</i> of the Kahoma/Kanahā river confluence. 'Āpana 1 and 3 being located along the Kahoma Stream.	Awarded 1.22 acres, fenced house lot.
	00393	Kekuelike	This property consists of a fenced house lot.  One House lot at Pu'uko'owali, 15 <i>lo'i</i> at Kelaweā and <i>kula</i> land.	Claim was awarded.

Table 5. Summary of Previous Archaeology

Reference	Year	Location	Summary of Work												
Walker	1931	Island Wide	Primarily concerned with the identification of monumental architecture or <i>heiau</i> identification.												
			<table border="1"> <thead> <tr> <th>Location</th> <th>Walker Site Number</th> <th>Name</th> <th>Comment</th> </tr> </thead> <tbody> <tr> <td>Kelaweia</td> <td>10</td> <td>Luakona Heiau</td> <td>Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina</td> </tr> <tr> <td>Māla (Wahikuli)</td> <td>11</td> <td>Halulukoako Heiau</td> <td>Large <i>heiau</i> for human sacrifice of which few wall fragments remain.</td> </tr> </tbody> </table>	Location	Walker Site Number	Name	Comment	Kelaweia	10	Luakona Heiau	Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina	Māla (Wahikuli)	11	Halulukoako Heiau	Large <i>heiau</i> for human sacrifice of which few wall fragments remain.
Location	Walker Site Number	Name	Comment												
Kelaweia	10	Luakona Heiau	Thrum's list (1909) says <i>heiau</i> built by Hua-a-Pohaku-kaina												
Māla (Wahikuli)	11	Halulukoako Heiau	Large <i>heiau</i> for human sacrifice of which few wall fragments remain.												
W. Fredericksen and D. Fredericksen	1965	Paunau	Data Recovery: Confirmed the location and construction techniques of the "Brick Palace" of Kamehameha I.												
Connolly	1974	Kahoma Stream	Inventory Survey of Kahoma Stream Flood-Control Project Area, which identifies the "Kahoma Stream Terrace System Complex" of 33 agricultural terraces and a second complex at a higher elevation: the "Haia Terrace System" that is located outside of the project area.												
Davis	1977	Māla Wharf	Archaeological Investigation (Phase II): Identification of 13 previously unidentified burial features and re-identification of 51 burial features noted by the Bishop Museum; re-evaluation of function resulted in updated determinations where 2 features were identified as pushpiles, 4 features identified as pavings, 2 features identified as retaining walls.												
Hammatt	1978	Māla Wharf	Archaeological Investigation and Monitoring: Monitored the exhumation of 90 human burials, three of which were determined to be pre-contact Hawaiian burials, at SIHP 50-50-03-226 (Pu'u Piha Cemetery). Identified a pre-contact cultural material layer likely associated with pre-contact habitation.												
Ahlo and Morgenstein	1980	Mouth of Kahoma Stream	Archaeological Testing: Identified an ' <i>auwai</i> ' possibly association with Loko o Alamihi; one <i>imu</i> feature, historic era materials, pond sediments associated with Loko o Alamihi.												
Hommon	1982	Waine'e	Reconnaissance: No significant finds.												
W. Fredericksen and D. Fredericksen	1982	Hale Pa'i	Data Recovery: Determined that the original ground level of the printing house structure at Lahainaluna was approximately 1.5 meters below the then current ground surface. Determined that the original structure was likely a combination of traditional Hawaiian architecture and western architecture.												
Kurashina and Sinoto	1984	Puuki, Kuhua 1-3 Ahupua'a	Archaeological Reconnaissance: One early historic-era irrigation gate that regulated Kahoma Stream waters into the fields and remnants of the Pioneer Mill Hospital.												
Watanabe	1987	Kahoma Stream	Archaeological Testing: Investigation of terrace identified as a possible burial; testing identified												

Cultural Impact Assessment for the Lāhainā Bypass Phase IA, Modified Extension

TMK (2) 4-5-021, 010, 015 and 031: Multiple Parcels

Reference	Year	Location	Summary of Work
			the feature as a raised <i>'auwai</i> that was later used as a foot path during the historic era.
Barrera	1988	Multiple Ahupua'a	Archaeological Reconnaissance: Identified historic properties associated with agricultural pursuits.
Haun	1988	Moali'i Ahupua'a	Subsurface Archaeological Reconnaissance: A total of 19 backhoe trench excavations resulted in the identification of two areas of potentially intact subsurface cultural deposits dating to the pre-contact era.
Spencer Mason Architects	1988	Lāhainā Town	Architectural Survey: Identification of 15 historic-era structures along Lāhainaluna Road and Wainee Street, including the intersection, in excellent to fair condition.
W. Fredericksen et al.	1988b	Panaewa Ahupua'a	Inventory Survey: Excavations of a portion of the "Aus Site" 50-03-1797 were conducted. Based on the scarcity of cultural material remains, initial analysis of the area indicated that it was a low use area.
W. Fredericksen et al.	1988a	Waiane'e Ahupua'a	Inventory Survey: Phase I inventory survey at Hale Pi'ula. Did not identify features positively associated with Hale Pi'ula (unfinished stone palace of Kamehameha III); however, 2 oblong structures of an indeterminate function and a portion of the foundation from the old armory building were documented
D. Fredericksen et al.	1989	Panaewa	Data Recovery/ Monitoring: 10 early post-contact to modern-era refuse pits.
Jensen	1989	Wahikuli	Inventory Survey: Documentation of 20 agricultural terraces, 13 burial and possible burial features, seven walled habitation enclosures, one temporary shelter, one historic road, one petroglyph panel, and one platform representing both pre-contact and historic-era use of the area.
Kennedy	1989	Paunau	Limited Subsurface Testing: Artifacts with a time range of early post-contact to modern era.
Riford and Cleghorn	1989	Multiple Ahupua'a	Documentary Assessment: Assessed the potential for surface and subsurface archaeological resources at 10 prospective power plant sites. The site location closest to the project area, former location of Pioneer Mill, noted low potential for pre-contact resources on the surface and moderate potential for buried resources.
W. Fredericksen et al.	1989a	Panaewa	Inventory Survey: Sparse historic-era cultural materials in a disturbed context.
W. Fredericksen et al.	1989b	Paunau	Inventory Survey: Determined that the parcel was open space/lakeshore and that a portion was likely submerged under Loko o Mokuhinia
W. Fredericksen and D. Fredericksen	1990	Panaewa	Monitoring/ Data Recovery: Out-of-context indigenous artifact. No significant finds.
Folk	1991	Kaiehe Ahupua'a, Front Street -- Lāhainā Town	Archaeological Testing: One charcoal lense interpreted as a modern burning episode; gleyed clays marking the location of an ancient shoreline; no additional findings -- no further archaeological work.

Reference	Year	Location	Summary of Work
Jensen	1991	Panaewa	Inventory Survey: Four pre-contact historic properties containing 28 component features associated with agriculture, habitation, and burial interment and ceremony.
Jensen and O'Claray	1991	Wahikuli to Aki	Inventory Survey: Identified 6 water control features associated with historic-era agriculture adjacent to the area of potential effect as defined for the inventory survey. These features were comprised of various sections of a wooden flume and stream crossings in addition to a small and narrow dam.
Pantaleo	1991	Panaewa Ahupua'a, North of Kanahā Stream	Archaeological Survey: Historic foundations (circa 1930) constructed of cement and dressed basalt boulders; barbed-wire fencing; identified as historic-era water tank foundations associated with either ranch activities or water supply for the Lāhainaluna teachers' cottages.
Shun	1991	Mouth of Kahoma Stream	Burial Disinterment: Total of 11 separate findings: 10 coffin burials; 1 recovered out of context (Burial 2A) (p10: Table 2). Burials 3, 4, and 6-9 appear to have been incompletely and hurriedly removed prior to disinterment.
Kennedy and Denham	1992	Wahikuli	Inventory Survey: No significant findings.
Donham	1993	Māla Wharf	Field Check: Recovery of inadvertently encountered skeletal remains.
W. Fredericksen and D. Fredericksen	1993	Lāhainā Town	Inventory Survey: Documentation of three historic-era disposal pits.
Jensen	1994	Hanakao'o and Paunau	Inventory Survey: No significant findings.
Robins et al.	1994	Ma'alaea to Paunau	Inventory Survey: Identification of 34 historic properties, including: permanent and non-permanent habitation sites, heiau, shimes, travel markers, non-irrigated agricultural sites, historic ranching walls, irrigation canals, burials sites, possible railroad beds from the previous sugar plantation operation.
Heidel et al.	1995	Waine'e	Inventory Survey: No significant findings.
Kawachi	1995	Puunoa/Alamihī; Loko o Alamihī	Archaeological Testing: Confirmation of "dirty" fill deposits within Loko o Alamihī as a part of the reclamation process, historic era artifacts (glass, ceramics) identified between 25-56 cmbs within Trench F. No significant cultural materials documented within the excavated trenches.
Klieger	1995	Lower Waine'e Moku'ula	Data Recovery: Verified the location and condition of the inland island, and royal residence of Moku'ula, verified the nature of the surrounding fresh water pond of Loko o Mokuhinia, documented modifications to the inland island and nature of cultural material remains associated with the occupation of Moku'ula.
Klieger and Clark	1995	Lower Wane'e Moku'ula	Data Recovery: Human burial find at Moku'ula.
Klieger and Somer	1995	Lower Wane'e,	Emergency Archaeological Mitigation: Verified disturbance of Moku'ula cultural deposits during baseball

Reference	Year	Location	Summary of Work
Major and Klieger	1995	Moku'ula Pakala	park improvements breaching the island perimeter retaining wall and possible portion of the northern/southern holding pond. Inventory Survey: Identified two historic properties: SIHP 50-50-03-4118, a subsurface deposit potentially related to pre-contact to early historic habitation of the parcel by Lāhainā <i>konohiki</i> Pikanele, and 50-50-03-4119, a historic-era dwelling.
Sinoto	1995	Puuki, Kuholileā, Kuhua 1-3	Monitoring Report: No significant findings.
Burgett et al.	1996	Moali'i Ahupua'a, Māla Wharf	Data Recovery: Land alterations following the original archaeological inventory survey (Haun 1988) had effectively eliminated the subsurface remains of the cultural deposit slated for data recovery (SIHP 50-50-03-2963).
E. Fredericksen	1997	Pioneer Inn	Monitoring Report: No significant finds.
Hammatt and Shideler	1998	Lahaina Courthouse	Archaeological Monitoring: Identified historic era fill deposit and pig remains. The presence of pig remains is indicative of a possible pre-contact cultural deposit.
D. Fredericksen and E. Fredericksen	1999	Puako	Inventory Survey: Identification of SIHP 50-50-03-4682, a post-contact boundary wall, and -4690, a discontinuous pre-contact cultural deposit, as well as gleyed deposits indicating a probable fishpond deposit associated with the occupation of Moku 'ula.
D. Fredericksen and E. Fredericksen	2000a	Waine'e	Inventory Survey: Identified SIHP 50-50-03-5042, two plantation era structural remnants and cultural material associated with the settlement of Waine'e Village.
D. Fredericksen and E. Fredericksen	2000b	Puako	Inventory Survey: Human remains from previously disturbed context.
Haun	2000	Pūehuehu Iki, Pāhoa, and Pola Nui	Inventory Survey: A total of three historic properties associated with both traditional and commercial agricultural endeavors from the later pre-contact era to early historic era (SIHP -4789 and -4795), and historic to late historic (SIHP -4787).
Borthwick and Hammatt	2001	Lahaina Courthouse	Subsurface Archaeological Investigation: Documented a pre-contact subsurface cultural deposit (SIHP 50-03-4754) at approximately 1-1.2m below surface.
E. Fredericksen and D. Fredericksen	2001	Puako	Archaeological Monitoring: Four pre-contact to early post-contact historic properties consisting of traditional Native Hawaiian burial interments and cultural deposits with subsurface features indicative of habitation.
Calis	2002	Panaewa	Monitoring Report: One subsurface cultural deposit, 50-50-03-5180, composed of historic-era artifacts (circa 1940-1960).
E. Fredericksen	2002	Paunau, King Kamehameha III	Archaeological Monitoring: No significant finds.

Reference	Year	Location	Summary of Work
		Elementary	
E. Fredericksen and D. Fredericksen	2002	Puako	Inventory Survey: One historic property consisting of four post-contact trash pits and one "backyard" waterworn pavement.
W. Fredericksen	2002	Paunau	Archaeological Monitoring: Cultural materials identified during the course of monitoring originated in the 1.2m thick fill deposit that was imported to the project site. Cultural materials ranged from indigenous artifacts (poi pounder handle and conus shell scraper) to historic-era artifacts (crockery, glass, and a clay pipe stem) as well as mammal bone and teeth, marine shell and fish remains. No historically significant in situ cultural remains were identified during monitoring activities.
E. Fredericksen and D. Fredericksen	2003	Multiple Ahupua'a	Inventory Survey: One pre-contact human burial identified below the plow zone (50-50-03-5238).
Formolo et al.	2005	Hanakao'o Ahupua'a <sup>1</sup>	Archaeological Assessment: No significant historic properties identified.
Paraso and Dega	2006	Polanui and Launiupoko	Inventory Survey: Identified a total of 10 historic properties: five are associated with historic era commercial sugar cultivation (50-50-03-4787 [Lahaina Pump Ditch No. 1]; -5950 [17 field clearing mounds]; -5951 [water control features]; -5952 and -5957 [terraces associated with manual sugar cultivation]), two are rock walls associated with historic era ranching activities (50-50-03-2665 and -5954); one is a historic slag scatter (50-50-03-5953); two are activity areas of an indeterminate age (50-50-03-5955 [modified outcrop and coral fragments] and -5956 [cultural material scatter of indigenous and historic era materials]).
Pickett and Dega	2006	Moali'i Kahoma Stream	Archaeological Assessment: No significant historic properties identified.

<sup>1</sup> Project area location erroneously listed as Hanako'o Ahupua'a, actual location within portions of Wahikuli and Moali'i Ahpua'a.

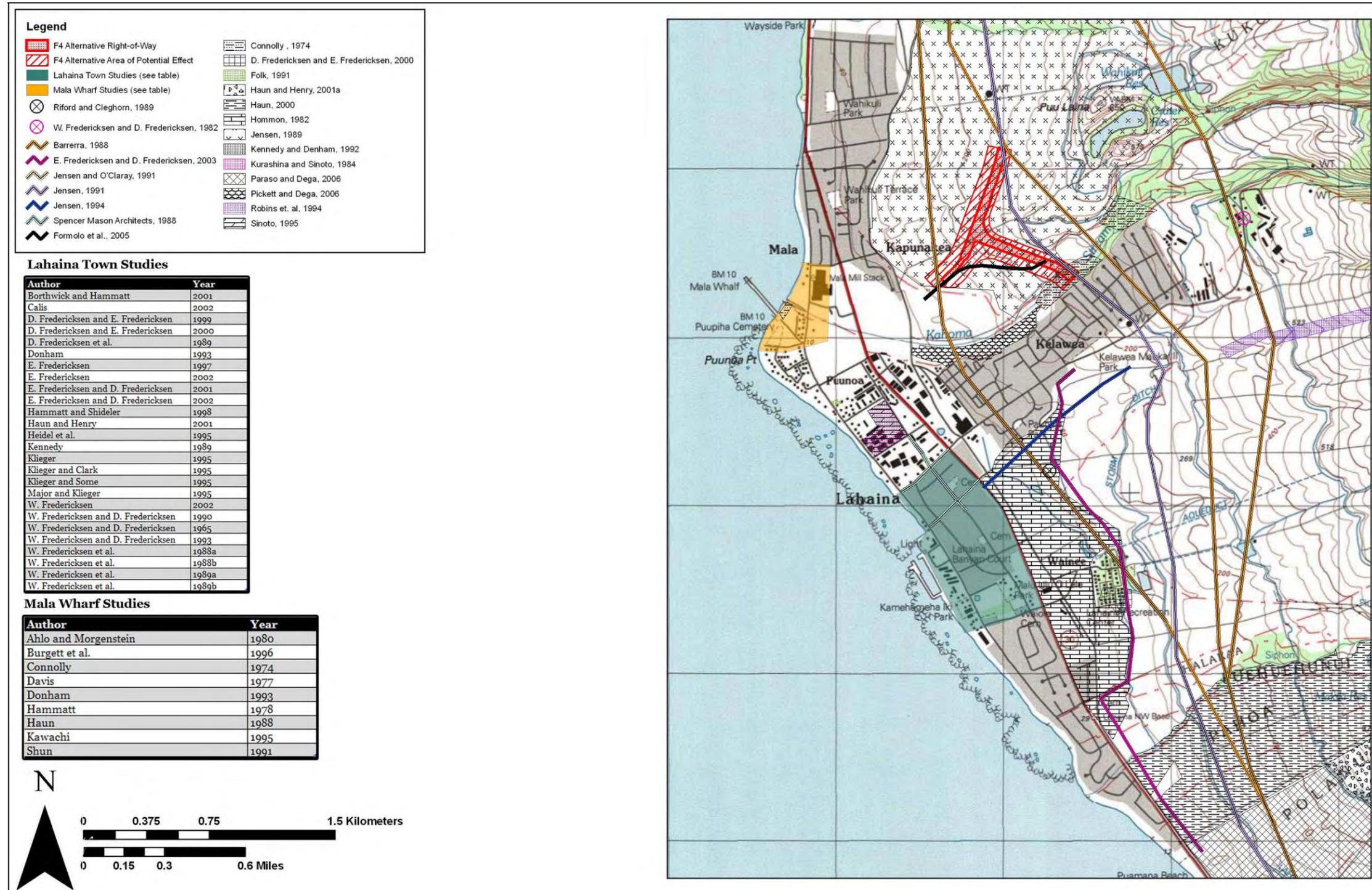


Figure 23. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992), showing current project area location in relation to areas of previous archaeological study.

Robert D. Connolly III (1974) performed a walk-through survey of the Kahoma streambed, as part of the flood-control construction planned for the area by the U.S. Army Corps of Engineers. Near the mouth of Kahoma Stream, Connolly recorded the location of a burial mound (50-50-03-226) within Pu'u Piha Cemetery. At the time of recordation, a total of 23 low stone platforms, one formal headstone, and one cement tomb were noted. Further up Kahoma Gulch, a "major terrace system consisting of 36 individual terraces, two ditches, seven cement structures, and four free-standing walls" was located at a point along the Kahoma Stream just below the confluence of the Kahoma Stream and the Kanahā Stream and was recorded as the "Kahoma System" (SIHP 50-50-03-1775). This system represented both traditional Hawaiian agriculture, likely associated with the *kuleana* parcels within the area (see also Section 3.1.4.1 The Great Māhele), and a historic-era dairy operation (circa 1900-1920). The survey of the "Kahoma System" was followed by the survey of the "Haia System", located at the confluence of the Kahoma and Kanahā Streams (SIHP 50-50-03-1776). The Haia System, comprised of agricultural terraces much like those of the Kahoma System, as well as habitation structures, was not formally recorded as it was located outside the boundary of the flood-control project.

In 1988, William Barrera conducted an archaeological reconnaissance of three alternative highway corridors, beginning at Launiupoko and ending in Honokowai, for a realignment of Honoapi'ilani Highway to bypass Lāhainā Town. Jensen (1991) conducted a follow-up survey of two additional and partially overlapping corridors (Figure 24). A total of eight sites with 49 component features were recorded during the course of the reconnaissance. These properties consisted of pre-contact habitation features, agricultural features, and petroglyphs, as well as historic features associated with the plantation era.

In August and September of 1989, PHRI, Inc. (Jensen 1989) conducted an archaeological inventory survey of approximately 1,200 acres within Wahikuli Ahupua'a for the Lahaina Master Planned Project, an area which included the lands covered by the overall Lāhainā Bypass, as well as the current project area. This inventory survey, consisting of both an aerial and pedestrian survey, resulted in the identification of a total of 12 historic properties with some consisting of multiple components. These historic properties were identified and recorded within the two stream systems contained within the overall project area and along the sloping lands between the gulches of the stream systems. Ranging from poor to excellent condition, the historic properties identified during the course of the inventory survey were comprised of a range of formal types from both the pre-contact era (burials, ceremonial, habitation, *lo'i* and *kula* agriculture, and recreation) and historic era (primarily agricultural). Traditional agricultural terraces within the Hahakea Gulch and Kahoma Gulch were the predominant historic property type identified within the project area, while burials or burial markers were the next most frequently found site type. Jensen (1989:26) notes, however, that the data may be misleading as all burial and probable burial features were identified as multiple components of a single historic property. The next archaeological site type with a high occurrence rate consists of walled enclosures that likely served as either permanent or semi-permanent habitation. All of the historic properties associated with the Pre-contact Period were recorded in areas that were naturally protected and/or unsuitable for historic era or modern agricultural pursuits. Jensen (1991:26) asserts that the pre-contact features recorded during the course of the inventory survey likely occurred in numerous localities across the project area; however, land altering activities associated with agricultural development likely destroyed much of the surface remnants of such

features. Notably absent throughout the project area were signs of monumental traditional architecture or major platforms that are usually characteristic of a *heiau* as well as pre-contact trail systems linking the *mauka* and *makai* lands.

In June and July of 1991, PHRI, Inc. conducted an additional archaeological inventory survey within the Lahaina Master Planned Project acreage, specific to the seven-mile long corridor for the proposed Lāhainā Bypass (Jensen 1991). During the course of the 1991 archaeological inventory, a total of four historic properties containing 28 component features, three of which had been previously identified during the inventory survey conducted for the Lahaina Master Planned Project, were documented within the Lāhainā Bypass corridor. In addition to the four historic properties located directly within Lāhainā Bypass Corridor, six previously recorded historic properties (Jensen 1989) are located within close proximity and adjacent to the overall project corridor. SIHP 50-50-03-2484 is located within the original Phase IA ROW and *mauka* of the current project area, while SIHP -2485 is located adjacent to, and *mauka* of the original Phase IA corridor (Figure 24). SIHP -2484 was described in both inventory survey reports (Jensen 1989 and 1991) as follows:

Site 2484 is a partial rock enclosure, or an L-shaped wall, located on the south-facing, gently sloping land above Kahoma Stream gulch, near the western end of an agricultural airstrip southwest of “Crater Reservoir” and Puu Laina. Extending 23.4 m north-south, the primary segment of wall was constructed by stacking basalt boulders from 4-5 courses to achieve a maximum wall height of 0.75 m and a wall width which ranges from 0.8 to 1.1 m. The southern end of this segment of wall has largely collapsed, but a section of intact wall segment proceeds westerly from this point for an additional 11.5 m. It could not be determined whether the remainder of an enclosure exists within this area, with the walls having collapsed or been bulldozed, or whether the L-shape of the exiting feature represent the entire original configuration. [Jensen 1989: 16-17 and 1991:24]

Additional vegetation clearing and detailed recording will be necessary in order to accurately map and refine the evaluation of feature “type” and function. However, no obvious concentrations of portable artifacts or other rock features exist within the immediate vicinity of this feature, which has thus only been tentatively identified as a possible habitation area. [Jensen 1989:17]

SIHP-2484 was evaluated as important for information content with a recommendation of further data collection (Jensen 1991:30). Because SIHP-2484 is located along a crucial turn in this section of the Phase IA ROW (Figure 24) it was determined that this historic property would be data recovered due to the necessary removal of this site.

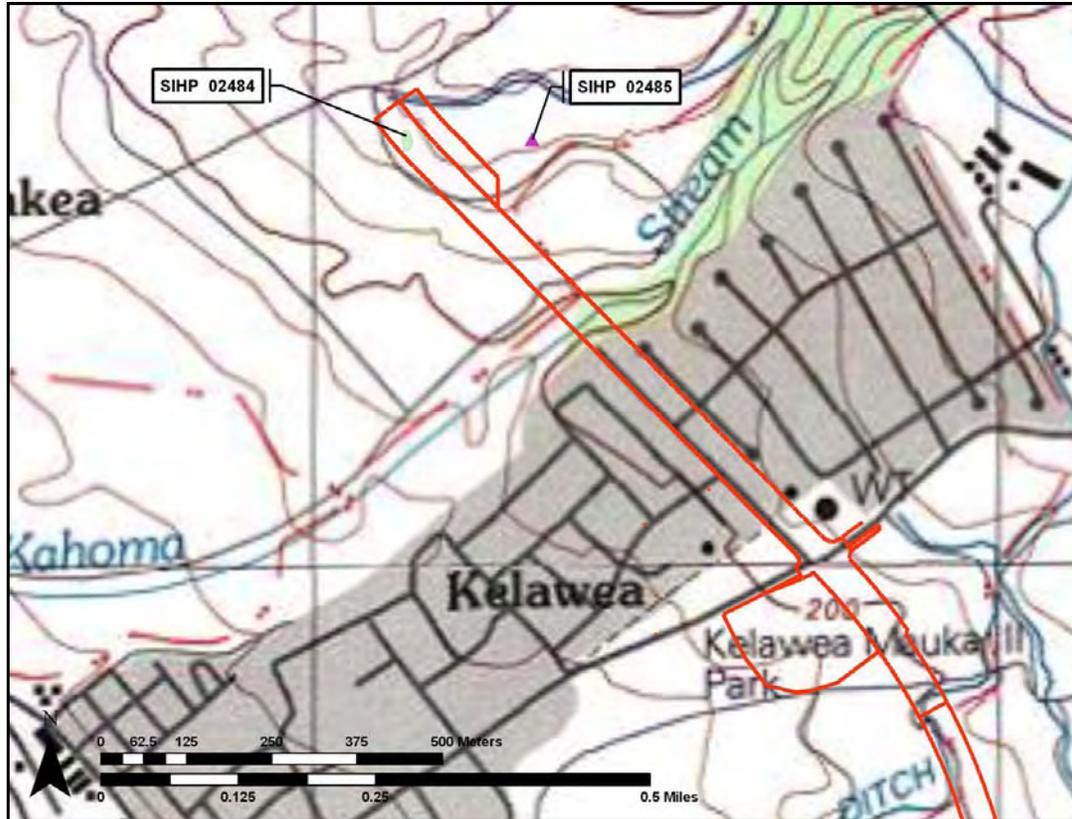


Figure 24. A portion of the USGS 7.5' topographic map, Lāhainā Quadrangle (1992), showing previously identified historic properties within and directly adjacent to the original Phase IA ROW.

SIHP -2485 was also documented during the 1989 inventory survey and relocated during the course of the 1991 archaeological inventory of the Lāhainā Bypass corridor. Both inventory survey reports (Jensen 1989 and 1991) describe SIHP -2485 as follows:

Site 2485, located on the south-facing, gently sloping land above Kahoma Stream gulch and southwest of the western end of the existing agricultural airstrip southwest of “Crater Reservoir” and Pu’u Laina, is a rock enclosure which has been tentatively identified as a probable prehistoric habitation area (the enclosure closely resembles known prehistoric remains). The well constructed rock walls enclose a rectangular space which extends approximately 20m north-south by 24m east-west. The wall, constructed on relatively flat ground, is a fairly consistent 1.5m high around the entire periphery of the feature, except in areas where segments have collapsed. The thickness of the wall ranges from 0.9 to 1.8m, the thickest section at the feature’s corners. The perimeter wall has been penetrated by a constructed opening at only one location – near the center of the feature’s north wall.

Although no portable artifacts or midden were observed during the original HFDC [Housing Finance and Development Corporation] inventory survey field work, such material may remain concealed by dense grass and other surface

vegetation at the site, or may be present below the surface of the site. [Jensen 1989:17 and 1991:24]

In order to evaluate this possibility and adequately determine feature function, additional vegetation clearing, coupled with detailed recording and data collection, will be necessary at this site. [Jensen 1989:17]

Additional concerns about SIHP -2485 in relation to the Phase IA of the Lāhainā Bypass arose when *kama'āina* testimony indicated that the enclosure contained the family graves of the Pali 'Ohana (Mr. Jonah Keahi, personal communication May 14, 2007).

In February of 2005, Archaeological Services Hawaii, LLC. conducted an archaeological inventory survey of the proposed Keawe Street Extension Project for the County of Maui (Formolo et al. 2005). According to the proposed design, the Keawe Street extension would have started at the current terminus of Keawe Street and extend *mauka* to connect to the original Phase IA ROW (see ). A total of eight backhoe trenches were excavated within the project right-of-way. While no significant historic properties were identified, it was noted that soil depths within trenches excavated at higher elevations were significantly shallower when compared the *makai* portions of their project corridor (Formolo et al. 2005:18). Depth of soils within the *mauka* extent of their project corridor ranged from 0.8-1.7m to bedrock (Formolo et al. 2005: Table II) while the depth of soils within the *makai* portions of their project corridor ranged from 0.7-1.15 (Formolo et al. 2005: Table II.)

During the course of a pre-construction archaeological field inspection by Cultural Surveys Hawai'i, Inc. on May 29<sup>th</sup> and 30<sup>th</sup>, 2007 (Lee-Greig 2007), a system of early historic era agricultural terraces and an associated irrigation system (State Inventory of Historic Properties [SIHP] 50-50-03-6277) was identified. While the approximate acreage covered by the entire system consists of 30-acres, two acres of this system consisting of over 400 terraces are located within the northern terminus of the original Lāhainā Bypass Phase IA Right-of-Way (ROW). These terrace features are preliminarily interpreted as early historic agricultural features, based on the dimensions of the individual terraces and overall configuration of the system. In addition to the identification of SIHP -6277, other internal features consisting of agricultural terraces and a semi-paved activity area were identified within the previously recorded SIHP -2484 described above.

### 3.3 Background Summary

Based on the historic records and maps (Arago 1823, Ellis 1826, Fornander 1918-1919 Volume V, Kahā'ulelio 2006, Kamakau 1961, Nicholson 1881, Pukui 1983, Stewart 1839, and Waal 1898) researched for this study, as well as archaeological evidence and interpretations (see also Section 3.2 Previous Archaeological Research), we know that the fertile and resource rich lower coastal plain of Lāhainā was home to high ranking *ali'i* before western contact. It was later the seat of government for the Kingdom of Hawai'i following the unification of seven of the eight major Hawaiian Islands in 1791. The abundant resources and *ali'i* residential compounds speak to a rather large pre-contact and post-contact population along the lower reaches of the *kalana* of Lāhainā. Just as important as the coastal resources, the well watered stream valleys also provided a continuous water source for successful agricultural pursuits from the headwaters to the seaward mouth of the stream as evidenced by *kuleana* claims for numerous *lo'i* and sweet

potato patches in the native testimony for LCAs within and adjacent to the project right of way as it crosses Kahoma Stream.

The above research suggests a bimodal traditional settlement pattern and complex land tenure system that was likely a result of a growing environment that was limited to the stream valleys and lower coastal plains and a highly concentrated population. For example, as a result of LCA research and review of the historic maps, we know that the coastal *ahupua'a* of Puunoa 1, 2, and 3 had a *mauka* counterpart within Kahoma Valley above the Kahoma/Kanahā confluence (see Figure 9 and Figure 12). Many times claimants who retained a *kuleana* within the *makai* section also retained a section *mauka* (see also Figure 9 through Figure 13 and Section 3.1.4.1 The Great Māhele). In this manner, the tenants of the land were able to maintain a productive *lo'i* in the *mauka* reaches (Girvin 1910), as well as, access the abundant coastal resources, two resource environments that were effectively bisected by the rocky alluvial plains of West Maui. Archaeologically, features associated with stream valley settlement have been represented by habitation enclosures, terraces, and/or platforms, as well as features associated with diversified traditional agriculture (*lo'i* and *kula*) represented by agricultural terracing, agricultural mounds, and traditional water control features (Connolly 1974, Jensen 1989 and 1991, and Robins et al. 1994). Archaeological features representing coastal habitation and marine exploitation have included habitation enclosures, terraces and/or platforms, and thick cultural material deposits, as well as smaller ceremonial structures, such as stacked-stoned fishing shrines, *ko'a*, and fishpond remnants (Folk 1991, W. Fredericksen 2002, W. Fredericksen and D. Fredericksen 1965, Haun 1988, and Kawachi 1991). It is also likely that human burials would have been placed in the coastal sand dunes and immediately back from the coast (Connolly 1974, Davis 1977, Donham 1993, and Hammatt 1978).

*Mauka-makai* trails would have connected the coastal *ahupua'a* and resource areas with the *mauka* stream valley *ahupua'a* and resource areas through the *pili* grass plains of the larger *ahupua'a* like Wahikuli and the plains of Panaewa. While the traditional landscape of the intermediate area between the *mauka* and *makai* regions has been thoroughly altered by commercial sugar production from the early historic era through modern times, pre-contact features within this intermediate zone may have mirrored those of similar environments elsewhere on Maui Island, and consisted of dispersed, low-intensity, or opportunistic dry-land agriculture, temporary habitation (Chaffee et al. 1997; Donham 1990; Miura 1982) and trail markers such as *ahu* (stone cairns).

## Section 4 Community Consultations

Cultural Surveys Hawai'i Inc. contacted the following individuals and Hawaiian organizations requesting their *kōkua* and guidance regarding knowledge of traditional cultural practices and cultural resources of the study area. The following table represents all community consultations conducted with *kama'āina*, Hawaiian cultural advisors and Hawaiian organizations. Individuals who expressed personal knowledge of the study area and gave their consent to share their *mana'o* for this study, both formally and informally, are presented in Section 5 Results of Community Consultation, Informal, and Formal Kama'āina Interviews. Formal letters of response to the scoping letter sent out by CSH (see Section 2.2 Scoping and Community Outreach) have been appended to this study as Appendix B Formal Letter Responses.

Table 6. Community Contacts

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
Ms. Josephine Keli'ipio	Granddaughter of Adam Pali	Y	S	CSH mailed letter of inquiry. Ms. Keli'ipio explained that she is a descendant of Philip Poholopu Pali.
Mr. Phillip Jaentsch	Kailihou 'Ohana	Y	Y	CSH mailed letter of inquiry. Mr. Jaentsch was present at 'ohana meeting, August 1, 2008; See Section 5.1 Informal Interviews.
Ms. Louella Haia	Current owner of Haia Cemetery property – Haia 'Ohana	Y	DP	CSH mailed letter of inquiry. Ms. Haia was present at 'ohana meeting, August 1, 2008. See Appendix B .
Mr. Wayne Kalani	Kailihou 'Ohana	Y	DC	CSH mailed letter of inquiry.
Mr. Jonah Keahi	Haia 'Ohana	Y	Y	CSH mailed letter of inquiry. Mr. Keahi is a great grandson of Pili Haia Kekai. See Section 5.3 Formal Interviews
Mr. Foster Ampong	Descendant of Keaweiwi and Kekahuna	Y	Y	CSH mailed letter of inquiry. See Section 5.1 Informal Interviews.

<sup>2</sup> Key:

Y=Yes

N=No

A=Attempted (at least 3 attempts were made to contact individual, with no response)

S=Some knowledge of project area

DC=Declined to comment

DP=Declined to participate

U=Unable to contact, i.e., no phone or forwarding address, phone number unknown

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
Ms. Lehua and Mr. Glenn I'i	Pali 'Ohana	Y	D	CSH mailed letter of inquiry. Ms. I'i and Mr. I'i were present at 'ohana meeting, August 1, 2008.
Mr. Ke'eamoku And Mrs. Uilani Kapu	Kuleana Kuikahi LLC and Kailihou 'Ohana	Y	Y	CSH sent letter of inquiry. Mr. and Mrs. Kapu were present at 'ohana meeting, August 1, 2008. Ms. Kapu wants burials disinterred during the Kahoma Stream Flood Control Project returned to Kahoma. See 5.2.2 State Historic Preservation Division – Maui/Lāna'i Islands Burial Council (M/LIBC). Formal request letter in Appendix E
Ms. Qualani Kapu-White	Kailihou 'Ohana	Y	DP	CSH mailed letter of inquiry. Ms. Kapu-White sent letter to CSH, see Appendix B for letter responses.
Ms. Donnalynn Johns	Kailihou 'Ohana	Y	Y	CSH mailed letter of inquiry, Ms. Johns was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews.
Mr. Tommy Kekona	Kailihou 'Ohana	Y	Y	CHS mailed letter of inquiry. Mr. Kekona was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews
Mr. Hervey Takitani	Kailihou 'Ohana	Y	N	CSH mailed letter of inquiry. Mr. Takitani was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews
Mr. Brian Haia	Haia 'Ohana	Y	DC	CSH mailed letter of inquiry. Mr. Haia was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews
Mr. Charles K. Haia Jr.	Haia 'Ohana	A	DC	CSH mailed letter of inquiry. Although CSH was not able to contact Mr. Haia, his sister Louella and brother Brian have been keeping him informed.
Mr. Clayton Baybayan	Pali 'Ohana	A	--	CSH mailed letter of inquiry. CSH spoke with Mr.

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
				Baybayan's son Lindsey. He said they went up to the Pali cemetery in July, cleaning the site. Lindsey said he noticed rock alignments.
Mr. Darryl Aiwohi	Relation Unknown	A	--	CSH mailed letter of inquiry.
Ms. Mabel "Momi" (Kailihou) Jaentsch	Daughter of Samuel Kaluapana Kailihou	Y	Y	CSH mailed letter of inquiry. Ms. Jaentsch was present at 'ohana meeting, August 1, 2008. See Section 5.3 Formal Interviews.
Mr. Kekai and Colleen Kapu	Unknown	A	--	CSH mailed letter of inquiry.
Mr. Andrew Naleieha	Unknown	A	--	CSH mailed letter of inquiry.
Ms. Lillian Suter	Pali 'Ohana	Y	Y	CSH mailed letter of inquiry. Ms. Suter was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews
Ms. Yolanda Dizan	'Ohana	Y	--	CSH mailed letter of inquiry. Ms. Dizan was present at 'ohana meeting, August 1, 2008.
Mr. James Haia	Haia 'Ohana	Y	Y	CSH mailed letter of inquiry. See Section 5.1 Informal Interviews.
Mr. James Haia Jr.	Haia 'Ohana	N	--	CSH mailed letter of inquiry.
Mr. Narciso Billianor	Unknown	Y	N	CSH mailed letter of inquiry. See Section 5.1 Informal Interviews
Ms. September Keahi	Haia 'Ohana	A	--	CSH mailed letter of inquiry.
Ms. Elizabeth Laborte	Unknown	U	--	
Ms. Leona Nahooikaika	Kailihou 'Ohana	A		CSH mailed letter of inquiry.
Mr. Kalani Kapu	Kailihou 'Ohana	Y	Y	CSH mailed letter of inquiry. Mr. Kapu was present at 'ohana meeting, August 1, 2008.
Ms. Ululani Keahi	Haia 'Ohana	A	--	CSH mailed letter of inquiry.
Mr. Archie Kalepa	Pali 'Ohana	Y	Y	CSH mailed letter of inquiry. Mr. Kalepa was present at 'ohana meeting, August 1, 2008. See Section 5.1 Informal Interviews

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
Mr. Chad Baybayan	Pali 'Ohana	A	--	CSH mailed letter of inquiry.
Mr. Kekai Keahi	Haia 'Ohana	Y	Y	See Section 5.1 Informal Interviews
Mr. Moki Keahi	Haia 'Ohana	Y	Y	See Section 5.1 Informal Interviews
Mr. Edwin Lindsey	Kama'āina	Y	Y	See Section 5.1 Informal Interviews
Ms. Kala Baybayan	Pali 'Ohana	Y	Y	See Section 5.1 Informal Interviews
Mr. Charles Maxwell	Kupuna, Chair M/LIBC, President - Hui Mālama I Na Kupuna,	A	--	CSH sent letter of inquiry.
Ms. Hōkūlani Holt-Padilla	Master Kumu Hula, Maui Arts and Cultural Center – Director of Cultural Programs	A	--	CSH sent letter of inquiry.
Mr. Stan Solamillo	Maui County Cultural Resources Commission	Y	S	CSH sent letter of inquiry. Mr. Solamillo is glad that the Bypass Phase IA was realigned. He believes historic and pre-historic structures need to be preserved. He believes Hawaiians have lost too much of their culture and cultural sites, and that the disconnect between ancient Hawaiians and modern day Hawaiians is too big. He feels this connection should be made strong again.
Lahaina Hawaiian Civic Club	Lahaina Hawaiian Civic Club	Y	N	Mr. Peter W. McKenney responded, requesting that we continue to work closely with families from the area and accommodate their needs to the greatest extent possible. LHCC members are equally concerned for the needs of the community. A main concern of the members being the potential for disaster in the Lahainaluna neighborhood due to the volume of people there and the lack of alternative emergency routes.

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
Mr. Timothy Bailey	'Aha Kiolo Advisory Committee	Y	--	
Mr. Edward Ayau	Hui Malama I Na Kupuna o Hawaii Nei	A	--	CSH sent letter of inquiry.
Mr. Clifford Nae'ole	Cultural Advisor, Ritz-Carlton Kapalua	Y	N	CSH sent letter of inquiry. Deferred questions to "...those that were brought up in the area..." see Appendix B
Ms. Coochie Cayan	SHPD – Cultural Specialist	Y	N	CSH mailed letter of inquiry; Ms. Cayan stated that CSH has made an extensive community outreach and she did not have any additional referrals, see Appendix B
Mr. Ki'ope Raymond	Maui Community College, Hawaiian Studies	A	--	CSH mailed letter of inquiry.
Ms. Roslyn Lightfoot	Maui Historical Society/Baily House Meuseum	Y	S	CSH mailed letter of inquiry; Ms. Lightfoot referred CSH to Paulo from Ukumehame.
Mr. Charlie Lindsey	Kaho'olawe Island Reserve Commission	Y	S	CSH mailed letter of inquiry; Mr. Lindsey would like to see coastal land preserved and fishing rights continued.
Mr. Leslie Kuloloio	Hui Alanui O Makena	A	--	CSH mailed letter of inquiry.
Mr. Perry Artates	DHHL – Hawaiian Homes Commissioner, Maui	Y	N	CSH mailed letter of inquiry.
Mr. Kawika Farm	Maui/Lana'i Island Burial Council	Y	Y	CSH sent letter of inquiry. CSH attended August 28, 2008 Burial Council meeting. See Section 6.2 for discussion.
Ms. Patty Nishiyama	Na Kupuna O Maui	Y	Y	CSH mailed letter of inquiry. Ms. Nishiyama referred CSH to Uncle Charlie Makekau and John Kuia.
Ali'i Sir William Garcia	<i>Kama'āina</i>	Y	S	CSH sent letter of inquiry. Mr. Garcia has objections to the bypass. He would like "ancient sites" to be left undisturbed. He refers CSH to the Kapu family in Kaua'ula Valley and to Mr. Gordon Cockett, <i>kama'āina</i> of Lāhainā.
	Royal Order of	Y	N	CSH letter presented at

Name	Affiliation	Contacted <sup>2</sup>	Personal Knowledge (Y/N/S)	Comments
	Kamehameha			meeting of members by Ali'i Sir William Garcia.
Mr. Keoki Freeland	Former Pioneer Mill Manager/Lahaina Restoration Foundation	Y	S	CHS mailed letter of inquiry; see Section 6.1 Informal Interviews.
Mr. Akoni Akana	Director, Friends of Moku'ula	Y	Y	CSH mailed letter of inquiry. See Appendix B
Mr. Sam Ka'ai	Cultural Practitioner	A	--	CSH mailed letter of inquiry.
Uncle Moki Keahi	Haia 'Ohana	Y	Y	See Section 6.1 Informal Interview.
Kahu Lyons Naone	La'au Lapa'au practitioner	A	--	
Ms. Apolei Bargamento	OHA-Native Hawaiian Historic Preservation Council	Y	Y	CSH sent letter of inquiry. CSH attended the council's August 25, 2008 meeting, See Section 6.2.
Uncle Charlie Makekau	Makekau 'Ohana	Y	Y	Referred by Patty Nishiyama. see Section 5.1 Informal Interviews.
Kaluakini 'Ohana	Lāhainā 'Ohana	A	--	Referred by Kaponō'ai Molitau.
Nakoa 'Ohana	Lāhainā 'Ohana	A	--	Referred by Kaponō'ai Molitau.
Mr. John Kuia	Kama'āina	Y	Y	Referred by Patty Nishiyama and OHA.
Mr. Gordon Cockett	Kama'āina	Y	DC	Referred by Mr. William Garcia
Ms. Myra Kanoelehua (Pali) Keli'ipio	Pali 'Ohana (Daughter of Adam Pali)	Y	Y	See Section 5.1 Informal Interviews.
Dr. Isabella Aiona Abbott	Kaili hou 'Ohana	Y	S	Deferred to Mabel Jaentsch and Sara Takitani (Kaili hou sisters).
Ms. Noelani Mason	'Ohana	Y	DP	Ms. Mason was present at 'ohana meeting, August 1, 2008.

## Section 5 Results of Community Consultation, Informal, and Formal Kama'āina Interviews

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The summaries presented in the section below consists of information that was shared during community consultations, informal, and formal interviews related to past and present land uses and traditional Hawaiian cultural resources, including traditional Hawaiian practices and beliefs of the study area.

### 5.1 Informal Interviews and Consultations

#### 5.1.1 August 1, 2008 Consultation with Members of the Haia, Pali and Kailihou 'Ohana

Mr. Phillip Jaentsch of the Kailihou 'Ohana responded to the letter of inquiry sent by CSH and expressed his family's desire to meet and talk story. He explained that his mother, Ms. Mabel Jaentsch and sister, Ms. Donnalynn Johns, would be visiting Maui in early August. It is also important to note that the members of the Pali, Haia and Kailihou 'Ohana of Kahoma are cousin to one another and consider themselves part of a single 'ohana. Following the receipt of the letter of inquiry sent by CSH, Mr. Jaentsch contacted several of his cousins on Maui and at the request of representative members of the 'ohana, one large group consultation was conducted for this study.

The meeting took place at the Lahaina Recreational Center on August 1, 2008 between 8:00 a.m. and 4:30 p.m. in an effort to accommodate various schedules. A total of twenty-one individuals attended the meeting throughout the day and included the following in order of arrival: Mr. Tommy Kekona, Mr. Brian Haia, Ms. Lehua I'i, Mr. Glenn I'i, Mr. Archie Kalepa, Ms. Yolanda Dizan, Ms. Lillian Suter, Ms. Noelani Mason, Mr. Kalani Kapu, Mr. Hervey Takitani, Mr. Wayne Kalani, Ms. Kala Baybayan, an unidentified individual, Mr. Phillip Jaentsch, Ms. Donnalynn Johns, and Ms. Mabel Jaentsch, Ms. Louella Haia, Mr. Ke'eamoku Kapu, Ms. Uilani Kapu, Mr. Keawe Kapu, Mr. and Mrs. Ke'eamoku Kapu's son and friend. The following section, organized by individuals and the time of their arrival, summarizes the knowledge shared and concerns expressed at this meeting.

##### 5.1.1.1 Mr. Tommy Kekona – (Kailihou 'Ohana, 8:00 am)

Mr. Tommy Kekona is part of the Kailihou family. His mother was Martha Kailihou and his father was Thomas Kekona from Kahakuloa. Martha Kailihou's father was Samuel Kaluapana Kailihou (S. Kaluapana). Mr. Kekona explains that his mother was raised by Tūtū Kenikeni until she was 11 years old at which time she went to live with her eldest sister at Hawaiian Camp (now the location of the Ritz-Carlton Hotel), in Honokahua Ahupua'a. He explains that his aunts, Mabel Jaentsch (Aunty Mabel) and Sara Takitani, are the last remaining Kailihou siblings.

With regard to family burial concerns, Mr. Kekona shared that Samuel "Nika" Kailihou (Nika), his great grandfather, is buried in the Haia cemetery (recorded as SIHP 50-50-03-1776 by Connolly [1974]; see also Section 3.2 Previous Archaeological Research). In recent years, he has visited the Haia cemetery in an effort to locate his grandfather S. Kaluapana but is unsure of the exact location in which S. Kaluapana was buried. Mr. Kekona explains that Aunty Mabel,

daughter of S. Kaluapana, recalls her father's burial site as being located further *makai*, along Kahoma Stream. He then recalls a story his mother told him about the time his uncles tried to go up to the cemetery and got attacked by bees. With regard to the final resting place of S. Kaluapana, Mr. Kekona along with others believes that he (S. Kaluapana) and other individuals were disinterred during the construction of the Kahoma Stream Flood Control Project.

Mr. Kekona states that he would like to continue to visit the Haia cemetery. When describing the route he uses to access the cemetery, he said that he drives behind the new mall (Keawe Street) or up Wahikuli Road. He explains that his family continually faces problems accessing their family cemetery. He expresses his family's frustrations at by being forced to deal with locks on gates that change without warning. As Mr. Kekona understands it, landowners in the area simply do not cooperate with his family regarding access to the cemetery.

Mr. Kekona explained that his grandfather, S. Kaluapana farmed taro in Kahoma Valley. He goes on to relay the story of his grandfather's struggle with the Pioneer Mill Company over water rights, explaining that his forefathers fought and won water rights necessary for continuing the cultivation of taro in Kahoma Valley. He explained that twice S. Kaluapana broke culverts that were built by the mill to block water from reaching his *lo'i*. Upon his third attempt guards were waiting for him and told him he could not break the culvert. S. Kaluapana took Pioneer Mill to court eventually winning shared water rights; the use of the water for 12 hours a day. He goes on to explain that at some point Pioneer Mill cut the water off completely, forcing the family to leave the valley. Mr. Kekona remembers his mother telling him stories about their family's house in Kahoma Valley; however, as a youngster who was raised at Hawaiian Camp, Mr. Kekona recalls the plantation regulations forbidding access into Kahoma and Kanahā Valleys.

Mr. Kekona recalls his mother utilizing a particular mountain trail from Honokahua to Lāhainā. It came down by Hailau, he says and on the way back it went by Mt. Eke. He thinks it was a shorter distance than the shoreline and explains that they would have easier access to food and water while traveling in the mountains. On this route, they would spend the night in the mountains. Mr. Kekona recalls some of the duties that the Lahainaluna boarders performed on the school campus and within the Kanahā Valley to earn their keep. Such duties included, tending to the cattle, chickens, *lo'i*, and vegetable gardens and working at the campus dairy. They also sold some produce to merchants. Remaining produce was used at the school. Mr. Kekona also describes his mother's love for the mountains and his father's love of the ocean; he recalls fishing with his father and his father exhibiting knowledge of conservation, explaining to his son that the largest fish and the females must be released so they can continue fish populations. He said his father knew a lot about fishing which he had learned from his grandfather and goes on to talk of his mother's knowledge of *limu* (seaweed):

My mother also had respect for and knowledge of the ocean. She knows much about various types of limu.

#### 5.1.1.2 Mr. Archie Kalepa (Pali 'Ohana, 11:00 am)

Mr. Archie Kalepa is the son of Dallas Kalepa and the great grandson of Adam Pali. Traditional Pali family lands were located in the *ahupua'a* of Wahikuli and *mauka* in the valleys of Kahoma and Kanahā. Mr. Kalepa is concerned about accessing these traditional lands and his

family gravesite located nearby (recorded as SIHP 50-50-03-2485 by Jensen [1989]; see also 3.2 Previous Archaeological Research). He inquires as to how they will access their property once the bypass is constructed; “How will we get to our family cemeteries?” He explains that access has been a problem since the Pioneer Mill owned the land. Mr. Kalepa recalls that during his childhood the Pioneer Mill constructed a fence, complete with yellow banding at its height, marking their lands deemed strictly “off-limits”. He explains that “you were in running mode” once you crossed this fence,” “the area was *kapu* by the Mill”. Today it is no longer the Pioneer Mill, but rather a variety of landowners and several locked gates blocking access. He asks again, “How will we access our family lands?”

Currently, Mr. Kalepa uses the cane haul road, past the pump house to access the family cemetery. He was at SIHP-2485 recently and helped clear the cemetery. He would like to see the gravesites remain undisturbed by construction and hopes to revive family lands located further up in Kahoma Vally by restoring the *lo'i*.

#### 5.1.1.3 Ms. Lillian Suter (Pali 'Ohana, 11:00 am)

Ms. Lillian Suter is the great granddaughter of Paaaoa Poholopu. Paaaoa Poholopu's husband was Reverend Adam Pali. She explains that Rev. Pali and Paaaoa are known to be buried in Kahoma. Reverend Adam Pali was a minister at Waine'e Church. Ms. Suter feels construction of the bypass may further divide the community racially, along Haole/Hawaiian lines.

Ms. Suter and Mr. Kalepa agree on the need for access to family properties and their family gravesites located above the proposed bypass route. They do not want to ask anyone for keys, nor do they want to deal with gates blocking access. They have suggested gating their own property and cemetery, for privacy and to keep the cattle from trampling the area, an ongoing problem.

#### 5.1.1.4 Ms. Mabel “Momi” (Kailihou) Jaentsch, Mr. Phillip Jaentsch, Ms. Donnalynn Johns (Kailihou 'Ohana, 1:30 pm)

Aunty Mabel arrived at the 'Ohana meeting at approximately 1:30 p.m., with her son, Mr. Phillip Jaentsch and daughter, Ms. Donnalynn Johns. Because she is *kupuna*, and has firsthand knowledge of the land use history and resources of the study area, Aunty Mabel was also formally interviewed for this study, the results of which have been included in Section 5.3 Formal Interviews (see also Appendix C ). At the conclusion of our meeting and interview, Aunty Mabel shared the approximate location that she recalls burying her father in the 1940's. Cultural Surveys Hawai'i staff was able to visit this location for approximately 15 minutes along with Aunty Mabel, Mr. Jaentsch and Ms. Johns and talked about the unknowns regarding ground disturbing activities that had taken place there, in addition to the possibilities regarding the identification of her family's cemetery once located in the area.

#### 5.1.1.5 Mr. Ke'eaumoku Kapu and Ms. Uilani Kapu (Kailihou 'Ohana, 2:30 p.m.)

Mr. Kapu inquired about the possibility of setting aside a portion of land that the families who have expressed concerns about returning individuals who were disinterred as a result of the Kahoma Stream Flood Control Project (see also Section 5.1.1.1 Mr. Tommy Kekona – (Kailihou 'Ohana, 8:00 am)) could use and maintain as a reinterment site. Minutes from Maui/Lāna'i

Islands Burial Council meetings show that individuals who were removed as a part of the Kahoma Stream Flood Control project were repatriated to the M/LIBC as a part of the the Native American Graves Protection and Repatriation Act and, after much discussion, reinterred at the Honokahua Burial site near the present day Ritz-Carlton Hotel.

Mrs. Kapu expressed concerns about the potential for project related adverse effects on historic properties further upstream and into the valleys that might result from vibrations caused by heavy equipment and pile driving. Mr. and Mrs. Kapu are currently working on the restoration of Ko'ie'ie Fishpond in Kīhei. Mrs. Kapu indicated that a nearby construction project, that included pile driving, caused the collapse of the pond walls that they were restoring. Based on her experience in Kīhei, Mrs. Kapu is concerned that similar adverse effects may result from the construction associated with the Lāhainā Bypass Phase IA and has inquired about accountability on the part of the project proponents in the event of project-related damage to adjacent historic properties.

### **5.1.2 Mr. Charlie Makekau**

Uncle Charlie Makekau was referred by Aunty Patty Nishiyama of Na Kupuna O Maui. Uncle Charlie was born at Paiohe but raised at Kelawea Village. He is 75 years old, the son of Samuel Makekau, Maui's first fire lieutenant and graduate of Lahainaluna Seminary. His mother was a Japanese-Hawaiian woman named Emma Yasue Naganuma. His grandparents were Charles Makekau and Lo'e (Paniani) Makekau. He understands that the original Makekau came from North Kona, in the Napopo area.

Uncle Charlie enlisted in the Hawaii Army National Guard unit that was stationed at Schofield Barracks in 1968. He also made a career at the Royal Hawaiian Hotel where he worked for 35 years. Prior to his years at the hotel on O'ahu, he worked at the Lāhainā pineapple cannery (11 years) and the Pioneer Mill Company (four years). As a boy growing up in Lāhainā he also made money shining shoes, diving for coins, and selling sea shells.

Uncle Charlie explained that the area the Lāhainā Bypass Phase IA is crossing used to be cane fields and a rubbish dump. The plantation and the county were among those who utilized the area for this purpose. Uncle Charlie visited the area last summer when CSH was recording SIHP 50-50-03-6277. He talked with the CSH field crew, as well as Ms. Mabel Jaentsch, who happened to be on-site the same day. They shared their recollections of the area. In his discussions with Mabel he described his recollection of how one would get to the area where Mabel buried her father. He said he knew her neighbors, William Auwae and the Coelhos and described the route which Mabel might have taken: crossing Front Street to Keone Street following this street up along the Kahoma Stream, then across the combination bridge (train track, vehicle and pedestrian). At the time, the area Mabel described to him was adjacent to a cane field.

Uncle Charlie explained that during WWII, the majority of the area was in sugarcane. He said the "*hanawai*" (the people in charge of irrigating the fields) would make small vegetable gardens in the cane fields. These gardens, he explains, were common throughout the cane fields and although these gardens were for personal use, the plantation allowed them. The *hanawai* man, as they were called, would tend his garden and share the vegetables, either giving them away when requested or bartering for other goods. Uncle Charlie said it was easy to get water to this area which is why gardens were planted here.

When asked if he recalls Hawaiians utilizing the area in traditional ways, Uncle Charlie remembers several *lo'i kalo* along the stream banks of Kahoma Stream. He describes a bridge that was used to cross Kahoma Stream from Kelawea Village stating that *lo'i* began at this bridge and extended *mauka*. When Uncle Charlie recalls climbing up the hill to the dump, he remembers having to cross taro patches. They were small, he states, but they were one after another and you had to take big steps to get through them.

Uncle Charlie launches into a story about flume system the mill used to transport sugarcane. “This was a good system”, he states. The cane was set in the flume, and then water was flushed down carrying the sugarcane down to the lower elevations. As a child of maybe 6 years, Uncle Charlie would tie koa branches together to form a sort of raft. Uncle Charlie and his friends would sit on their makeshift rafts and ride down the flume.

Uncle Charlie goes on to describe the differences between the Kanahā (understood as Kahoma) and Lahainaluna Streams (understood as Kanahā)<sup>‡</sup> you could always tell when Kanahā was raining, he states, because Kanahā had muddy, torrent water. If Lahainaluna Stream was raining it was clear, clean water. Uncle Charlie recalls Kanahā as a tight [narrow] valley. Up Kahoma, there was a small dam used to divert water to the plantation. Uncle Charlie remembers that prior to the plantation stream diversion; there were two well known swimming holes at the *kahawai* (stream). They were known as “Small Pool” and “Big Pool”. The Small Pool was just below the bridge and about 75-100 yards *makai* was Big Pool. Big Pool was a deep pool that you could dive into and it was the place where Uncle Charlie learned to swim. He says that the children he knew learned to swim at these pools and not in the ocean. He also recalls the small medica or mosquito fish that lived in the streams. After the plantation built the small dam, he explains, the pools only filled during big storms when the water was high enough to spillover the dam.

When asked about the families who lived in the upper valleys, Uncle Charlie remembers Nika, Kukaia, and Makekau 'Ohana. The Kukaia's owned a home in Kahoma Valley and Uncle Charlie describes it as more of a shack. His father Samuel spent a lot of time here as he was raised by the Kukaia family (see also Section 3.1.3.1 Agricultural Endeavors). This house was located under an overhang in the valley in which a large boulder was fixed in the mountain side above the house. This home had a level foundation filled with '*ili'ili* stones gathered from the streambed and Uncle Charlie remembers laying *lauhala* mats over the stones for sleeping. Uncle Charlie's father also farmed taro at this location and the whole family worked on the farm when they visited.

Uncle Charlie also recalls a dairy along Kahoma Stream, a plantation dairy. He said the plantation did away with the dairy. A Japanese family had bee hives there, they called the man “Honey”. As a child, Uncle Charlie would walk from Kelawea Village to Māla to fish. Uncle Charlie recalls the time a big flood washed a mango tree down and it blocked the *kahawai*. This flood caused tremendous damage to the cannery.

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<sup>‡</sup> (It is important to note that Uncle Charlie grew up referring to the Kahoma Stream as Kanahā and the Kanahā Stream as Lahainaluna. From the point these two streams met and flowed *makai*, was known to him as Kahoma Stream)

Uncle Charlie recalls a story about when “the Kaua’ula winds was flying!” He was down at Kamehameha Iki, and his aunt, Puohala exclaimed “look!” When he looked, he saw the entire church slowly rise off the ground; it appeared to have been set down gently but was ultimately reduced to a pile of wood and glass. Someone had left the windows open, he explained, the windows facing Kaua’ula, but no other windows were opened. Therefore, there was no way for the wind to escape, the church went where the wind went – “up!” Needless to say, it was beyond repair.

Uncle Charlie relays another story about tagging along with his father and Mr. Auwae when they delivered fire-wood to the different camps. Mr. Auwae was a truck driver with the plantation and his father, Samuel Makekai, was a “swamper”; he says they were good friends. They would drive around delivering kiawe wood to all the camps. He remembers at Japanese Camp, the men would often try to bribe Mr. Auwae and his father into giving them extra wood by offering them kikaboo juice (swipe) or sake, the Japanese rice wine. He said they made kikaboo juice out of any fruit available. They brewed it in large (five gallon) porcelain jugs that had heavy lids, called “jimmy jar[s]”. The men doing the bribing would raise the lid and pull back the cloth that sealed the surface of the drink. Uncle Charlie distinctly remembers the cockroaches floating in the concoction. But the bugs were not removed, he said, instead they were pushed aside. You would take your personal cup (often made from a tin can) dip it into the drink and enjoy a glass. It was said that the cockroaches made it more delicious (potent)! Uncle Charlie said the Japanese, Chinese and Korean camps had the best food. The Chinese families they would visit gave him big cookies, the kind with the big red dot in the middle. He often asked for seconds.

When looking over old survey maps from 1915 and 1916 that depict the boundary lines and Land Commission Award claimants for certain lands, the name of one owner, Ane Makekai, was located on a map. Uncle Charlie explained that he was not familiar with these parcels but that Anne Makekai (variation in spelling) was his father’s, sister’s name. Recognition of the name leads him to believe that it might have been a person from an older generation in his family, possibly a great-grandmother. He went on to say that his aunt Anne Makekai married a man named Paoao and they moved to Hau’ula, O’ahu.

Uncle Charlie remembers his childhood friend Philibert Secretario. His father was a mule man, and used his mules to pack *pulapula* or bundles of sugarcane. Mr. Secretario’s mule team consisted of about seven mules. Uncle Charlie and Philibert would use the mules and ride from Uncle Kama’s house, across the bridge near Kelawea Village to Crater Reservoir. On occasion, the *lua*, or reservoir, would get flushed and some of the families in the area would go up to the crater because they could easily catch fish during this flush. Koi and goldfish lived in the reservoir and you could catch them by hand as they were flushed from the reservoir. Uncle Charlie and his friends would catch some fish, tie them to either side of the saddle and ride back down to the village. Their parents would either steam the fish or salt and dry them. Another preparation was to cut them down the back, salt them, and leave them on the roof to dry which made the fish “*Ono!* (delicious) But hard like board!”

Uncle Charlie then suggested contacting individuals who lived at Crater Camp. He said some of these folks are still his friends like Mr. Honda, a crew chief from the harvesting division of the plantation.

### 5.1.3 Kumu Kaponō'ai Molitau

Kumu Molitau is the cultural advisor for the Kaho'olawe Island Reserve Commission. He is recognized throughout the community as an individual with traditional Hawaiian cultural knowledge and shared his *mana'o* with CSH regarding SIHP-6277, as well as cultural concerns that he believes should be considered with regard to construction of the bypass. He first describes the importance of the discovery of SIHP-6277, and the connection that can be made between this site, the "*kupa'āina*, native ones" and their relationship with their lands. He explains that they were indeed profoundly familiar with their natural surroundings. Kumu Molitausees the discovery of this site as an opportunity for future learning.

Kumu Molitau then lists cultural concerns that he would like to see taken under consideration:

1. Will there be adverse impacts to native plants?
2. Will traditional gathering practices and traditional gathering protocol be adversely impacted?
3. Will traditional religious beliefs be impacted?
4. How will the proposed highway alter the traditional cultural landscape?

Kumu Molitau makes his view clear; "Looking at past developments that have destroyed cultural landscapes, it disheartens me as a cultural practitioner to know that more construction and destruction will be the "new identity" to a rich cultural heritage." He further explains that "cultural balance" is difficult to achieve in modern times and that future balance can be attained by forming partnerships with individuals from the study area. Kumu Molitau then referred the researcher to Nā Kupuna o Maui (Aunty Patti Nishyama), Na Koa Kau I Ka Meheu o Nā Kupuna (Ke'eamoku Kapu), The Lindsey family, The Kaluakini family and the Nakoa family.

### 5.1.4 Mr. Foster Ampong

On August 2, 2008 a formal, digitally-recorded interview was conducted with Mr. Foster Ampong. Revisions to transcriptions and clarifications made over the phone between August 22 and October 15, 2008 followed the formal interview. The following synopsis summarizes information shared by Mr. Ampong during both the formal interview and includes his revised statements. Statements made over the phone or as revisions to his interview transcriptions have been footnoted.

Mr. Ampong grew up in Lāhainā and has an intimate relationship with the project area and surrounding lands. His ancestors, Kekahuna and Timoteo Keaweiwi, were half brothers who were raised in Lāhainā three generations ago. Iaukea was their father and according to Mr. Ampong's family's *mo'olelo*, the boys were born and raised in East Moloka'i by Chief Naehu (also known as Nalehu) before moving to Maui in their 20's in the year 1819.

Naehu brought the two boys to Lāhainā and married a woman by the name of Lilia (Cecilia) Kukunaokala. Upon arrival, the family settled down in Waiokama and Waine'e *ahupua'a*, eventually obtaining lands in Kahoma, Kanahā, Kaua'ula, Pu'u Keka'a, Honokowai, and Mahinahina as well as several other *ahupua'a* in the Lāhainā/Ka'anapali Moku. Mr. Ampong explains that many families throughout the greater Lāhainā/Kaanapali Moku were all related and farmed lands in several different valleys.

Mr. Among goes on to explain that it was at this time (1819) that Lāhainā became the capital of the Kingdom of Hawaii. During this time, Keaweīwi, as well as others in his family, became politically active. Although the brothers, Keaweīwi and Kekahuna, were very close, Kekahuna is less noted than Keaweīwi in political affairs, but Kekahuna is more involved with the affairs and responsibilities of the *kanaka maoli*:

In 1831 a son is born to Lilia Kukunaokala. The boy's biological father is Kekahuna. He is given the name Timoteo Keaweīwi Opio and is granted permission/blessings to be raised as the son of Keaweīwi. Lilia Kukunaokalais taken by Keaweīwi to be his wife.\*

...Keaweīwi becomes very involved with the government. With the government, ...Kauikeaoule [Kamehameha III]. He is one of the first legislators in the kingdom and wrote some of the first drafts of the Constitution, the first Constitution and the Bill of Rights (1839) of the Hawaiian Kingdom Government (November 28, 1843).\*

The changes the missionaries brought to the islands impacted Keaweīwi in several ways. First, he was given the Christian name, Timothy. Keaweīwi would then become known as Timoteo Keaweīwi.

Mr. Among describes how Reverend Dwight Baldwin, himself had noticed Timoteo, possibly viewing him as an influential individual. Mr. Among refers to the Windley files, a compilation of reports written by missionaries to update their headquarters back in New England. In these files it was reported by Rev. Baldwin, that during the small pox epidemic of 1852, Timoteo and all the families living in Kahoma and Kanahā Valleys received the vaccination for the disease. Mr. Among stresses that many of the missionaries at that particular time were flooding into the islands and targeted Timoteo specifically for the Anglo-Saxon Protestant religious conversion, apparently viewing Timoteo as an individual with the potential to influence a greater number of native Hawaiians than the arriving *haoles*\*:

I think it was Baldwin when he writes these official reports in New England, to the missionaries headquarters, guess he would do annual reports...of what was taking place in the islands with their work, their kuleana, and one of it that he mention was that he mentioned is that he was able to inoculate everybody on Timoteo's land. Yeah, so what I was referring to is that he inoculated everybody on Timoteo's land. So, you know, up Kahoma, where my [tupunas were\*] buried, and from up when it says in the land my tūtū had land, like I was showing you, the top of Kanahā and Kahoma all the way down to the ocean.

Not only did Timoteo survive this epidemic, but he was educated at Lahainaluna Seminary where he learned English and where he learned to read and write. Mr. Among shares his perspective of the conversion of the *Ali'i* class to Christianity:

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\* Revisions added by Mr. Foster Among

...missionaries went after the ali'i class, because once they controlled the ali'i class, they could control the rest of the classes. That was the logic...

In 1863 Kekahuna and Waikane had a son and named him Timoteo Kekahuna; he would become Mr. Ampong's great-grandfather.

Benjamin Q. Ampong and Emma Kaiu Kimokeo were Mr. Ampong's parents. Palenape Imihana Kimokeo and Abby Waiau were his grandparents. As an infant, Mr. Ampong's mother was *hanai* by her aunt, Emma Kaiu Waiau. Emma Waiau was married to Moses (Moki) Kalaluhi from Kahoma Valley. Mr. Foster Ampong recalls his mother's stories about her childhood in Kahoma Valley and how she walked into the valley every week to tend the family *lo'i* and harvest *kalo*:

So the Kalaluhi, the Kekahunas, the Keaweiwis, the Naehus, are all related into one big family. All part of the house of Keawe. So, my mother, from when she was born until she was twelve years old, raised with her *hānai* family, with Moki Kalaluhi and Emma Kaiu, raised taro in Kahoma. And, my uncle—my *tūtū*-man Moki had a brother that lived in the valley full-time and he tended to the fields. And my mother then lived in Lāhainā behind of the old Queen's Theater...on Front street, but it's across from Kimos, on the mauka side of Front Street, across from Kimos and the yacht club. There's this old structure that used to be the old Queen's Theater, behind were some apartment that's my mom, [she] said she remembered they lived [there]. And they would go every week up to Kahoma. She would take my *Tūtū* Moki and my mom's—we called her *Tūtū* Waikapu, Emma Kaiu Waiau, and they would load the donkey with all the supplies, the chicken and the dog, and they'd walk from Lāhainā town up into Kahoma valley. And they would tend to the taro patches. I believe there was over an acre and a half.

When asked how the family accessed the valley, Mr. Ampong explains they utilized trails and roads, essentially the same corridor and cane road that the families use today:

...my mother showed me the road when I was little. It's that road, that cane road, you know the one that goes up into the valley, now?

That's the road they'd walk. And they would walk with the donkey, the dog and the chicken. And they'd walk up and they'd come right by...you know where the road crosses the kahawai just below [the Haia's\*] family burial.

Because if you went up on the hill, you would cross over into Kanahā. But if you stayed down along the kahawai you go up into Kahoma. And so, my mother and them taro patch was up there. Now my *tūtū* man Kekahuna had property up Kanahā. The very first...if you look at the thing, the 1889 or 1884 map, it'll show

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\* Revisions added by Mr. Foster Ampong

some of the kuleana properties up in Kanahā Valley. The very—the uppermost one recorded is Kekahuna.

Mr. Among goes on to explain that his great great grandfathers Kekahuna and Keaweiwi registered several parcels throughout Lāhainā, Kahoma and Kanahā Valleys during the Mahele:

Kekahuna, my great-great grandfather, he had several properties registered with them. He...he went to the commission, filled out the applications, went through the whole Māhele process. Keaweiwi had choke...kuleana properties. The weird part is he didn't have anything really huge. You know it was like an acre here, an acre there, a lot of it was taro. Most of it was taro, all along the [Kahoma and Kanahā Streams].

Mr. Among shares another story about his mother's weekly trips into Kahoma Valley, one which touches on the superstitions and spiritual run-ins his mother had experienced:

So, my mom...she told me this numerous...they'd be walking along the trail...going to the taro patch...she'd become sort of like eerie, you know it's sort of like, spooky, and, on more than one occasion, they'd be walking by, she describes the graves, the burials by Louella them family burial and she said we have family buried in there..

...on many occasions she said she could hear people talking in Hawaiian, conversing, and no one was around\*

My mother conveyed to me how on these trips on many occasions my mother would hear Hawaiian voices conversing, she was told by her mom, not to pay attention, they're spirits, they're ancestors, they're family buried throughout the valley. My mom told me stories like this several times\*.

Mr. Among states that he was about eight or ten years old when he first started going into Kahoma Valley and the upland areas of Lāhainā. Today, Mr. Among continues to visit these lands. He describes walking the foothills above Lāhainā and hiking both the Kahoma and Kanahā Valleys to reconnect himself to the 'āina and his ancestors. He walks these lands four or five times a year. It takes him all day and his route begins at Fleming road in Lāhainā where he then walks *mauka*, to Kanahā and Kahoma, then to Honokowai and back to Lāhainā. Mr. Among explains that building the bypass will not only extinguish his tradition of walking the land but that it equates to the desecration of a church:

...You're violating my church. By building that bypass, you're violating my church. That's how I feel. By building that [bypass]...on ceded [land]...it's comparable to the crimes that were committed a couple hundred years ago...

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\* Revisions added by Mr. Foster Among

He continues by explaining that he is not against development, he is just against development that is not “inclusive, i.e. truly sustainable”\*, development that does not consider and work for the interest of the host culture or the community at large:

...I'm not anti-development... [The bypass] [on its present corridor\*] it's not sustainable. None of that is really a sustainable thing for everybody. [In the very short-term by excluding the proposed remedy (utilizing the existing cane-road) to address the traffic concerns of West Maui it sustains\*] corporations [, it sustains government-politics\*] but it doesn't sustain [sustain the families of Kahoma and Kanahā. It excludes na kanaka maoli ohana.\*]...You know, in the long run we're the ones who'll suffer...yes, the bypass affects me, because...this is my family, this is my land...[These lands are my church....they have been my family's church for thousands of years...since arriving here from po.\*]

...now when I see all these things happening, it hurts...[Its feels like this...as long as people with no family, cultural and spiritual ties to the land get their way no matter what/who they hurt and make some money, as long as they don't have to sit in their cars and wait for traffic to ease don't really give a dam, or don't give a dam enough about the people and the families (past, present, future) that have all lived, died and are buried throughout the lands\*]...the reason why I show them my life is—you know we all die soon. I'm gonna go sooner than you guys, okay. And, when I go, I know I'm gonna go to Po. I wanna earn that. I don't wanna get kicked out [by na tupuna I hala because I don't take care of my kuleana for the 'āina and family. And I caution everyone, I don't mean this in any western context or prescription either.\*] When I go there... [to Kahoma/Kanahā it is a very serious event\*]...I walk the land, I take my son there, to Lāhainā, and I talk to him about the mountains and the clouds and I talk to him about all of my relatives that came, and I talk to him about now, and I show him [how and why we have gotten to where we presently are.\*] ...[He's absorbing this...and I show him how to get to a better future for himself and others\*].

...as he gets older, [we will be going to our Church more often\*]...to spend many nights [together\*] ... in Kahoma [so his soul can be nurtured and my spirits lifted\*].

Mr. Among is adamant about moving the Lāhainā Bypass makai to the location of an existing cane haul road:

...you know the cane road's already there, you know, psychologically that'd be less harmful to the Hawaiians and the people, because the cane road has always been there...Would there be risk of running into iwi? Yes. No matter where you go you're gonna have that risk. ...one of the most important things today that

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\* Revisions added by Mr. Foster Among

[concerns/\*] impacts me, is the land titles. [The Land Titles to the so-called Ceded Lands all have "Clouded Title"\*]...

Mr. Among explains that the bypass is just another illustration of the trauma that was inflicted upon his mother and other Hawaiians generations before.

My mother's life was filled with much trauma. She lived through the social, racial and economic injustices inflicted on the Hawaiian people the US Government, Territorial and State Oligarchy. She told me shortly before her death in 2005, she never wanted nor voted for statehood...and her whole life she knew inside Hawaii was not part of the U.S...she only knew that if she didn't go along with the government (Territorial/State) lies, she could not physically survive.\*

...the cane road, I see that having less harmful impact on the psychology, on the emotions and on the soul of the Hawaiian people. To continue this, and to say that it doesn't have an impact is really...horrible--[not sustainable--excluding\*].

Not only does Mr. Among believe that moving the bypass to the cane haul road would lessen the emotional impact on the Hawaiian people, he believes that the proposed route of the bypass will not effectively alleviate traffic in the Lahainaluna neighborhood:

...you're moving the problem from Honoapi'ilani [Highway] to Ikena Road -- that's all you're doing. That's...awful. If you really wanted to fix the problem then you'd run streets, add streets going parallel to Lahainaluna...

Mr. Among explains that he recognizes the need for an alternate route to alleviate traffic into Lāhainā:

...I recognize the need for some kind of remedy for the traffic in Lāhainā. But like I said very passionately in the past, sometimes with less restraint emotionally than I'd like to...the problems in Lāhainā, like they are throughout the island when it comes to traffic, it's because of poor planning, poor management, and quite frankly greed, greed by business, corporation, government, and society in general. That's why the problems are bad, not because we have a lack of infrastructure...I'd like to see the bypass being built on the cane road ...I'm not gonna support anything else...as far as the congestion for Lahainaluna, I don't believe the bypass, running parallel to Honoapi'ilani, be it down on the cane road or up in Ikena Street, is gonna alleviate or remedy the traffic problems at the schools...

The bypass running through Ikena Road will exacerbate the present traffic conditions\*.

When asked about the first time he visited this area, when his personal tradition of walking the land began, Mr. Among tells the story of his first visit as a young boy:

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\* Revisions added by Mr. Foster Among

On many occasions while sitting on my surf board waiting for the next swell, I would be looking to the valleys and Mountains of West Maui...thinking of how life and the people of Maui lived before the arrival of haoles, during the period of the missionaries and Whaling Ships--it was during these moments the yearnings and need to explore the lands burned deeper into my soul\*.

...the first time I went there is 'cause never had waves.

...I am being honest. Okay, um, we's down in Lāhainā and they never had any waves and...we was bored. So. My friend Clayton says, "Oh! Let's go holo-holo! Up mauka!" Okay, so we went home, ... go get my canned corn, and, bottle of water, put it in the backpack, and we went up to Kuahiwi. And, I remember the first...time we went up there...We came across this cow that was stuck in the ditch. You know...that the old irrigation ditches coming out of the field right from—just below Pu'ulaina, there was a ditch that was coming out, going through this room? and then going down to Kahoma, and they come up, and then they go down to Kanahā, and they come up Alahele. There was a cow, stuck in the ditch...trying not to get sucked down into that sinkhole. And I felt so bad. So, we go out thinking, eh, we can rescue the cow, right?

So we go get rope, we tie the rope around the cow neck, eight to ten years old, ok, and we just yank on the cow, yank on the cow, and...I lost my canned corn. Yank 'em up, I can't get 'em. So, it was...that was my first trip, was that day in Kahoma, we never have waves, just trying to save a cow.

Telling his story brings back memories of what the landscape was like at that time::

...when I started hiking up in Kahoma...you know...back in those days there was just more cane fields, it wasn't so developed, you know. And, when the wind would blow, the cane would rustle. There'd be this [movement] like the ocean, and I remember watching this...

Thinking ahead to Phase IB1, the route the bypass will take from Ikena Road through Kaua'ula to Puamana, Mr. Among shares recollections of stone construction he discovered with some friends exploring the area as a boy:

...I remember with my friends coming across...I wanna say it's in the cane fields but it's actually either in the cane fields, or in the area where you have all the haole koa,...I don't know exactly in my mind, exactly where it is but I know it's in Kaua'ula Ahupua'a, not up in the valley, further down...because during that days we hiked and we explore, we go through cane fields and then we go through the cane roads, and then we go through, you know the bushes and the haole koas and you know all the rocks, I mean they tons and tons of rocks over there Lāhainā, rocks grow out of the ground. So, I remember this one day we came

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\* Revisions added by Mr. Foster Among

across this... area that um, in my mind I went home, I remember going home and asking my mom if there were any heiaus in that area, and she asked me why, and then I described to her the tiered structures that you know, um, and I didn't use the term tiered, I remember using the term, um, structures that were built in steps, and they remind me, or they look like heiau. My mother would yell at me say, "no, you don't know what you're talking about. Probably were agricultural terraces, mala'ia, so I'm thinking, well, there was one that was missed, you know, at Kahoma, so who's to say that there wouldn't be another one missed in Kaua'ula, right at the opposite end of Kahoma Stream.

In closing, Mr. Among shares his concerns regarding the potential occurrence of burials in the bypass corridor. His concerns are based on historical events as well as modern day developments where, in his opinion, regulations regarding Hawaiian burials were not adequately followed and resulted in desecration of *iwi kupuna*:

...So, these are the things that concern me and this is why I want to, now talk about the potential liability, obstacles that can arise and we can look at Kauai, Oahu, Big Island, all these other controversial, you know, the Ward street, the Kaka'ako incident, you know where the, Wal-Mart, the [Whole] Food[s] store they were building. Look at the Kauai incident [Naue]... it would be irresponsible to think no its not gonna happen again, we live in Hawaii...look at Kapalua Bay Resort, nobody expected because there was a hotel, the hotel was built 30 years ago, that they would find anyone [burials], but they did and they didn't just find one, found one, two, three, four, five, six, seven?...[what could anyone within reason otherwise expect when Ritz-Carlton is in such close proximity\*]...in my mind it's unrealistic, ...[seemingly as though people who should know better and are mandated by law to ensure strict protocol are followed regarding monitoring-on-site simply had their heads in... the sand like ostriches. It's not only negligent, it's insulting and offensive\*].

...that's why I want to go to the Burial Council to bring up these concerns talk about it, bring in everyone involved ... developers, the State, [the first Native Hawaiian families of these lands, I suspect some\*] are not going to like it because, it only means that they'll have to pay more close attention, you know the process will be stretched even longer than what's happening...

Mr. Among states his frustrations regarding laws and regulations that, in his opinion, governing agencies themselves have not followed:

State, County, Private Business stop lying to us, don't say you care about us and our culture, our beliefs, our tupuna iwi, then make all these rules and laws you say are just and everyone has to follow and obey them, then exactly like the Super Ferry in 2007, The State of Hawaii and Governor Lingle break these laws, and

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\* Revisions added by Mr. Foster Among

when ordered by the high court to obey them, change the laws to avoid criminal and civil responsibility\*.

Living Being in the HuMan function with the attached name Foster Robin Ampong

Date: \_\_\_\_\_

### 5.1.5 Mr. Kekai Keahi

Mr. Keahi expressed frustration with development. He does not want a large highway anywhere near his family gravesite as graveyards are supposed to be places of peace, places to pay your respects to ancestors, places of solitude and reflection, spiritual places. Mr. Keahi explains that he has spent time at the Haia cemetery cleaning and maintaining it. He knows the stories about his great great grandfather Pili Haia Kekai, whom he is named after and who was known to farm taro from Mala to Kanahā. He knows of Pili Kekai's size and strength.

### 5.1.6 Mr. James Haia

Mr. James Haia is 76 years old. Although he grew up on Oahu, he is aware that his family gravesite is in the area. He said he was on Maui two weeks ago (early July) and visited the area with Louella Haia. Mr. Haia and several other family members helped clean the Pali gravesite and also looked at the Haia gravesite. Cattle have been trampling the gravesite causing damage to headstones and rocks, Louella showed him the damages and expressed the need for a fence. He stated that he had been up there a couple of years prior with Louella's father, Charles Haia (now deceased), and who was the caretaker before Louella. At that time, Charles had shown James their family's land. He said that his grandfather Pili Kekai Haia is buried up there. When asked how the Haia family is related to the Keahi family, he explained that his father's (Moses Haia) sister (can't remember her name...Emily?) married George Keahi (Jonah Keahi's father). He said they called him Uncle Keoki. Mr. Haia said his father told them to always leave the graveyard as it is. He said he has a brother, Joseph, 88 yrs old on Oahu along with other brothers on Oahu. He said he had a brother, Philibert Haia, who was raised by his cousin Emma La'a on Maui.

Mr. Haia said he has accessed the gravesite using the plantation road or cane haul road and that Louella has a key. He knows that other family burials have been disrespected and disturbed and does not want his family gravesite treated the same way. He does not want it disturbed. His grandparents are up there.

### 5.1.7 Mr. Narcisco Billianor

Mr. Billianor is *kama'āina* from Honolulu. Although he is not directly related to families from Kahoma and Kanahā, he was raised in the study area. Mr. Billianor described catching crayfish, tilapia and prawns in the Kahoma Stream. He described a reservoir where he and his friends would catch tilapia. He recalls "old Hawaiians" catching o'opu in the Kahoma Stream. He said

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\* Revisions added by Mr. Foster Ampong

Mr. Gordon Peli lived behind Lahainaluna School and raised pigs, as did the Neismans. In addition to the piggery, the Neismans farmed taro. As a boy, he understood there to be numerous graves up in the area and they were told by adults that they were not to disturb them. He said they were marked by stones, piled or ringed, sometimes unmarked. He knows where the Haia gravesite is and is aware that the Haia family is related to the Keahi family. He stated that his family's graves are at Honolulu Bay, where he lives now. Mr. Billianor's concern regarding the bypass is the safety of the school kids. He would like to know how it will be designed in the Lahainaluna neighborhood.

### 5.1.8 Mr. Edwin Lindsey

As *kama'āina* from Lāhainā, Mr. Lindsey explains that State, County and private entities need to recognize the importance of the Hawaiian culture and we need to move into the future with the preservation of Hawaiian cultural sites and cultural resources a priority. He goes on to explain that the Hawaiian culture was “pre-Columbus” rather than “pre-Cook” or pre-contact -- meaning, ancient Hawaiians had settled on these lands before Columbus had made his accomplishments in 1492. Polynesians explored the Pacific Ocean, an area larger than any other civilization, had ever explored. They traveled from the Marquesas to Aotearoa to Rapa Nui to Tahiti. A tremendous feat accomplished by expert navigators whose wayfaring skills pre-dates the Vikings, pre-dates the Ming Dynasty in China, pre-dates the Tokugawa Period in Japan and were honed at the height of the Roman and Mayan Empires. Mr. Lindsey makes reference to Machu Picchu, noting the worldwide reverence it receives. He believes Hawaiian cultural sites should be given the same respect. He goes on to say that Hawaiian archaeological and cultural sites give testimony to their expert wayfaring skills, spiritual practices and cultural practices and that these sites need to be preserved whenever possible.

Mr. Lindsey does acknowledge that there are major changes happening on Maui. He works to perpetuate the Hawaiian culture and is active in the preservation of traditional Hawaiian archaeological sites. However, when it comes to the construction of the Lāhainā Bypass and safety issues of the community and children, he believes that the needs of a living community supersede those of archaeology and historic site preservation. The key factor with regard to the proposed undertaking is that, in his opinion, there is a true need for traffic relief and the alternative route that the Lāhainā Bypass Phase IA section could potentially provide for the community. He asserts that the construction of the proposed undertaking should neither be a result of special interest groups imposing their infrastructure needs on the community nor should individuals in the community be allowed to impose their will and compromise the safety of the school children and emergency workforce. Mr. Lindsey believes that the road is needed for emergency and disaster response purposes and that the Lahainaluna neighborhood is ill-prepared to respond to such situations. The neighborhood has three schools in it, thousands of children attend these schools and there is currently only one way in and out of this neighborhood. In the event of a disaster, parents need to have access to their children and the bypass would provide an alternative access route. Although he is pleased to see the Phase IA section of the road has been redesigned to avoid archaeological sites, he emphatically states, “I am not willing to sacrifice one child’s life for the sake of a burial or archaeological site. Our *mo'opuna* are the most important thing.” Mr. Lindsey goes on to assert that the “The spirit of the land and the Uhane Kahiko would also be in agreement.”

### 5.1.9 Mr. John Kuia

Mr. Kuia was referred by Keola Lindsey (OHA) and Ms. Patty Nishiyama (Na Kupuna O Maui). He is *kama'āina* from Lāhainā and grew up at Kelaweā Village, which, as he states, “they used to call Kelaweā Camp”. He is a 1960 graduate of Lahainaluna High School. When he was a young boy, he recalls that “Kahoma Stream had lots of water!” These were in the years 1945, 1946 and 1947, before the Pioneer Mill diverted much of the water for sugarcane cultivation. He explains that this area was his playground and it was all sugarcane fields with water flumes that were used to transport sugarcane down to the mill. Mr. Kuia went on to talk about the “*hanawai* man”, or the field irrigation man, and how the *hanawai* man usually had a vegetable garden where he grew pumpkin, squash, Filipino beans and eggplant. He said these gardens were located throughout the cane fields, and were tended by the *hanawai* man of a particular area.

Mr. Kuia goes on to describe old homes, original homes built during his childhood, which still exists at the end of Kalena Street on Lui Street near present day Ikena Street. He said if you go to Lui Street and look right, there is an old home there, “there is a bush on the right, then an open space with old homes.” There is a nursery for a landscaping business run out of one of the old homes. He states that this area used to be Kelaweā Camp and the dairy was down in the gulch below.

Mr. Kuia describes the path that Kahoma and Kanahā Streams take as they meet up and exit near Māla, as well as the vegetation and stream resources along the water course:

“...the stream runs by Mill Camp, Kahua Camp, above Pioneer Mill Company, the whole area we used to play...all cane fields, mango, guava, guava growing all along river, whatever, opae, o'opu...”.

He enjoyed eating any fruit in season and also remembers eating *panini* cactus fruit. He said that the cactus grew by the old bridge [bridge over Kahoma near Kelaweā Camp]. Mr. Kuia expressed a fondness for the area. He further described the special beauty of the stream, the large trees in Kahoma Valley, and the existence of a shallow cave in this valley. Mr. Kuia also remembers graves being in this area and hearing about the Mill covering graves. But, he explains kids don't pay much attention to that type of thing, so he was not aware of the exact locations. Mr. Kuia then spoke of a dairy farm above Kelaweā Camp. He remembers an old concrete slab and the old trough, but is not sure if it was the Mill dairy or if it was privately owned. He went on to describe Crater Village, mentioning the two cinder cones that existed there with the reservoir between them. Today, he states, there is only one cinder cone; the other was taken away, possibly by cinder mining.

Mr. Kuia would like to see this place remain unchanged and said he misses those days, the days of his childhood and youth. In those days people walked everywhere and Mr. Kuia recalls walking to the various beaches in Lāhainā. His family often walked to Launiupoko for camping and fishing. He explains that his grandmothers father, his *tūtū* man, was part of the Ma'ilua 'Ohana and leased property where the current beach park is. He had a house there and the whole family often spent weekends at this beach.

With regard to the proposed undertaking, Mr. Kuia stated that he thought the bypass would be good for the school kids in the neighborhood and would relieve traffic, but he also expressed the need for keeping “what's underground” protected.

### 5.1.10 Mr. Moki Keahi (Uncle Moki)

Uncle Moki Keahi is a *kama'āina* of Lāhainā and Haia descendant. His great grandfather was Pili Haia Kekai, one of the last Hawaiian men known to farm taro “from Māla to Kanahā”. Pili Haia Kekai was described as a “big man” with extraordinary endurance and strength. Mr. Keahi specifically recalls his “huge hands!” and claims he tended over one hundred *lo'i* by himself. Uncle Moki explains that his *tūtū* farmed taro in the Kanahā Valley until the Pioneer Mill diverted the water, making it impossible to grow taro. It was at this time that Pili Kekai left the valley for work elsewhere.

Uncle Moki describes visiting the Haia cemetery from the time he was in grammar school until he graduated from high school. He and his family would go up to clean and maintain it. He describes his father, George Washington Keahi, as being a superstitious man, they always finished up at the cemetery before sunset and George Keahi never explained that the area was a cemetery. As a boy, Uncle Moki and his friends used to play in the cemetery not knowing exactly what it was until he was in high school. Uncle Moki then spoke of a rock, at Kahoma Point. He said there is a rock with a gently curved surface. His family used to clean around this rock. When he would play on it, his father would scold him but never explained what the rock was used for or represented. Later in life, he learned that his great grandmother was born on this rock and it was known as "birth rock". Uncle Moki's great grandmother was a Haia, he couldn't remember her name but recalls the name, Emma.

Uncle Moki then recommended contacting Ms. Louella Haia and stated that she is currently in charge of the cemetery. He said she was raised in Honolulu but knows the family history better than he does. When invited to participate in a formal interview, Uncle Moki declined stating that he wouldn't want to get anything wrong, he said the “old timers don't like that”. When asked specifically about the landscape of the area at that time, he remembers it being dominated by cane fields. He then referred CSH to his brother, Mr. Jonah Keahi, whose formal interview is included in this document.

## 5.2 Hawaiian and Local Community Organizations

As part of the consultation process for the cultural impact assessment, CSH contacted government agencies, advisory councils, and local community organizations that provide assistance for or strive to protect and perpetuate Hawaiian culture and cultural practices, as well as, local historical societies that might provide a perspective on traditional historic properties and/or landscapes (see also Section 4 Community Consultations). These organizations were contacted in order to gather feedback and recommendations regarding the cultural resources and practices for this study. This section summarizes the results of the consultation process with individual Hawaiian organizations that either shared information or provided insight into the Hawaiian cultural practices of the overall study area.

### 5.2.1 Office of Hawaiian Affairs – Native Hawaiian Historic Preservation Council (OHA-NHHPC)

The NHHPC serves as an advisory council to the OHA Board of Trustees on matters and issues related to historic preservation. The mission of the NHHPC is:

...to improve the quality of life and ensure the cultural identity of Native Hawaiians by preserving and perpetuating Native Hawaiian cultural and historic resources, and empowering all Hawaiians to participate in the stewardship of these properties, traditions, practices and values. (www.oha.org)

On August 25, 2008, Ms. Colleen Dagan and Ms. Tanya Lee-Greig of CSH attended the monthly meeting of the NHHPC in order to discuss this CIA with the council and inquire about traditional cultural practices of the overall study area and/or referrals of knowledgeable individuals or *kupuna*. Councilmember Ke'eaumoku Kapu, Maui Island Representative, raised concerns regarding access to areas *mauka* of the bypass. He stressed the importance of utilizing traditional trails to access these areas. CSH was encouraged to perform extensive Land Commission Award research, particularly probate cases. Councilmember Kapu suggested CSH include in the cultural impact assessment a discussion focused on the impacts that missionaries had on Hawaiians after their arrival in 1820. He also suggested that the Lāhainā town historical boundaries be extended further *mauka*. Councilmember Kapu suggested asking families from the area if they would be interested in a stewardship program in an effort to care for and maintain SIHP-2485 and -6277.

Councilmember Kapu explained that the proposed Lāhainā Bypass is viewed by some in the Hawaiian community as a potential catalyst to major development in West Maui and they are not comfortable with the implications of the changes that large scale development might bring to the character of West Maui. Councilmember Kapu believes that further development of West Maui may negatively affect Hawaiian cultural identity and believes that more of the Hawaiian people's history may be at stake. In the past, Councilmember Kapu explains, as a byproduct of development, Hawaiians have experienced, what they would consider, disrespect and degradation of their lands. Councilmember Kapu is concerned that with added development, continued disrespect and degradation of traditional lands may occur and Hawaiian families may be pushed further to the periphery of society. Councilmember Kapu believes that construction of the bypass is driven by developers who are only interested in making money and therefore do not have the best interest of Hawaiian people or the community in mind.

Hilo Councilmember Jenó Encencio raised concerns regarding agricultural lands and asked, "Will lands be taken out of agriculture?" He went on to stress the importance of keeping agricultural lands as they are as a means to grow crops. Mr. Encencio explained that maintaining the current agricultural land use designation of these lands is important in the event of an emergency (e.g. war or famine) and inquired if there is a way HDOT could recommend or encourage that agricultural lands are kept in agriculture as urban housing and subdivisions do not provide food.

### **5.2.2 State Historic Preservation Division – Maui/Lāna'i Islands Burial Council (M/LIBC)**

The State Historic Preservation Division manages burial sites over 50 years old, 98% of which relate to native Hawaiian skeletal remains. Hawai'i Administrative Rules (HAR) 13-300 was established to regulate the rules of practice and procedures relating to burial sites and human remains. The Hawai'i State Legislature has found that native Hawaiian burial sites are especially vulnerable and often not afforded the protection of law which assures dignity and freedom from

unnecessary disturbance (HAR 13-300-1). As a result, HAR 13-300-21 provides for the establishment of five island burial councils to perform the following tasks:

- (a) to determine preservation or relocation of previously identified Native Hawaiian burial sites as set forth in this chapter;
- (b) assist the department in the inventory and identification of Native Hawaiian burial sites by providing information obtained from families and other sources;
- (c) make recommendations to the department regarding appropriate management, treatment, and protection of Native Hawaiian burial sites, and on any matters related to Native Hawaiian burial sites; and
- (d) maintain a list of appropriate Hawaiian organizations, agencies, and offices to notify regarding the discovery of Native Hawaiian skeletal remains, any burial goods, and burial sites determine preservation or relocation of previously identified native Hawaiian burial sites. (HAR 13-300-24 a-d)

On August 28, 2008, Ms. Colleen Dagan and Ms. Tanya Lee-Greig of CSH attended the monthly meeting of the M/LIBC in order to discuss this study with the council and inquire about traditional cultural practices within the overall study area and/or burial concerns. Councilmember Ke'eamoku Kapu restated the need for thorough research regarding Land Commission Awards and probate cases. A discussion involving several council members ensued regarding larger scale planning efforts and the need for all land owning entities (private landowners, county, state and federal agencies) to work together when planning development. Councilmember, Edward Ka'ahui inquired about the potential use of Ground Penetrating Radar testing for burials along the entire bypass corridor.

Mr. Foster Among gave testimony strongly encouraging use of the cane haul road instead of the proposed bypass route. He questioned the use of the term "inadvertent discovery" explaining that burials should not be considered "inadvertent" if they are expected to be encountered. He also requested that a new EIS be conducted to reevaluate resources along the entire bypass route. Mr. Among described the West Maui hillside as his "church" and made his point by stating that all natural landscapes can be considered a "church". When asked by Councilmember Kapu if his *na'au* (affections; of the heart [Pukui, Elbert 1986;257]) was settled regarding the Kahoma Stream Flood Control Project and the burials that were moved, he said, "no", meaning that his conscience is not comfortable with that situation. Mr. Among strongly advocates better planning now and into the future. In response to some of Mr. Among's concerns regarding current planning practices, and how mainland standards might be the cause of problems encountered in Hawai'i when developing communities and housing, Councilmember Bill Frampton conceded, stating that maybe standards need to change in order to accommodate cultural needs as well as community needs.

Ms. Uilani Kapu presented testimony on behalf of Kuleana Kuikahi, a Limited Liability Company, representing families whose *iwi kupuna* were disinterred during the Kahoma Stream Flood Control Project. She explained that these families want someone to take responsibility for, what they consider to be the misplacement of their ancestors at the Honokahua Burial Site. They

want their *iwi kupuna* from Kahoma to be “brought home” (letter included at the request of Ms. Uilani Kapu on December 10, 2008, see Appendix E )

### 5.2.3 Friends of Moku'ula

In a formal response, Mr. Akoni Akana, Executive Director of Friends of Moku'ula (Appendix B ), explains that the area is in fact “...steeped in history...” and goes on to say, “The mountain above the sire is Pa'upa'u and was the place of refuge, designated by Ka'ahumanu as a *pu'u honua*. There on the top of Pa'upa'u is the burial site of David Malo. Below Pa'upa'u are the agricultural lands that extend from Halona Valley and Kahoma down through the current site of the Kahoma [S]tream.”

Agricultural infrastructure and home sites may be found along with possible burials of family members whose homes were located in the area. As the lands were used mainly for agricultural purposes, various agricultural tools may be found and possible household items too. These lands were largely populated and therefore, may also include quite a number of burials, as well as religious sites relating to the various agricultural deities.

### 5.2.4 Lahaina Restoration Foundation

Mr. Keoki Freeland is a third-generation Lāhainā resident and, at the time of this study, the director of the Lahaina Restoration Foundation. His grandmother was a Hawaiian woman, Amabel Kahuhu, from Lāna'i who married Keoki's grandfather, a Canadian man and his namesake, George Freeland. Mr. Keoki Freeland made his career in the sugar industry, first on O'ahu, then on Maui with the Pioneer Mill. In 1995 he went on to act as the executive director of the Lahaina Restoration Foundation, where he is currently transitioning into retirement.

Being intimately familiar with the immediate project area, Mr. Freeland does not recall any cultural sites or practices in the modified extension of the Phase IA corridor. He asserts that the plantation did not cultivate the area where SHIP -6277, -2484 and -2485 are located. The mill did not use the area because you could not get water there. Mr. Freeland was not aware of the Haia cemetery but does, however, remember people accessing the Kahoma and Kanahā Valleys freely by using the streambed in order to collect *o'opu* and *opae*. He explained that the Pioneer Mill never restricted access up the stream. He described being most involved with the procurement of water. He remembers a deal that the mill, the County, and Lahainaluna School worked out, something to the effect that - the first million gallons went to the county, the next million to the mill and the next million to the school. He also said that although this was the agreement, no one was counting. Mr. Freeland explained that the main county intake was up the valley [Kahoma] at the water source or headwater. He also described another intake in Kahoma Valley that was owned by the Campbell Estate. The Pioneer Mill also bought water from them.

There is a man named Hans Michaels, he states, who owns property up above the current catch basin and at the same elevation as Lahainaluna School. Mr. Freeland recalled him raising a particular breed of goat for milk. He described Mr. Michaels as a Scandinavian man who married a Hawaiian woman. Mr. Freeland believes Mr. Michaels might have attained this land through his wife. Mr. Freeland recalls taro patches on Mr. Michaels' property, but he didn't think Hans farmed them. Mr. Michaels worked for the mill as a cane truck driver.

Mr. Freeland also describes a flood in 1992 when a heavy rain caused a huge landslide up the valley. This land slide first created an earthen dam behind which a lake of rainwater formed. The natural dam broke, likely under the pressure of rising water, sending a river of sludge like mixture of mud and boulders, down the stream. Mr. Freeland describes boulders that were approximately ten feet in diameter carried downstream by this mud. He describes walking up the valley after the flood and noticing debris in the treetops, 30 feet high, along the stream. Luckily, he says, the catch basin, constructed by the Army Corps during the Kahoma Flood Control Project, caught all this debris. If not for the catch basin, Mr. Freeland believes the Cannery Mall would have been severely damaged if not destroyed. As a result of this muddy flood, water from Kahoma was not potable. Wells were then used for potable water until they became salty. For a while, wells at the village at Leiali'i were tapped by running pipes from the wells to Lāhainā, but this was costly. Mr. Cradick, the water director at the time then decided to build a treatment plant behind Lahainaluna School where water from the area is treated today.

### 5.3 Formal Interviews

Formal interviews were conducted with *kupuna* of Lāhainā who have first hand traditional knowledge of the overall study area, as well as individuals who have had traditional knowledge handed down from their *kupuna*. Some interviews were transcribed from hand written notes upon request of the interviewee while others were digitally recorded and transcribed. The following are summaries and excerpts from the interviews that include cultural content and descriptions of the cultural and historic landscape. For full transcriptions of the formal interviews see Appendix C Formal Interview Transcriptions and Notes.

#### 5.3.1 Mr. Jonah Keahi

Mr. Jonah Keahi is a descendant of the Haia Family who are traditionally from the Kanahā Valley often referred to as the Lahainaluna Valley by many *kupuna* and elders of the area (see Appendix C Formal Interview Transcriptions and Notes). He was born in 1936 at his family's home and was delivered by his Tūtū Akaneki who was a midwife. He is the second eldest of the eleven children of George Washington Keahi and Elizabeth (Kwon) Keahi. His father was from Lahainaluna Valley and he describes his mother as a Korean-Hawaiian woman whose mother was Elizabeth Napeaehu Nika. Mr. Keahi goes on to explain that the name Nika is a Marquesan name. He married Ruth Saffery and together they raised three sons.

When asked to explain his relation to Pili Kekai, Mr. Keahi states:

...that was our great grandfather. He was the one, the last to raise taro in the mountains, in the valley.

From the water intake which is on top. That's our land, where the water first come out. ... we own that land.

... I understand that he farmed the whole valley just him by himself.

My father, in his young days, he said they used to go help him. Strong man, very strong... my father in his prime had a hard time keeping up with him.

He then goes on to describe his weekends spent at his uncle's house and working in the taro patch during his stays there:

...he had a home above. I think if you go up Lahainaluna, you see the tanks up there. This is where the home used to be. That...was for the person who takes care of the water intake. But, during the war, my uncle used to take care, and we used to go up there with him, live with him on the weekends like that, and we used to go down to that taro patch. The family, the Pali Family was still...farming then. And, that's how we knew about the taro patch. We used to go to the taro patch, pick up o'opu like that, and the old folks would eat 'em. Basically, they-- in the '50s, early '50s they passed away and the children all moved away.

As Mr. Keahi explains, when his grandparent's generation stopped farming taro in the Lahainaluna Valley, their children also left the valley. Later, several individuals leased the same taro patch that he would eventually lease in the late 60's. Mr. Keahi said that his father leased a taro patch from the Pali family and around 1968 he began to go up and cultivate taro himself. Mr. Keahi farmed taro at this location from 1968 to 1973:

...And what happened was, there was a lease in that, you know. There used to be this old man, Leanui, they were leasing that property long time. And, after them came Sam Fujishiro. ... Fujishiro ... to my father, and from my father to me. My wife and I, we took over the lease.

...Well, the Palis, they were farming then. When my great-grandfather was farming, they were farming there. And even when we...were born, when we were young kids during the--during the war, Second World War, we used to go up ... my uncle... [house] his job was to take care of the water intake.

Yeah, I think, um, back in '68 I started to go up there, 'cause my dad ... [was] leasing the taro patch.

...from the...Pali Family. That's the one that owns the graveyard. You know the graveyard right above the highway, above the road?

...This family owns that land there. They used to anyway.

In a brief description of the duties of water intake personnel, Mr. Keahi explains:

...It's just natural flow coming down. But, there's a ditch here, and sometimes the rubbish gets in to block up. So, his job is to clean that every day. If it's nighttime you gotta walk up there nighttime, you know?

Mr. Keahi would take his three boys up to work on his farm. They drove into the valley on a road that their neighbor in the valley, Hans Michaels, constructed.

And we were farming, I tried to raise pigs too, and chickens, and you know--farming up there, but, at the same time, I was working construction. Up to the, I think '73 you know ... '74 to '75 something, along then, but then we gave up.

Yeah, they (his sons) know what a taro patch is because they went in there, they worked the patches, so they can talk about it, you know. Raising pigs, chickens, like that. They know. They know. They were young then.

...There was a road. In Lahainaluna, this guy Hans Michael that lives right below us, he owns that area. He bought ...from plantation, but he made a road going all the way up there. So, we didn't need to use the trail anymore. We drove up to the taro patch.

When asked if he had used a traditional trail before Mr. Michaels built the road, Mr. Keahi responds:

...Yeah. In fact, when my father was up there, they were still using the trail. And this guy Hans Michael got married to my cousin. He loves the mountain life; I think ... he come from Switzerland. And that's why he loved the place, and then he, somehow he bought the place, below the Pali place. But, he used to help my father to go up, and he used to wheel barrow all the slop right there going up. I don't know how he got that place down there, but he made a road. It went right up to the taro patch, and my father could drive up, didn't have to go on the trail...

Mr. Keahi explains that currently, this route is private and the landowner does not allow access on the road. He goes on to describe the trail his family used to use, explaining that it follows the ridge top in some sections and is described as connecting to the Kahoma trail that accesses the Haia cemetery:

...The trail is hardly used. I went up there one time to look at the trail, but, I think it's hardly used...

Same trail. Yeah. That would be the same trail [referring to Kahoma/Haia cemetery trail]. Except it's on the *pali*, yeah. Up on the *pali*.

Yeah, on the ridge top. ... But, uh, the graveyard, you come from Kahoma. And, uh, you get up to that pump and then you cross the river, and it'll take you to the graveyard.

Although Mr. Keahi did not visit the Haia cemetery as a child, he did pass it on the way to another family garden his father kept. It was a pumpkin garden, and from this garden they gathered pumpkin. Mr. Keahi then explains that originally they bought pumpkin from the Filipino cane laborers, possibly the *hanawai* man. But, he states, the plantation began poisoning weed and grass which killed their pumpkins, therefore Mr. Keahi father began to grow his own:

...we never did go and clean the area. It was always like that....the only reason I, you know, passed by those graveyards was I had to go to Kanahā to uh-- we had a garden up there. And during the weekend, I'd go up and water the area. We, uh, we ... [raised] pumpkin. My father was a fisherman, so we need the pumpkin ... we used to buy from the Filipinos who take care of the cane fields. They used to

plant and go buy from them, but what happened in the '50s, back in the early '50s, they started to poison, plantations started to poison—

...instead of poisoning the grass, it killed off all our pumpkins. So, we'd grow our own, 'cause that was the only land that he had, you know free water up there. So we grew our pumpkin up there. So, I had to go weekends, sometimes on the week day, I'd go up and water the area.

Mr. Keahi father was a fisherman and used the pumpkin as chum for *opelu* fishing:

...we used, pumpkin. Pumpkin, sometimes sardine, and bread, like that, mixed together, yeah.

...you cook the pumpkin. And then you mash it up, and then you had maybe, uh, tomato sardine, yeah.

Or bread, a little bread, you know. That's what you feed the opelu.

So, we used to grow pumpkins, and that's why I used to go up past through the graveyard. That's why that trail, I'm telling you that goes all the way to the pump, and I'd cross over to the bridge, and then I'd go to Kanahā Valley.

Mr. Keahi then recalls his trips into the *mauka* lands through the Haia cemetery as a boy:

...I passed through the graveyard all the time. The thing that I remember well, when I was a young boy, like maybe 15, 14, 15 years old, and I used to pass through the graveyard—I had a dog named Skippy, and he was part boxer, you know, a mixture. He used to go up with me all the time. When he gets to that boundary, he will not move. He will not step in the graveyard. I would have to carry him all the way to the end before I put him down. When I come back down, same thing, I gotta carry him. That time, I knew from way back then, it was spiritual

Mr. Keahi explains that some of these gravesites are marked with stone walls. He then goes on to describe a burial cave back in the valley, explaining that this cave was the original family burial location. But, it is believed that it had collapsed which led families to the current location of the Haia Cemetery.

Looking at locations on a map, Mr. Keahi continues his recollections of the burial cave and taro patches located on the flats below:

...yeah, in the fork. Where they come and meet like that, that's where (inaudible) graves. And, if you go on top, on the flats, as you get down to the bottom here, its flat you know. Because, I think they used to raise taro on top here.

...Yeah, on top. Where the point is, yeah. And on this side here, my father said there used to be a long house, and that's where my grandma and them were raised, in a long house. And, I think that's true because there's a place there that

looks like where they used to cook, you know. They had a wall like that where they used to cook. I'm not sure what it is, but it looks like they cooked in it here. But, the house is around on the side here of the river.

When asked which individuals are buried at the described locations, Mr. Keahi states:

...I'm not sure. I think that goes way back, you know, at least a couple hundred years ago.

Viewing a map of the area, Mr. Keahi points out where some of his family members are buried:

My great-grandfather is buried down here at the Catholic Church. His father is buried out there, his mom is buried out there, and back, and back, and back [previous generations].

...Well, I know my great-great-grandfather and grandmother is buried out there. But, I think it's on top here, not in here. (points to map) 'cause they were still living in the 1900s, early 1900s, they were still living—my great-great-grandfather and great-great-grandmother. I think my great-great-grandmother died in 1913, I think.

That's my father's side...

Mr. Keahi describes events which led to the transfer of ownership of the parcel of land which he leased from the Pali family. He explains that the owner of the property was having trouble paying a hospital bill, with no other options available to him; he borrowed money from a woman who insisted that she also be added to the title until the money was paid back, as collateral. According to Mr. Keahi, the owner of the property passed away before the land title was reversed back to him and this particular woman inherited the property. Mr. Keahi still had a lease to the property and when she tried to prematurely end the lease, he was forced to take her to court. The judge ruled in Mr. Keahi's favor and he was allowed to use the property until his leased expired. Upon leaving, he dismantled the entire farm:

So, the land, actually is wasted now. There's nothing. When I think back when I was a young boy growing up, you know, the land was so nice. We had trees, mango trees on it, had everything, bananas and all that. When you go up there now, it's nothing. There's nothing growing through. There's no water.

When asked if he knew anything about the "birthing stones" that his brother Uncle Moki described, Mr. Keahi launched into a story about the birth of his great grandfather, Pili Kekai:

In Kanahā Valley. There's a hill, a trail, the old trail, yeah, it's way up there, it's way outside, the trail. Coming down the trail, there's a hill, one hill, and I think, that's what I understand. I don't know about the stone though. On that hill, she was running up the hill, he was born on that hill, and, on top of that, a big fireball, above my grandma. A big fireball...

...Pili's mother, yeah. That's where he was born up on the hill with a big fireball over. But, I thought (inaudible) had some kinda supernatural powers on him--strong, very strong. You know, not natural kine, but very strong. My father used to talk about him--strong, very strong. He had big hands, you know everything. ... But my father said he was a strong man, very strong man. There used to be this guy, Rogers, back, uh, back in the '40s I think, '30s or '40s, used to be the principal from Lahainaluna School. I met him one time though, he was an old man. He was going to church on Sunday morning, he had a flat tire, but he never had any jack. So, it happened my grandfather was going to church too. He stopped in the back of him, said, "What's wrong?" He said, "Oh, flat tire." "Go get your tire, get everything ready." So, he brought his tire, and my grandfather just picked up his car and held it up like that while he was changing the tire.

...I met him, Mr. Rogers, back in 1961 when we did the Sheraton Hotel. And, I didn't know who this was, but this man, he was an inspector. So, he came up on the roof, and he was talking to us piling all the, what do you call, the ply boards, stacking the ply boards. So, he came, "Hey Boy. You from around here?" I said, "Yeah, right down the road, Mala." He said, "Hey, oh! Mala-boy, hey you!" So, I listened to him talk, little kine, broken English-like, you know. "This guy must be local haole or something". So, he said, "What's your name?" I said, "Keahi". He said, "Oh, I know all the Keahis". So I looked at him, I said, "who are you?" He said, "I'm Mr. Rogers". Oh! This guy was the principal of Lahainaluna School from the '20s! ... I'd heard about him, but I never knew he was still living. He was already 75 ... So, I mentioned my father and my grandfather and my great-grandfather. He knew my great-grandfather, Pili Kekai. When he was principal, he used to go in the valley to talk story with my great-grandfather. He said, "I knew your grandfather."

... "I know Old Man Pili. I used to go up there and sit down, talk story with him, and all that."

In the summer of 2007, when CSH documented SIHP-6277, Mr. Keahi was the first person to explain that SIHP-2485 was a cemetery and members of the Pali 'Ohana were buried there. When asked how he knew this, he explained that he has always known this:

I've known since I was a young boy. Yeah. 'cause we used to walk all this area. We'd play all this area.

I guess they never had burials for many, many years ... I think this goes way back, you know. I'm not sure if they had burials during our time, you know, but I don't think so. I think this goes way back, like ours [Haia].

Yeah, when I was a boy, that wall was there already. ... I thought at one time people used to live there. Then I found out, no, it was a graveyard.

...one of the main ones was that Pali graveyard. Uh, I knew about ours ... as a young boy...and then later on that we started to play up there, then I found out about this one. And, my parents told me that this was Pali, Adam Pali I thought was. And when I was living in Wailuku ... the neighbor right below me was Josephine Pali [Josephine Keli'ipio's Aunt]. That was his daughter, Adam Pali's daughter. She's almost 90 now ...I think.

When asked what the vegetation was near SIHP-2485 and in the study area, Mr. Keahi explains that it was mostly koa [*haole koa*] and kiawe and that field clearing for cane cultivation did not begin until 1950:

...it never had cane, you know. Used to be all that [*haole koa*] koa, koa trees, used to be all koa trees. This is where we played "Cowboys and Indians" yeah. Nobody wanted to be the Indians, everybody wanted to be the main boy ... But, all this area, we used to play all this area. Wahikuli...

In 1950, I think, a territory to the plantation, I remember well. In 1950 territory to the plantation, I guess they were leasing the place or what? But they say, "You folks don't use the land, we're gonna take it back." That's when they started to clear all the land. That's why you see all the stone piles, yeah. It started in 1950. They started to clear the land to plant cane. But, before that, there was no cane. No more cane.

In closing, Mr. Keahi explains that although he does not think the proposed bypass will interfere with the Pali and Haia cemeteries, the majority of individuals that he has talked to do not want more people on those lands. More importantly, he explains, the Department of Transportation does not have the title to the lands in which they plan to build the bypass on. Mr. Keahi shares some of his views regarding the historic crown lands of Hawai'i (ceded lands) and sovereign rights:

I had some unfinished business down here with the boatyard. So, that's why I'm down in the boatyard. We're gonna reclaim that boatyard, the whole boatyard. All Mala, it's all crown land. That's the places where the king comes to. He owns all crown land. And Wahikuli is crown land too.

On the deed that I carry, it shows all the crown lands on every island...all of them. And this is where the deed comes in. That's why I tell people, "You cannot claim something that you don't own". That's where the king comes in. That's why if you look at history, and look through history, the king owns all crown land. In fact, all the whole kingdom was crown, and they divided the lands up for the people, yeah...for the chiefs and the people. And even his own personal property divided for the government to operate ... I told Laura, you know, "There might come a time when you guys might get stuck."

### 5.3.2 Mr. Susumu “Peanuts” Sodetani

(Although CSH conducted its own interview with Mr. Sodetani, an oral history interview was also previously conducted by Mr. Warren S. Nishimoto of the Center for Oral History (COH) at the University of Hawaii, Manoa campus was also referred to. The COH document, compiled from the oral history transcriptions of 18 individuals who were former employees of the Pioneer Mill Company is titled, “Pioneer Mill Company: A Maui Sugar Plantation Legacy”. Material from this document has been cited where appropriate.)

Mr. Sodetani was born in 1916 in Wailuku, Maui. His parents were first-generation Japanese immigrants, Magoichi and Mutsumi Sodetani. His family moved to West Maui in 1920 where they lived at the Waine'e Camp which was also known as the Lāhainā Pump Camp; Mr. Sodetani was four years old at the time. In 1925 they moved from the Pump Camp downtown to Front Street and from there to Chapel Street. Mr. Sodetani attended King Kamehameha III School in Lāhainā and continued high school at Lahainaluna through the ninth grade. A few years after his father's death in 1927, Mr. Sodetani dropped out of school and began working to help support his family (Nishimoto 2003:35).

Mr. Sodetani began his career with the Pioneer Mill Company in 1931 at age 15. There he held various positions which included: rodman in the engineering department, carpenter, steam plow operator and blacksmith. In 1940, he moved to O'ahu to work as a federal civilian defense worker taking part in building the Underground Fuel Storage Facility at Red Hill. After three years, Mr. Sodetani moved back to Maui to again work for the Pioneer Mill Company. He was employed as a centrifugal operator, oiler, and maintenance worker and was also an active member of the International Longshoremen's and Warehousemen's Union (Nishimoto 2003:35).

Mr. Sodetani recalls memories from his childhood above Happy Valley:

Yeah, we lived right above Happy Valley. When I was four, I know I used to run down to the...they used to have...the water ditch running across...across the 'Īao stream, and that water Wailuku Sugar was using for irrigation. But when you are four years old you just want to sit on that ditch there and put all my feet in you know? Not realizing what happened before you. And I always used to get...and my mom loved to go there but I used to go there. That was where we used to go. There was a Filipino man that used to bring down what we used to call Gori. It's a... It's fish and ah...I remember my mom used to cook that with shoyu, shoyu and sugar. And it was good eating fish.

He goes on to describe the different places he lived after moving to Lāhainā:

You know Lāhainā Hongwanji Mission. It's on Waine'e St. Okay and there's one road in between there that comes right across from Dickenson—Prison Street....Alright. Prison Street and then it changed to Luakini going down. Formally that was called Chapel Street and it changed to Luakini. Alright. Just about midway there, they had homes built up.

Mr. Sodetani recalls a hotel on Front Street and in doing so remembers landmarks, landscapes, childhood friends, and other people who lived in the area the time:

...he was a, a supervisor for Pioneer Mill company. Farden, he was ah...he was German.... Farden, yeah, one of the ... daughters was Emma Sharp, German... That family home, one family lot, and the next family lot, that's where the hotel was built. And it was there. Front Street? Hotel, yeah. There's where...before that hotel was built, over there was swamp land. Swamp land, and two Hawaiian families. One was Mrs. Shaw, and the other one was Mr. Ho'opi'i, he had one daughter Rebecca, which I used to play with her. And ah...I mean, they all was born and raised but ah...

(t)hat's...The Lindsey boys. Lindsey, Kalepa...Archie Kalepa and the brother, Dallas. Lindsey was Tom, James, "tweet-tweet", "tweet-tweet" that was his nickname.

He continues with a description of the swamplands in which they played:

We used to play Cowboy-Indian, like I said, in that swamp land there...We call it... 'aka'akai ... 'aka'akai [great bulrush, *Scirpus validus*].

In the oral history document put together by the COH, Mr. Sodetani gives another description of playing in the swamp lands:

...They used to have what we call 'aka'akai, it goes up just like cane, sugarcane. It's a weed, grow tall, but then below that is a swamp land, water. But you can run on it because that thing is covering the water. We used to play Cowboy-Indian in there. I was the smallest of all these guys [the Hawaiian kids] and that's why they call me "Peanut." Age seven, I think yeah, that name stuck right through ... (Nishimoto 2003:42)

Mr. Sodetani said the Hawaiian boys were very big.

When asked what he recalls of the mountains from childhood, he simply states that he used to play there. He can recall more from memories during the time he worked at the Pump House (located north of the confluence of the Kahoma and Kanahā Streams), during the mid 1930's. Mr. Sodetani describes the tunneling down from the Pump House and under the stream:

...At the beginning there's a black (inaudible) pond, and ah...they were still digging, digging these tunnels down there...Yeah, you see...like I told you, that shaft coming down is 325 feet. You come straight down, and then 325 feet ladder, you had, you had two large rooms, one side there's a pump, the other side is a pump, in the center, we have a tunnel dug...going out to the stream, and when we hit that stream—I'm talking underground now—one tunnel goes under Lahainaluna...workshop, machine shop, carpenter shop...Yeah, and then, another tunnel going down to Kelaweā Village, down to Kelaweā Village. And in that tunnel, you have water, continues for up to about chest high. And, I went down there and see and that's, that's the water that was pumped, pumped...During the day that water is used to irrigate the canefields. During the evening, it's pumped up there, by booster pump—which it passed there but I just don't even remember—it used to pump the water into the, I think that reservoir there.

When asked if he remembers Hawaiians using the area for traditional practices, he recalls a gravesite that he passed when walking to work at the pump house:

The only one I know is...the one that is across the stream. That was a family grave. They had about ten or twelve...it was all mounds, and you know...

That was before my time [the graves]. And then...there's only one family or two families who went...I used to walk from home, coming up that hill and going through the cane field on my left side, they had a grave there. And...ah, there've been many times where I passed there maybe, oh, twelve thirty a.m., two a.m. in the morning, but, ah...there's nothing that, you know, I saw and, you know...like I explained to you folks that day up there when...one incident I had seem like...When the pump tenders go down to the pump, we'd talk story. It would be maybe about twelve, one a.m. Yeah...they'd give a signal and they'd go down with a load, eh. Drop it down, and then it'd stop, they go out, and then I'd steam up my engine up to about 160 pounds of air. At any time, for three hours, until we get enough steam emergency, pull em up, and this one time I laid down on the plank and I was sleeping, and then somebody came and pushed on my chest. I had a hard time breathing, you know. I'm trying to get up, could not get up...perspiring. Finally...finally I used the F-word and I came right up. And I sat down. I breathing hard. You know, so you, you talk about, people talk about ghosts and all that. They say there's no such thing. There is such a thing, because, I cannot forget, it's...It wasn't somebody who was there, but then...I don't know what the F-word means to them, but then...

Mr. Sodetani goes on to state he told his wife (a part-Hawaiian woman named Mary Kaumeheiwa) about the incident and she responded as if it were his own fault:

She said, I must have done something wrong. I said, I don't know, I don't think I did anything wrong, I mean, on graves or whatever...I respect the graves. Nothing like urinated on a grave or anything like that. I must have done something wrong. "That's why the spirit did that to you." ...

Mr. Sodetani referred to these graves as "...old Hawaiian graves." He said his father-in-law was named Ilalaole and he was *hanai* by Kaumeheiwa. He must have been a fair Hawaiian because Mr. Sodetani recalls teasing him:

I said, "hey pop you know, Hawaiians don't have red hair. You have red hair, your complexion is fair. Hawaiians, they are more dark." I said "look at Mama. You not like the typical Hawaiians. They're dark like chocolate." But, she was a real humble lady, too...

Yeah, he claim he's Hawaiian, but I think, ah, days that the Norwegians, or whatever, the relatives to come in, but if they made babies with the Hawaiian ladies, and then maybe he was one of...those born along the line of kings.

When asked about the terraces discovered last summer (SHIP-6277). Mr. Sodetani recalls the entire area being in cane. He did mention that the plantation sometimes left old rock walls in place, his understanding being that some of these rock walls have a significant history. During a field visit with Mr. Sodetani in May 2008, he had described cane being harvested by hand around rock wall features and also with the use of a crane. He said a crane would sometimes be used to grab cut cane and lift it over structures, leaving them intact. Mr. Sodetani then mentions the large rock mounds that plantation manager, John Moir constructed as a result of clearing the fields of rocks.

### 5.3.3 Ms. Myra Kanoelehua (Pali) Keli'ipio

Ms. Keli'ipio was born in 1921, to Mr. Adam Pali and Ms. Juliette Eldridge, in Lāhainā. Ms. Keli'ipio recalls being born at the prison:

...we had an old prison there in Lāhainā. I was born there. In that prison, because his dad [Ms. Keli'ipio's grandfather, Philip Pali] was the sheriff of Lāhainā at that time, my dad was put in charge of the prisoners in that day. Four of us children were born at that prison in Lāhainā.

The sheriff, Philip Pali, was also a legislator in Lāhainā. When asked about her childhood, Ms. Keli'ipio recalls:

Oh, like most Hawaiian kids, we were very independent. We lived a mile from town. We were at the edge of the plantation cane fields and my grandfather had this big property, estate. We had the property next to him so we enjoyed, of course it took us about an hour to get to school, because where we lived was the last part of town. We had to walk. There weren't any buses in those days. We walked all the way to Kam III School in Lāhainā.

Ms. Keli'ipio describes living right next door to Mr. Moir, the manager of the Pioneer Mill at that time. When asked about family traditions, Ms. Keli'ipio recalls regular visits the home of her Tūtū kane in Kahana:

We always went over every weekend to take Tūtū, he was with the agency, it was a plantation dairy farm and my Tūtū was a cowboy. He rode his horse back and forth between that dairy all the way to his house. I remember those trips....

Ms. Keli'ipio describes where she lived by the ocean and the more traditional activities that kept them busy during their childhood:

Our house by the beach. Poholopu used to own the whole thing. He lived at big house and we lived the house right next, down in Lāhainā, because it was all good fishing grounds, good limu grounds and all that kind of stuff.

...The ocean was just right there. Oh, yeah. My brothers were all good fishermen. The wana [sea urchin, *Diadema paucispinum* and *Echinothrix diadema*] was right in front of our house. You know what I mean. Whenever we wanted to eat fish we had. As we grew up as children, because we were a Hawaiian household, we learn

how to make the nets, the nets for throwing, the nets for pulling in the fish, Hukilau. We made all those and my dad too. Since we had all eight kids all of us could be put to work. We were very good....

Oh! We were perfect! We made even the small little nets that were illegal at that time to catch fish, but you use it in only special cases. We were the kids that made them. Each Hawaiian family all the kids had to do stuff like that. So we were very good. It was part of my networking...

She goes on to describe gathering limu:

Oh! Oh! Yes, oh! Everything, wāwae`iole [*Lycopodium cernuum*], what's the course one?...

Lipoa [*Dictyopteris plagiogramma* and *D. australis*]. Limu Kohu [*Asparagopsis taxiformis*], limu `ele`ele [*Enteromorpha prolifera*], līpe`epe`e [*Laurencia parvipapallata*, *L. dotyi*, *L. succisa*]. There were certain areas that the limu would grow so those are the areas you went when you wanted that kind.

When asked if there is limu there today, Ms. Keli`ipio responds:

They still there whether people haven't pulled them all out I don't know, but the Hawaiians used to be careful about how they took it because the other Hawaiians want to come down. Many of them did not live on the beach like we did. We were fortunate to live right on the beach.

She goes on to explain that her Tūtū wahine knew how to weave lau hala. Tūtū wahine lived in Kahana where there were more hala trees:

She would gather it [lau hala] during different days, roll them up and string them up and all the mats that Tūtū had on the floor was made by her.

Ms. Keli`ipio describes the Kahoma Valley and the strong tradition of *mahi`ai*, or farming in this valley as well as the Kanahā Valley, commonly referred to as Lahainaluna Valley:

Kahoma was this very big valley where the river flowed. Kahana didn't have this free flowing spring. Kahoma had this free flowing stream that flowed all the way to water way down in Lāhainā, but Kahana was out in the country, it was very dry. Kahana had some plantation villages, but nothing elaborate like Kahoma....

Up in the mountains all the taro patches were up Lāhaināluna Valley where the school was. Above the school was the taro patches that different Hawaiians owned and my grandfather owned that big part pass there. My father had his portion. We would go up there and we would mahi`ai in the taro patch, huki [pull] the thing, bring home the taro and my brothers were taught how to boil it in this big pākini [deep pan], boil that and then they were also the pounders of our poi. We made our own poi.... at that time the legislature permitted you to take the water and divert some of that water if you were a farmer into your taro patches. If

not you didn't have any water. So, we were very good at that, because we played and lived in that valley, not lived, we lived down in Lāhainā, we would be up there almost every time my father went up, so us kids went with him, cause we helped weed the taro patches. We helped pull the taro so my brothers became good poi pounders.

There are several Land Commission Awards to Philip Pali and Poholopu as well as to Adam Pali in both Kanahā and Kahoma Valleys. Ms. Keli'ipio speaks more on their use by the family and their distance from the family home:

That was all his land [Poholopu], so we had along side of this river as you are going up to Lāhaināluna Valley. Alongside the river was the taro patches which were from my grandfather, so we used to mahi`ai in there.... It was quite a distance up and it wasn't easy to get to it, I mean, you know you had to be able to scramble up the sides of the pali and that kind... Well, we had that one with all our taro patches in there, so we would go up like once a week. So we could mahi`ai out there and clean out the `ōpala [trash] and stuff like that.

When asked where the taro patches were in relation to the proposed bypass realignment, she states:

This bypass is way below Lāhaināluna. Our taro patches were way up here, where this is coming in is way down by Pioneer Mill.

Coming from a time when landmarks were relied upon for direction, as opposed to street names, Ms. Keli'ipio cannot relate specific directions for accessing the valleys via Pu'unoa Road. What Ms. Keli'ipio does explain is that heading straight up towards the valley alongside the cannery, then past the different camps would get you into the valleys.

When asked if she recalled the gravesite along the Kahoma Stream, the one that may have been impacted during the Flood Control Project, Ms. Keli'ipio is uncertain. She does recall the following locations of her own family members:

My grandfather was right there alongside that big river coming down from Lāhaināluna Valley there were graves. I remember that because as my parents died off and one of my brothers had died, then I was made in charge of the place. Then I became kind of familiar with that place....

When asked if that was Poholopu's grave, she continues:

Poholopu is in Waine'e Cemetery... I guess, I mean, you know when you're a youngster growing up you never pay too much attention. You know that is your 'ohana, but because you are still growing it's like not that important to you, maybe to the older people, you know what I mean. ...Most of the family was buried in Waine'e Church Yard, you know that is where my grandfather and my grandmother and my kid brothers that died were buried there.... Where we are talking about Lāhaināluna, down there is where is not where my grandfather is, although there maybe some other Tūtūs'. As you are growing up you are not

paying too much attention to them. It is being mentioned but you are not thinking it's important, until something like this comes along then you sort of dig back and it's empty.... I guess principally is because they didn't let kids around that kind of area, you know kids had no business being there unless the parents had to go there for something. When we went it was because our parents took us there to check on some old graves or something. We did visit our family buried up in Kahoma, but most of my family is buried at Waive'e.

When asked about plant collection, Ms. Keli'ipio described wild figs that grew further up the valley:

Above our stuff, taro patches, up there was the wild figs that grow up there, sweet, sweet. You want to eat that kind of stuff they weren't down side they were all up there in the mountain. So we all went up there to hunt for these wild figs. They were white and purple/red. I remember those because you had to hunt alongside the mountains to get it.

She described gardens in the canefields as well as medicines people grew in household gardens:

For medicine most people grew it in their yard. You did not roam wild because lots around Lāhainā was the cane field and so the field was being farmed by the plantation so with all the Filipinos working in there they would grow their own. It was a nice place to grow your pumpkin and stuff, cause where the Filipinos and a lot of Japanese lived was a camp and although it was a camp with a house it didn't have nice ground to grow you know. In the cane fields where the plantation ran their water, it was the stream water, so a lot of the laborers after they got through working plant seeds of stuff, so when they went home or when it was ready they take home their squash and pumpkin and whatever they had grown in that cane field. So the cane field became like their garden. So many of them came to work with their lunch and when they went home they had all the vegetables in their bags. You can't blame them. They didn't live on the beach like we did and they weren't fishermen, but they had all these vegetables cause they had the free water, because in their camps they didn't have that much free water.... yeah we were surrounded by Hawaiian medicines from the cane patches we had also in our yard, we had pōpolo [black nightshade, *Solanum nigrum*] growing and different kinds of Hawaiian plants. I know pōpolo was always a favorite and one that you gargle with, I can't remember the name right now. A lot of 'ihi [Oxalis]. The one I am thinking about is you pull the root and strip the root and you boil it, it's a wonderful gargle. I will say it if it comes to mind. Good, good gargle. So when us kids had sore throat that is the first thing my mother did. She pull up the thing and of course all the dirt on it, wash off all that things, strip the bark, boil it and we would gargle it. You lost your cold in a day or two. You didn't have to go to a doctor.

Ms. Keli'ipio goes on to explain:

...Hawaiian graves were all separated. The Hawaiians made sure all their graves that were in the mountains, those that was not in the graveyards and stuff, were close by each other. They knew where they were going to find it because it was always there.

Regarding the difficulties some families face in trying to locate their *iwi* kupuna, Ms. Keli'ipio states:

And then people like us aren't there to be seen what is going on, how can you tell what's going on? And then too the plantation at that time, because they knew many Hawaiians didn't know the law very well, gimped them of a lot of stuff. The Hawaiians were aware it is already done, so they do something else. The plantation weren't very good neighbors. They knew we weren't as schooled as they were. So they did what they could to get by.

#### 5.3.4 Mr. Henry Ah Ying Kau Aki (Uncle Ah Ying)

Uncle Ah Ying was born on Lāna'i and raised in Lāhainā. Presently 84 years old, he is the grandson of Ela Kapiweloā Haia Kekai. Ela Kapiweloā Haia Kekai was the sister of Pili Haia Kekai. Uncle Ah Ying's mother was Ella Kekai Akeo and his father was Harry Kauhane Ah Fook Kau Aki.

Uncle Ah Ying's mother, Ella Kekai Akeo, was from Kahoma Valley. Her mother, Ela Kekai, lived in Kahoma Valley when Uncle Ah Ying was a child. Uncle Ah Ying recalls walking into Kahoma Valley to spend weekends. He remembers several houses in the valley along with his grandmothers. His Uncle Kahili often went with them. He describes catching shrimp (*opae*), swimming and playing in the *kahawai* while his mother, Uncle Kahili and other adults tended the *lo'i*. This was their family *lo'i* and all the different families from the valley had *lo'i*.

Uncle Ah Ying describes cranking up the family's Model T and driving up Lahainaluna Road. They would park the car where "*tūtū* used to work", by the present gate behind Lahainaluna School. Tūtū Moki had a mule which he walked into the valley. The mule was used to pack the harvested taro out of the valley. While in the valley (Kahoma), Uncle Ah Ying and his family stayed in Emma Sharp's husband's house. He explains that this house was a very rustic house, more like a shack. This house was later destroyed by a boulder and the Hunts or the Neismans now own property up there.

Uncle Ah Ying remembers his Tūtū Pili and describes him as a "big man!" He said Tūtū Pili took care of the water rights for the *lo'i* up in Kahoma. Tūtū Pili had a house on the hill above the Kahoma Stream, above Lahainaluna Seminary and Uncle Ah Ying, with his family, often drove to his house. A gate now blocks the road they used. He also describes the trail they used to access the valley: he says it went along the ridge, then dropped into the valley, crossed the stream and climbed up onto the opposite ridge. They also traveled up on the plantation road but at a certain point the plantation road ended and you had to use the old trail. You could also go up Lahainaluna Road, walk up the ridge along Kahoma Stream then there was a trail that dropped into the gulch, you walk under a overhang cross gulch to opposite side and then walk along that ridge. You would get to the pump house and continue up into the valley.

Uncle Ah Ying describes his mother as “stern,” “strong,” and a “hard worker”. Ella was a petite woman, barely five feet tall, and mother of eleven children. She would walk into Kahoma Valley from their home near Maria Lanakila Church on a regular basis. Their house in Lāhainā still stands today. It is the house behind the present Maui Jim’s office. Namea Keahi, Uncle Moon Keahi’s daughter currently lives in this house. Uncle Ah Ying recalls the quarter inch spaces between floorboards of this house. His mother wove *lau hala* mats, covering the floors from wall to wall to keep the dust out. Uncle Ah Ying still keeps the pounding tool his mother used to pound the *lau hala*. It is a large, heavy, wooden pounding tool. He thinks it’s made of mango wood. He said his mother made this tool herself along with cutting tools. Uncle Ah Ying showed two different *lau hala* cutting tools. Both were made with metal blades set into a piece of wood. One tool was for narrow strips of *lau hala*, for a finer weave, the other was for a wider weave. He referred to the pounded *lau hala* as *pokola* and remembers the large wheels of it his mother accumulated in the process. In addition to pounding *lau hala* for mats, Ella, Uncle Kahili and Tūtū Pili brought the taro harvested out of Kahoma Valley, down to this house where the three would pound it into *poi*. Uncle Ah Ying said his mother collected various plants for varied purposes from remote ridge tops of Kahoma Valley.

Ella also played slack-key guitar; she taught Uncle Ah Ying how to play. He states, “you couldn’t ask any questions”, or she would reply “shut your mouth and just listen!” He said she taught him everything he knows; how to play guitar, how to cook, and how to fish. He said she was an excellent fisherwoman. It was not uncommon for his mother to walk from Kahoma Valley down to the ocean to go squidding. She used a wooden stick; no modern squidding tools, only old fashioned tools. He used to follow her with a bag. She would chew coconut and spit it in the water. The water would clear up and you could see the bottom. Uncle Ah Ying said his mother knew a lot about the ocean. She must have learned this from her grandfather; “Everything I know I learned from her,” he proudly states. “My mother lived in the old way.”

Later, his mother left Lāhainā and moved back to Lāna‘i to cook for her sons who were still living there working for Dole Plantation. His brothers convinced his mother by explaining that Dole [Plantation] would give her a house if she came to cook for them. Ella went, and often got paid to cook for Adam Pali and another worker. Adam Pali’s family was from Puamama and Kahoma. Ella Akeo lived to be 89 years old.

Uncle Ah Ying says he and his cousin Uncle Moon (Keahi) have been up to the Haia cemetery on occasion throughout their lives, to clean the gravesites. He said there are several “different families up there including the Akionas.” He describes different ways to access the cemetery. “You could walk up Wahikuli road, by the village (Crater Camp) or you could walk up from the cannery.” He said the Aiona’s also had a gravesite in the study area that was marked by stones.

Uncle Ah Ying describes walking virtually everywhere; he walked to Lahainaluna School from his house in Lāhainā. He walked from his sister Daisy’s house in Wahikuli to school at Kamehameha III.

Uncle Ah Sing moved to Lāna‘i for two months to go to school. When the war (WWII Pearl Harbor) broke out he had to return to Maui and quit school to take care of his mother.

### 5.3.5 Ms. Mabel “Momi” (Kailihou) Jaentsch (Aunty Momi)

Also present and contributing to the interview with Aunty Mabel (Momi) Jaentsch were her daughter Ms. Donnalyn Johns and son Mr. Phillip Jaentsch. Aunty Momi spent her childhood living at her grandparents beach house at Pu'unoa, in Lāhainā. Samuel Kaluapana Kailihou (S. Kaluapana) was Aunty Momi's father and Samuel “Nika” Kailihou (Nika) was her grandfather. Her great-grandfather was Ka'umi'umi, and Leleku (also known as: Kahili) was her great-great-grandfather.

This family explained that Ka'umi'umi was one of the first Hawaiian men to attend Lahainaluna Seminary and could therefore read and write. Although Aunty Mabel recalls him being of Christian faith, Mr. Jaentsch, her son, explains that the name Ka'umi'umi (sometimes Ku umiumi) appears in Samuel M. Kamakau's book, “Ruling Chiefs of Hawaii”. In this reference Ka'umi'umi is a *kahuna* who advised Kamehameha in the following manner:

But some of the chiefs wished Ka-umu-ali'i to be put to death, and a certain *kahuna*, named Ka-'umi'umi, came to Kamehameha and said, “The ivory-tusk ornament has come here; let the chief take the tusk.” But the chief said, “This is not a time of war which would justify me in killing another chief and seizing his possessions.” “Then I shall die, for the chief has refused to heed me,” answered the *kahuna* (Kamakau 1992: 196).

Another passage from the same reference describes a party of men, including Ka'umi'umi, accompanying Hoapili to Hale uluhe:

The party consisted of Elizabeth Kina'u, Ke-ku-anao'a, and two armed men, Kani-ku and Ka-'ai-pua'a; Ke-ka-ulu-ohi and Ka-na'ina with two armed men, Halali and Kilinahe; and Ulu-maheihehi Hoa-pili with Ke-kaua'i, and Ka-'umi'umi (Kamakau 1992: 337).

The Ka-'umi'umi mentioned above is believed to be the great-grandfather referred to by Aunty Mabel.

Aunty Mabel recalls her family *heiau* [cemetery] being located along the Kahoma Stream. Gravesites were indicated by large rocks and rock piles and this cemetery was a landmark she used when walking into the valley. “We knew where the graves of our family were, that was our landmark” (Aunty Mabel, per telephone conversation September 4, 2008). They would pass this family *heiau* on their way up to their home in Kahoma Valley.

Aunty Mabel recalls traveling with her family from their beach house up to their home in Kahoma Valley:

We lived on Puunoa Road our home was on the beachfront in Lāhainā. We would travel from our home crossing the old Hoopiilani [Honoapiilani] Hwy than cross over the train tracks on to the dirt road going up 2 1/2 miles up, then turn left on to another dirt road 25' [feet] till we approach Kahoma Stream (Landmark). Water from the stream flowing onto the dirt road into the canefields, this is the route we traveled to get to our home in Kahoma Valley. Kahoma Stream is the landmark. [Her father's] Burial site is approximately 50ft. from the bottom of the

stream. However, alongside of the stream is [a] very noticeable embankment that one must cross over the stream to get to the gravesite. There were piled up rocks to indicate burial graves. My father Sam Kaluapana Kailihou and his kupuna's was buried there (Letter from Ms. Jaentsch, Sept. 20, 2008, Appendix C ).

Aunty Mabel explains that the soil at this location must have been soft, making digging easy. Aunty Mabel describes parking the car, and her four brothers carrying her father's coffin down over the embankment then over the Kahoma Stream. She remembers the terrain *mauka* of this area as being rugged; she explains that it would have been impossible for her brothers to carry her father in a coffin any further *mauka*. She goes on to explain that there were no subdivisions, only cane fields surrounding this location.

During more traditional times, Aunty Mabel explains, Ka'umi'umi, as well as other 'ohana (Haia, Pali and Makekau), farmed the lands of Kahoma from *mauka* to *makai*. Portions of these lands were handed down from Ka'umi'umi to Nika then to S. Kaluapana. Nika's sister, Mary (Nakilu) Reccard, went on to own portions of these lands as well. Aunty Mabel explains there were extensive *lo'i* in the valley. Mr. Jaentsch explains that the area recalled is included in Royal Patent 9780 B and describes having seen the intact remnants of the *lo'i*, as well as foundations from a house, the last time he visited the lands there.

Aunty Mabel's brothers worked at the Pioneer Mill and typically stayed down at the Pu'unoa beach house during the week. In addition to their work at the mill, her brothers also fished. There were trails that went up the old Kahoma Stream, Aunty Mabel explains:

My father followed the trail on the right side of the stream into the valley (Letter from Ms. Jaentsch, Sept. 20, 2008, Appendix B ).

Ka'umi'umi is believed to be buried in the valley. Philip has walked up the valley and uses a trail along the stream embankment. He describes an ancient trail that goes up the left side of the stream and says the road by Pump house is not a traditional road, but that there is a traditional trail that goes by the Leleku property.

He has seen cattle in the valley and explains that they are causing damage to the Haia gravesite and to the ancient *lo'i* walls. The family describes several groups of burials, including cave burials throughout the area.

In the fall of 2005, Ms. Donnalyn Johns, Aunty Mabel's daughter, started researching her family's genealogy. She felt drawn to the Kahoma area and in March 2006 she visited Maui for a week. During this time Ms. Johns and Aunty Mabel visited the location where Aunty Mabel thought her father and family were buried. When they arrived at the area, Aunty Mabel began crying and said that they were at the right place. They got out of their car with *ho'okupu* in hand and Mr. Johns described chanting, "Na Aumakua". Butterflies surrounded Aunty Mabel and water started seeping from rocks in the stream wall. A spiritual presence was noticed, Aunty Mabel describes a "blessed feeling, like they, the *kupuna* were happy" (telephone conversation September 4, 2008). They returned in June, gathered the *kupuna*, and again visited the area with *ho'okupu* in hand. The party went up to the place and again felt the presence of family.

In 1947 the Maui News published a public notice to the heirs of Kailihou. Aunty Mabel explains that her immediate family did not respond to the notice, but another relative responded

on their behalf. That particular notice was for lands in Kahoma. Later, in 2005, Aunty Mabel's family read a similar type of notice calling for heirs of Ka'umi'umi regarding lands in Lāhainā at Puehuhunui, near the present 505 Front Street location. The family is currently in court working to reclaim these family properties.

Aunty Mabel, with her daughter and son, returned to Maui Aug 9-11th. During this visit they helped clean the Haia cemetery, taking a break during the hottest time of the day and resuming cleaning later only to find water flooding down Kahoma Stream. They felt this was a spiritual and supernatural experience. This family has stated that they had experienced several experiences like this in this area since 2004. This line of Kailihou's claim their families lived at least eight generations in Kahoma Valley, this Valley being their primary residence, while the beach house was for fishing.

Ka'umi'umi was the father of Samuel Nika Kailihou. There was also a girl, S. Nika's sister named Mary Nakilu. Leleku (aka Kaili) was Ka'umi'umi's father.

Philip, Donnalyn, and Mabel all express that their families have always had access to this valley. This family explains that Ms. Isabella Aiona Abbott, Hawai'i's leading *limu* expert and well known Hawaiian scholar, is a cousin of theirs. Ms. Abbott illustrates their families connection to Kahoma Valley in an account of her great-uncle's pursuit of stream water, understood to be Samuel Nika Kailihou, in her book titled, "Lā'au Hawaii Traditional Hawaiian uses of Plants":

My great-uncle, who had been given to the captain of a whaling ship when he was twelve and who returned ten years later, settling down in Kahoma Valley northeast of the town of Lāhainā, grew kalo where his father, grandfather, and great-grandfather had grown it, using water from the same stream "since time immemorial." One day in the late 1800's, he noticed that the water was not flowing into his lo'i, so he went mauka to investigate and found that his 'auwai had been sealed off. He broke the rock wall, and had to do this several times before being faced by a guard who had him arrested for taking water from the sugar plantation. Most stories about Hawaiian water rights end unhappily, but my great-uncle went to court and succeeded in getting a compromise; the water was divided between him and the plantation, each having the use for twelve hours daily. When my mother inherited the land, the plantation was quick to offer her an exchange of land for the sole water rights (Abbott 1992:141).

It is believed that Nika won water rights in 1928. Ms. Johns explains that in 1936 the Pioneer Mill Company completely diverted the Kahoma Stream water (see also 3.1.4.2.2 Pioneer Mill Company: Tunneling for Perched Water). Nika was 81 years old at the time of his death, when the sugar plantation kicked his family out of Kahoma Valley. Aunty Mabel lived on Maui from 1934 to 1936 and vividly remembers her father's outrage at being forced to leave their property in Kahoma Valley.

Today, this family regularly encounters problems when trying to access these traditional family lands. They have explained that several private landowners have gated access routes and explain that it is often difficult to attain keys. They do not want to lose their access to these ancestral lands. Currently, the DLNR helps them with access. They do not like the gates, but

with all the new people currently in the area and plans for additional development in the area they think they might need a gate of their own.

This family has several general concerns regarding the construction of the Lāhainā Bypass; Mr. Jaentsch finds it disrespectful to have a freeway running by the graves of family members. Ms. Johns has concerns about burial caves collapsing due vibrations from construction of the bypass. Ms. Johns also has concerns about runoff during all phases of the bypass construction and from future development of the area. She explains that in Kona the reef fish population has been dramatically reduced due to runoff/siltation and pollution. Those fish that remain are not fit for eating.

Aunty Mabel, Ms. Johns and Mr. Jaentsch want justice in regard to their family burials. The Army Corps of Engineers, Kahoma Stream Flood Control Project and the burials believed to have been disinterred during that this project are of extreme concern. Aunty Mabel mentions a silver plate in her father's leg possibly from an abscess in his right shin that may help to definitively identify her father among remains that have been previously disturbed or disinterred. They cannot locate their family burial site that used to be along the Kahoma Stream and they do not want any other burials or family cemeteries desecrated by the proposed bypass. Aunty Mabel stated that she is mainly interested in recovering her father's *iwi*, and also recovering the *iwi* of others that had been buried in her family cemetery along Kahoma Stream.

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## Section 6 Traditional Cultural Practices

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### 6.1 Hawaiian Habitation and Agriculture

Numerous LCA claims containing descriptions of a variety of agricultural practices (see also Table 2 and Appendix D ), as well as, recollections that were shared during the community consultation process provide ample evidence of a strong tradition of *mahi'ai* or farming in the Kahoma and Kanahā Valleys. Uncle Charlie Makekau recalls a bridge that crossed the lower portion of Kahoma Stream which provided access to Kelaweā Village (see also Section 5.1.2). *Lo'i* extended *mauka* along the agricultural banks and flood plain of the *kahawai* from this bridge. His father, Samuel Makekau was raised in Kahoma Valley by the Kukaia family. Here, Samuel Makekau farmed taro into adulthood. He then brought his own family up to work on the farm. Uncle Charlie remembers the house they stayed at while visiting, recalling its *'ili'ili* paved floor that his mother covered with *lau hala* mats for them to sleep on. He described the house as being placed under an overhang where a large boulder was perched.

A description of this same house was also given by Uncle Ah Ying in his interview (see also Section 5.3.4 and Appendix C ). Uncle Ah Ying recalled that it was Emma Sharp's husband's house and that his family stayed there as well. He remembers several homes in the valley and explained that several families had and maintained *lo'i* in Kahoma Valley. His mother was from Kahoma Valley and they visited their family *lo'i* weekly to tend the pond fields and harvest taro. His Uncle Kahili, Tūtū Pili and Tūtū Moki often accompanied them into the valley. Uncle Ah Ying explained that the adults worked the *lo'i* while the children played in the *kahawai*. They would then pack the harvested taro out on Tūtū Moki's mule and bring it back down to their house in Lāhainā where they would then cook it and pound it into *poi*. Uncle Ah Ying speaks of his Tūtū Pili as being a "big man!" and explains that he was in charge of the water rights in the valley. Uncle Moki Keahi (see also Section 5.1.10) confirms that his great grandfather, Pili Haia Kekai, was one of the last Hawaiian men to farm taro in Kanahā Valley. It was said that Pili Kekai farmed taro from Māla to Kanahā.

Mr. Foster Ampong recalls stories his mother, Emma Kimokeo, told him about her weekly trips into Kahoma Valley (Section 5.1.4). Ms. Kimokeo was raised by the Kalaluhi family from Kahoma. Moses (Moki) Kalaluhi, her adoptive father, owned a pack mule and every week the family walked into the valley. The mule carried their supplies and their dog and chicken went along. Tūtū Moki's brother lived in the valley and the family would walk into the valley to tend their *lo'i*.

Ms. Myra Keli'ipio also describes their family's *lo'i* as being in Lahainaluna Valley (Kanahā Valley) and remembers walking up into the valley once a week with her father (Section 5.3.3 and Appendix C ). Their *lo'i* were behind Lahainaluna School and it was at these *lo'i* that she said the kids helped weed and harvest. Her brothers, she states, "became good *poi* pounders."

Aunty Mabel Jaentsch explains that there were extensive *lo'i* in Kahoma Valley and her son Phillip Jaentsch has seen the remnants of them on recent trips into the valley (Section 5.3.5 and Appendix C ). Aunty Mabel, explains that her grandfather Samuel Nika Kailihou and her father Samuel Kaluapana Kailihou, used to farm taro on their family lands in Kahoma Valley and her daughter Donnalyn describes Kahoma Valley as their primary place of residence. Dr. Isabella

Abbott, a relative of Ms. Jaentsch, illustrates her family's farming tradition in Kahoma Valley stating that her great uncle, Nika, grew *kalo* in Kahoma Valley "where his father, grandfather, and great-grandfather had grown it, using water from the same stream 'since time immemorial.'" (Abbott 1992:141).

In his written response to CSH, Mr. Akoni Akana describes the lands from "...Halona Valley to Kahoma down through the current site of the Kahoma [S]tream" (Section 5.2.3 and Appendix B ) as agricultural lands. With the abundant agricultural resources of the study area, remnants of house sites, agricultural tools, and religious sites may also be encountered here.

Mr. Jonah Keahi described his great grandfather, Pili Haia Kekai, as one of the last men to raise taro in the valley (Section 5.3.1 and Appendix C ). He described Pili Kekai as an unusually strong man who was known to have singlehandedly farmed the *lo'i* of the entire Kanahā Valley. It was said that at the time of his birth there was a "fireball" in the sky, and that this would become an omen telling of his strength and endurance. He said that the property at the head of Kanahā Valley used to belong to his family and described an Uncle who was in charge of the water intake who had a home on a hill in Lahainaluna Valley. As a boy, Mr. Keahi and his family would go visit this uncle and go down to his father's taro patch.

Mr. Keahi took over his father's lease of the taro patch in Kanahā Valley from the years 1969 to 1973. Mr. Keahi farmed taro up at this property. The land, he states, was owned by the Pali family and that they leased it from them. He describes raising pigs and chickens and recalls the lushness of the land and the mango trees and banana trees that grew on it. He said that it is now dry and vacant. He remembers a time when both families lived in the valley and farmed these lands. Mr. Keahi also describes the remains of the long house, in which his grandmother was raised, as being located in the study area. He said that the remnant cooking area is still there.

Several individuals also spoke of historic-era gardening practices that occurred throughout the cane fields. Both Uncle Charlie Makekau and Mr. John Kuia describe isolated gardens in the cane fields that were tended to by the "*hanawai* man". The *hanawai* man grew vegetables; pumpkin, squash, Filipino beans and eggplant. Ms. Keli'ipio also recalls plantation laborers utilizing areas in the cane fields as gardens. She explains, they had the water and planted their own vegetables. She remembers them carrying pumpkin and squash home in their lunch bags. When Uncle Charlie spoke of the *hanawai* man's gardens, he specifically said that SIHP 50-50-03-2484 (see also Section 3.2 Previous Archaeological Research) was one such garden. He said the *hanawai* man was the person in charge of irrigating the fields. They planted these gardens to supplement their food resources and often shared or bartered vegetables.

Native Hawaiian families also tended personal gardens in addition to taro farming. Ms. Keli'ipio mentioned that her family had a garden at their house where they grew *pōpolo* and '*ihi*. She describes being "...surrounded by Hawaiian medicines from the cane patches." Mr. Keahi said that his father also had a pumpkin garden up in Kanahā Valley. He said they used to buy the pumpkin from the Filipino laborers who had gardens in the cane fields, but that after the plantation poisoned the gardens, killing some of the produce, Mr. Keahi's father planted his own garden. His father was a fisherman and used the pumpkin for chumming for *opelu* fishing.

With regard to traditional *lo'i* agricultural within the potential area of direct effect for the proposed project as it crosses Kahoma Stream, it is clear that the development of the U.S. Army

Corps of Engineers' Kahoma Stream Flood Control Project has effectively eliminated any remnant terraces that were once associated with traditional *lo'i* agriculture (Lee-Greig et al. 2008, see also Figure 6 and Section 3.2 Previous Archaeological Research). While there were no known occurrences of traditional agriculture along the Wahikuli plains, it is clear that the stream valleys of the entire study area, located directly south and adjacent to the project area, fostered a rich agricultural tradition of taro farming from the pre-contact era (see Section 3.1.3.1 Agricultural Endeavors and 3.2 Previous Archaeological Research) into historic times (see Section 5 Results of Community Consultation, Informal, and Formal Kama'āina Interviews and Appendix C Formal Interview Transcriptions and Notes).

With regard to historic gardening practices, it is evident that the personal gardens of the *hanawai* man have long since been abandoned. While there is a remnant of this type of "truck" farming directly adjacent to the modified Phase IA alignments (SIHP -2484), cultivation within this agricultural feature is no longer active. It is important to note, however, that Mr. Jonah Keahi (Section 5.3.1) recalls that his family did begin to maintain a personal pumpkin garden in the valley of Kanahā as a source to make chum for fishing.

Overall, there is a significant concern expressed by those who participated in this study regarding access to their traditional lands and how the construction of the proposed project, both during and following the build out, will affect their ability to access their agricultural lands (see also Section 6.7 Hawaiian Trails/Traditional Access Routes below). When considering the potential cumulative effects of the proposed project, there is an additional fear that the construction of Lāhainā Bypass Phase IA would ease the way for additional development and facilitate encroachment onto traditional lands. Implicit in this concern is the fear that people who may not understand or subscribe to traditional Hawaiian values would be *maha'oi* (brazen or rude) or *niele* (curious or nosy) and disruptive in the valleys. The perceived increasing potential for unwanted trespassers onto *kuleana* lands is seen as a problem for a people who value the near pristine environment of Kahoma and Kanahā Valleys.

## 6.2 Gathering for Plant Resources

During the course of this study, it was found that Kahoma and Kanahā Valleys; as well as the mountains above, were accessed for the collection of medicinal and food resources, as well as resources that were necessary for maintaining the household. It was additionally noted that medicinal plants could also be found in and amongst the cane fields that once covered the Wahikuli Plains.

In his interview, Uncle Ah Ying (Section 5.3.4 and Appendix C ) recalls his mother collecting various plants for medicinal purposes from remote ridge tops of Kahoma Valley. Mr. Tommy Kekona (Section 5.1.1.1) said they accessed the valleys for figs, guava, mango, and mountain apples. Mr. John Kuia remembers the valleys being filled with various fruit trees; he said that he has even eaten the fruit from the *panini* cactus.

Mrs. Myra Keli'ipio remembers being surrounded by Hawaiian medicinal plants from the the "cane patches." Such plants included *pōpolo* (*Solanum nigrum*) and '*ihi* (*Portulaca sclerocarpa* or Oxalidaceae); as well as, a plant that would be used as a gargle to treat the common cold (possibly *uhaloa* [*Waltheria indica*]). *Pōpolo* (*Solanum americanum*) leaves were often used in *la'au lapa'au*, or Hawaiian medicinal practices, for alleviating sore tendons, muscles, and joints

(Abbott 1992:98). *'Ihi*, also *'ihi'ai* or *'ihi pehu*, was used to treat general debilities (Nagata 1970).

*Lau hala*, or the leaves of the *hala* tree (*Pandanus tectorius*), were used traditionally for the weaving of baskets and mats. Two individuals consulted described relatives carrying on the tradition of *lau hala* weaving. Uncle Ah Ying explained that his mother, Ella Akeo, made *lau hala* mats. He said she used a heavy wooden pounding tool and a cutting tool, both of her own construction, for the production of her mats. He described the floors of their home as being covered by her *lau hala* mats. Ms. Myra Keli'ipio said her tūtū wahine made *lau hala* mats. She explained that her tūtū lived in Kahana where *lau hala* trees grew. Although it is unclear whether *hala* trees from the study area were utilized, it is important to explain that individuals consulted did in fact have a tradition of *lau hala* weaving and might have been collecting *lau hala* from within the overall study area.

Arthur Waal describes the construction style of the last of the *pili hale* (*pili* grass houses) that were located in Lāhainā and within Kahoma Valley in the following manner:

The logs for these huts were out in the mountains near Lahainaluna Seminary. After the frame work is up, it is covered with *pili* grass and woven to the frame in heavy layers. When properly built they are impervious to rain, and the floors, covered with the soft mats of old time Hawaiian manufacture were very comfortable. (Waal 1898:6B)

Wild patches of *uhaloa* and *'ilima* (*Sida fallax*) have been noted on lands within the area of potential direct effect. While gathering of such plants was known to occur into the late historic time period, none of those interviewed for the current study knew of ongoing gathering practices within the immediate footprint of the proposed project. With regard to the plains of *pili* grass that once covered the mid-elevations of Wahikuli (see also Section 3.1.3.1 Agricultural Endeavors), it is apparent that the area that was once thick with this traditionally used plant has been thoroughly altered by extensive modifications to the landscape during historic and modern times (see also Section 3.1.4.2.2 Pioneer Mill Company). As a result of large-scale commercial agricultural modifications to the landscape, the dominant vegetation of the study area currently consists primarily of introduced plant and grass species (see also Section 1.3.1 Natural Environment.) While there are no known traditional gathering practices within the area of potential direct effect, concerns with regard to gathering rights and access to mountain resources were raised. There is a concern expressed by those who participated in this study regarding access to their traditional gathering areas and how the construction of the proposed project, both during and following the build out, might disrupt their ability to access these resources (see also Section 6.7 Hawaiian Trails/Traditional Access Routes below).

### 6.3 Aquatic Resources

Freshwater resources, in addition to marine resources, supplied the Hawaiian diet with a rich source of protein. Investigations find that Kahoma and Kanahā Streams as well as the Crater Reservoir provided fresh water food resources. *Kama'āina* testimony confirmed that *opae* (*Halocaridina rubra*) and *o'opu* (Gobiidae) were collected prior to the diversion of the stream water. Uncle Ah Ying remembers catching *opae*, while Mr. John Kuia recalls catching both

*o'opu* and *opae* in the streams. Mr. Keoki Freeland recalls individuals accessing the valleys to catch *o'opu* and *opae*. Mr. Narcisco Billianor makes reference to “old Hawaiians” catching *o'opu* and remembers catching crayfish and prawns in Kahoma Stream. Crater Reservoir (a natural lake formed in the crater of Pu'ulaina) was also utilized as a fishing resource. Uncle Charlie Makekau describes harvesting koi and goldfish from the Crater Reservoir. He described the “flushing” of the reservoir as a time when families from surrounding camps would all come up to catch fish for eating. Mr. Billianor remembers catching tilapia in the Crater Reservoir.

In addition to maintaining the traditional subsistence base, the streams (or *kahawai*) were also recreational resources. Several of the individuals consulted conveyed a fondness in their recollections of Kahoma and Kanahā streams. Uncle Charlie described learning to swim in natural pools in the Kahoma Stream near his home at Kelawea Camp. “Big Pool” and “Small Pool” below the confluence of Kahoma and Kanahā Streams were popular swimming spots among the children of that time. Uncle Ah Ying also describes swimming and playing in the *kahawai* while his mother tended their family *lo'i* in Kahoma Valley. Ms. Myra Keli'ipio explains that the source of Kahoma Stream was a “free flowing spring.” Mr. John Kuia described this area as being his childhood playground and remembers the beauty of Kahoma Stream and Valley, and the abundance of water that flowed in the stream. He remembers large trees growing in Kahoma Valley. Mr. Peanut Sodetani, who worked at the pump house just north of the Kahoma/Kanahā confluence, describes the 325 foot depth of the tunnel shaft below this pump house and how it connects to an underground water source that he remembers being chest deep.

In this leeward environment, ocean-based subsistence practices also contributed to the food resources of the traditional diet. Traditional practices that occurred within the coastal reaches of the overall study area included fishing, squidding and the harvesting of *limu*. Ms. Myra Keli'ipio grew up on the coast in Lāhainā where her home fronted the ocean and stated that her brothers were fisherman who were capable of catching fish as often as was necessary. As children, Ms. Keli'ipio and her siblings made fishing nets both for throw-net fishing and *hukilau*. She describes making the finely woven nets that were illegal at that time. Based on her interview, it appears that Hawaiians recognized the impacts to certain fish populations and banned certain size nets. She goes on to explain that the small-sized nets were only utilized when fishing for special occasions.

Ms. Keli'ipio describes harvesting *limu* of all varieties and possessing the knowledge of where to go to collect a particular variety. She remembers collecting *Wāwae'iole* [*Lycopodium cernuum*], *Lipoa* [*Dictyopteris plagiogramma* and *D. australis*], *limu kohu* [*Asparagopsis taxiformis*], *limu 'ele'ele* [*Enteromorpha prolifera*], and *līpe'epe'e* [*Laurencia parvipapaillata*, *L. dotyi*, *L. succisa*]; these were some of the varieties that she recalls collecting along the coast. A sense of conservation is relayed when Ms. Keli'ipio explains that they never took more than they needed, that they left enough for others, knowing that other families depended on the resource as well, “...Hawaiians used to be careful about how they took it [*limu*] because the other Hawaiians want to come down.” (see also Section 5.3.3 and Appendix C).

Uncle Ah Ying recalls following his mother down to the ocean to catch squid. He said she would chew coconut and spit into the water. The coconut would clear the water's surface and enable one to see through to the bottom. Her squidding tool, he describes, was a wooden stick. He said that his mother was an excellent fisherwoman and taught him how to fish. Uncle Ah

Ying explained that his mother possessed traditional knowledge and lived in the traditional manner of her time.

Aunty Mabel, Uncle Charlie and Mr. Kuia all describe a tradition of fishing in their families. Uncle Charlie recalls walking from Kelaweā Camp to Māla to fish, Aunty Mabel lived at the beach where her brothers fished and Mr. Kuia walked to various beaches in Lāhainā and as far as Launiupoko to fish. Community consultation confirms a strong tradition of fishing along Lāhainā's coast.

With the exception of occasional flooding events that result from heavy winter rains, the waters of Kahoma and Kanahā Stream no longer flow to the sea – a result of the diversion of water resources for the cultivation of sugar cane (see also Section 3.1.5) during the historic era and continued diversion for consumption today. Thus, there are currently no known instances of traditional gathering of *o'opu* and *'opae*, as the ecosystem that would have sustained this resource has been detrimentally altered. While fishing practices and gathering of marine plant resources were identified along the coast of the overall study area and described by many of the *kūpuna* who were interviewed during the course of this study, it is not known to what extent these practices continue to occur. There is, however, no doubt that people continue to fish off of the shores of the overall study area.

The primary concern, with regard to aquatic resources, from those who participated in this study was related to the potential degradation of the marine ecosystem and potential adverse effects to the ocean resources that may result from construction runoff. Based on her experience in the Kona area of Hawai'i Island, and as stated in Section 5.3.5, Ms. Donnalyn Johns has expressed concerns about runoff from all phases of the Lāhainā Bypass construction, as well as, future development of the area. She explains that in Kona the reef fish population has been dramatically reduced due to runoff/siltation and pollution, and the fish that remain are not fit for eating.

## 6.4 Traditional Hawaiian Sites

Historical documentation, community consultation, and archaeological investigation (Lee-Greig 2008) has not identified any known traditional Hawaiian sites in the APE for Phase IA of the proposed bypass realignment. There are, however, extant traditional Hawaiian sites located adjacent to the area of potential direct effect and within the overall study area. Uncle Moki Keahi spoke of a “birth rock” of which his family was the caretakers. He remembers cleaning around it and understood that his great grandmother was born on it.

Mr. Jonah Keahi recalls the remnants of a long house in which his grandmother was raised. According to several community consultants, the valley's were utilized for *lo'i* agriculture and habitation and remnant *lo'i* walls and terracing are said to exist in the valleys and along portions of the unaltered lower banks of Kahoma and Kanahā streams. Mr. Akoni Akana describes the area as being, “steeped in history” and that one may expect to find the remains of traditional agricultural sites, religious sites, and habitation sites, including family burials.

With regard to potential project effects on adjacent traditional Hawaiian sites, both Mrs. Uilani Kapu and Ms. Donnalyn Johns have expressed concerns about possible adverse effects resulting from vibrations from heavy equipment and pile driving. In particular, Mrs. Kapu and

Ms. Johns see considerable potential for vibration-related wall and cave collapse; they inquire about accountability on the part of the project proponents (see also Sections 5.1.1.5 and 5.3.5).

## 6.5 Wahi Pana (Storied Place)

There is one consistent thread throughout the community consultations and research into the works of the first Hawaiian academic scholars and early non-native observers -- that Lāhainā, from the off-shore fishing grounds that lie between Lāna'i and West Maui to the coastline that is cooled by the *ma'a'a* breeze, past the plains that were once showered with the *paupili* rains and up into the hills and peaks steeped in traditional Hawaiian mythology, Lāhainā is indeed a *wahi pana* unto itself.

The stories speak of the birth of Pu'ulaina to the human form of Eeke (West Maui Mountains) and Lihau (at Olowalu) (see also Section 3.1.2.1 The Origins of Pu'ulaina, Eeke, and Lihau) and how the three came to be mountains and hills. In traditional times, as well as historic, Lāhainā was no stranger to pre-contact and historic era warfare, and Kahoma and Kanahā Valleys played important roles in each as places of both tactical advantage and refuge (see Section 3.1.3.3 Politics and Warfare). Mr. Akoni Akana also speaks of Pa'upa'u, the mountain top above Lahainaluna High School, as being a place of refuge or *pu'u honua*, designated as such by Queen Ka'ahumanu. In addition to being a *pu'u honua*, he explains, the burial site of the Hawaiian Scholar, David Malo, is atop this mountain.

Lāhainā is described as a place where subsistence resources thrive (see 3.1.3 Traditional Accounts), and as such, a favorite home of high ranking *ali'i*. With the high regard of the *ali'i*, so came the flow of *mana* or power to this area. Mr. Among describes walking the foothills above Lāhainā and hiking both the Kahoma and Kanahā Valleys to reconnect himself to the 'āina and his ancestors. The following lamentation, or chant of mourning, was featured in *Ke Au Okoa*, October 26, 1871 by G.H. Hanakauluna, and describes the intertwining places, topographic features, elemental names for the Lāhainā area with specific mention of Kanahā and Kahoma:

Aloha ka nani o Wainee,	The cherished beauty of Wainee
Hoaleale i ka wai o Makuhinia,	The stirring waters of Makuhinia
Hoopupu nonohu i ka malu hale o Hoapili.	Crippled with age in the peaceful house of Hoapili
He hoa pili nou i ka lai o Lele,	A close friend you are in the calm of Lele
E pili ia me ka ua paupili,	Together with the Paupili rains
Kukala hale iluna o Paupau,	Kukala hale above Paupau
Ka lele muku i na kahawai elua,	The brief flight to the two rivers
O Kanaha laua me Kahoma.	Kanaha and Kahoma
Homa ka manao naha ka pili o kaua,	Homa the thought, naha that belongs to us
Loaa ka manu o ke kuahiwi o ka Alala,	The Mountains have a bird, the Alala
Ke alala wale oukou i ke kula o Puohele,	Awaken you on the plains of Puohele
Ua hele iho nei ke kuleana o keia wahi,	Descending here the rights of this place
Hookahi kuleana o ka olelo a ke Akua,	Ones privilege of the word of God
A heaha ka hoa hele o ka lepo, uhai hele o Lahaina,	And what of the common people? Swiftly fly to Lahaina

I wili ia e ke Kauaula hina pu,	Entangled in the Kaua`ula winds, topple,
I paaia mai e ka maa i Wainee,	Pampered by the custom at Wainee
I ke one alii la a—e,	By means of the chiefs sands
Ka hau kokolo o kula—e,	The hau kokolo of Kula
I hehia e ka ua ukiu o Makawao,	Trampled by the Ukiu rain of Makawao,
Paio ae la i na kahawai,	Blustered by the winds to the river
Ku aku la ka piha a i kai,	Stand away as the tide rises
A k e aloha me he ahi la,	And my love burns as a fire
Ka hele a ka makua o ka lehulehu,	
Auwe kuu kane—e.	Auwe, my love – e.

Puehuehu, Lāhainā, Maui, Mar. 19, 1862.

As a storied place, and home of high ranking *ali`i* and royalty, there is a concern regarding the potential impacts that both the construction of the proposed project and perceived increased potential for large scale development along the Lahaina Bypass might have on this storied place. Mr. Among asserts that building the bypass will not only extinguish his tradition of walking the lands of his ancestors but equates to the desecration of his natural church. Kumu Molitau observes that past developments have destroyed cultural landscapes, and goes on to say that it is disheartening as a cultural practitioner to know that more construction and destruction will be the “new identity” of a rich cultural heritage. Mr. Ke`eaumoku Kapu, serving in his role as the Maui Island representative to the OHA/NHHPC has indicated that he would like to see, or work toward, extending Lāhainā town historical district and national landmark boundaries further *mauka*, to encompass the stream valleys and potentially the area in which the proposed project has been sited.

## 6.6 Traditional Hawaiian Burials and Historic Cemeteries

While no human burials have been specifically identified within the area of potential direct effect for the proposed project, there are several known cemeteries and burial sites located in the greater Kahoma area: SIHP 50-50-03-2486 consists of thirteen probable grave markers; SIHP 50-50-03-2485 was recorded as an enclosure and was more recently identified as the Pali family cemetery; SIHP 50-50-03-1776 is the Haia Terrace System which includes a cemetery; and SIHP 50-50-03- 0226 is the Pu`u Piha Cemetery (former Māla graveyard and fishpond) that consist of both historic-era coffin burials and pre-contact pit burials. In his response, Mr. Akoni Akana speaks of the continued potential for burials in the study area as it was an area of traditional agriculture and largely populated.

Several family members continue to visit the Haia Cemetery. Individuals describe visiting the cemetery in order to maintain it, clear weeds and brush, and pay their respects to their ancestors. Uncle Ah Ying has visited the cemetery throughout his life and has been up there with his cousin Uncle Moon (Keahi) to clean the gravesites. He says that there are several different (related) families buried in the cemetery. Uncle Moki Keahi recalls visiting the Haia cemetery from boyhood into high school and shared that his family would visit the cemetery to clean and maintain it. Having grown up in the area and being a part of the Haia *‘ohana*, Mr. Jonah Keahi is familiar with the Haia cemetery. Although he did not grow up caretaking the cemetery, as a boy,

he knew exactly where it was and passed through it many times. He said that some gravesites are marked with stone walls or alignments and also described a nearby family burial cave. It is believed that the cave has since collapsed and he thinks this may be what encouraged his ancestors to begin burying individuals at the current location of the Haia Cemetery.

In the summer of 2007, Mr. Keahi informed Wilson Okamoto and CSH that the enclosure, SIHP-2485, was actually a Pali family cemetery. He remembers this area from boyhood and said his parents said that this was Adam Pali's family gravesites. Several individuals who were consulted and interviewed for this study, including Mr. Archie Kalepa, mentioned a recent visit to the Pali family cemetery and enclosure (SIHP-2485) this past summer (2008) to clean it.

Many community contacts, including Mr. John Kuia, Ms. Myra Keli'ipio, Mr. Foster Ampong, while not necessarily knowing or choosing to reveal exactly where all the gravesites were located, grew up with the knowledge that there were burials in the area. Mr. Kuia remembers hearing about burials in the study area as a boy, but explains that as a kid you don't pay attention to these things. Ms. Keli'ipio expresses similar thoughts, explaining that discussions regarding graves were adult conversations and that young children, like herself at the time, do not pay attention to those things. Typically, she says, children did not go to gravesites unless their parents took them there for a specific purpose. She did state that she visited family buried in Kahoma.

Others like Aunty Mabel Jaentsch have very specific recollections of family gravesites but can no longer locate them due to the alteration of the traditional landscape that was caused first by the sugar industry and later by construction, development and modernization. Aunty Mabel is resolute in determining where her father, S. Kaluapana Kailihou is. He was buried in their family cemetery located along the Kahoma Stream in the 1940's. She insists that her family cemetery was south of the present day industrial center, along the northern bank of the natural Kahoma Stream. She has tried several times to relocate the cemetery but is convinced that it was destroyed during the Kahoma Stream Flood Control Project. The family believes that the individuals buried in this cemetery were reinterred at the Ritz-Carlton Honokahua Burial Site, a location that this family is not comfortable with.

Aunty Mabel alone recalls the specific location of this cemetery; however, several individuals know of burials in the area. Mr. Peanut Sodetani, at 92 years of age, describes walking past burial mounds on his way to work. He walked from Lāhainā to the pump house near the confluence of the Kahoma and Kanahā streams. On this route he could have passed the area which Aunty Mabel describes as the location of her family cemetery. His description is as follows:

The only one I know is...the one that is across the stream. That was a family grave. They had about ten or twelve...it was all mounds, and you know...

That was before my time [the graves]. And then...there's only one family or two families who went...I used to walk from home, coming up that hill and going through the cane field on my left side, they had a grave there...(Mr. Peanuts Sodetani).

Again, it is unclear if Mr. SodeTani is describing AuntY Mabel's family gravesite. The cemetery that AuntY Mabel describes did have historic coffin burials whereas the burial site Mr. SodeTani describes may potentially be pre-contact.

While there have been no findings of traditional Hawaiian burial sites within the footprint of the proposed project, those who responded and participated in this study have expressed their discontent with the idea that a highway will be built near traditional and historic burial sites. Mr. Kekai Keahi has specifically stated that gravesites are "places of peace, places to pay your respects to ancestors, places of solitude and reflection, spiritual places". Mr. Foster Among also asserts that there is a probability of encountering burials across the landscape and inquires about liability and procedures in the event of a burial find within the proposed project corridor in light of what he views as past failures that have resulted in desecration (see also Section 5.1.4).

## 6.7 Hawaiian Trails/Traditional Access Routes

Many of the individuals consulted for this study described their access routes into the Kahoma and Kanahā Valleys. The *kūpuna* who were consulted and/or interviewed for this study explained that they walked into the valleys weekly to work their taro fields following a combination of traditional trails, dirt roads, the streambed itself and cane haul roads. The following are descriptions of how they remember accessing these *mauka* lands (see also Section 5 and Appendix C).

AuntY Mabel said that her family walked from their home on the beach up Puunoa road, across the old Honoapi'ilani Highway, then over the train tracks, up a dirt road towards Kahoma Stream. They then turned left onto another dirt road in which the Kahoma Stream actually flowed over during heavy rains. Here they would cross Kahoma Stream to its northern bank and follow the stream *mauka* into Kahoma Valley. As mentioned above, their family cemetery was on this route and acted as a landmark on their way into Kahoma Valley. AuntY Mabel also explains that her father followed a trail on the right side of the stream into the valley. AuntY Mabel, Ms. DonnalyN Johns and Mr. Phillip Jaentsch all declare that generations of their family have always had access into Kahoma Valley.

Uncle Ah Ying describes several different routes into the valley. There was one he describes that followed the ridge, dropped into the valley, crossed the stream and climbed up onto the opposite ridge top. He said they sometimes followed a plantation road that led to an "old trail", and then followed the traditional trail into the valley.

Ms. Myra Keli'ipio recalls her family's taro patch as being quite a distance up Kanahā Valley and says it was not easy to get there and remembers having to "...scramble up the sides of the Pali." Mr. Tommy Kekona describes a mountain trail that his mother used to get from Honokahua to Lahiana.

Mr. Foster Among recalls his mother describing a cane haul road that led to the Haia cemetery. From there they followed the *kahawai* into the valley. Mr. Among has a personal tradition of walking the land. As a boy he explored the valleys, *kahawai* and plains above Lāhainā. As an adult Mr. Among regularly walks these same lands as it is the way he connects himself spiritually to his ancestral lands and his ancestors themselves. Four or five times a year he spends the day walking from Lāhainā up into the valleys of Kahoma and Kanahā, to

Honokowai and back. It is a time he cherishes, and describes these natural places as his church. He believes that this practice is essential to his spirituality. Mr. Among has a young son that he has taken along with him and hopes to pass his tradition on to his son.

Mr. Jonah Keahi also recalls trails that led into Kanahā and Kahoma Valleys. He has used these trails and his father used them as well. He explained that their neighbor in Kanahā Valley, Mr. Hans Michaels, had built a road and allowed them to use his road instead of the trail. The road ends at Mr. Michaels property and the trail can be picked up at this point and followed further back and even over into Kahoma accessing the Haia cemetery as well as the valley.

Several individuals including Mr. Kuia, Ms. Keli'ipio, and Mr. Kekona describes a mountain trail that was used to get from Honokahua to Lāhainā, not only because it was a shorter distance, but because food and water were more accessible to travelers in the mountains.

As mentioned in the preceding sub-sections, there is a significant concern expressed by those who participated in this study regarding access to their traditional lands and how the construction of the proposed project, both during and following the build out, will affect their ability to access their traditional lands. It is evident that the traditional landscape has been virtually wiped-out by historic and modern era land alteration, and landmarks and trails (e.g. the original stream course of Kahoma Stream and associated geologic and topographic markers prior to the Kahoma Stream Flood Control Project) that were once known to the *kūpuna* are no longer present. The families of the area have adapted to the changes, however, and currently use the unimproved cane haul roads that currently run perpendicular to the Phase IA ROW in order to access their *mauka* lands. With the construction of the proposed project, Mr. Kalepa inquires as to how they will access their property once the bypass is constructed and get to their family cemeteries. Presently, the Kailihou Ohana regularly encounters problems when trying to access their traditional family lands and have explained that several private landowners have gated access routes for which obtaining the keys is difficult. They relay concerns about how the proposed project will impact or cut-off their access, an access that even without the proposed highway project is difficult to maintain.

## **6.8 The Unique *Ahupua'a* Configuration of Lāhainā and *Mauka-Makai* Connections: Evidence of Traditional Access Between *Mauka* Properties and *Makai* Properties**

Traditional Hawaiian lifeways revolved around subsistence farming practices and the *ahupua'a* system of land tenure and resource distribution; a system that was designed to utilize resources from the mountains to the ocean that ultimately supported the complex chiefly society from the top down. The geographic arrangement of the typical *ahupua'a* within the traditional Hawaiian land tenure system is commonly thought of as a “pie-shaped” unit of land that extends from the coastline to the mountains. In this sense, the land tenants of an *ahupua'a* may be permitted access to resources and carry out subsistence practices that would include marine resources and fishing rights in the coastal area, arable lands for crop cultivation, as well as, water and timber rights in the planting zones, and valuable bird catching privileges at the higher elevations (Handy et al. 1991:48). As indicated by Maly and Maly (2007:82), however, the

distribution and geographic boundaries of the *ahupua'a* of Lāhainā are exceptionally unique in Hawaiian Islands.

Within their cultural landscape study, Maly and Maly (2007:8) note that many of the *ahupua'a* of the Lāhainā area are small and often configured as detached parcels, or *lele*, that do not run in the typical *mauka* to *makai* “pie-shaped” manner. One section of an *ahupua'a* may be situated near the coastline, another section bearing the same *ahupua'a* name may be within the upper reaches of the stream valleys, while still another section might be found within the mid-elevation areas – all of which are separated by intervening *ahupua'a* bearing different names. This configuration of *lele ahupua'a* as described by Maly and Maly (2008:82) is comparable to the *ahupua'a* configuration within the ROI for this study.

This *ahupua'a* configuration suggests a bimodal traditional settlement pattern and complex land tenure system that was likely a result of a growing environment that was limited to the stream valleys and lower coastal plains -- a uniquely patchy resource base that sustained a highly concentrated population and the rather large chiefly class of that area. For example, as a result of LCA research and review of the historic maps, we know that the coastal *ahupua'a* of Puunoa 1, 2, and 3 had a *mauka* counterpart within Kahoma Valley above the Kahoma/Kanahā confluence (see Figure 9 and Figure 12). Many times claimants who retained a *kuleana* within the *makai* section also retained a section *mauka*. In this manner, the tenants of the land were able to maintain a productive *lo'i* in the *mauka* reaches (Girvin 1910), as well as, access the abundant coastal resources, two resource environments that were effectively bisected by the rocky alluvial plains of West Maui. The following table lists specific examples of this pattern of *kuleana* distribution:

Table 7. Representative *Kuleana* Illustrating the Unique *Ahupua'a* Boundaries and Resource Distribution of Lāhainā

Claimant/ Awardee	LCA Number	Apana	Location	Ahupua'a
Keawe'iwi	312	1	Kahoma Stream, North side	Aki
		2	Near coast	Aki
		3	Kahoma Stream, South side	Aki
		4	Near coast	Aki
		5	Unknown <sup>4</sup>	Aki
		6	Coastal parcel, extends into ocean (fishpond claim)	Aki
	7587	1	Near coast	Kopili
		2	Further from coast Nearer to Kahoma Stream	Uhao
		3	Kanahā Valley	Kopili
Kekahuna	3422B		Kanahā Valley	Uhao

<sup>4</sup> Could not locate on Map

<b>Claimant/ Awardee</b>	<b>LCA Number</b>	<b>Apana</b>	<b>Location</b>	<b>Ahupua'a</b>
<b>Nalehu (Kalaluhi)</b>	6621		Kahoma Valley	Kuholilea
	10465	1	Coastal	Waiokama
		2	Mauka of government road (Front St.) near coast	Waiokama
<b>J.W. and M. Recard</b>	10579		Kahoma Valley	Kuholilea
<b>Leleku (M.J. Recard and Sam Kailihou)</b>	9950	1	Kahoma valley "Nikas House" lot	Puako
		2	Kahoma Valley	Puunoa 2
	9780B		Kahoma Valley <sup>5</sup>	Aki
<b>Kaahanui "Mrs. Recard's House"</b>	333		On Coast	Puunoa 2
<b>Phillip Pali</b>	470	1	Unknown	Puako <sup>6</sup>
		2	Unknown	Puako
		3	Kahoma Valley	Puako
		4	Kahoma Valley	Puako
		5	Unknown	Puako
	277 W. Lunalilo Lots	Lot 6	Kahoma Valley	Kuholilea
<b>Pohalapu (Poholopu)</b>	7721	1	Kahoma Valley	Kuholilea
	7724	1	Unknown	Kuholilea
		2	Kahoma Stream	Wahikuli

The relative close proximity of the agricultural uplands and valleys to the ocean allowed a person to traverse the distance in less than a day. Community consultation confirms that the elements of

<sup>5</sup> believe that LCA numbers on map are transposed, they read 9870B, but there is no record in Waihona Aina for this number

<sup>6</sup> according to Waihona Aina, all apana are in Puako, but cannot locate all apana on map

a traditional Hawaiian subsistence lifestyle were still being carried out well into the 1940's in Lāhainā (see also Section 6.7 Hawaiian Trails/Traditional Access Routes).

It is clear that the lands within the overall study area, or ROI, were traditionally used for their resources, resulting in the continual movement of families from ocean properties to mountain properties. Evidence gathered from community consultations coupled with LCA research reveals the importance of continued *mauka-makai* access in this subsistence lifestyle. The majority of individuals interviewed described their families as having properties along or near the coast for the purpose of gathering ocean resources, and properties in the Kahoma or Kanahā Valleys or along *makai* portions of Kahoma Stream, for agricultural purposes. Individuals interviewed gave nearly identical descriptions of walking into the valleys on a weekly basis to farm their family *lo'i*, while fishing, squidding or gathering *limu* when at their ocean home.

Uncle Charlie Makekau, Aunty Mabel Jaentsch, Uncle Ah Ying, Mr. Johah Keahi and Ms. Myra Keli'ipio were all raised practicing the tradition of walking into the valleys to farm taro. Mr. Foster Among recalls his mother's stories that parallel the stories of the above mentioned *kupuna*.

An example of this can be seen in the properties of Timoteo Keaweiwi and his brother Kekahuna, Mr. Foster Among's ancestors. LCA 7587 to Keaweiwi included 'āpana (sections) located in the valley of Kanahā as well as 'āpana located near the coast (see also Table 7). Timoteo Keaweiwi also claimed LCA 312 which included four 'āpana scattered from coastal Lāhainā to Kahoma Streamside parcels. 'Āpana 2 or LCA 312 is of particular interest as its boundaries extended into the ocean (Wright 1961, Figure 14 and Table 7).

Traditional LCA of the Pali ohana would include those land claims to Poholopu as well as properties owned by Philip Pali and Adam Pali. Four parcels owned by this family were located in Kahoma Valley; LCA 470, 7625, 7721:1 and Lunalilo Lot 6. Another was located below the confluence of the Kahoma and Kanahā Streams, along the Kahoma Stream; LCA 7724. In addition, Ms. Myra Keli'ipio, Adam Pali's daughter, described living along the coast in Lāhainā on Poholopu's property (see. Section 5.3.3 and Table 7).

A third example would be that of Aunty Mabel (Kailihou) Jaentsch. The lands of her ancestors include the lands of claimants Leleku and Kaumiumi. Her grandfather was Samuel "Nika" Kailihou, who, according to historic LCA maps, seems to have inherited LCA 9950 and 9780B located in Kahoma Valley. Aunty Mabel describes growing up at their beach house at Pu'unoa, illustrating, again, the *ahupua'a* tradition: utilizing a seaside residence for ocean resources while also having a mountain property to collect agricultural resources. When researching coastal properties in Pu'unoa, it was noted that a house existed on the boundary of LCA 333 which was labeled "Mrs. Recard" (Wright 1916, Figure 14 and Table 7). Although it was not confirmed to be the childhood home of Aunty Mabel's, the Recard family were, in fact, close relatives.

In addition, it can be noted that certain individuals described during the community consultation process are believed to be the same individual, for example Uncle Ah Ying and Mr. Foster Among both mentioned an individual by the name of Moki: "Uncle Moki" and "Tūtū Moki". Mr. Among explained that his mother was raised by Moses "Moki" Kalaluhi. It is believed that this is the same person and that he was kin to those who mentioned him. Interviewee's stories all matched; they went with Moki, who owned a mule, into the valley,

harvested taro and packed it back down to Lāhainā where they would cook the taro and pound it into poi. The same is believed to be the case with Emma Sharp's Kahoma Valley residence. Several individuals described the same house and recall staying there while in Kahoma Valley. While not all who mentioned the house specifically mentioned Ms. Sharp, it is believed that several families stayed at the same house.

## 6.9 Ceded Lands and Sovereign Identity

The issue of ceded lands was voiced in the concerns of individuals consulted for this study. The term "ceded land" refers to those lands that were transferred to the Mō'ī (King) at the time of the Great Māhele (Van Dyke 2008; 5). The Organic Acts of 1845 and 1846 initiated the process of the Great Māhele - the division of Hawaiian lands - which introduced concept of fee simple ownership and private property into Hawaiian society. Of the lands divided, the Mō'ī would come to own official Government Lands and what were then referred to as crown lands and understood to be the King's lands. In his position as the supreme ruler, the Mō'ī was responsible for the overall prosperity and well being of his people. With this understanding, the King recognized the people's need for rights to the land for their survival as a subsistence based society. Van Dyke notes that it is difficult to understand exactly how Hawaiians during this time perceived the new concept of private land ownership (2008; 6).

The crown lands of the Mō'ī were ultimately "ceded" to the United States becoming a "Public Land Trust managed by the United States but maintained separately from the government's other public lands because they were held in trust for the people of Hawai'i. In 1959, the United States transferred about 1.4 million acres of these lands in trust to the new State of Hawai'i but retained the remaining 373,720 acres" (Van Dyke 2008;9). These lands are now termed "ceded lands" and their status continues to be controversial.

Another definition for ceded lands can be found in Ms. Liza Simon's article, "*Supreme Court appeal on ceded lands issue becomes convention hot-button*". She defines ceded lands as, "Hawaiian Kingdom lands taken over by the U.S. at annexation and now held in trust by the state for several purposes, including for the benefit of Native Hawaiians" ([www.oha.org](http://www.oha.org) Ka Wai Ola, October 3, 2008).

Upon the Kingdom of Hawai'i's admission into the Union, it was agreed upon that the State of Hawaii would hold ceded lands in trust to be used for the purposes stated in section 5(f) of the Admission Act;

(f) The lands granted to the State of Hawaii by subsection (b) of this section and public lands retained by the United States under subsections (c) and (d) and later conveyed to the State under subsection (e), together with the proceeds from the sale or other disposition of any such lands and the income therefrom, shall be held by said State as a public trust for the support of the public schools and other public educational institutions, for the betterment of the conditions of native Hawaiians, as defined in the Hawaiian Homes Commission Act, 1920, as amended, for the development of farm and home ownership on as widespread a basis as possible for the making of public improvements, and for the provision of lands for public use. Such lands, proceeds, and income shall be managed and

disposed of for one or more of the foregoing purposes in such manner as the constitution and laws of said State may provide, and their use for any other object shall constitute a breach of trust for which suit may be brought by the United States. The schools and other educational institutions supported, in whole or in part out of such public trust shall forever remain under the exclusive control of said State; and no part of the proceeds or income from the lands granted under this Act shall be used for the support of any sectarian or denominational school, college, or university (The Admission Act, March 18, 1959, Pub L 86-3, 73 Stat 4, §5(f)).

The status of Hawaii's ceded lands is currently being challenged. As recently as January 31, 2008, a ruling by the Hawaii Supreme Court granted plaintiffs (Office of Hawaiian Affairs et. al.) their "...request for an injunction against the defendant [Housing and Community Development Corporation of Hawai'i (HCDCH)] from selling or otherwise transferring to third parties (1) the Leiali'i parcel and (2) any other ceded lands from the public lands trust until the claims of the native Hawaiians to the ceded lands have been resolved" (Hawaii, et al. v. Office of Hawaiian Affairs, et al. (No. 07-1327) p; 4). Almost immediately following this ruling, Hawaii Attorney General Mark Bennett filed an appeal to the U.S. Supreme Court which was accepted. In its appeal, the HCDCH hopes to reverse the 2008 ruling.

Portions of the Lāhainā Bypass Phase IA cross the *ahupua'a* of Wahikuli. Historic maps and research has determined that the lands of Wahikuli were once crown lands and are therefore presently considered ceded lands. Mr. Jonah Keahi believes that the Department of Transportation does not have the title (and therefore ownership) to the lands in which they plan to build the bypass. Mr. Keahi states his belief that Wahikuli and Mala are both crown lands and are to be held by the King of Hawai'i. He explains that you cannot claim lands that you don't own. Although he does not believe that the proposed bypass realignment will affect the Haia or Pali cemeteries, he expects the DOT may encounter problems regarding the status of these lands:

I had some unfinished business down here with the boatyard. So, that's why I'm down in the boatyard. We're gonna reclaim that boatyard, the whole boatyard. All Mala, it's all crown land. That's the places where the king comes to. He owns all crown land. And Wahikuli is crown land too.

On the deed that I carry, it shows all the crown lands on every island...all of them. And this is where the deed comes in. That's why I tell people, "You cannot claim something that you don't own". That's where the king comes in. That's why if you look at history, and look through history, the king owns all crown land. In fact, all the whole kingdom was crown, and they divided the lands up for the people, yeah...for the chiefs and the people. And even his own personal property divided for the government to operate ... I told Laura [Mau], you know, "There might come a time when you guys might get stuck." ...

Mr. Foster Among explains that building the bypass will not only extinguish his tradition of walking the land and be considered by him the equivalent of the desecration of a church, but he too states that the lands of Wahikuli are ceded lands. Mr. Among implies that ceded lands are

not to be used for this purpose, and further feels the proposed roadway as well as proposed developments in this area, will be yet another injustice to the Hawaiian people:

...You're violating my church. By building that bypass, you're violating my church. That's how I feel. By building that [bypass]...on ceded...it's comparable to the crimes that were committed a couple hundred years ago...

Mr. Among is adamant about moving the Lāhainā Bypass *makai* to the location of an existing cane haul road and stresses that the clouded titles to these lands are of principal importance to him:

...you know the cane road's already there, you know, psychologically that'd be less harmful to the Hawaiians and the people, because the cane road has always been there...Would there be risk of running into iwi? Yes. No matter where you go you're gonna have that risk. But one of the most important things today that impact me, is the land titles. [The Land Titles to the so-called Ceded Lands all have "Clouded Title"\*)]

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## Section 7 Summary and Recommendations

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It is clear that Lāhainā is steeped in traditional Hawaiian culture and has been the stage upon which significant events have influenced the trajectory of both history and the social order, from the traditional pre-contact era up until modern times. Prior to Western contact, Lāhainā was desirable for its excellent fishing grounds and flowing streams (see Section 3.1 Traditional and Historic Background). The *mo'ō* goddess Kihawahine Mokuhinia dwelt in the inland marshes and ponds along the coastal plain, serving as guardian to the *ali'i nui* at Moku'ula and along the banks of Mokuhinia off of present day Front Street. As high ranking *ali'i* called Lāhainā home, warring chiefs sought to cripple this population center by drying up the streams from Kaua'ula to Kahoma and laying waste to the fertile and productive *lo'i* systems (Kamakau 1961:74-75). Lāhainā would later serve as a source of provisions during Kamehameha's conquest of the island chain. Just after Western contact, and the unification of the Hawaiian Islands from O'ahu to Hawai'i Island, Lāhainā would become a government center for the Kingdom of Hawai'i, as well as a religious and educational center with the development of a missionary outpost and Lahainaluna Seminary. As the rich soils and reliable water resources were desirable for traditional agriculture, so too were they sought after for commercial agriculture following the division of lands during the Great Māhele (Sections 3.1.4.1 The Great Māhele and 3.1.4.2 Economic Changes in Lāhainā and the Development of the Commercial Sugar Industry). Sugar interests invested a significant amount of time and effort to develop the water resources that would ultimately irrigate previously uncultivated areas (see Section 3.1.4.2.2 Pioneer Mill Company) and acquire lands through lease, purchase, or other means. For many of the the native Hawaiian participants in this study, the success of the sugar industry and their ability to tap water resources at the source and divert most of the water into the cane fields resulted in the abandonment of traditional *lo'i* agriculture in Kahoma and Kanahā Valleys (see also Sections 5.1.1.1, 5.1.2, 5.1.9, 5.1.10, 5.3.3, and 5.3.5) and loss of much of the cultural practices inherent in day-to-day living. Whether it is the perceived disenfranchisement of the native Hawaiians of Lāhainā at the hands of the missionaries and their descendants or the marginalization of the people through the actions and, in many of the views that have been expressed in this study, theft perpetrated by the Pioneer Mill Co., the events of the past still weigh heavily on the hearts of those consulted for this study. It is this historic context which shapes the concerns of those consulted for this study, and are perhaps mirrored by others in the Hawaiian community, that should come under consideration when proposing any project or undertaking in the greater Lāhainā area.

With regard to the modified extension of the Lāhainā Bypass Phase IA, it is apparent that there are significant immediate impacts expected by the proposed undertaking; as well as cumulative impacts by the construction of all phases of the Lāhainā Bypass. As this study has noted, the most immediate impact to traditional cultural practices within the area of direct effect is the potential for the road to cut off access to *mauka* lands. As the traditional cultural landscape has been altered to accommodate historic-era development (i.e. development of the field and water systems of the sugar industry) and modern needs (i.e. the Kahoma Stream Flood Control Project) so too have the routes by which access to *mauka* lands are maintained. While no longer considered "traditional" in a historic context, as the original course of the Kahoma Stream and geographic landmarks that once guided the way *mauka* is no longer present, access is still

maintained via the unimproved haul cane roads through a series of locked gates (see also 6.7 Hawaiian Trails/Traditional Access Routes). Also related to the area of direct effect, or the construction footprint of the road corridor, is the following sentiment that was expressed by Mr. Foster Ampong – that the very act of cutting across the slopes of the West Maui Mountains and building a bridge over the Kahoma Stream is seen as a violation of the sanctity of the mountain.

To limit the immediate, cumulative, and long-term impacts of the proposed undertaking to the construction footprint would be difficult, as traditional Hawaiian cultural practices ran from the mountain to the ocean. Any project that is centrally located between the two resource areas should take the entire *ahupua'a*, including the unique configuration of the apparent *lele* arrangement of the *ahupua'a* of Lāhainā, into account. With this *mauka* to *makai* link in mind, other immediate impacts to traditional cultural practices that were raised during the course of consultation include the potential for damage and contamination of the shoreline and off-shore fishing grounds that might result from erosion and siltation caused by construction of the proposed project (see Section 6.3 Aquatic Resources); potential for damage to historic properties located adjacent to the area of direct effect in the form of collapse caused by vibrations off of heavy equipment and pile driving (see Section 6.4 Traditional Hawaiian Sites); and the potential for noise and visual pollution caused by the construction, final build out, and eventual use of the proposed undertaking to adversely affect and disrupt the maintenance and sanctity of adjacent traditional and historic burial grounds (see Section 6.6 Traditional Hawaiian Burials and Historic Cemeteries).

When taking into account potential cumulative effects, the primary concern is the perception that Lāhainā Bypass would open the door to widespread development. Inherent in this thought is the continued alteration of the traditional landscape and viewplanes into Kahoma and Kanahā Valleys, thus removing the remaining vestiges of what was once known to the *ali'i* and *maka'ainānā* who made their home in the morning shadow of Mauna Eke and seen by the first European visitors to anchor in the calm harbor of Lāhainā. Mr. Ke'eumoku Kapu explained that the proposed Lāhainā Bypass is viewed by some in the Hawaiian community as a potential catalyst to major development from Lāhainā to Ka'anapali. These community members are not comfortable with the change that this may bring to the character of West Maui. Mr. Kapu believes that further development of West Maui may negatively affect Hawaiian cultural identity and believes that more of the Hawaiian people's history may be at stake. In the past, Mr. Kapu explains that as a byproduct of development Hawaiians have experienced what they consider disrespect and degradation of their lands. Mr. Kapu is concerned that with added development, continued disrespect and degradation of traditional lands may occur and Hawaiian families may be pushed further to the periphery of society. Mr. Kapu believes that construction of the bypass is driven by developers who are only interested in making money and therefore do not have the best interest of Hawaiian people or the community in mind.

The anticipated negative impacts to traditional Hawaiian cultural practices and identity (see also Section 6.9 Ceded Lands and Sovereign Identity) brings forth strong opposition from the people who are the descendants of those who had maintained their cultural traditions from, *lawai'a* (fishing) to *mahi'ai* (farming), whose names grace the maps that show the locations of their *kuleana* from Kahoma Valley to Kanahā Valley and down to the coastline. There is a belief that the immediate effects of the proposed project, as noted above, would detrimentally impact the cultural practices of some of the individuals who participated in this study and the cumulative

effect would negatively impact the Hawaiian culture as a whole. The subject is a deeply emotional one to those consulted who would like to maintain their current traditions and revive others that have been abandoned through choices and events that were not of their making.

While there is a strong Hawaiian voice among those consulted against the construction of the proposed project, there are also voices that either do not have an issue with the proposed project or are strongly in favor of the project. Those who are proponents of the project do so with recognition of the on going changes in West Maui and the safety of the community at large. While there is indeed recognition of the importance of perpetuating traditional cultural practices and advocacy of historic preservation, in their view, the safety of the community, particularly the children who attend the three schools located along Lahainaluna Road, should come first and foremost. The proposed project, to those in the native Hawaiian community who have voiced their concerns regarding safety and emergency issues, will provide the relief that they believe is needed.

## 7.1 Recommendations

Based on information gathered during the course of this study and presented in this report, there is evidence that points toward both impacts and improvements resulting from the proposed project. Some members of the community support the currently proposed alignment as it will provide relief from traffic that is generated by the three schools at the top of Lahainaluna Road and an alternative route in the event of a natural disaster or emergency situation. There is, however, a strong push by some who have participated in this study to move the proposed project to the lower haul cane road; they will support no other alternative. While still considered a “scar” upon the land, the proposed project would be constructed along a roadway that has been present since historic times and a part of the collective memory of those consulted, and therefore a more acceptable location in the psyche of the contemporary native Hawaiian population. There are still others who refuse to accept any additional roadway, in or out, of Lāhainā regardless of location or function.

In the event that the proposed undertaking is approved in the currently planned location, the following issues with regard to potential immediate effects must be addressed:

- *Mauka to makai* access needs to be maintained. To this end the HDOT and engineers with WOC are currently working on developing safe ingress and egress routes from the modified extension of the Lahaina Bypass Phase IA section to the haul cane roads that are currently being used today.
- Precautionary measures to limit the amount of silt or dust resulting from construction activities need to be taken to prevent shoreline and off-shore fishing ground degradation and contamination. WOC and HDCC have indicated that best management practices will be at the forefront of any construction activity associated with the proposed project.
- Concerns regarding collapse of historic properties and the potential for uncovering previously unidentified sensitive historic properties within the proposed project corridor should be addressed. CSH has also conducted an archaeological inventory survey of the proposed project corridor (Lee-Greig et al 2008) and identified surface

historic properties associated with commercial sugar cultivation. Following a systematic subsurface sampling program, no additional historic properties were identified. There is recognition, however, that scientific sampling does not constitute 100% coverage, and archaeological monitoring of cultural sensitive areas along the current course of the Kahoma Stream and in areas of high sensitivity (i.e. the agricultural pushpiles) will occur in conjunction with any ground disturbing activities at these locations. Additionally, archaeological sites within the vicinity of the proposed project corridor (SIHP -2484, -2485, -6277, and potentially -2486) should also be monitored for structural integrity and any project-related impacts. Integrity issues relating to historic properties that are located outside of the visual field from the proposed project location should also be addressed in consultation with those contacted for this study.

With regard to reducing the impact of the potentially adverse cumulative effects discussed above, for many who participated in this study, there are no immediate answers and the suggestions from those consulted for this study were few:

- One suggestion was put forward regarding a burial reinterment area for *kupuna iwi* that were disinterred during the USACE Kahoma Stream Flood Control Project (Pietrusewsky et al. 1989, Pietrusewsky and Douglas 1990, and Shun 1991) and reinterred at the Honokahua Burial Site (Donham 1993), either within the original project corridor or near SIHP -2484 and -6277, as a means of closure for those of the Kahoma/Kanahā area who were most affected. This suggestion could be addressed by either the US Army Corps of Engineers (the Flood Control Project proponent), the Maui/Lāna‘i Islands Burial Council, or the Department of Land and Natural Resources’ (DLNR) and Hawaii Housing Finance and Development Corporation (HHFDC) (the agencies with jurisdiction over the original bypass corridor).
- Stewardship agreements with regard to the preservation of SIHP -2484 and -6277 were also brought up as a potential means to perpetuate and maintain the culture and history of the area in the face of oncoming development.
- Maintenance of the agricultural land use designations to maintain the rural feel of the area and promote diversified agriculture and self-sustaining farming in our island community.

Most important in this context is the dialogue that occurred at the M/LIBC meeting attended by CSH (August 28, 2008) and summarized in Section 5.2.2 regarding culturally sensitive and responsible development of West Maui. While it is recognized that such a conversation between large landowners, government agencies, and the native Hawaiian community is beyond the purview of HDOT in the context of the current project, it is nonetheless a conversation that needs to happen. For those who were consulted as a part of this study, the continuation of the Hawaiian culture is at stake and the need to find balance in the face of change is imperative, therefore, the conversation needs to be followed by positive actions that benefit all that comprise the diverse community of this *wahi pana*.

## Section 8 References Cited

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### **Abbott, Isabella**

1992 *Lā'au Hawai'i Traditional Hawaiian Uses of Plants*. Bishop Museum Press, Honolulu, HI

### **Ahlo, Hamilton, M and Maurice E. Morgenstein**

1980 *Archaeological Test Excavations near the Mouth of Kahoma Stream, Lahaina, Maui*. Prepared for U.S. Army Corps of Engineers Division Pacific Ocean, Contract No. DACW84-79-C-0012, Mod. No. P00005. Hawaii Marine Research, Inc.

### **Alexander, W.D.**

1890 A Brief History of Land Titles in the Hawaiian Kingdom. In *Hawaiian Almanac and Annual for 1891*. Compiled by Thomas G. Thrum, pp. 105-124. Press Publishing Company Print, Honolulu, HI.

### **An Act to Provide for the Admission of the State of Hawaii into the Union**

The Admission Act of March 18, 1959, Pub L 86-3, § 1, 73 Stat 4.

### **Andrews, Lorrin**

1865 *A Dictionary of the Hawaiian Language to which is Appended an English-Hawaiian Vocabulary and a Chronological Table of Remarkable Events*. Printed by Henry M. Whitney, Honolulu, HI.

### **Arago, Jacques**

1823 *Narrative of a Voyage Round the World, in the Uranie and Physicenne Corvettes, Commanded by Captain Freycinet During the Years 1817, 1818, 1819, and 1820 on a Scientific Expedition Undertaken by Order of the French Government in a Series of Letters to a Friend, by J. Arago Draftsman to the Expedition*. Treuttel and Wurtz, Treuttel, Jun and Richter, Soho-Square, London.

### **Barkhausen, Louis**

1903 Manager's Report, section, *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1902*, the Bulletin Publishing Company, Honolulu.

1905 Manager's Report, section, *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1904*, the Bulletin Publishing Company, Honolulu.

### **Barrera, William**

1988 *Honoapiilani Highway, Maui: Archaeological Reconnaissance*. Chiniago, Inc.

### **Bishop, S.E**

1884 *Town of Lahaina Maui* [map]. W.D. Alexander, Surveyor General, Hawaiian Government Survey. Scale = 1:2400, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.

### **Borthwick, Douglas F. and Hallett H. Hammatt**

2001 *Archaeological Investigations at Lahaina Court House, Lahaina District, Island of Maui (TMK 4-5-01:9)*. Prepared for Mason Architects. Cultural Surveys Hawai'i, Inc. Kailua, HI

**Burgett, Berdena, Jennifer Robins and Robert L. Spear**

1996 *Data Recovery Excavations at Site 50-50-03-2963 Lahaina, Maui Island, Hawai'i (TMK: 4-5-05:9)*. Prepared for UCT Engineering. Scientific Consultant Services, Inc. Honolulu, HI.

**Buke Mahele**

1848 *Buke Kakau Paa no ka mahele aina i Hooholoia iwaena o Kamehameha III a me Na Lii a me Na Konohiki ana*. Hale Ali'i, Honolulu. Januari 1848. On file at the Archives of Hawaii, Honolulu, HI.

**Calis, Irene**

2002 *Archaeological Monitoring Report: Parking Lot Drainage System Installation Panaewa Ahupua'a District of Lahaina, Island of Maui, Hawai'i [TMK: (2) 4-5-01:33]*. Prepared for Wayne I. Arakaki Engineer, LLC. Scientific Consultant Services, Honolulu, HI.

**Carter, J. C.**

1934 Fluming Cane, article, *Reports of the Association of Hawaiian Sugar Technologists*, Hawaiian Printing Company, Honolulu.

**Chaffee, David B., Berdena Burgett, Mike Carson and Robert Spear**

1997 *An Archaeological Inventory Survey of a Portion of the Proposed Expansion of the Maui Research and Technology Park, Kīhei, Maui Island, Hawai'i (TMK 2-2-2:54)*. Scientific Consultant Services, Inc., Honolulu, Hawai'i.

**Connolly, Robert D., III**

1974 *Phase I Archaeological Survey of Kahoma Stream Flood-Control Project Area, Lahaina*, prepared for the National Park Service and the U.S. Army Corps of Engineers, by the B.P. Bishop Museum, Honolulu.

**Davis, Bertell**

1977 *Archaeological Investigations at the Mala Wharf Boat-Launch Ramp Area, Lahaina, Maui (Preliminary Progress Report)*. Archaeological Research Center Hawaii, Inc. Lawai, HI

**Dodge, F.S.**

1885 *Maui, Hawaiian islands/primary triangulation by W.D. Alexander and S.E. Bishop; topography and boundaries by W.D. Alexander, C.J. Lyons, M.D.Monsarratt [map]*. Scale = 1:90,000. Hawaiian Government Survey. On file at the Library of Congress Geography and Map Division, Washington D.C. Digital ID g4382m ha000012 <http://hdl.loc.gov/loc.gmd/g4382.ha000012> (last accessed July 2005)

**Donham, Theresa**

1990 *Archaeological Inventory Survey, Pi'ilani Residential Community, Phase II, Land of Kēōkea, Makawao [Wailuku] District, Island of Maui, (TMK 2-2-02:42 por), PHRI, Hilo, HI.*

1993 *Field Check of Reported Human Skeletal Remains, Mala Wharf, Lahaina. Staff Memorandum 3 November 1993*. Department of Land and Natural Resources, State Historic Preservation Division. Kapolei, HI.

**Eckart, C.F., editor**

- 1911 Harvesting Contracts, article, *The Hawaiian Planter's Record*, Vol. IV, Hawaiian Sugar Planters' Association, Honolulu.

**Ellis, William**

- 1826 *Narrative of a Tour through Hawaii, or Owhyhee; with Remarks on the History, Traditions, Manners, Customs, and Language of the Inhabitants of the Sandwich Islands*. Fisher, Son, and P. Jackson, London.

**Folk, William**

- 1991 "Lahaina (Front Street) Archaeological Test Excavations, TMK 4-5-3:12, Island of Maui." Letter to Bayless Architects 1 March 1991. Cultural Surveys Hawai'i, Inc. Kailua, HI. On file at the Hawai'i State Historic Preservation Division, Kapolei, HI.

**Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens**

- 1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. United States Department of Agriculture, Soil Conservation Service, in Cooperation with the University of Hawaii Agricultural Experiment Station. U.S. Government Printing Office, Washington D.C.

**Formolo, Holly Lisa Rotunno-Hazuka, and Jeffrey Pantaleo**

- 2005 *Archaeological Assessment Report for the Proposed Keawe Street extension Hanaka'o'o Ahupua'a, Lahaina District, Island of Maui TMK 4-4-08:07,13*. Prepared for SEY. Archaeological Services Hawaii, LLC. Wailuku, HI.

**Fornander, Abraham**

- 1918 *The Fornander Collection of Hawaiian Antiquities and Folk-Lore, The Hawaiians' Account of the Formation of their Islands and the Origin of their Race, with the Traditions of their Migrations, Etc., As Gathered from Original Sources, Volume V*, Bishop Museum Press, Honolulu.

**Forsyth, Thomas G.**

- 1900 Excerpts from the diary of Thomas G. Forsyth, manuscript, in *Lahaina in 1897*, by Arthur Waal, Maui Historical Society, Bailey House Museum, Wailuku, Hawai'i.

**Fredericksen, Demaris L. and Erik M. Fredericksen**

- 2000a *An Archaeological Inventory Survey of a Front Street Parcel Between the Wharf Cinema Complex and the Banyan Inn Market Place (TMK: 4-6-08: por.4)* Puako Ahupua'a, Lahaina District, Maui Island. Prepared for Activity Mart. Xamanek Researches, Pukalani, HI
- 2000b *An Archaeological Inventory Survey of the West Side Resource Center (Ka Hale A Ke Ola) Lands of Ko'oka, Waine'e, Pua'anui, Lahaina District, Maui Island (TMK:4-6-15:por.1)*. Prepared for Munekiyo, Arakawa, and Hiraga, Inc. Xamanek Researches, Pukalani, HI
- 2000c *Archaeological Inventory Survey of Makai Portion (Phase 1) of Olowalu Development Parcel, Olowalu Ahupua'a, Lāhainā District, Maui Island (TMK 4-8-03: por, 5)*. Xamanek Researches, Pukalani, HI.

**Fredericksen, Demaris L., Walter M. Fredericksen, and Erik M. Fredericksen**

- 1999 *Archaeological Inventory Survey in the 'ili of Pakala, Puako Ahupua'a, Lahaina District, Maui Island (TMK: 4-6-07:7 and 10)*. Prepared for JDI Ltd. Partners. Xamanek Researches, Pukalani, HI.
- 1989 *Archaeological Data Recovery Report on the Aus Site, Lahaina, Maui Hawaii*. Prepared for Historic Sites Section, Department of Land and Natural Resources. Xamanek Researches, Pukalani, HI

**Fredericksen, Erik**

- 1997 *Archaeological Monitoring Report on the Pioneer Inn Swimming Pool Construction Project (TMK: 4-6-01:08)*. Prepared for Pioneer Inn. Xamanek Researches, Pukalani, HI.
- 2002 *Archaeological Monitoring Report for the King Kamehameha III Elementary School Building B, Building D, and PT 201 Restroom Renovation Project, Puako Ahupua'a, Lahaina District, Maui (TMK: 4-6-02:13&14) (DAGS Job # 55-16-2904)*. Prepared for David P. Ting & Sons, Inc. Xamanek Researches, Pukalani, HI.

**Fredericksen, Erik and Demaris Fredericksen**

- 2001 *Archaeological Monitoring Report for the King Kamehameha III Elementary School Electrical System Upgrade Project, Lahaina Ahupua'a, Lahaina District, Lahaina, Maui (TMK 4-6-02:13, and 4-6-02:14) (DAGS Job #15-16-2159)* Prepared for Lite Electric Inc. Xamanek Researches, Pukalani, HI.
- 2002 *Archaeological Inventory Survey Report for a Portion of Land in Puako Ahupua'a, Lahaina District, Lahaina, Maui (TMK 4-6-08: 53 and 48)*. Xamanek Researches, Pukalani, HI.
- 2003 *An Archaeological Inventory Survey of the Lahaina Watershed Flood Control Project Area Lands of Polanui, Pahoa, Puehuhunui, Halaka'a, Waine'e, and Puako, Lahaina District, Maui Island TMK: 4-6-13-16, 18, 26 TMK 4-7-01, 02*. Prepared for Munekiyo & Hiraga, Inc. Xamanek Researches, Pukalani, HI.

**Fredericksen, Walter M.**

- 2002 *Archaeological Monitoring Report for the Remodeling Project of the Lahaina Yacht Club, 835 Front Street, Paunau Ahupua'a, Lahaina District, Island of Maui (TMK: 4-5-01:5)*. Prepared for Mr. Brian Blundell. Xamanek Researches, Pukalani, HI.

**Fredericksen, Walter M. and Demaris L. Fredericksen**

- 1965 *Report of the Archaeological Excavation of the "Brick Palace" of King Kamehameha I at Lahaina, Maui (TMK 4-6-01:7)*. Xamanek Researches, Pukalani, HI
- 1982 *Report on the Archaeological Excavation Conducted at Hale Pa'i Site-1981-82 (TMK 4-6-18:5)*. Prepared for the Lahaina Restoration Foundation. Xamanek Researches. Pukalani, HI

- 1990 *Archaeological Data Recovery Report on the Plantation Inn Site, Lahaina, Maui, Hawaii*. Prepared for the Historic Sites Section, Department of Land and Natural Resources. Xamanek Researches, Pukalani, HI.
- 1993 *An Archaeological Inventory Survey on a Parcel of Land Located in the Ahupua'a of Paunau, District of Lahaina, Island of Maui (TMK 4-6-09:12)*. Prepared for Lahaina Divers. Xamanek Researches, Pukalani, HI

**Fredericksen, Walter M., Demaris L. Fredericksen, Erik M. Fredericksen**

- 1988a *Report on the Archaeological Inventory Survey at Historic Site #15, Lahaina, Maui, Hawaii (Revised)*. Prepared for Ormond Kelley, AIA. Xamanek Researches, Pukalani, HI
- 1988b *The Aus Site (50-03-1797) A Preliminary Inventory Survey Report*. Xamanek Researches, Pukalani, HI.
- 1989a *An Archaeological Inventory Survey of the Plantation Inn Site, Lahaina, Maui*. Prepared for Century Investments, Inc. Xamanek Researches, Pukalani, HI
- 1989b *An Archaeological Inventory Survey of a Parcel of Land Adjacent to Malu-ulu-o-lele Park, Lahaina Maui, Hawaii*. Prepared for County of Maui Department of Parks and Recreation. Xamanek Researches, Pukalani, HI.

**Geolabs, Inc**

- 2007 *Preliminary Geotechnical Engineering Report Honoapiilani Highway Realignment, Phase IA Future Keawe Street Extension to Lahainaluna Road Federal Aid Project No. NH-030-I(35) Lahaina, Maui, Hawaii*. Prepared for Wilson Okamoto Corporation. Honolulu, HI

**Giambelluca, Thomas W. and Thomas A. Schroeder**

- 1998 Climate. In *Atlas of Hawai'i, Third Edition*, edited by Sonia P. Juvik and James O. Juvik, pp. 49-59. University of Hawai'i Press, Honolulu.

**Gilman, Gorham**

- 1906 Lahaina the Early Days in *Hawaiian Almanac and Annual for 1907*. Compiled by Thomas G. Thrum, pp. 168-179. Press Publishing Company Print, Honolulu, HI.

**Gilmore, A. B.**

- 1936 *The Hawaii Sugar Manual*, New Orleans, Louisiana

**Girvin, James**

- 1910 *The Master Planter or Life in the Cane Fields of Hawaii*. With notes by Leverett H. Mesick. Press of the Hawaiian Gazette Co., Ltd. Honolulu, HI.

**Graves, D.K., S.T. Goodfellow, and A.E. Helen**

- 1998 *Archaeological Inventory Survey, Launiupoko Development Parcel, Land of Launiupoko, Lahaina District, Island of Maui (TMK: 2-4-7-01:2)*. Prepared for Launiupolo, LLC. Paul H. Rosendahl, Ph.D, Inc. Hilo, HI.

**Hammatt, Hallett H.**

- 1978 *Archaeological Investigation and Monitoring, Mala Wharf Boat Launch Ramp Area, Lahaina*. ARCH. Lawa'i, HI.

**Hammatt, Hallett H. and David W. Shideler**

- 1998 *Written Findings of Archaeological Monitoring at the Lahaina Courthouse, Lahaina, Lahaina District, Maui Island, Hawai'i*. Cultural Surveys Hawai'i, Inc. Kailua, HI.

**Handy, E.S. Craighill, Elizabeth Green Handy, and Mary Kawena Pukui**

- 1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Revised Edition. Bishop Museum Press, Honolulu, Hawaii.

**Haun, Alan E.**

- 1988 *Preliminary Report upon Completion of Field Work, Subsurface Archaeological Reconnaissance Survey, Lahaina Cannery Makai and Mauka Parcels, Land of Moali'i, Lahaina District, Island of Maui.* PHRI, Paul H. Rosendahl, Ph.D., Inc.Hilo, HI.
- 2000 *Archaeological Inventory Survey Kaua'ula Development Parcel Lands of Pūehuehu Iki, Pāhoa, and Pola Nui District of Lahaina, Island fo Maui (TMK:2-4-7-02:4&7; 2-4-7-03:1).* Prepared for Kauaula LLC. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI

**Haun, Alan E. and Dave Henry**

- 2001 *Archaeological Inventory Survey, TMK: 4-6-7:10 'Ili of Pakala, Land of Puako, Lahaina District, Island of Maui.* Prepared for JDI Ltd. Partners. Haun & Associates, Kea'au, HI.

**Hawaii Supreme Court**

Hawaii, et al. v. Office of Hawaiian Affairs, et al. CIV. No. 07-1327 2008

**Heidel, Melody, William H. Folk, and Hallett H. Hammatt**

- 1995 *An Archaeological Inventory Survey for Waiola Church, Ahuupa'a of Waine'e, Lahaina District, Island of Maui (TMK 4-6-7:16).* Prepared for Tom Cannon, AIA Architects Maui. Cultural Surveys Hawai'i, Inc. Kailua, HI. Hommon, Robert J.
- 1982 *An Archaeological Reconnaissance Survey of an Area Near Waine'e Village, West Maui.* Science Management. Honolulu, HI.

**Hommon, Robert**

- 1982 *An Archaeological Reconnaissance Survey of an Area Near Waine'e Village, West Maui.* Science Management. Honolulu, HI.

**Jensen, Peter M.**

- 1989 *Archaeological Inventory Survey Lahaina Master Planned Project Site, Land of Wahikuli, Lahaina District, Island of Maui.* PHRI Report 653-1006890. Prepared for Housing Finance and Development Corporation State of Hawai'i. PHRI. Hilo, HI.
- 1991 *Archaeological Inventory Survey Honoapiilani Highway Realignment Project Lāhainā Bypass Section – Modified Corridor Alignment. Lands of Honokowai, Hanakao, Wahikuli, Panaewa, Kuia, Halakaa, Puehuhunui, Pahoā, Polanui, and Launiupoko Lahaina District, Island of Maui.* PHRI Report 1064-022092. Prepared for Michael T. Munekiyo Consulting. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.
- 1994 *Archaeological Inventory Survey Lāhainā Bypass Highway New Connector Roads Project Area: Lands of Hanakao'o and Paunau, Lahaina District, Island of Maui.* Prepared for Amfac/JMB Hawaii, Inc. Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Jensen, Peter. M. and Jenny O'Claray**

- 1991 *Supplemental Archaeological Survey Lahaina Master Planned Project Offsite Sewer, Water Improvements, and Cane Haul Road, Lands of Wahikuli, Hanakao'o, Honokawai, Kuhua, Kuholilea, Puou, Pu'uiki, and Aki, Lahaina District, Island of Maui.* Prepared for Housing Finance and Development Corporation, State of Hawai'i. PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Kahā'ulelio, Daniel**

- 2006 *Ka Oihana: Hawaiian Fishing Traditions.* Translated by Mary Kawena Pukui and edited by M. Puakea Nogelmeier. Bishop Museum Press. Honolulu, HI.

**Kamakau, Samuel Manaiakalani**

- 1961 *Ruling Chiefs of Hawaii.* Kamehameha Schools Press, Honolulu.

**Kawachi, Carol**

- 1995 *Draft Manuscript of Subsurface Testing for Proposed Mala Wharf Comfort Station.* Internal SHPD Report. Department of Land and Natural Resources, State Historic Preservation Division, Kapolei, HI.

**Kahaulelio, D.**

- 1898 Kulanakauhale o Lahaina. *Ka Lei Rose o Hawaii.* 15 August 1898 Vol. 1, No. 13:3

**Kennedy, Joseph**

- 1989 *Archeological Report Concerning Subsurface Testing at TMK: 4-6-08:12, Lahaina Maui.* Letter Report to Mr. John Finney, Pentagram Corporation. 11 January 1989. Archaeological Consultants of Hawaii, Haleiwa, HI.

**Kennedy, Joseph and Tim Denham**

- 1992 *Archaeological Inventory Survey Report for Proposed Baseball Complex Adjacent to the Existing Lahaina Civic/Recreation Center Located at Lahaina, Island of Maui TMK: 4-5-21: 03.* Archaeological Consultants of Hawaii, Inc. Haleiwa, HI

**Klieger, Paul Christiaan (editor)**

- 1995 *Moku'ula: History and Archaeological Excavations at the Private Palace of King Kamehameha III in Lahaina, Maui.* Prepared for Lahaina Restoration Foundation. Anthropology Department, Bishop Museum, Honolulu, HI.

**Klieger, Paul Christiaan and Stephen Clark**

- 1995 *Report on Human Burials at Site 50-50-03-2967, Moku'ula, Lahaina, Maui.* Prepared for the State of Hawaii, Department of Land and Natural Resources, State Historic Preservation Division and Maui County Burial Council. Anthropology Department, Bishop Museum, Honolulu, HI.

**Klieger, Paul Christiaan and Lonnie Somer**

- 1995 *Emergency Mitigation at Malu'ulu o Lele Park, Lahaina, Maui, Hawai'i, Site of Moku'ula, Residence of King Kamehameha III Site 50-50-03-2967; TMK 2-4-6-7 Parcel 2 BPBM 50-Ma-D5-12.* Prepared for County of Maui, Division of Parks & Recreation. Anthropology Department, Bishop Museum. Honolulu, HI.

**Kubota, Gary**

- 1999 "Wainee Tenants Cherish Old Lifestyle." *Honolulu Star Bulletin*. Monday, April 19, 1999.

**Kupau, Summer**

- 2001 *Exploring Historic Lahaina*, Watermark Publishing, Honolulu, HI.

**Kurashina, Hiro and Aki Sinoto**

- 1984 *Archaeological Reconnaissance of the Proposed Shopping Center at Lahaina, Maui, Hawai'i*. Bishop Museum. Honolulu, HI.

**Lee-Greig, Tanya L.**

- 2007 An Archaeological Field Inspection of the Lāhainā Bypass Highway, Phase IA, Keawe Street Extension to Lahainaluna Road, and Current Condition of SIHP Number -2484. Letter Report to Department of Land and Natural Resources, State Historic Preservation Division. June 14, 2007. Cultural Surveys Hawai'i, Inc. Wailuku, HI.

**Lee-Greig, Tanya L. and Hallett H. Hammatt**

- 2008 *An Archaeological Inventory Survey Plan for Honoapi'ilani Highway Realignment Phase IA, Future Keawe Street Extension to Lahainaluna Road: Ikena Avenue Alignment with Modified Extension Kelaweā, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels*. Cultural Surveys Hawai'i, Inc. Wailuku, HI.
- 2006 *A Cultural Impact Assessment for the Proposed Pali to Puamana Parkway Polanui Ahupua'a to Ukumehame Ahupua'a, Lāhainā District Maui Island TMK: (2) 4-8-02: multiple parcels, 4-8-03: multiple parcels and 4-7-01: multiple parcels*. Cultural Surveys Hawai'i, Inc. Wailuku, HI

**Lee-Greig, Tanya L., Robert Hill, and Hallett H. Hammatt**

- 2008 *An Archaeological Inventory Survey Report for the Realignment of a Section of the Honoapi'ilani Highway Phase IA Kelaweā, Paeohi, and Wahikuli Ahupua'a, Lāhainā District, Maui Island, TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels*. Cultural Surveys Hawai'i, Inc. Wailuku, HI.

**Lucas, Paul F. Nahoa (editor)**

- 1995 *A Dictionary of Hawaiian Legal Land-Terms*. University of Hawai'i Committee for Preservation and Study of Hawaiian Language, Art and Culture. Native Hawaiian Legal Corporation, University of Hawai'i Press, Honolulu, HI.

**Major, Maurice and P. Christiaan Klieger**

- 1995 *Historical Background and Archaeological Testing at Pikanele's Kuleana in Lahaina, Maui: An Inventory Survey Report of LCA 310.3 (Royal Patent 1729.2 TMK [2] 4-6-07:13)*. Project 521, MS#091595. Anthropology Department, Bishop Museum, Honolulu, Hawai'i.

**Maly, Kepā and Onaona Maly**

- 2007 *He Wahi Mo'olelo no Kaua'ula a me Kekāhi 'Āina o Lahaina i Maui A Collection of Traditions and Histroical Accounts fo Kaua'ula and Other Lands of Lahaina, Maui*. Prepared for Mākila Land Compnay and Kamehameha Schools. Kumu Pono Associates LLC, Hilo, HI.

**Maui News**

1926 Industrial Edition, December 4, 1926, Volume 26, No. 1366, Maui Publishing Company, Wailuku, Hawai'i.

**McCandless, James Sutton**

1936 *A Brief History of the McCandless Brothers and Their Part in the Development of Artesian Water in the Hawaiian Islands, 1880-1936*. Advertiser Publishing Co., Honolulu.

**Meyers, Fred I.**

1954 *The Gilmore Hawaii Sugar Manual*, Gilmore Publishing Company, New Orleans, Louisiana.

**Miura, Marvin T.**

1982 *Biological and Archaeological Reconnaissance, TMK 2-2-02: Portion of 42, Kihei, Maui, Hawaii*. EISC. Honolulu, HI.

**Nagata, Kenneth M.**

1970 *Hawaiian Medicinal Plant*. Harold. L. Lyon Arboretum. Honolulu, HI. ([http://www.cieer.org/geirs/regions/oc/usa\\_hi/ebot-46-3-241.html](http://www.cieer.org/geirs/regions/oc/usa_hi/ebot-46-3-241.html))

**Nicholson, Capt. H. Whalley**

1881 *From Sword to Share; or a Fortune in Five Years at Hawaii*. W.H. Allen & Co. London.

**Nishimoto, Warren S., Michi Kodama-Nishimoto, Holly Yamada, Cynthia A. Oshiro, and Maria E. Ka'imipono Orr**

2003 *Pioneer Mill Company: A Maui Sugar Plantation Legacy*. Center for Oral History Social Science Research Institute. University of Hawai'i at Mānoa. Honolulu, HI.

**Olowalu Town LLC.**

2008 *West Maui Sugar Association and Olowalu Plantation 1864-1881*. Online Article. <http://www.olowalutown.net/index.cfm?fuseaction=ig.page&PageID=127>

**Pantaleo, Jeffrey**

1991 *Archaeological Survey of the Proposed Lahainaluna Reservoir and Treatment Facility, Lahaina, Maui* [letter report]. Prepared for Michael T. Munekiyo MTM Consulting. Applied Research Group. Wailuku, HI.

**Paraso, C. Kanani and Michael Dega**

2006 *An Archaeological Inventory Survey of 633 Acres in the Launiupoko (Large Lot) Subdivision Nos 3, 4, and 7 Launiupoko and Polanui Ahupua'a District of Lahaina (Formerly Kā'anapali) Island of Maui, Hawai'i [TMK (2) 4-7-01:2 por.]*. Prepared for West Maui Land Company, Inc. Scientific Consultant Services, Inc. Honolulu, HI.

**Pickett, Jenny L. and Michael F. Dega**

2006 *An Archaeological Assessment for 16.8-Acres in Lahaina, Moali'i Ahupua'a, Lahaina District, Maui Island, Hawai'i [TMK (2) 4-5-10-:005 & 006 (por.)]*. Prepared for West Maui Land Corporation. Scientific Consultant Services, Honolulu, HI.

**Pioneer Mill Company, Ltd.**

- 1945 *Annual Report of the Pioneer Mill Company Limited for the Year Ending December 31, 1944*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.
- 1946 *Pioneer Mill Company Limited Annual Report for 1945*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.
- 1951 *Pioneer Mill Company Limited Annual Report for 1950*. Copy on file at Cultural Surveys Hawai'i, Inc. Wailuku, HI.

**Pratt, Linda W and Samuel M. Gon III**

- 1998 Terrestrial Ecosystems. In *Atlas of Hawaii, Third Edition* edited by Sonia P. Juvik and James O. Juvik, pp. 121-129. University of Hawai'i Press, Honolulu.

**Riford, Mary and Paul L. Cleghorn**

- 1989 *Documentary Assessment of Archaeological Potential of Ten Prospective Power Plant Sites on Maui*. Prepared for Maui Electric Company. Applied Research Group. Honolulu, HI

**Robins, Jennifer J., Robins, William H. Folk and Hallett H. Hammatt**

- 1994 *An Archaeological Inventory Survey of an Approximately 14.7 Mile Proposed Transmission Line, from Ma'alaea to Lahaina, Maui, Hawai'i*. Cultural Surveys Hawaii, Kailua, HI. Original 1991, Revised 1994.

**Rolph, George M.**

- 1917 *Something about Sugar Its History Growth, Manufacture and Distribution*. John J. Newbegin Publisher, Sand Francisco, CA.

**Rosendahl, Paul H.**

- 1994 *Archaeological Treatment Plan for No Adverse Effect Lāhainā Bypass Highway Project Lands of Honokowai, Hanakao, Wahikuli, Panaewa, Kuia, Halakaa, Puehuhunui, Pahoā, Polanui, and Launiupoko Lahaina District, Island of Maui*. PHRI Report 1487-031894. Letter to the Don Hibbard, Administrator to the Department of Land and Natural Resources, State Historic Preservation Division PHRI Paul H. Rosendahl, Ph.D., Inc. Hilo, HI.

**Royal Gardens, Kew**

- 1894 *Bulletin of Miscellaneous Information*. Eyre and Spottiswoode, Westminster, S.W., England.

**Shun, Kanalei**

- 1991 *Archaeological Excavation of Human Bone Remains Kahoma Stream Flood Control Project, Kahoma Stream, Lahaina, Island of Maui*. Prepared for US Army Engineer District, Honolulu, Corps of Engineers, Purchase Order No. DACW83-89-M-0563. Archaeological Associates Oceania, Kaneohe, HI.

**Simon, Liza**

- 2008 *Supreme Court Appeal on Ceded Lands Issue Becomes Convention Hot-button*, Ka Wai Ola, October 3, 2008, [www.oha.org](http://www.oha.org)

**Simpich, Frederick, Jr.**

- 1974 *Dynasty in the Pacific, a History of Amfac in Hawaii*. McGraw-Hill Book Company, New York.

**Sinoto, Aki**

- 1995 *Archaeological Monitoring During the Renovation of the Lahaina Center Parking Structure Lahaina, Maui TMK:4-5-02:9*. Prepared for KCOM Corporation. Aki Sinoto Consulting, Honolulu, HI.

**Spencer Mason Architects**

- 1988 *Historic Site Survey for Lahainaluna Road and Wainee Street Widening Projects (TMK: 4-5-06:8, 4-5-01:33 & 36)*. Spencer Mason Architects, Honolulu, HI.

**Stearns, Harold T., and Gordon A. MacDonald**

- 1942 *Geology and Ground-Water Resources of the Island of Maui, Hawaii*, Division of Hydrography, Territory of Hawaii, Advertiser Publishing Co., Honolulu.

**Sterling, Elspeth P. (compiler)**

- 1998 *Sites of Maui*. Bishop Museum Press. Honolulu.

**Stewart, Charles S.**

- 1839 *A Residence in the Sandwich Islands*. 5<sup>th</sup> ed. Weeks, Jordan & Company. Boston, MA.

**Stubbs, A.M.**

- 1900 *Cultivation of Sugar Cane in Two Parts. Part First Sugar Cane: A Treatise on its History, botany and Agriculture*. The Morning News Print. Savannah, GA.

**Territory of Hawai'i**

- 1902 *Report of the Governor of the Territory of Hawaii to the Secretary of the Interior*. September 30, 1902. Executive Chamber, Territory of Hawaii, Honolulu.

**U.S. Department of Agriculture, Natural Resources Conservation Service**

- 2001 *Soil Survey Geographic (SSURGO) database for Island of Maui, Hawaii (hi980)*. U.S. Department of Agriculture, Natural Resources Conservation Service. Fort Worth, Texas. <<http://www.ncgc.nrcs.usda.gov/products/datasets/ssurgo/>> (last accessed March 2005)

**Waal, Arthur**

- 1898 *Lahaina in 1897*. Unpublished manuscript. On file at the Maui Historical Society, Bailey House Museum, Wailuku, Hawai'i.

**Wadsworth, H. A.**

- 1936 A Historical Summary of Irrigation in Hawaii, article, in *Hawaii Sugar Manual*, Gilmore Publishing Company, New Orleans, Louisiana.

**Waihona 'Aina**

- 2000 Mahele Database. Online database, <http://www.waihona.com/>, last accessed June 2007.

**Walker, Winslow Metcalf**

- 1931 *Archaeology of Maui*. Manuscript on file at the Bernice Pauahi Bishop Museum, Honolulu, HI.

**Watanabe, Farley**

- 1987 *Trip Report: archaeological Site Investigation Kahoma Stream Flood Control Project*. CEPOD-ED-PV. Corps. Of Engineers. 25 May 1987.

**Watts, R.G.**

- 1939 Pioneer Mill Company's Power and Pumping System, article, in *Gilmore's Hawaii Sugar Manual 1938-1939*, New Orleans, Louisiana.

**Weizheimer, Ludwig**

- 1911 Manager's Report, section *Report of the Pioneer Mill Company Limited, for the Year Ending December 31, 1910*, The Bulletin Publishing Company, Honolulu.
- 1914 Drought at West Maui. *The Hawaiian Planter's Record*, Vol. X. Hawaiian Sugar Planters' Association, Honolulu.

**Wilcox, Carol**

- 1997 *Sugar Water, Hawaii's Plantation Ditches*. University of Hawai'i Press, Honolulu, HI.

**Wright, Geo F.**

- 1915 *Kahoma Valley Makai Section Lahaina-Maui* [map] with additions by M.D. Monsarrat in 1916. Scale = 1:50, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1915 *Lahaina Middle North Section, Maui-T.H.* [map] with additions by M.D. Monsarrat in 1916. Scale = 1:100, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1915 *Paunau, Kahoma Valley Lahaina, Maui, T.H.* [map]. Scale = 1:50, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1915 *Lahaina North Section Maui-T.H.* [map] with additions by M.D. Monsarrat in 1916. Scale 1:100, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1916 *Kanaha Valley Lahaina, Maui* [map] with additions by M.D. Monsarrat in 1916. Scale = 1:100, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1916 *Lahaina Town Lahaina, Maui, T.H.* [map]. Scale = 1:100, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.
- 1919 *Territory of Lahaina* [map] W. Wall Surveyor General. Scale = 1:500, Territory of Hawaii Land Court map for the Pioneer Mill CO, LTD-Petitioner, on file at the Department of Accounting and General Services, State of Hawai'i Survey Office, Honolulu, Hawai'i.

**Wright, Geo G. and T.Y. Awana**

- 1918 *Pioneer Mill Co. LTD. Cane Fields, Lahaina, Maui* [map]. Scale = 1:500. Pioneer Mill Company, Lahaiana, HI.

**Van Dyke, Jon M.**

2008 *Who Owns the Crown Lands of Hawai'i?* University of Hawai'i Press, Honolulu, HI.

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# **Appendix A Guidelines for Assessing Cultural Impacts from the State of Hawaii Office of Environmental Quality Control**

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## Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii November 19, 1997

### 1. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

#### **Background**

Prior to the arrival of westerners and the ideas of private land ownership, Hawaiians freely accessed and gathered resources of the land and seas to fulfill their community responsibilities. During the Mahele of 1848, large tracts of land were divided and control was given to private individuals. When King Kamehameha the III was forced to set up this new system of land ownership, he reserved the right of access to privately owned lands for Native Hawaiian ahupua'a tenants. However, with the later emergence of the western concept of land ownership, many Hawaiians were denied access to previously available traditional resources.

In 1978, the Hawaii constitution was amended to protect and preserve traditional and customary rights of Native Hawaiians. Then in 1995 the Hawaii Supreme Court confirmed that Native Hawaiians have rights to access undeveloped and under-developed private lands. Recently, state lawmakers clarified that government agencies and private developers must assess the impacts of their development on the traditional practices of Native Hawaiians as well as the cultural resources of all people of Hawaii. These Hawaii laws, and the National Historic Preservation Act, clearly mandate federal agencies in Hawaii, including the military, to evaluate the impacts of their actions on traditional practices and cultural resources.

If you own or control undeveloped or under-developed lands in Hawaii, here are some hints as to whether traditional practices are occurring or may have occurred on your lands. If there is a trail on your property, that may be an indication of traditional practices or customary usage. Other clues include streams, caves and native plants. Another important point to remember is that, although traditional practices may have been interrupted for many years, these customary practices cannot be denied in the future.

These traditional practices of Native Hawaiians were primarily for subsistence, medicinal, religious, and cultural purposes. Examples of traditional subsistence practices include fishing,

picking opihi and collecting limu or seaweed. The collection of herbs to cure the sick is an example of a traditional medicinal practice. The underlying purpose for conducting these traditional practices is to fulfill one's community responsibilities, such as feeding people or healing the sick.

As it is the responsibility of Native Hawaiians to conduct these traditional practices, government agencies and private developers also have a responsibility to follow the law and assess the impacts of their actions on traditional and cultural resources.

The State Environmental Council has prepared guidelines for assessing cultural resources and has compiled a directory of cultural consultants who can conduct such studies. The State Historic Preservation Division has drafted guidelines on how to conduct ethnographic inventory surveys. And the Office of Planning has recently completed a case study on traditional gathering rights on Kaua'i.

The most important element of preparing Cultural Impact Assessments is consulting with community groups, especially with expert and responsible cultural practitioners within the ahupua'a of the project site. Conducting the appropriate documentary research should then follow the interviews with the experts. Documentary research should include analysis of mahele and land records and review of transcripts of previous ethnographic interviews. Once all the information has been collected, and verified by the community experts, the assessment can then be used to protect and preserve these valuable traditional practices.

Native Hawaiians performed these traditional and customary practices out of a sense of responsibility: to feed their families, cure the sick, nurture the land, and honor their ancestors. As stewards of this sacred land, we too have a responsibility to preserve, protect and restore these cultural resources for future generations.

TEXT OF ACT 50, SLH 2000

A BILL FOR AN ACT RELATING TO ENVIRONMENTAL IMPACT STATEMENTS

UNOFFICIAL VERSION

HOUSE OF REPRESENTATIVES H.B. NO, 2895 H.D.1

TWENTIETH LEGISLATURE, 2000

STATE OF HAWAII

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawai'i's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a

duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawai'i Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

"Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

## 2. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction

with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

1. identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua`a;
2. identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;
3. receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;
4. conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;
5. identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and
6. assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that

the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

### 3. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.
2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.
3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.
4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.
5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.
6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site.
7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

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# Appendix B Formal Letter Responses

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Lahaina Bypass Phase 1A Cultural Impact Assessment

Page 1 of 1

**Colleen Dagan**

**From:** Naeole, Clifford [Clifford.Naeole@ritzcarlton.com]  
**Sent:** Thursday, August 21, 2008 7:01 PM  
**To:** Colleen Dagan  
**Subject:** RE: Lahaina Bypass Phase 1A Cultural Impact Assessment

Aloha:

Just returned from a nice vacation today. Unfortunately...I am not well versed in the area in question. I must defer any and all questions to those that were brought up in the area and to those who continue to live there. Sorry!!

Hope all is well. I know that the road to progress (pun intended) will be a rough one to accomplish!

cn

**From:** Colleen Dagan [mailto:cdagan@culturalsurveys.com]  
**Sent:** Tuesday, August 19, 2008 6:40 AM  
**To:** Naeole, Clifford  
**Subject:** Lahaina Bypass Phase 1A Cultural Impact Assessment

Aloha Mr. Naeole,

I'm just following up to a letter I mailed out at the beginning of July requesting your mana'o on the proposed Lahaina Bypass Phase 1A, regarding cultural practices, cultural impacts, and cultural resources of the greater Kahoma/Kanaha area. We are in the midst of our consultation process and are beginning to put our study together. Your knowledge of the area and your thoughts on this project would be helpful and greatly appreciated. I apologize in advance for all the e-mails and phone calls regarding this and other studies...as our general practice, we attempt to contact individuals three times before stating we could not contact someone/no response, etc. Please let me know if you would prefer me to call you directly.

Mahalo,  
Colleen Dagan

*Archaeologist-Cultural Surveys Hawaii, Inc.  
1993 Main St. Suite 1C  
Wailuku, Hawaii 96793  
(808)242-9882 office  
(808)244-1994*

\_\_\_\_\_ NOD32 3380 (20080822) Information \_\_\_\_\_

This message was checked by NOD32 antivirus system.  
<http://www.eset.com>

8/22/2008

## Friends of Moku'ula

505 Front Street Suite 221

Hāina, HI. 96761

Phone 808 661-3659 Facsimile 808 661-1676

E-mail friends@mokuula.com Website www.mokuula.com



September 3, 2008

Ms. Colleen Dagan, Archaeologist  
Cultural Surveys Hawaii  
1993 Main Street  
Wailuku, HI 96793

Aloha Colleen:

**RE: Cultural Impact Assessment Community Contact Letter for the Honoapi'ilani Highway Realignment Phase IA**

The following comments are directed to the above-referenced subject as requested in your letter of June 20, 2008.

The subject area is steeped in history and is directly related to the surrounding areas. The mountain above the site is Pa'upa'u and was the place of refuge, designated by Ka'ahumanu as a pu'u honua. There on the top of Pa'upa'u is the burial site of David Malo. Below Pa'upa'u is the agricultural lands that extended from Halona valley and Kahoma down through the current site of the Kahoma stream.

Agricultural infrastructure and home sites may be found along with possible burials of family members whose homes were located in the area. As the lands were used mainly for ag purposes, various ag tools may be found and possible household items too. These lands were largely populated and therefore, may also include quite a number of burials, as well as religious sites relating to the various agricultural deities.

Please feel free to contact our office if you have any questions.

Sincerely,

  
Akoni Akana  
Executive Director

/sak

Thursday, August 21, 2008

Cultural Surveys Hawaii  
1993 Main Street  
Wailuku, Maui, Hawaii 96793

Ms. Anna M. Cardova Archaeologist  
Ms. Colleen Dagan Archaeologist

Subject: Cultural viewpoint of potential impacts for the Honoapiilani Hwy. Phase 1A.

Aloha mai!

After reading the Community contact letter of Phase 1A of the Honoapiilani Highway, I have concluded the following items that come to mind as a cultural practioners for the last 30 years here in Hawaii. The mindset of our kupuna of long ago in those terraces that were inadvertently found speaks profoundly on the ideology of what were important to our ancestral link of kupa 'āina, native ones of that area that farmed the land and fed its people and well accustomed to the natural surroundings and environment of that place. The cultural awareness known to many today as "gut instinct" or in the words of our kupuna 'ike pāpālua tells me that the physical nature of this inadvertent find should be a symbol of future learning to come.

Possible cultural impacts other than the 400 terraces that were discovered should be considered;

- Native plants that will be impacted. Has there been a survey of what types (if any) may be impacted by this highway. The loss of indigenous plants has been felt throughout ko Hawai'i pae 'āina and should be considered to be looked upon for possible transect or future monitoring.
- Has there been a study on what types of crops were grown in this area, are their seedlings or continued growth of those crops there today.
- Protocols have been established for practioners to gather, will this highway infringe upon a cultural practioners kuleana to gather materials, pule for their religious beliefs, or practice with other practioners for the betterment of all Maui.
- Looking at past developments that have destroyed cultural landscapes, it disheartens me as a cultural practioner to know that more construction and destruction will be the "new identity" to a rich cultural heritage.
- Kupuna that reside within the area of Wahikuli and Lahaina should be addressed: Those that come to mind and have probably been addressed: Nā Kupuna o Maui (Aunty Patti Nishiana) Na Koa Kau I Ka Meheu o Nā Kupuna (Ke'eaumoku Kapu) The Lindsey Family, The Kaluakini 'Ohana, The Nākoa 'Ohana.
- Cultural balance is very difficult in this time of modern day thinking. Not just asking for mana'o is enough. Create the balance and opportunity to work with

and help develop partnerships or kahu 'āina with those that live in the area and have a fundamental foundation to mālama 'āina and to see new growth potential to these important places that have slept for so long. The cultural imbalance to this would be never to reawaken it again.

These bullet points are but a few of my thoughts that I have to share at this time. If you need further comment or would like to talk story, please give me a call on my cell phone at 385-9117 or you may reach me on my email at [kaponoai@native-intel.com](mailto:kaponoai@native-intel.com).

Mahalo a nui,

Kumu Kaponoi'ai Molitau  
Nā Hanona Kūlike 'O Pi'ilani  
Kahuna Nui  
Nā Wa'a Lalani 'O Pu'ukoholā  
[kaponoai@native-intel.com](mailto:kaponoai@native-intel.com)  
808-385-9117

PHONE (808) 594-1888



FAX (808) 594-1866

**STATE OF HAWAII**  
**OFFICE OF HAWAIIAN AFFAIRS**  
711 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813

HRD08/1672C

August 20, 2008

Anna M. Cordova, Archaeologist  
Cultural Surveys Hawai'i, Inc.  
P.O. Box 1114  
Kailua, Hawai'i 96734

**Re: Cultural Impact Assessment**  
**Honoapi'ilani Highway Realignment Phase IA**  
**Keawe Street Extension to Lahainaluna Road Alternative Alignment**  
**Kelawea, Paeohi and Wahikuli Ahupua'a, Lahaina District, Maui**  
**Tax Map Key: (2) 4-5-021,010,015 and 031: Multiple**

Aloha e Ms. Cordova,

The Office of Hawaiian Affairs (OHA) is in receipt of your June 30, 2008 letter initiating consultation ahead of a cultural impact assessment (CIA) for Phase 1A of the Honoapi'ilani Highway realignment project, also referred to as the Lahaina Bypass Phase 1A.

This proposed realignment project has been identified as a avoidance alternative by the State of Hawai'i Department of Transportation (HDOT) to avoid Statewide Inventory of Historic Places Site 50-50-03-6277 (Site 6277). Your letter details that Site 6277, which was identified in May 2007, consists of over 400 component features (early historic era agricultural terraces) and encompasses approximately 30 acres, of which 2 acres are situated within the right of way of the original Phase 1A alignment. The Department of Land and Natural Resources-Historic Preservation Division has determined that Site 6277 is an "inadvertent discovery" because it was identified subsequent to the archaeological inventory survey (AIS) conducted for the original for the original 10-mile Lahaina Bypass corridor.

Because the proposed realignment project area was not included in the Final Environmental Impact Statement (FEIS) for the Lahaina Bypass corridor or the Supplemental Final Environmental Impact Statement (SFEIS), an additional environmental assessment (EA) specific to the proposed realignment project area is being prepared along with the subject CIA.

08-27-08 08:45 FROM-

1-302 P0027003 F-368

Anna M. Cordova, Archaeologist  
Cultural Surveys Hawai'i, Inc.  
August 20, 2008  
Page 2

While OHA certainly applauds the considerable efforts undertaken by the HDOT to avoid adverse impacts to Site 6277 by proposing the realignment of Phase 1A, we are concerned that the archaeological inventory survey prepared in conjunction with the SFEIS failed to identify such a large archaeological site. It is our hope that this is an isolated incident and not indicative of a pattern which will emerge as the overall Lahaina Bypass project moves forward.

Based on the information contained within your letter, the subject CIA will be limited to an approximate 55-acre "area of potential impact", which includes the right of way for the proposed alternative alignment. OHA notes that the guidelines for CIA adopted by the Office of Environmental Quality Control encourage a methodology which looks at a geographic area larger than a given project area. In fact, these guidelines recommend that an ahupua'a is the appropriate geographical area to begin a CIA with the probability that the assessment area would extend into an even larger area. With this in mind, OHA would encourage the subject CIA not be limited to only the "area of potential impact" for the proposed alternative alignment, but be conducted within the context of the traditional cultural landscape for the entire Lahaina Bypass corridor.

OHA recommends that consultation be conducted with the following groups and individuals who may be willing to share their knowledge with you: the Lahaina Hawaiian Civic Club, Friends of Moku'ula, the County of Maui-Cultural Resources Commission, Mr. John Kuia, Ms. Josephine Keli'ipio, Mr. Charles Maxwell and Mr. Ke'eaumoku Kapu. Please remember that this list is not all encompassing and we are sure additional individuals and/or organizations will be identified as you move forward with your consultation process.

The proposed realignment corridor includes a portion of Kahoma Gulch where temporary bridge shoring will be located. OHA is aware that an archaeological surface survey for the Kahoma Stream flood-control project conducted by Bishop Museum identified three sites, which include two terrace systems and a burial mound. The U.S. Army Corps of Engineers, Pacific Ocean Division also conducted archaeological excavations related to the Kahoma Stream flood-control project which resulted in the disinterment of at least ten individuals. While the maps and figures included with your letter do not depict the specific location where the proposed realignment corridor will cross Kahoma Stream, consideration of the above mentioned information is warranted.

It is our understanding that this project is at least partially funded by a Federal agency. Thus, OHA requests clarification on whether requirements pursuant to Section 106 of the National Historic Preservation Act (NHPA) have been fulfilled not only for the proposed realignment project, but for the overall Lahaina Bypass project as well.

08-27-08 08:45 FB01-

1-302 P003/003 P-368

Anna M. Cordova, Archacologist  
Cultural Surveys Hawai'i, Inc.  
August 20, 2008  
Page 3

Thank you for initiating consultation at this early stage in the cultural impact assessment process. We look forward to the opportunity to review the completed cultural impact assessment. Should you have any questions, please contact Keola Lindsey, Lead Advocate-Culture at (808) 594-1904 or [keolal@oha.org](mailto:keolal@oha.org).

'O wau iho nō me ka 'oia'i'o,



Clyde W. Nāmu'o  
Administrator

C: Hon. Boyd P. Mossman-OHA Trustee, Island of Maui  
OHA Maui CRC Office

Page 1 of 1

**Colleen Dagan**

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**From:** Anna Cordova [acordova@culturalsurveys.com]  
**Sent:** Friday, August 29, 2008 1:15 PM  
**To:** cdagan@culturalsurveys.com  
**Subject:** FW: Cultural Impact Assessment Community Contact Letter

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**From:** weg [mailto:weg@wisperhawaii.com]  
**Sent:** Friday, August 29, 2008 8:27 AM  
**To:** acordova@culturalsurveys.com  
**Subject:** Cultural Impact Assessment Community Contact Letter

Aloha

E kalamai 'oe ia'u for being slow in my communication. Because of my position within the Royal Order of Kamehameha I can not speak for them as this may mean that the Royal Order of Kamehameha is taking a stand for or against the proposed bypass. I as an individual have no objections as long as no ancient sites are disturbed. There are families living in Ukumehame and Kauaula, the Kapu ohana in the latter. There is also Mr. Gordon Cockett who is involved in community affairs in that area

O au me ka ha'aha'a.

William Garcia

Ku'auhau Nui

Royal Order of Kamehameha I

\_\_\_\_\_ NOD32 3400 (20080829) Information \_\_\_\_\_

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<http://www.eset.com>

8/29/2008

### Verified Notice of Acceptance for Value

Notice by: Louella L., family of Haia,  
Sovereign, Title Principal, Secured  
Party, Lien Holder/Owner  
Of HAIA, PILI KEKAI, V.  
KAMAMALU, KAUHI, WAHIE ©™

c/o 377-C Lahainaluna Road  
at Lahaina, Maui, at Ko Hawai'i Pae 'Aina

Notice date: August 19, A.D. 2008

Notice for: Cultural Surveys of Hawaii, Inc.  
1993 Main Street  
Wailuku, Hawaii 96793

Notice for: WILSON OKAMOTO CORP  
1907 South Beretania Street  
Artesian Plaza, Suite 400  
Honolulu, Hawaii 96826

### Verified Notice of Acceptance for Value

The above is made explicitly Under Reserve and without Recourse.

**In the matter of:** Your Offer of Contract., dated July 7<sup>th</sup>, A.D. 2008, Cultural Impact Assessment for the Honoapi'ilani Highway Realignment Phase 1A, Future Keawe Street Extension to Lahainaluna Road, Alternative Alignment, Kelawe, Paeohi, and Wahikuli Ahupua'a, Lahaina District, Maui Island, and,

**In the matter of:** Your Offer of Contract, dated August 11<sup>th</sup>, A.D. 2008 regarding Honoapi'ilani highway Realignment Phase 1a, Federal Aid Project no. NH-030-1 (35), (Lahaina Bypass), future Keawe Street Extension to Lahainaluna Road, and,

In the name of God, amen, I, me addressee: Louella L., family of Haia, a sovereign, Titled Principal, Secured Party, without the UNITED STATES, hereby gives notice, to Colleen Dagan, d/b/a, COLLEEN DAGAN /PUBLIC SERVANT for Cultural Surveys of Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC. /PUBLIC SERVANT, and Wilson Okamoto Corp., d/b/a, WILSON OKAMOTO CORP./PUBLIC SERVANTS, of my acceptance for value of your offer of contract, I am a belligerent claimant of all of my rights, **I deny** I am a corporation. **I deny** I am a beneficiary of the Trust known as "THE STATE OF HAWAII", Notice to the Agent is notice to the Principal. Notice to the Principal is Notice to the Agent.

Staying in honor, I Louella L., family of Haia, hereby and herein **accept for value** your presentment, i.e., offer of contract, dated July 7<sup>th</sup>, A.D. 2008, by to Colleen Dagan, d/b/a, COLLEEN DAGAN /PUBLIC SERVANT for Cultural Surveys of Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC. /PUBLIC SERVANT and Wilson Okamoto Corp., d/b/a, WILSON OKAMOTO CORP./PUBLIC SERVANTS, dated, August 11<sup>th</sup>, A.D. 2008. However, after having given careful consideration to your offer, and the terms stated therein, I have decided that I do not wish to contract with you, for the following

Verified Notice of Acceptance for Value

Page 1 of 2

**Verified Notice of Acceptance for Value**

reason(s), that (1) you have failed to state a claim upon which relief can be granted, and (2) you have not given us proof of the whereabouts of our Kupuna iwi (s).

For the record, I hereby and herein claim my right to common law jurisdiction and refuse statutory jurisdiction, and/or admiralty jurisdiction.

The foregoing is an instrument under contract law, and I hereby and herein explicitly reserve all of my rights without recourse. Failure to respond, nihil dicit, within three business days of receipt establishes your unconditional acceptance of the foregoing.

**You have been noticed.**

Verification: I verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct. Executed with honor, in good faith, with clean hands and at arm's length, on this date, Sept 02, A.D., 2008, at Lahaina, on Maui, in Ko Hawai'i Pae Aina.

Endorsement:

By: Louella L. Haia Seal  
By: Louella L., family of Haia, a sovereign, Titled Principal, Secured Party, Creditor, Respondent Secured Party's Exemption/Birth Certificate: #151-55-06574

Witness: By: Brian K. Haia

Witness: By: Chloe K. Haia

**Verified Notice of Contract and Notice of Dishonor  
and Notice of Default**

Notice by: Louella L., family of Haia,  
Sovereign, Title Principal, Secured  
Party, Lien Holder/Owner  
Of HAIA, PILI KEKAI, V.  
KAMAMALU, KAUIHI, WAHIE ©™

c/o 377-C Lahainaluna Road  
at Lahaina, Maui, at Ko Hawai'i Pae 'Aina

2<sup>nd</sup>-Notice dated: September 20, A.D. 2008

**Notice for: Colleen Dagan, d/b/a COLLEEN DAGAN/PUBLIC SERVANT for Cultural Surveys of  
Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC.,/PUBLIC SERVANT  
1993 Main Street  
Wailuku, Hawaii 96793**

**Verified Notice of Contract and Notice of Dishonor  
and Notice of Default**

The above is made explicitly Under Reserve and without Recourse.

**In the matter of:** Your Offer of Contract., dated September 8<sup>th</sup>, A.D. 2008, Cultural Impact Assessment for the Modified Extension to the Phase 1A study for Future Keawe Street Extension to Lahainaluna Road, Alternative Alignment, Kelaweia, Paeohi, and Wahikuli Ahupua'a, Lahaina District, Maui Island, and,

**In the matter of:** Your Offer of Contract, dated August 12th, A.D. 2008 regarding Honoapi'ilani highway Realignment Phase 1a, Federal Aid Project no. NH-030-1 (35), (Lahaina Bypass), future Keawe Street Extension to Lahainaluna Road, and,

I, Louella L., family of Haia, a titled sovereign national, Secured Party, Lien Holder/Owner of Haia, Pili Kekai, Victoria Kamamalu, Kauhi, and Wahie©™, hereby and herein duly notice, Colleen Dagan, d/b/a, COLLEEN DAGAN /PUBLIC SERVANT for Cultural Surveys of Hawaii, Inc., d/b/a, CULTURAL SURVEYS OF HAWAII, INC. /PUBLIC SERVANT, and all of whom that is involved, and to all whom it may concern, with my instrument entitled, "Verified Notice of Contract and Notice of Dishonor and Notice of Default", dated September 20<sup>th</sup>, A.D. 2008.

Furthermore, On August 12<sup>th</sup>, A.D. 2008, I duly noticed you, it has been in excess of 3 days since you were duly noticed with my presentment entitled, "Verified Notice of Acceptance for Value", I have not received your response, nor did you contest the validity of my presentment, "Verified Notice of Acceptance for Value", dated August 27<sup>th</sup>, A.D. 2008, has now been confirmed by your acquiescence. You have dishonored my presentment and are now in default.

Furthermore, Said default can only be cured by your immediate action, to the following:

1. Inform all of whom it may concern that Quit Claim/Warranty Deeds pertaining to the Lienened properties listed in this matter, that their deeds are clouded and are no longer valid.
2. Cease and desist; I am a lineal descendant of Kahoma/Kanaha, and I refuse to comply/share with you CSH regarding our cultural practices/whereabouts of our kupuna iwi;

Verified Notice of Contract and Notice of Dishonor and Notice of Default

Page 1 of 2

**Verified Notice of Contract and Notice of Dishonor  
and Notice of Default**

- 3. As to Your #2 Answer, I want proof that our kupuna iwi was placed from one area to another, not just he said, she said; Many of my families has been asking, for the other kupuna(s) that is buried at the same area that was said to have been removed to another area; Wheres the document proof?
- 4. you have failed to send everyone of my families, their full disclosure of what was discuss at the meeting, dated August 1<sup>st</sup>, 2008;
- 5. you have failed to send everyone that attended the meeting, dated August 1<sup>st</sup>, 2008, any information of what was discussed; (You have drew up your own conclusion of what was said and have with-held information, from other members of my families);
- 6. Your so-called form of mitigation, needs to be striken, I for one don't need you Colleen Dagan or anyone else to speak for me or any of my families, and if your only intentions is to be a mediator between DOT and all our families of Kahoma/Kanaha, then you are not Ohana to any of us.
- 7. To inform, the subject party who is now digging/grading up in Kahoma/Kanaha to back off;

**Furthermore**, the following is an instrument under contract law; and I hereby and herein explicitly reserve all of my rights without recourse. Failure to respond, nihil dicit, within ten (10) business days of receipt, establishes your unconditional acceptance of the foregoing.

**Furthermore, You have been noticed.**

**Verification:** I verify under penalty of perjury under the laws of the United States of America that the foregoing is true and correct, Executed with honor, in good faith, with clean hands and at arm's length, on this date, Sept. 23, A.D., 2008, at Lahaina, on Maui, in Ko Hawai'i Pae Aina.

Endorsement:  
 By: Kouela K. Haia Seal  
 By: Louella L., family of Haia, a sovereign, Titled  
 Principal, Secured Party, Creditor, Respondent  
 Secured Party's Exemption/Birth Certificate:  
#151-55-06574

Witness: By: Diana L. White  
 Witness: By: Warren P White

cc. DOT  
cc. Daniel Ornellas

Notice for: Cultural Surveys Hawaii  
1993 Main Street  
KĀĀĪĻĪKĪ HI. 96798

Notice by: Louella L., family of Haia,  
sovereign, Secured Party,  
Lien Holder/Owner of  
HAIA, PILI KEKAI,  
V. KAMAMALU, KAUIHI,  
WAHIE, ©™,

Notice Date: September 7, 2008

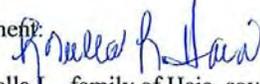
Attention: Colleen Dagan

In reference to your letter dated August 12 and 27<sup>th</sup>, of 2008, and,  
For the record, I hereby and herein claim my right to common law jurisdiction and refuse  
statutory jurisdiction, and/or admiralty jurisdiction.  
Furthermore and for the record:

- a. No. 1 thru No. 7, the foregoing is an instrument under contract law, and I hereby and herein explicitly reserve all of my rights without recourse.
- b. No. 2, although the area(s) was designated "CROWN LANDS", many families was given "KULEANA LANDS" in Kahoma/Kanaha.
- c. No. 3, (a), (b) and (c), I hereby and herein reserve all of my rights.
- d. No. 4 thru No. 7, I hereby and herein reserve all of my rights.
- e. As to page 2, No. 1, 2 and 3. I hereby and herein reserve all of my rights.
- f. As to your letter dated 27<sup>th</sup> of August, 2008, addressed to my brother and I, hereby and herein reserve all of our rights without recourse.

It clearly states in the Law of 1872 revised in H.R.S. § 172-11, Land patents on land commission awards; to whom, for whose benefit. Every land patent issued upon an award of the board of commissioners to quiet land titles, shall be in the name of the person to whom the original award was made, even though the person is deceased, or the title to the real estate thereby granted has been alienated; and all land patents, so issued shall inure to the benefit of the heirs, and assigns of the holder of the original award. All of the families is going to move back to their Kuleana and there is nothing you can do to stop us, and as for access, we already have access.

Verifications: For the record, Executed with honor, in good faith, with clean hands and at arm's length, on this date, September 7<sup>th</sup>, 2008, at Lahaina, on Maui, in Ko Hawai'i Pae 'Aina.

Endorsement:  
By:  Seal  
By: Louella L., family of Haia, sovereign,  
Secured Party & Lien Holder/Owner

cc. D.O.T.  
cc. Daniel Ornellas  
cc. KAPU OHANA OF KAUAULA

# CULTURAL SURVEYS HAWAII

ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL DOCUMENTATION SERVICES - SINCE 1982



September 8, 2008

Ms. Louella Haia  
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Aloha Louella,

I am writing in response to your notice, "Verified Notice of Acceptance for Value" dated August 19, 2008 (verified Sept. 2, 2008), to clarify with you the intent of this notice. We, Cultural Surveys Hawai'i (CSH), currently understand this notice to mean, that you are declining involvement in the cultural impact assessment for the Modified Extension to Phase IA study for the reasons stated below and we would like to respond with the following (CSH's response in italics):

1. You [Cultural Surveys Hawaii and Wilson Okamoto Corporation] have failed to state a claim upon which relief can be granted, and

*CSH is looking to families (lineal descendants) from the Kahoma and Kanaha Valley's and Stream corridor to share information regarding cultural resources and cultural practices in an effort to assess the impacts the proposed project might have on these practices (past, present, future). These families can suggest how they think "relief can be granted"*

2. You [Cultural Surveys Hawaii and Wilson Okamoto Corporation] have not given us proof of the whereabouts of our Kupuna iwi(s)

*CSH knows of the following burial sites and family cemeteries adjacent to the project area; the Haia Cemetery (SIHP-1776), the Pali Cemetery (SIHP-2485), additional burial mounds (SIHP-2486). CSH also understands that some iwi kupuna unearthed during the Kahoma Flood Control Project were taken to Honokahua Burial site and reentered there. CSH is currently not aware of any other iwi kupuna, burial sites or historic cemeteries within or adjacent to the subject area, we do not entirely understand what the statement "... have not given us proof of the whereabouts of our Kupuna iwi" means to convey.*

If this notice is a signed statement that means that you do not want to participate in the cultural impact assessment, I will not include your input from the 'ohana meeting in order to respect your wishes and ensure all statements will remain confidential. Please contact me if this is not accurate and let me know if



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STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

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

September 3, 2008

Laura H. Thielen  
Chairperson  
Board of Land and Natural Resources  
Commission on Water Resource Management

Russell Y. Tsuji  
First Deputy

Ken C. Kawahara  
Deputy Director - Water

Aquatic Resources  
Boating and Ocean Recreation  
Bureau of Conveyances  
Commission on Water Resource Management  
Conservation and Coastal Lands  
Conservation and Resources Enforcement  
Engineering  
Forestry and Wildlife  
Historic Preservation  
Kahoolawe Island Reserve Commission  
Land  
State Parks

**MEMORANDUM**

Log No: 2008.2944  
Doc No: HP10763PCC

TO: Colleen Dagan, Archaeologist  
Cultural Surveys Hawai'i

FROM: Phyllis Coochie Cayan, History and Culture Branch Chief  
State Historic Preservation Division *Phyllis Cayan*

Subject: **Cultural Impact Assessment Community Contact Letter for the Honoapi'ilani Highway Realignment Phase 1A, Future Keawe Street Extension to Lahainaluna road, Alternative Alignment, Kelawea, Paeohi, and Wahikuli Ahupua'a, Lahaina District, Maui Island**

**TMK: (2) 4-5-021, 010, 015, and 031: Multiple Parcels**

This memo is in response to your letter dated June 30, 2008 seeking help and guidance in identifying more community contacts that may have cultural concerns related to Hawaiian cultural practices within or in the vicinity of the Honoapi'ilani Realignment area. You also hoped to gather more information about the general history (past and present) of the land use of the area as well as anyone who may have more information regarding the various cultural resources in the project area – including but not limited to traditional gathering practices, legends and traditional uses, as well as any families or kupuna (elders) who would be willing to share their cultural knowledge of this area.

As we had discussed on the phone today, the SHPD feels that Cultural Surveys Hawaii made an extensive community outreach earlier in this project to interested parties who are currently working and meeting with you on this matter. Our Maui cultural historian, Mr. Hinano Rodrigues has recused himself from this project and is to be considered a cultural descendant of that area. He informs me that the concerned families affiliated with this project area and surrounding ahupua'a are already working with you.

As you know, I did make a call to a Mr. Landis Ornellas here on O'ahu, who has family affiliations with the project area. He informed me that his genealogy links up with the Haias, the I'is, the Kalepas, and the Babayans. Further, Mr. Ornellas noted that his sister and other relatives are working with you to ensure their family burials are not desecrated (as well as other sacred places therein).

Please do not hesitate to call me directly at 808-692-8025 should you have any further questions or comments on this project area. Mahalo nui loa for your patience in our response.

c: Dr. Pua Aiu, SHPD Administrator  
Nancy McMahan, SHPD Deputy Administrator  
Mr. Hinano Rodrigues, Maui Cultural Historian

Qualani Kapu White  
2328 Tantalus Drive  
Honolulu, Hawaii 96813

September 6, 2008

Colleen Dagan,

First of all, my name is Qualani Kapu White and I am a descendant of Kauaula as well as Kahomaikanaka. I have'nt attended the last few meetings since Cultural Surveys Hawaii has taken part, but I am involved and I also oppose this by-pass.

I have just received copies of the letters you sent to my cousins, Louella and Brian Haia. Upon going through what was addressed at the August 1<sup>st</sup>., meeting. I believe, whatever was transpired between you, Cultural Surveys Hawaii and Department of Transportation and all of my Ohana of Kahoma/Kanaha, this by-pass is still going through, so I don't understand why DOT is using you, Cultural Surveys Hawaii to continue feeding my families all kinds of B-S.

There are several points that I would like to address:

1. What is your position and what are you going to do about my ohana concerns?
2. Your so-called form of "MITIGATION".

If your position is to be the middle man between Department of Transportation and my families, then I want to know what you going do about my family concerns. Hope you are aware of the skyline Adventure Tours and ATV Tour and now West Maui is allowing a Stable Company to start doing Tours in Kahoma, so if you cannot take care of these important matters then you are just wasting my families time.

As for this form of "mitigation", needs to be striken. I for one don't believe in your form of mitigation. We don't need someone else to speak for each of us. Laura Mau and Tanya knows it and I believe this is why you were picked and being you are ohana to us, I hope you do things right, because as far as I see my families don't trust you either.

My understanding is that you supposingly is Ohana to my family.

If you know that Louella and Brian is connected on the Pili Kekai line, then you already know how they are connected.

When Louella sent me copies of your genealogy, that you sent her has cause me to believe that you don't give a dam about your kupuna iwi. The one thing that we were brought up to know in my family is we never give or expose our kupuna inoa to the sunlight, its so sad to know that you got your information from Uncle Ah Ying, and used it for your own bad intentions. Our cousin Malinda had makana her work and had already given us a copy of her genealogy book, so we already know how we are all connected together, so I think you need to learn a lot more about Ohana concept.

In closing, It is not for us to expose the bones of our ancestors to the sunlight, so just to let you know that you have been warned. We will not be responsible for anyone who goes up/on and desecrate. But be sure if any of my kupuna iwi is taken out, crushed or tampered with, you and your constituents will be facing a lawsuit.

Mahalo,  
Qualani Kapu White

Regarding Grading/Digging  
Up Kahoma/Kanaha and  
Letter address to Yolanda  
Dizon

Notice By: Victoria Ann Q., family of White  
sovereign, Secured Party, Lien/Holder  
Owner of Manuia Kekai, Kaiwi,  
Kanae©™

c/o 2328 Tantalus Drive  
Honolulu, on Oahu, at Ko Hawai'i Pae  
'Aina [96813]

Notice for: Cultural Surveys Hawaii  
Maui Island  
1993 Main Street  
Wailuku, Hawaii [96793]

Notice for: Wilson Okamoto Corp.  
1907 South Beretania Street  
Suite 400  
Honolulu, Hawaii [96826]

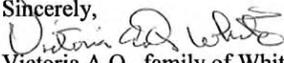
Notice date: September 24, 2008

Ms. Colleen Dagan of CSH & Ronald Sato, AICP,

In receipt of a letter sent by my cousin Yolanda Dizon, **not dated** regarding notes from the August 1<sup>st</sup>, 2008, meeting, I am telling you Colleen and Ronald to back off, with whatever you guys are doing up in Kahoma/Kanaha. My cousins Louella and Brian had gone up on September 23<sup>rd</sup>, 2008 and had questioned certain individuals about the grading and drilling they were doing. They asked for a permit and why were't the heirs informed about the work they were doing and why they did not have an archeologist on sight? Then today, September 24<sup>th</sup>, my cousins went up and questioned them again and told them to shut down. Then, Laura Mau calls my brother Keeaumoku and the rest of my families to apologize, for whatever had happen.

I am writing this letter to inform you and your constituents that we the Lineal Heirs will not tolerate with you Colleen Dagan or anyone else from Cultural Surveys Hawaii. Like I shared with you in my last letter and of which I am still waiting for an answer. If your intentions is to be the mediator between Department of Transportation and my families, then I suggest you quit now. Many of my families as well as I have put Liens on our Kupuna(s) lands, and as far as we know, you have not taken into consideration about having a archeologist on site at the time these individuals were up in the valley grading. Which means, 'You never do your job '.

Now as for Wilson Okamoto Corporation, Be aware, for a lawsuit, because if your workers ever dig or crush any of our **KUPUNA(S)**, everyone involved will be accountable.

Sincerely,  
  
Victoria A.Q., family of White

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# Appendix C Formal Interview Transcriptions and Notes

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MR. JONAH KEAHI .....	2
MR. SUSUMU "PEANUTS" SODETANI.....	22
MS. MABEL "MOMI" (KAILIHOU) JAENTSCH .....	37
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MR. HENRY AH YING AKI .....	55

**Mr. Jonah Keahi**

**Cultural Surveys Hawai'i Inc.**

Archaeological and Cultural Impact Studies  
Hallett H. Hammatt, Ph.D., President



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**Authorization and Release Form**

Cultural Surveys Hawai'i (CSH) is grateful for the generosity of the Kūpuna and Kama'aina who have willingly shared their knowledge and experiences for the preparation of a cultural impact assessment for the proposed Lahaina Bypass Phase 1A Realignment.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our assessment. Here are the procedures we promise to follow:

1. You will have the opportunity to review the written transcription of our interview with you. At that time, you may make any additions, deletions, or corrections you wish.
2. You will be given a copy of the interview transcript you have approved for your records.

For our records and yours, we humbly request your confirmation that:

1. You were given the opportunity to review the transcript of the interview.
2. You consent to the use of the interview with any revisions specified by you for historic documentation and academic purposes.
3. You consent to the interview being made available to the public.

I, Jonah Keahi, agree to the procedures outlined above and by my  
(Please print your name)  
signature, given my consent and release for this interview to be used for historic documentation and academic purposes.

*Additional Comments and Clarifications:*

Jonah H. Hammatt  
(Signature)

Oct 3 2008  
(Date)

*File Name(s)* Recording of Mr. Jonah Keahi 7\_9\_08.dvf  
Mr. Jonah Keahi cont.dvf

*CSH Job Code* PANAEWA 7

*Recording Date* 11 July 2008

*Transcription Date* 23 July 2008

*Participants* Jonah Keahi (JK) – interviewee  
Colleen Dagan (CD) and Anna Cordova (AC) – interviewers

*Mr. Jonah Keahi is a descendant of the Haia Family. The Haias are traditionally from the Kanahā Valley (also referred to as the Lahainaluna Valley). Jonah himself used to tend taro fields in Kanahā Valley where his family is from.*

---

- 2 (CD): Alright. Okay. So, we're here with Jonah Keahi, and could you just tell us when you  
3 were born?
- 4 (JK): I was born May 6, 1936. At home, I guess I was born at home. In those days, uh, we had,  
5 uh, what you call, a midwife?
- 6 (CD): Uh huh.
- 7 (JK): Well, uh, our grandma was one of them.
- 8 (CD): What was her name?
- 9 (JK): Uh, Tūtū Akaneki. We called her Tūtū Akaneki. I think I seen her delivered about two of  
10 my brothers and sisters. And I believe she would have been the one that delivered us.
- 11 (CD): How many brothers and sisters do you have?
- 12 (JK): I have ... [eight] brothers and three sisters.
- 13 (CD): Wow!
- 14 (JK): So, I'm the second oldest. Charlie is the oldest and I'm the second oldest.
- 15 (CD): And, then can you tell us their names and the order?
- 16 (JK): Charlie is the oldest, and then I'm next. Below me there's my sister, Thelma. And, then,  
17 George, which is Ōpelu. They call him Ōpelu, I think. You know Ōpelu?
- 18 (CD): I don't think so.
- 19 (JK): You never met him?
- 20 (CD): No.
- 21 (JK): And, then comes Moki. ... Wilson, that owns the boatyard. And then Harry. He's the  
22 one that (inaudible), and he *lomis*. He lives at Honokowai. ... And, then, you have, from Harry  
23 comes sister Ulu.
- 24 (CD): Ok. Ululani?
- 25 (JK): Yeah. Ululani.

- 26 (CD): *Ok. She's also on our contact list.*
- 27 (JK): Ah. And, then, below her is Norman. Norman works at Kā'anapali, I think. And, then,  
28 my sister Momi that lives at Māla. She's the owner of that house at Māla, my parents' home.  
29 And then I have two younger brothers, that were ... adopted. One was Dana and the last one was  
30 Elsworth A'a. Dana ...[goes] under the name of Gibson, Dana Gibson. And Elsworth was  
31 under A'a. So, ... there was 13. There was a brother after me, but he died at nine months. ...  
32 You know, in those days, when they had pneumonia that was it.
- 33 (CD): *What are your parents' names?*
- 34 (JK): My father is George, get this, my father is George Washington Keahi. The reason he got  
35 Washington is because he was born on February 22<sup>nd</sup>. He's not American, period. He doesn't  
36 like Americans.
- 37 (CD): *Oh, my goodness.*
- 38 (JK): My mom was ... Elizabeth Kwon. ...
- 39 (CD): *Q? K?*
- 40 (JK): K-W-O-N. K-W-O-N.
- 41 (CD): *So, that's Chinese or--?*
- 42 (JK): Korean.
- 43 (CD): *--Korean? Korean.*
- 44 (JK): And, we found out that, there's only one Kwon. ...
- 45 (CD): *Oh, uh, immigrant?*
- 46 (JK): No, in Korea there was only one Kwon.
- 47 (CD): *Oh!*
- 48 (JK): So, when you say Kwon, ... [they are] all related to that first Kwon.
- 49 (CD): *Oh! Wow!*
- 50 (JK): And, supposedly, somebody ... [said he is] high ranking ... I ...[heard] this recently that,  
51 ... he brought his nations together. ... he got the nations back.
- 52 (CD): *Is your mom pure Korean?*
- 53 (JK): No. She's half Korean, half Hawaiian. Her mom is pure Hawaiian. And, her mom, uh,  
54 ...[goes] under the name of Elizabeth Napuaehu. But, when my wife and I did the research, that  
55 wasn't her real name. Napuaehu was her father's first name, but the last name was Nika. So,  
56 Elizabeth Napuaehu Nika.
- 57 (CD): *Were they from Maui?*
- 58 (JK): Uh, on the Big Island. Kohala.
- 59 (CD): *Oh.*

- 60 (JK): But, all Nikas ...[comes from] Marquesas.
- 61 (CD): *Oh. So, is that a, like a, Marquesan name?*
- 62 (JK): They come from Marquesas. That's where they come from. And, I heard they were the  
63 first settlers. ... I'm not sure.
- 64 (CD): *That's the theory.*
- 65 (JK): Somebody told me they were the first settlers.
- 66 (CD): *That's the theory.*
- 67 (JK): Yeah, but I really don't know. ...
- 68 (CD): *Yeah, um--*
- 69 (AC): *Was your father from Maui?*
- 70 (JK): My father, yeah. My father was born in Lahainaluna. Over there. Cuz our family comes  
71 from Lahainaluna Valley. For about 500 years ...
- 72 (CD): *Kanahā? You guys call that Lahainaluna Valley also?*
- 73 (JK): That's right. That's where ... they ...[were] born and raised.
- 74 (CD): *Uh huh. Who was, um-- Uncle Moki mentioned Pili.*
- 75 (JK): Pili Kekai.
- 76 (CD): *Pili Kekai?*
- 77 (JK): Yeah, that was our great grandfather. He was the one, the last to raise taro in the  
78 mountains, in the valley.
- 79 (CD): *So he raised, he cultivated the taro all along-- where did he grow taro?*
- 80 (JK): From the water intake which is on top. That's our land, where the water first come out.  
81 ... we own that land.
- 82 (CD): *So, that would be the, like, the head of the valley?*
- 83 (JK): Yeah. Would be the head. ... I understand that he farmed the whole valley just him by  
84 himself.
- 85 (CD): *One person? Wow!*
- 86 (JK): My father, in his young days, he said they used to go help him. Strong man, very strong.  
87 ... my father in his prime had a hard time keeping up with him.
- 88 (CD): *Did you ever go up there and work?*
- 89 (JK): I raised taro from ... I think it was '69, I think-- from '69 up to '73, I think.
- 90 (CD): *That was your primary job, or?*
- 91 (JK): No, construction work. I was in the service, uh, I went into the service in 1956. I got out  
92 in '59 and I started construction. So, my whole life was construction.

93 (CD): *With what company?*

94 (JK): I worked for Dredging, (inaudible name of another company), you know cleaning up, and,  
95 uh, so many other companies.

96 (CD): *A lot.*

97 (JK): Just from one company to the next company, yeah.

98 (CD): *And you just retired from, was it Dredging, Hawaiian Dredging?*

99 (JK): Uh, I retired when I came back from Lāna'i. We did Mānele golf course. When I came  
100 back there was no job, but I had enough time. I didn't have the age, but I had the time. ... '96 I  
101 retired. ...

102 (CD): *But weren't you just working when I met you last summer?*

103 (JK): Yeah. I went back to work because Dredging called me. They needed an operator. So,  
104 they called me, "Hey, wanna come back to work?" That's why I went back to work. I was  
105 waiting, uh-- I could have gone back to work many times, but I was waiting to be 70 and a half.  
106 Cuz if I go back at 70 and a half, then I get all the benefits. I can increase my retirement and all  
107 that. So, when he called me, I was already 70 and a half ... So, in January 15 I went back. But,  
108 I quit in November that year, because my wife was (inaudible) sick, she had cancer. I stayed  
109 home, and I took care of her and ... passed away in March.

110 (CD): *What was her name?*

111 (JK): ... Ruth Saffery ... she passed away just ... 11 days ... our anniversary. We had been  
112 married 44 years ... But, we had a good life, you know. Kinda struggled a little at the beginning,  
113 but it ended up alright.

114 (CD): *How many kids--*

115 (AC): *How did you meet her?*

116 (JK): Uh, she dated me. I didn't date her, she dated me. One night I had this call, ...she asked  
117 me if I'd like to go out. A *lū'au*, there was a *lū'au*. I said, "Ok". And, uh, she was a '57 grad, I  
118 was a '56 graduate, ... but I did used to go in the bars where the boys drink and I guess she  
119 noticed me, and I was still single, I guess. She called me up. I said, "Ok". So, we dated. We  
120 went a few months and then ... I went my way, you know, I was with the boys all the time. But,  
121 I didn't know that she loved me. You know, I didn't know that. I found out later on when she  
122 called me, ... So, I went with her again. ... She wanted to stay with me. So, she called me up  
123 one day and I went back ... And then we lived together for about a year and a half ... I had my  
124 son already when we got married. ... I never wanted to be married, you now. I wanted to be  
125 single my whole life. And the reason for that is, I can go when I wanna go, yeah. I like the  
126 ocean, I like-- I just never had somebody to tell me "You cannot go". I didn't like that. But,  
127 after I had my son, I just settled [down]. I used to drink with the boys, you know, we used to go  
128 out drinking all the time. One night, I was drinking with them, and I realized that I had a son  
129 home ... and the mother. And, I was looking at all the boys dancing, all of them, you know,  
130 dancing. I was looking at them, and I just realized I have a boy at home with the mother. I took

131 a twenty dollars, put it on the table, I walked out. I never went back in the bar again. ... I had a  
132 responsibility, and I became a father. And, I realized, I liked it. And I had two more boys after.

133 (CD): *What are your boys' names?*

134 (JK): One's, um, the oldest one is Mike, and then Bruce and William.

135 (CD): *Are they on Maui?*

136 (JK): They're all on Maui, they in Wailuku. They all live in Wailuku. Two of them ...[at]  
137 Hawaiian Homes, and then, um, number two is at 'Īao Parkside. And, when my wife died, they  
138 wanted me to come stay with them. But, I had some unfinished business down here with the  
139 boatyard. So, that's why I'm down in the boatyard. We're gonna reclaim that boatyard, the  
140 whole boatyard. All Māla, it's all crown land. That's the places where the king comes to. He  
141 owns all crown land. And Wahikuli is crown land too.

142 (CD): *I wish I brought a map. I have a map that shows all the crown land.*

143 (JK): Crown land.

144 (CD): *But, I don't think I brought it-- but, yeah.*

145 (JK): On the deed that I carry, it shows all the crown lands on every island...all of them. And  
146 this is where the deed comes in. That's why I tell people, "You cannot claim something that you  
147 don't own". That's where the king comes in. That's why if you look at history, and look  
148 through history, the king owns all crown land. In fact, all the whole kingdom was crown, and  
149 they divided the lands up for the people, yeah...for the chiefs and the people. And even his, own  
150 personal property divided for the government to operate ... I told Laura, you know, "There might  
151 come a time when you guys might get stuck." ...

152 (CD): *Um, could you, could you tell us a little more about years that you tended lo'i up in*  
153 *Kanahā?*

154 (JK): Yeah, I think, uh, back in '68 I started to go up there, cuz my dad ... [was] leasing the taro  
155 patch.

156 (CD): *They were leasing it?*

157 (JK): Yeah. So when they were ready--

158 (CD): *From who?*

159 (JK): Uh, from the Pali, Pali Family. That's the one that owns the graveyard. You know the  
160 graveyard right above the highway, above the road?

161 (CD): *That-- that's that one?*

162 (JK): Yeah. That one. This family owns that land there. They used to anyway.

163 (CD): *Even when your great-grandfather took care of it?*

164 (JK): Yeah. Yeah. Yeah.

165 (CD): *The Palis owned it?*

166 (JK): Well, the Palis, they were farming then. When my great-grandfather was farming, they  
167 were farming there. And even when we, uh, even when we were born, when we were young kids  
168 during the-- during the war, Second World War, we used to go up ... my uncle['s]...[house] his  
169 job was to take care of the water intake.

170 (CD): *The water-- is that the pump?*

171 (JK): No. It's just natural flow coming down. But, there's a ditch here, and sometimes the  
172 rubbish gets in to block up. So, his job is to clean that every day. If it's nighttime you gotta  
173 walk up there nighttime, you know?

174 (CD): *And, that was what's feeding all the lo'i?*

175 (JK): Yeah. Well, no, no. That comes into the pipes and it feeds Lāhainā.

176 (CD): *Like drinking water?*

177 (JK): Drinking water. Drinking water.

178 (CD): *Oh.*

179 (JK): But, you had the river, yeah, flowing, yeah. Part of that goes into that pipe line. It, uh,  
180 feeds Lāhainā. So, his job was to take care of that. But, he had a home above. I think if you go  
181 up Lahainaluna, you see the tanks up there. This is where the home used to be. That, uh, that  
182 was for the person who takes care of the water intake. But, during the war, my uncle used to  
183 take care, and we used to go up there with him, live with him on the weekends like that, and we  
184 used to go down to that taro patch. The family, the Pali Family was still, uh, farming then. And,  
185 that's how we knew about the taro patch. We used to go to the taro patch, pick up *o'opu* like  
186 that, and the old folks would eat 'em. Basically, they-- in the '50s, early '50s they passed away  
187 and the children all moved away.

188 (CD): *So, is that about-- people kinda stopped tending it?*

189 (JK): Yeah, it stopped. And what happened was, there was a lease in that, you know. There  
190 used to be this old man, Leanui, they were leasing that property long time. And, after them came  
191 Sam Fujishiro. ... Fujishiro ...to my father, and from my father to me. My wife and I, we took  
192 over the lease.

193 (CD): *Oh.*

194 (JK): And we were farming, I tried to raise pigs too, and chickens, and you know-- farming up  
195 there, but, at the same time, I was working construction. My wife had, uh-- she wasn't working  
196 at the (inaudible). Up to the, I think '73 you know, (inaudible), '74 to '75 something, along then,  
197 but then we gave up.

198 (CD): *Did you have all your kids up there also sometimes?*

199 (JK): Yeah. Yeah, they know what a taro patch is because they went in there, they worked the  
200 patches, so they can talk about it, you know. Raising pigs, chickens, like that. They know.  
201 They know. They were young then.

202 (CD): *And you just used that trail? That's how you-- how did you get up there?*

203 (JK): No. There was a road. In Lahainaluna, this guy Hans Michael that lives right below us, he  
204 owns that area. He bought ...from plantation, but he made a road going all the way up there. So,  
205 we didn't need to use the trail anymore. We drove up to the taro patch.

206 (CD): *For a little-- when you were younger you used the trail?*

207 (JK): Uh, yeah. Yeah. In fact, when my father was up there, they were still using the trail. And  
208 this guy Hans Michael got married to my cousin. He loves the mountain life, I think ... he come  
209 from Switzerland. And that's why he loved the place, and then he, somehow he bought the  
210 place, below the Pali place. But, he used to help my father to go up, and he used to wheel  
211 barrow all the slop right there going up. I don't know how he got that place down there, but he  
212 made a road. It went right up to the taro patch, and my father could drive up, didn't have to go  
213 on the trail, yeah.

214 (CD): *Can you still get up there that way?*

215 (JK): Huh?

216 (CD): *Can you still get up there using the same road?*

217 (JK): Uh, you cannot, because he won't allow anybody up there now, because it's his road.

218 (CD): *Is it the same guy?*

219 (JK): Same guy, yeah. Him and his wife, the wife moved up there too, the both of them moved  
220 up there. The trail is hardly used. I went up there one time to look at the trail, but, I think it's  
221 hardly used. The trail's hardly used.

222 (CD): *Is that a different trail than the trail you would use to go up to the Haia?*

223 (JK): That would be the same trail.

224 (CD): *It's the same one?*

225 (JK): Yeah. Same trail. Yeah. That would be the same trail. Except it's on the *pali*, yeah. Up  
226 on the *pali*.

227 (CD): *Oh, on the ridge top?*

228 (JK): Yeah, on the ridge top. Yeah. But, uh, the graveyard, you come from Kahoma. And, uh,  
229 you get up to that pump and then you cross the river, and it'll take you to the graveyard.

230 (CD): *Oh. How far is it from the pump?*

231 (JK): Right across the pump.

232 (CD): *Right across?*

233 (JK): Yeah, just right across from the pump.

234 (CD): *And, so Louella owns this whole parcel?*

235 (JK): That whole parcel, yeah.

236 (CD): *Um, when, what would you, when you were a kid and you guys would go up there to clean*  
237 *that, um, what was that like? What time would you guys leave in the morning and-- ?*

238 (JK): Um, well, we never did go and clean the area. It was always like that. Nobody-- the only  
239 reason I, you know, passed by those graveyards was I had to go to Kanahā to uh-- we had a  
240 garden up there. And during the weekend, I'd go up and water the area. We, uh, we ...[raised]  
241 pumpkin. My father was a fisherman, so we need the pumpkin, ... we used to buy from the  
242 Filipinos who take care of the cane fields. They used to plant and go buy from them, but what  
243 happened in the '50s, back in the early '50s, they started to poison, plantations started to poison--  
244 (CD): *The little patches.*

245 (JK): ... instead of poisoning the grass, it killed off all our pumpkins. So, we'd grow our own,  
246 cuz that was the only land that he had, you know free water up there. So we grew our pumpkin  
247 up there. So, I had to go weekends, sometimes on the week day, I'd go up and water the area.

248 (CD): What did you use pumpkin for? Fishing?

249 (JK): Fishing, yeah. *Ōpelu, ōpelu* fishing.

250 (CD): *Um, bait?*

251 (JK): It's chum. ... And that's what we used, pumpkin. Pumpkin, sometimes sardine, and  
252 bread, like that, mixed together, yeah.

253 (CD): *Did you cook the pumpkin, or-- ?*

254 (JK): Yeah, you cook the pumpkin. And then you mash it up, and then you had maybe, uh,  
255 tomato sardine, yeah.

256 (CD): *Ōpelu like that?*

257 (JK): Or bread, a little bread, you know. That's what you feed the *ōpelu*.

258 (CD): *Oh.*

259 (JK): Steve used to (inaudible).

260 (CD): *Steve? Steve who?*

261 (JK): Uh, we call him Bear.

262 (CD): *Bear!*

263 (JK): Yeah, yeah.

264 (CD): *Oh yeah.*

265 (JK): He's doing that now.

266 (CD): *Is Steve his name?*

267 (JK): Everybody knows him as Bear. I only know him as Steve.

268 (CD): *Oh yeah, I know Bear.*

269 (JK): So, we used to grow pumpkins, and that's why I used to go up past through the graveyard.  
270 That's why that trail, I'm telling you that goes all the way to the pump, and I'd cross over to the  
271 bridge, and then I'd go to Kanahā Valley.

- 272 (CD): *So you guys never actually maintained. I thought Uncle Moki told me he would go up*  
273 *and main-- help maintain the graveyard.*
- 274 (JK): Uh?
- 275 (CD): *Just some of you or?*
- 276 (JK): Maybe just some of us, but I never did.
- 277 (CD): *You never did?*
- 278 (JK): Yeah. I passed through the graveyard all the time. The thing that I remember well, when I  
279 was a young boy, like maybe 15, 14, 15 years old, and I used to pass through the graveyard—I  
280 had a dog named Skippy, and he was part boxer, you know, a mixture. He used to go up with me  
281 all the time. When he gets to that boundary, he will not move. He will not step in the graveyard.  
282 I would have to carry him all the way to the end before I put him down. When I come back  
283 down, same thing, I gotta carry him. That time, I knew from way back then, it was spiritual, it  
284 was spiritual.
- 285 (CD): *Are they, are those, I've never been there, are they marked sites?*
- 286 (JK): No, they're not marked, no.
- 287 (CD): *They're not marked?*
- 288 (JK): There's one place where, uh-- well yeah there is. Yeah. A stone wall was built there.  
289 That's a grave. I think there was two like that.
- 290 (CD): *A stone wall, like, around the-- like a rectangular wall?*
- 291 (JK): Yeah, around. Yeah. That's to, uh, you know to level the, to level head...stone wall, to  
292 level that. But, most the graves stay in front. You know the point where they...where the  
293 valleys meet, where it comes like that? That point; they're all buried in there.
- 294 (CD): *Like in the walls? In the cave?*
- 295 (JK): In the cave.
- 296 (CD): *Wow!*
- 297 (JK): There used to be a cave there, back then. (inaudible) But, at a certain time, I don't know  
298 when, how far back that thing collapsed. Then they started to bury on top. In the old days they  
299 was buried all inside [the cave] (inaudible)
- 300 (AC): *About how big is that area?*
- 301 (JK): Uh, it'd be the whole front. You know the whole front?
- 302 (CD): *I mean we've never-- I don't think we've ever been right here, have we? Where's the*  
303 *pump house in relation to the split in the river-- or the stream?*
- 304 (JK): Ok. The pump house would be right across here.
- 305 (CD): *Well, the furthest we've been is right by the pump house.*

- 306 (JK): Ok. From the pump house, right across-- you get across that river, yeah, and, when you  
307 get to this land, that's the land. And, in front here, this is where they were buried.
- 308 (CD): *So this is--*
- 309 (JK): That's part of the--
- 310 (CD): *--cliff?*
- 311 (JK): Yeah. Part of the--
- 312 (CD): *Foot of the cliff?*
- 313 (JK): That's not a cliff. It comes out, uh, the point just comes down like this.
- 314 (CD): *And this? Is this just flat, level land?*
- 315 (JK): Yeah. Flat, level-- it just tapers of like that. Uh, at one point here, I think the grave down  
316 would be, uh, the one that they have on the flat here, would be some place around here.
- 317 (CD): *And those graves are in the ground?*
- 318 (JK): Yeah. But, the majority, I think, the graves, uh, the ones buried, I think is in here. (points  
319 to location of collapsed burial cave)
- 320 (AC): *Uh huh, that's where the--*
- 321 (JK): The fork, yeah, in the fork. Where they come and meet like that, that's where (inaudible)  
322 graves. And, if you go on top, on the flats, as you get down to the bottom here, its flat you know.  
323 Because, I think they used to raise taro on top here.
- 324 (CD): *On top?*
- 325 (JK): Yeah, on top. Where the point is, yeah. And on this side here, my father said there used  
326 to be a long house, and that's where my grandma and them were raised, in a long house. And, I  
327 think that's true because there's a place there that looks like where they used to cook, you know.  
328 They had a wall like that where they used to cook. I'm not sure what it is, but it looks like they  
329 cooked in there. But, the house is around on the side here of the river.
- 330 (CD): *So all the people that are buried here are all...do you know who they are? I mean--*
- 331 (JK): I'm, I'm not sure. I think that goes way back, you know, at least a couple hundred years  
332 ago.
- 333 (CD): *But your great-grandfather isn't there?*
- 334 (JK): No, he's not there. My great-grandfather is buried down here at the Catholic church. Uh,  
335 his father is buried out there, his mom is buried out there, and back, and back, and back.
- 336 (CD): *And from there back?*
- 337 (JK): Yeah, back, yeah. Well, I know my great-great-grandfather and grandmother is buried out  
338 there. But, I think it's on top here, not in here. (points to map) Cuz they were still living in the  
339 1900s, early 1900s, they were still living—my great-great-grandfather and great-great-  
340 grandmother. I think my great-great-grandmother died in 1913, I think.

- 341 (AC): *And that's on your father's side?*
- 342 (JK): That's my father's side, yeah.
- 343 (CD): *Um, all the taro fields you were talking about that you would lease from the Pali family,*  
344 *is it further up here?*
- 345 (JK): Yeah, yeah. You would have to go up here.
- 346 (CD): *Does anyone still tend them, or anybody-- who owns, does the Palis still own it?*
- 347 (JK): No.
- 348 (CD): *Who owns it now?*
- 349 (JK): Some Japanese ... she was a school teacher. She used to teach at Kalama School, I think.  
350 But, whatever happened that, she used to go with that guy Pali ... She must live with the son ...  
351 And, then I think somehow he ended up in the hospital, and they couldn't pay the bill, ... \$4,000.  
352 So, he asked her if she could lend help to him. "But I need something ... collateral." So, that  
353 means he, he signed the land over to her, cuz of \$4,000. And, he lost the land. ...
- 354 (CD): *So, did then he passed away?*
- 355 (JK): He passed away already, yeah. He passed away. But there was no stipulations stating that  
356 until he straightened them out--
- 357 (CD): *Came back?*
- 358 (JK): Yeah. Nothing like that. Cuz that land is-- is a waste land. I seen that land a couple years  
359 ago. But this guy Hans that lives below him, had his cattles running in there ... (inaudible).
- 360 (CD): *So he still lives up there? There's houses back up there?*
- 361 (JK): Yeah, well his, Hans' anyway.
- 362 (CD): *His, but not the Japanese lady?*
- 363 (JK): No. I had a house there, but she gave me a bad time, she gave our family a bad time. She  
364 got the land, she wanted to kick us off the land. She said, "I want you folks off the land, cuz I  
365 own this property." We said, "Oh no, we're not, we're not gonna give that up. ... We got  
366 everything, a house, everything up there." You know? She said, "Well, I'm taking you guys to  
367 court." Well, she took us to court and she lost. The judge said, "You cannot kick these people  
368 out...gotta go according to the lease, and they have the lease on this land." So, I was so happy  
369 when the judge said that. Cuz, I took the house down, I took the (inaudible) down, I had light  
370 and electric up there, and I took them all down. I took all the pipes that brought the water down.  
371 I took that out, all of that out, because that was all my pipes. Everything! I left her nothing.  
372 And she came up...
- 373 (CD): *And, that was when your lease ended?*
- 374 (JK): ... we took down the house. Everything. When she came, there was nothing on the land.  
375 She had no water, cuz I took all the pipes. If she'd played ball with us, I would have left  
376 everything. But, because she did that and took us to court, I took everything out. I told my  
377 brother, "We're taking everything" he said "ok". So, I took all the water lines, because it was a

378 ... 2 inch line up to there. That's where I tap, and that's what brought the water down. And, that  
379 runs into the taro patch. I took all that out. Cuz, I work construction, I can get all these things,  
380 and you know. I took everything out, and she got nothing, the land, (inaudible).

381 *(CD): And she didn't live there? Where did she live?*

382 (JK): I think she lived Upcountry some place. I think it was Makawao or something like that.  
383 But, there was one time that she stayed up there with the family, and, uh, never seen them again.  
384 She never went back again. So, the land, actually is wasted now. There's nothing. When I think  
385 back when I was a young boy growing up, you know, the land was so nice. We had trees, mango  
386 trees on it, had everything, bananas and all that. When you go up there now, it's nothing.  
387 There's nothing growing through. There's no water.

388 *(CD): Is it completely dry?*

389 (JK): Dry.

390 *(CD): And that, well, how come?*

391 (JK): Well, there's no water, yeah. I took up all the pipes. For them to put water back in there  
392 they gotta go connect those pipes again. And that's a big job and costly too. Just because she  
393 got smart with us, you know. How stupid of her! How stupid of her!

394 *(CD): Um--Let's see, do you know--Uncle Moki also mentioned some stones by Kahoma Point*  
395 *where your grandmother--I don't know if it's your grandmother or your great-grandmother--you*  
396 *know what that is?*

397  
398 (JK): I don't know if it's my--I think that's my great-grandfather if I'm not mistaken.

399 *(CD): Born on some stones--*

400 (JK): On this hill, as far as I understand. That when she was giving birth, she just kinda went  
401 crazy, you know, just kinda crazy, so, she just ran on the trail, and up this hill, and it goes down,  
402 and over there, there's a stone there. I think that's where my great-grandfather was born on the  
403 ground.

404 *(CD): Do you know where that stone is? Have you been to it?*

405 (JK): Um, I know that hill, you know, but I don't know about the stone though.

406 *(CD): What hill was it?*

407 (JK): In Kanahā Valley. There's a hill, a trail, the old trail, yeah. It's way up there, it's way  
408 outside, the trail. Coming down the trail, there's a hill, one hill, and I think, that's what I  
409 understand. I don't know about the stone though. On that hill, she was running up the hill, he  
410 was born on that hill, and, on top of that, a big fireball, above my grandma. A big fireball, and  
411 then, uh--

412 *(CD): What does that--mean?*

413 (JK): I don't know what it represents, but he was, uh--

414 *(CD): This is Pili's--Pili's mother?*

415 (JK): Pili, yeah, Pili's mother, yeah. That's where he was born up on the hill with a big fireball  
416 over. But, I thought (inaudible) had some kinda supernatural powers on him--strong, very  
417 strong. You know, not natural kine, but very strong. My father used to talk about him--strong,  
418 very strong. He had big hands, you know everything. I know my mom talked one time that, uh,  
419 you know, she grew up--when she moved here to our house there was something screwish I think  
420 with her, my mom used to go crazy sometimes, you know, and she'd go running all over the  
421 place. Well, one day she was running around the house screaming, and my, my great-  
422 grandfather was on the side of the house. When she came out, he grabbed her and she fainted.  
423 He just grabbed her and she fainted. He took her in the house, big scar, her whole arm all black  
424 and blue...her whole arm all black and blue, just from grabbing her. And she fainted. But my  
425 father said he was a strong man, very strong man. There used to be this guy, Rogers, back, uh,  
426 back in the '40s I think, '30s or '40s, used to be the principal from Lahainaluna School. I met  
427 him one time though, he was an old man. He was going to church on Sunday morning, he had a  
428 flat tire, but he never had any jack. So, it happened my grandfather was going to church too. He  
429 stopped in the back of him, said, "What's wrong?" He said, "Oh, flat tire." "Go get your tire,  
430 get everything ready." So, he brought his tire, and my grandfather just picked up his car and  
431 held it up like that while he was changing the tire.

432 (CD): *Wow!*

433 (JK): And, um, I met him, Mr. Rogers, back in 1961 when we did the Sheraton Hotel. And, I  
434 didn't know who this was, but this man, he was an inspector. So, he came up on the roof, and he  
435 was talking to us piling all the, what do you call, the ply boards, stacking the ply boards. So, he  
436 came, "Hey Boy. You from around here?". I said, "Yeah, right down the road, Māla." He said,  
437 "Hey, oh! Māla-boy, hey you!". So, I listened to him talk, little kine, broken English-like, you  
438 know. "This guy must be local *haole* or something". So, he said, "What's your name?" I said,  
439 "Keahi". He said, "Oh, I know all the Keahis". So I looked at him, I said, "who are you?" He  
440 said, "I'm Mr. Rogers". Oh! This guy was the principal of Lahainaluna School from the '20s!  
441 ... I'd heard about him, but I never knew he was still living. He was already 75 ... So, I  
442 mentioned my father and my grandfather and my great-grandfather. He knew my great-  
443 grandfather, Pili Kekai. When he was principal, he used to go in the valley to talk story with my  
444 great-grandfather. He said, "I knew your grandfather."

445 (CD): *Was he a big guy, Pili?*

446 (JK): Uh, Pili?

447 (CD): *Yeah.*

448 (JK): Yeah. He wasn't that big, but they were, Hawaiians in those days were lean people, so,  
449 strong, very strong. Today, Hawaiians, you see they're big and just fat. But, look at the old  
450 pictures, the Hawaiians all lean people. It's what they eat then, you know. So, he said, "I know  
451 Old Man Pili. I used to go up there and sit down, talk story with him, and all that." I was  
452 surprised I met him. And, this guy, I heard this Rogers—tough guy his younger years! He was  
453 young he was a tough guy! I don't know what, he played football in his time, eh. Tough guy!  
454 So, we were talking and I was so happy to meet him, you know.

455 (CD): *Did he recognize you, or--?*

- 456 (JK): No, no. He didn't recognize me.
- 457 (CD): *He just didn't know you til he had asked.*
- 458 (JK): Yeah. He just asked, and when I mentioned a name, then he started talking about Pili  
459 Kekai. Said, "Yeah, that's my great-grandfather". He said, "Oh, yeah, I know him". He used  
460 to--because he was the principal there, so he gets to talk to all the old-timers up there. He knew  
461 my grandfather and all that. Nice, nice man! But, I heard his young days, he rough! Soon as a  
462 student get out of hand, he'll grab 'em. He'd get some big Hawaiians but he'd take 'em out, you  
463 know. So, yeah, I was surprised, I was kinda happy too that I met him ... I heard so much stories  
464 about him, but I got to talk to him and he knew my great-grandfather and my father.
- 465 (CD): *Yeah, wow!*
- 466 (JK): He came here in the '20s, is when he came here to Lāhainā. And uh, (inaudible). I was  
467 happy to meet him. (Inaudible) my parents used to talk about him (inaudible). I met him, you  
468 know.
- 469 (Laughter)
- 470 (CD): *Do you, do you remember Josephine from that last summer? Do you know Josephine?*
- 471 (JK): I--only that time I've met her.
- 472 (CD): *That was the first time?*
- 473 (JK): Yeah. Because her auntie--
- 474 (CD): *--owns property up here too?*
- 475 (JK): Yeah. That's the graveyard and that taro patch by the graveyard.
- 476 (CD): *This one? (pointing to map)*
- 477 (JK): Yeah. You know where the Pali? The Pali? Well, she's a Pali, yeah?
- 478 (CD): *Yeah. Yeah, she's a Pali.*
- 479 (JK): A Pali.
- 480 (CD): *I thought she owned property--*
- 481 (JK): That's what I heard.
- 482 (CD): *--at Poholopu. One of these LCA's is to Poholopu.*
- 483 (JK): I guess it's a taro patch.
- 484 (CD): *Right here. (pointing to map) Is that it? Poholopu, this...she owns this portion above,*  
485 *just above the Haia property.*
- 486 (JK): In Kahoma, yeah. Yeah, that's in Kahoma.
- 487 (CD): *Uh, yeah.*
- 488 (JK): Oh, they have property up there.

- 489 (CD): *I thought it was--uh, wait I'm confused. Oh, here! Here's--no! She owns this one, this*  
490 *one. (pointing to map) There's, there's more than one, but she still has the title to this one.*
- 491 (JK): This is the graveyard? (pointing to map)
- 492 (CD): *No.*
- 493 (JK): No, wait. That's not it.
- 494 (CD): *No. She said that the graveyard you're talking about is this one. (pointing to map)*
- 495 (JK): Oh, this one here.
- 496 (CD): *Right above the road--or the proposed road.*
- 497 (JK): Okay.
- 498 (CD): *But, this is the property that she owns, or her mom owns, or she owns it with her mom or*  
499 *something, I can't remember--but, she was concerned because, well, number one: she's land-*  
500 *locked, and then she said her mom talks about, you know, Pali Family, you know, burials being*  
501 *somewhere around here too, but she's not really sure where. How did you--how did you--you've*  
502 *always known that--*
- 503 (JK): I've always known. As a young boy I've known that.
- 504 (CD): *--that--that's a cemetery?*
- 505 (JK): I've known since I was a young boy. Yeah. Cuz we used to walk all this area. We'd play  
506 all this area.
- 507 (CD): *What was it when you were a young boy?*
- 508 (JK): Um--well, I guess they never had burials for many, many years, I--you know, I think this  
509 goes way back, you know. Uh, I'm not sure if they had burials during our time, you know, but I  
510 don't think so. I think this goes way back, like ours [Haia].
- 511 (CD): *And this wall was there when you were a boy?*
- 512 (JK): Yeah, when I was a boy, that wall was there already. I used to though, you know, I  
513 thought at one time people used to live there. Then I found out, no, it was a graveyard.
- 514 (CD): *Do you remember who told you that?*
- 515 (JK): Uh, try to think, I don't know, one of the families I guess. But, I knew the guy, uh, Adam  
516 Pali, who's Josephine's grandpa, you know. I knew him, he used to be--uh, what do you call--an  
517 overseer for the county. I thought he still worked county. Short, short man.
- 518 (CD): *So he lived here on Maui?*
- 519 (JK): Yeah, at Puamana. You know where Puamana is. Uh, they used to own (inaudible) in  
520 Puamana. And then, uh, I guess when the wife died, his wife died first, I think he moved to  
521 Honolulu or Big Island or something. I'm not sure. Somebody took care of him, you know.  
522 And, I think that's when they sold the place. The Nagasako's bought the place, and then sold it  
523 to somebody else.
- 524 (CD): *Which place?*

- 525 (JK): Uh, that land that they owned in Puamana, that his family still owned in Puamana.
- 526 (CD): *Oh.*
- 527 (JK): That's why his father used to own that land--pretty big area. And, after the wife died, then  
528 I think he moved to the Honolulu or the Big Island, and somebody took care of him, yeah, until  
529 he passed away. Yeah, Adam Pali--but--
- 530 (CD): *Do you remember what was on this land when you were a boy?*
- 531 (JK): You know, it never had cane, you know. Used to be all that *koa*, *koa* trees, used to be all  
532 *koa* trees. This is where we played "Cowboys and Indians" yeah. Nobody wanted to be the  
533 Indians, everybody wanted to be the main boy. So we had to (inaudible). Who is the Indian  
534 now? But, all this area, we used to play all this area. Wahikuli...
- 535 (CD): *What was over here? (pointing to map)*
- 536 (JK): Same thing, all *koa*, all *koa*. There was nothing else but *koa* trees. Uh, some *kiawe* trees--
- 537 (CD): *Was there any cane? Where--? Was there any cane?*
- 538 (JK): Uh, there was no cane. No cane. No. It never had cane.
- 539 (CD): *Not yet?*
- 540 (JK): In 1950, I think, a territory to the plantation, I remember well. In 1950 territory to the  
541 plantation, I guess they were leasing the place or what? But they say, "You folks don't use the  
542 land, we're gonna take it back." That's when they started to clear all the land. That's why you  
543 see all the stone piles, yeah. It started in 1950. They started to clear the land to plant cane. But,  
544 before that, there was no cane. No more cane. Uh, an old Japanese friend, uh, I talked story with  
545 him, and he said it started in 1950. I thought it was before, but he said no, 1950, because, he  
546 used to work on the train ... In 1950, he transferred into the mill. He said that's when they  
547 started to clear. So, it started in 1950 when they started to clear the land.
- 548 (CD): *It was just overgrown kinda scrub?*
- 549 (JK): Yeah, it was only *kiawe* trees, and, uh, *koa* trees, like that. I know we used to play in that  
550 area, and I don't know if you met Warren.
- 551 (CD): *Nishi--*
- 552 (JK): Maybe Tanya did, I don't know.
- 553 (CD): *The guy from UH?*
- 554 (JK): No. He was one of the residents from Wahikuli, and I told Laura to get in touch with him.  
555 (Briefly interrupted by a phone call for Jonah)
- 556 (CD): *Warren? Oh, he lives in Wahikuli?*
- 557 (JK): Yeah, well, he was born and raised up there. You know where the crater is?  
558 (CD): *The crater, is that, um--?*

559 (JK): They call that Maruyama. We used to call it Maruyama. You know where the pump  
560 station is? The pump station, it's a crater, you just go to Lāhainā, you can see that.

561 (CD): *Oh yeah, okay. There's some water. Is there water in the top?*

562 (JK): Yeah, inside, water inside.

563 (CD): *Yeah.*

564 (JK): There used to be a village above that, and this is where Warren--

565 (CD): *Was it called Crater Village or something like that?*

566 (JK): Crater Village, yeah. Warren--uh--what's his name now? Oh shucks, Japanese guy. I  
567 haven't seen him for years, in like 20, 30 years, and then all of a sudden I seen him in Wailuku.  
568 He's about 75 now, I think. He was born and raised up there, so I told Laura to get in touch with  
569 him.

570 (CD): *Oh, well maybe we could try to track him down.*

571 (JK): Yeah, I met with him, I met him and we talked. I said, "Yeah, yeah. I know you're from  
572 up there, that area." And they used to walk to Lahainaluna School. In those days they never had  
573 cars or trucks, so some days he walked to school. All those people, those guys who lived up  
574 there, they walked to school. So, they would know all that area. So, I told Laura to give him a  
575 call. Cuz, I asked him, I said--

576 (CD): *Do you have his phone number or anything?*

577 (JK): Uh, no, I don't have his phone number.

578 (CD): *How could we track him down?*

579 (JK): You know who might have him? Tanya.

580 (CD): *Tanya?*

581 (JK): I was thinking, I think Laura. I thinking, I'm not sure, but I'm thinking.

582 (CD): *Well, is there anything else you wanted to share? I think we've covered quite a bit.*

583 (JK): That's the only thing I can think of... back in the 40s and early the 50s off that area. In  
584 fact, one of the main ones was that Pali graveyard. Uh, I knew about ours, ... as a young boy ...  
585 and then later on that we started to play up there, then I found out about this one. And, my  
586 parents told me that this was Pali, Adam Pali I thought was. And when I was living in Wailuku  
587 when my wife was (inaudible), the neighbor right below me was Josephine Pali. That was his  
588 daughter, Adam Pali's daughter. She's almost 90 now, ... I think.

589 (CD): *Is that Josephine's mom?*

590 (JK): Josephine's auntie.

591 (CD): *Auntie.*

592 (JK): Her mom's Myra, ...

593 (CD): *And they're still--they're still around.*

- 594 (JK): But, they live in Hilo ...
- 595 (CD): *Yeah. Both of 'em? Both of them are in Hilo now?*
- 596 (JK): No, no. Josephine I'm talking about, the auntie lives here ... in Maui. She's stayed. I  
597 think she's older, but--she's almost 90 years old. (Inaudible), no, no, no, Florence.
- 598 (CD): *That's right.*
- 599 (JK): Florence.
- 600 (CD): *That's right. It's kinda coming back to me now. Cuz, I, I remember learning about all*  
601 *these people last summer, before.*
- 602 (JK): I kinda wonder if, uh, you know, Josephine was named after the auntie.
- 603 (CD): *Yeah!*
- 604 (JK): Josephine. I was surprised, but this is the first time I met her.
- 605 (CD): *So you met her?*
- 606 (JK): Yeah. When she came up, yeah.
- 607 (CD): *Oh, Josephine, okay, the younger Josephine.*
- 608 (JK): Yeah, that Josephine, yeah. But, um, the other, the cousin that was her--I knew her.
- 609 (CD): *Yeah, Auntie Babes?*
- 610 (JK): Babes! Yeah.
- 611 (CD): *What's her real name?*
- 612 (JK): I only know her as Babes, cuz we used to work together at Walmart.
- 613 (CD): *Oh yeah?*
- 614 (JK): That's how I knew her, when I found out who she was.
- 615 (CD): *And she lives here?*
- 616 (JK): She lives here, yeah.
- 617 (CD): *Is that her mom, the Josephine...the other Josephine?*
- 618 (JK): No, no. Her mom is another sister that just passed away not too long ago...a younger  
619 sister of these two—Myra and Josephine.
- 620 (CD): *Oh, Babes.*
- 621 (JK): Babes.
- 622 (CD): *You know, I have her on my list, but I don't know her thoughts (inaudible).*
- 623 (JK): Uh, yeah.
- 624 (CD): *I'm sure Josephine can get us in touch with her.*

- 625 (JK): This last time I tried--you know, I told her, "Hey" about meeting her. But she said she  
626 wasn't interested.
- 627 (CD): *Babes?*
- 628 (JK): Yeah. I don't know, you know, I'm not sure, yeah. Maybe she don't wanna be involved  
629 with all these legalities and everything, you know.
- 630 (CD): *Yeah.*
- 631 (JK): But, uh--
- 632 (CD): *Well, not everybody does.*
- 633 (JK): And, uh, what do you call what's-her-name? Uh, Josephine, yeah, I think, but I think  
634 she's doing this kinda stuff on the Big Island too, yeah.
- 635 (CD): *With the Big Island issues?*
- 636 (JK): Yeah, yeah. That's what I heard.
- 637 (CD): *Oh, there's stuff like the highway, I think she's real involved with the highway.*
- 638 (JK): Highway, yeah. Highway, yeah.
- 639 (CD): *Yeah. I'm gonna turn this off.*
- 640 (Recorder was shut off momentarily.)
- 641 (CD): *You said your main concern was the graveyard.*
- 642 (JK): Uh huh.
- 643 (CD): *Um, what about it?*
- 644 (JK): Well, with this highway, I don't have to worry about that, yeah, so, (inaudible) way up,  
645 yeah. So, this highway won't interfere. I think that our concern, and most of the people, anyway  
646 that I talk to, it's the continuation of this all the way to Nāpili. That's the one everybody [don't  
647 want]
- 648 (CD): *Just bring--yeah, like you said before, bringing more people.*
- 649 (JK): More people. Those lands, like I said, they have no title to this land, so I don't know how  
650 they're gonna improve this thing.
- 651 (CD): *Could we see those deeds you have? Could we take a look at those deeds you have?*
- 652 (JK): You wanna see deeds?
- 653 (CD): *Yeah. Do you mind?*
- 654 (JK): I'll go get 'em. I should've brought 'em in the first place. I forgot all about it.
- 655 (CD): *Okay.*
- 656 (End of recorded interview)

**Mr. Susumu "Peanuts" Sodeyani****Cultural Surveys Hawai'i Inc.**

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**Authorization and Release Form**

Cultural Surveys Hawai'i (CSH) is grateful for the generosity of the Kūpuna and Kama'aina who have willingly shared their knowledge and experiences for the preparation of a cultural impact assessment for the proposed Lahaina Bypass Phase 1A Realignment.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our assessment. Here are the procedures we promise to follow:

1. You will have the opportunity to review the written transcription of our interview with you. At that time, you may make any additions, deletions, or corrections you wish.
2. You will be given a copy of the interview transcript you have approved for your records.

For our records and yours, we humbly request your confirmation that:

1. You were given the opportunity to review the transcript of the interview.
2. You consent to the use of the interview with any revisions specified by you for historic documentation and academic purposes.
3. You consent to the interview being made available to the public.

I, Susumu SODEYANI agree to the procedures outlined above and by my  
(Please print your name)

signature, given my consent and release for this interview to be used for historic documentation and academic purposes.

*Additional Comments and Clarifications:*

  
(Signature)

Sept. 15-108  
(Date)

File Name(s) Mr. Susumu Peanuts Sodetani 7\_10\_08.dvf

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Recording Date 10 July 2008

Transcription Date 19 August and 8 September 2008

Participants Colleen Dagan (CD); Anna Cordova (AC); Mr. Susumu Peanuts Sodetani (PS)

*Mr. Susumu "Peanuts" Sodetani was 92-years-old at the time of this interview. He is the son of Japanese immigrants to Hawai'i. Peanut was born in Wailuku, and moved to Lahaina with his family at the age of 4 in 1920. He spent most of his career working for The Pioneer Mill, Co. in Lahaina. Much of his time was spent at the pump house at the confluence of Kahoma and Kanahā Streams. Peanut is able to recall details of Lahaina and the study area beginning in the 1920s.*

5

6

7 Peanuts Sodetani (PS): 1920 when I started, uh, 1920 when they lived here.

8 *Colleen Dagan (CD): How about you start from your childhood? Okay maybe you could start*  
9 *by telling us when you were born.*

10 (PS): Okay, my childhood. I can remember back when I was four years old. Four years old  
11 back in Wailuku where the 'Īao Valley stream runs across the road that goes through Waiehu  
12 Golf Course that's below Wailuku. And they had a barber shop there.

13 (CD): *Is that Happy Valley?*

14 (PS): Yeah. It's below.

15 (CD): *Below Happy Valley?*

16 (PS): Yeah, before Happy Valley. Before.

17 (CD): *More to the ocean?*

18 (PS): No, it's a-- oh what do you call it, a stream, Wailuku, 'Īao Stream. I mean um-- and ah--

19 (CD): *That's where you lived?*

20 (PS): Yeah, we lived right above Happy Valley. When I was four, I know I used to run down  
21 to the-- they used to have-- the water ditch running across-- across the 'Īao stream, and that water  
22 Wailuku Sugar was using for irrigation. But when you are four years old you just want to sit on  
23 that ditch there and put all my feet in you know? Not realizing what happened before you. And I  
24 always used to get-- and my mom loved to go there but I used to go there. That was where we  
25 used to go. There was a Filipino man that used to bring down what we used to call Gori [trout].  
26 It's a--

27 (CD): *Ice cream.*

28 (PS): Fish. Fish.

29 (CD ): *Not the Guri Guri ice cream?(laughter)*

30 (PS): No, Gori. It's fish and ah-- I remember my mom used to cook that with shoyu, shoyu  
31 and sugar. And it was good eating fish.

32 (CD): *Where'd you get it from?*

33 (PS): Up in 'Īao Valley.

34 (CD): *Oh.*

35 (PS): Yeah. Yeah. That's back in-- that's back in about 19, just about 20. 1920. And when  
36 school started, the, ah-- the manager here, Pioneer Mill manager, his name was, I think it was  
37 Burns-- he worked as a finish carpenter to make furniture for the inaudible. He was-- he was  
38 someone that could do those things. The carpenter shop supervisor who was a close friend of my  
39 father told them right there, you know what man can do a job like that-- Mr. Burns to my father,  
40 so they hired him. He was working for—Kahului Railroad is the company. But then Pioneer Mill  
41 hired him, bring him over and they paid him at that time \$3.00 an hour. You know, normally  
42 he'd get paid about a dollar and 25 cents per day.

43 (CD): *When did you move to Lahaina? How old were you?*

44 (PS): In 1920, when I was four years old.

45 (CD): *And where did you move in Lahaina?*

46 (PS): You know Lahaina Hongwanji Mission. It's on Waine'e St. Okay and there's one road  
47 in between there that comes right across from Dickenson—Prison Street.

48 (CD): *Is it Luakini? Not Luakini?*

49 (PS): Yes. Yes.

50 (CD): *Luakini.*

51 (PS): Yeah, Luakini.

52 (CD): *Yeah.*

53 (PS): Alright. Prison Street and then it changed to Luakini going down. Formally that was  
54 called Chapel Street and it changed to Luakini. Alright. Just about midway there, they had homes  
55 built up.

56 (CD): *On Luakini.*

57 (PS): No, well I would think yeah that would be Luakini because that's connected up Waine'e  
58 and then you come through, then you pass Prison-- Prison Road, yeah. So between Prison Road  
59 and Waine'e , one area of homes was built and one of the homes was where my parents lived.  
60 We lived there until-- lived there until-- from 1920 to, let's see-- 1922? 21. 21. Yeah, and then  
61 uh-- you see my father was a finish carpenter, and I guess the Mrs. Burns wanted certain kind of  
62 finish and she tells him how he does all the work, and he was a skilled, really I mean, I have a  
63 desk he built when I was age ten. So-- ah a friend of mine, Edwin Chan Mau he passed away.  
64 Same kind of desk, and ah--

65 (CD): *Do you still have it?*

66 (PS): Yeah, I still have it, and ah--

67 (CD): *So Mrs. Burns wanted some furniture? Mrs. Burns wanted furniture?*

68 (PS): Yeah, more dressers, bureaus--

69 (CD): *That was-- was that his primary job?*

70 (PS): Yeah, so he worked in the shop. Pioneer Mill carpenter shop. And then he moved all the  
71 furniture into the (inaudible). Yeah he used to make a lot of caskets too (inaudible), the big ones,

72 yeah. His father, my grandfather, was, you know, steel carpenter, he had, they were living in the  
73 mountain where he had a big home, two story home. I visited there back in 1985.

74 (CD): *Where? What mountain?*

75 (PS): Up in Japan. They called it Yokuni, in Hiroshima. They had a two story home there  
76 which, they had these young ones coming up in this one part of Japan to learn the trade, so they  
77 stayed there. Depend on how skillful that student get with his hands, some might take one year  
78 and some may take two years but then when they leave they always get one steel square, one  
79 *kan-na* , that's a Japanese [wood] plane, Japanese plane and skill square and a carpenters saw.  
80 And they leave-- now you already graduated from school, you are make your own living.  
81 Interesting, you know this men really skillful because my father, my father came to Hawai'i in  
82 1904. No, he was-- yeah, he came 1904. Because of the Russian-Japanese War at that time. And  
83 he stayed here at this occurrence, he did. He ah-- he came early on (inaudible).

84 (CD): *So he came with your family?*

85 (PS): Yeah remind me you guys, you want some mangoes I get some in my, in the fridge  
86 down there too--

87 (AC): *Thank you.*

88 (CD): *So that was your father? Or your grandfather?*

89 (PS): My father. 1904, he came here.

90 (CD): *With his family, with his parents? Or--*

91 (PS): No, he came by himself. See, he was born June 11, 1888. So he 16 years old-- and then--  
92 -

93 (CD): *So his parents sent him? Like that?*

94 (PS): Yeah. And, he worked at Kahului Road hired him as a carpenter, and the original Kula  
95 San [Kula Sanatorium] --the interior work, the finish work. He was assigned to all that. He did,  
96 he did-- yeah, he did all the work.

97 (CD): *Is it still his work in Kula San?*

98 (PS): Yeah-- But no, the original Kula San, they already ripped 'em down. The one that they  
99 have now is new and then they built up, I think, I think it was in the early 30s-- Yeah, but the  
100 original Kula San, the interior work, the finish work, it was the one that before they--

101 (CD): *So you lived on Waine'e St?*

102 (PS): Yeah, yeah.

103 (CD): *Where did you live after that?*

104 (PS): We lived on Waine'e Street too but then during the work days, they had to stay We'd  
105 stay after school and work five days a week and the weekends we would come back, come home,  
106 after our shift.

107 (CD): *How did you get-- What was your transportation?*

108 (PS): I guess car and truck-- We had-- at that time we had this (inaudible) and do all that  
 109 work. I mean amazing even to me I can see-- The 1904 Russian-Japanese war, the only reason  
 110 they were sent over was because the parents they didn't want to have them get into the Japan  
 111 army, so they sent them over, in 1904. In 1916 the (inaudible) my family brought the sons wife  
 112 or whatever, and then they got my mother, and they sent him, sent her over in 1915 and they got  
 113 married in Honolulu, and I was born January 16, 1916.

114 (CD): *So you're the oldest.*

115 (PS): Yeah. But, ah-- my birth certificate says January 25, and that's because my father went  
 116 to register at that date. They were having people falsifying records-- so, they registered me the  
 117 day that the person could come and register. And that's how my date January 25, 1916 and it  
 118 didn't matter to me, but, for the record-- yeah.

119 (AC): *How many siblings do you have?*

120 (PS): What?

121 (AC): *How many brothers and sisters do you have?*

122 (PS): Two brothers and two sisters. Amazing, you know. Five siblings. I'm the eldest, 92. My  
 123 second, my sister, she make 90 July 4<sup>th</sup>. And then my brother, the one in LA, he make 86, made  
 124 86 on May the 5<sup>th</sup>. And then his younger brother was born March 25, 1924. And then my sister  
 125 was the youngest. She make 81 in January. In January she make 81. So, 81 to 92. I'm-- I'm still  
 126 living.

127 (AC): *--healthy--*

128 (PS): It seems that many of the families that I know, you know, somebody is now gone. How  
 129 the hell did this family get five of us still living now? Although, my sister's mind, the one in  
 130 Honolulu, the one that made 90, she, she-- I would say-- she get Alzheimer's and can't seem to  
 131 recall anything in the past. My brother in L.A. used to be bright, and I thought he would be the  
 132 one that'd last the longest. These past few years I call him now and then on the phone. See I  
 133 remember conversations. I can-- I can see he's a little downhill, the one in (inaudible) my  
 134 brother, the younger one. He's completely blind, and he has diabetes. Diabetes runs in the  
 135 family—I am diabetic too. It's hereditary...

136 (CD): *So all you guys lived together at-- around Luakini Street? But that wasn't the camp*  
 137 *yet?*

138 (PS): Yeah, that wasn't. Yeah, we lived, uh-- From that camp in between Waine'e and Prison  
 139 Rd. The road-- Front Street, Front Street. Where the mango stand is--

140 (CD): *The mango stand?*

141 (PS): Yeah the mango stand on Front St.

142 (CD): *Is that by the banyan tree?*

143 (PS): No, not-- way before the banyan tree-- it's ah-- where the hotel is.

144 (CD): *The Pioneer Inn?*

145 (PS): No, way before that.

- 146 (CD): *The Hotel?*
- 147 (PS): Where Farden [Charles] home was, you know where Farden homes was? We going  
148 back through history.
- 149 (CD): *Was it a missionary home?*
- 150 (PS): No, he was a, a supervisor for Pioneer Mill company. Farden, he was ah-- he was  
151 German.
- 152 (CD): *Farden?*
- 153 (PS): *Farden, yeah, one of the-- daughters was Emma Sharp, German*
- 154 (CD): *Irmgard Aluli? That family?*
- 155 (PS): That family home, one family lot, and the next family lot, that's where the hotel was  
156 built. And it was there. Front Street? Not Front Street...
- 157 (CD): *Was it on Front St.?*
- 158 (PS): Yeah on Front St.
- 159 (CD): *I don't know, there was a hotel?*
- 160 (PS): Yeah
- 161 (CD): *There's still a hotel?*
- 162 (PS): Hotel, yeah. There's where-- before that hotel was built, over there was swamp land.  
163 Swamp land, and two Hawaiian families. One was Mrs. Shaw, and the other one was Mr.  
164 Ho'opi'i, he had one daughter Rebecca, which I used to play with her. And ah-- I mean, they all  
165 was born and raised but ah--
- 166 (CD): *Did you guys ever go up into the, I guess in the mountains—Remember where we drove*  
167 *to?*
- 168 (PS): Yeah.
- 169 (CD): *When you were a kid, did you ever go up there and play?*
- 170 (PS): Yeah.
- 171 (CD): *What do you remember about that area, when you were playing up there?*
- 172 (PS): That year-- let's see--
- 173 (CD): *You probably were a little older--*
- 174 (PS): Yeah. I--
- 175 (CD): *Like, I think the Palis' had-- Cause you know the Palis'?*
- 176 (PS): Yeah.
- 177 (CD): *Were they up there?*
- 178 (PS): Yeah, you know, when I started work there, it was mid-30s. Mid-30s. Cause when I left  
179 there it was-- when I left there for Honolulu maybe it was 1940. So up to 1940, mid-30s I

180 worked there. At the beginning there's a black (inaudible) pond, and ah...they were still digging,  
181 digging these tunnels down there.

182 (CD): *For the pump house?*

183 (PS): Yeah, you see-- like I told you, that shaft coming down is 325 feet. You come straight  
184 down, and then 325 feet ladder, you had you had two large rooms, one side there's a pump, the  
185 other side is a pump, in the center, we have a tunnel dug...going out to the stream, and when we  
186 hit that stream—I'm talking underground now—one tunnel goes under Lahainaluna-- workshop,  
187 machine shop, carpenter shop--

188 (CD): *A tunnel?*

189 (PS): Yeah--

190 (CD): *Goes all the way under the river?*

191 (PS): Yeah--

192 (CD): *To Lahainaluna?*

193 (PS): Yeah, and then, another tunnel going down to Kelaweia Village, down to Kelaweia  
194 Village. And in that tunnel, you have water, continues for up to about chest high. And, I went  
195 down there and see and that's, that's the water that was pumped, pumped-- During the day that  
196 water is used to irrigate the canefields. During the evening, it's pumped up there, by booster  
197 pump—which it passed there but I just don't even remember—it used to pump the water into the,  
198 I think that reservoir there.

199 (CD): *The Crater Reservoir?*

200 (PS): Yeah, for irrigation.

201 (CD): *Do you remember what the landscape was like up there? Or, if Hawaiians-- Hawaiians*  
202 *were up there doing other things?*

203 (PS): The only one I know is-- the one that is across the stream. That was a family grave.  
204 They had about ten or twelve-- it was all mounds, and you know--

205 (CD): *Did you know the family?*

206 (PS): No, I don't--

207 (CD): *Did you know any of them?*

208 (PS): That was before my time. And then-- there's only one family or two families who went--  
209 - I used to walk from home, coming up that hill and going through the cane field on my left side,  
210 they had a grave there. And-- ah, there've been many times where I passed there maybe, oh,  
211 12:30 AM, 12 AM in the morning, but, ah-- there's nothing that, you know, I saw and, you  
212 know-- like I explained to you folks that day up there when-- one incident I had seem like--  
213 When the pump tenders go down to the pump, we'd talk story. It would be maybe about 12, 1  
214 AM. Yeah-- they'd give a signal and they'd go down with a load, eh. Drop it down, and then it'd  
215 stop, they go out, and then I'd steam up my engine up to about 160 pounds of steam. At any  
216 time, for three hours, until we get enough steam emergency, pull em up, and this one time I laid  
217 down on the plank and I was sleeping, and then somebody came and pushed on my chest. I had a

218 hard time breathing, you know. I'm trying to get up, could not get up-- perspiring. Finally--  
219 finally I used the F-word and I came right up. And I sat down. I breathing hard. You know, so  
220 you, you talk about, people talk about ghosts and all that. They say there's no such thing. There  
221 is such a thing, because, I cannot forget, it's-- it wasn't somebody who was there, but then-- I  
222 don't know what the F-word means to them, but then--

223 (CD): *It listened?*

224 (PS): Yeah.

225 (CD): *Did you ever tell your wife about that?*

226 (PS): Yeah, I talked to my wife, yeah!

227 (CD): *What'd she say?*

228 (PS): She said, I must have done something wrong. I said, I don't know, I don't think I did  
229 anything wrong, I mean, on graves or whatever-- I respect the graves. Nothing like urinated on a  
230 grave or anything like that. I must have done something wrong. "That's why the spirit did that to  
231 you." No solution either.

232 (CD): *Did your wife know whose graves those were?*

233 (PS): Did she what?

234 (CD): *Did she know whose graves those were?*

235 (PS): No, no she didn't know. And those old Hawaiian graves.

236 (CD): *You never-- did you ever see anybody up there, tending the graves?*

237 (PS): No-- when we went up there, I mean, these people were all gone already.

238 (CD): *Did you ever know a man named Pili Kekai?*

239 (PS): Familiar, those names, Pili Kekai. Yeah.

240 (CD): *Sounds familiar? Did you ever-- do you know any of the Keahis?*

241 (PS): *Yeah, Keahi, was, you know, descendant of Kahekili*

242 (CD): *Yeah. Were you friends with any of them?*

243 (PS): Yeah, Mamo-- Mamo and [Harold]Kapipi and-- they all good boys.

244 (CD): *Did you ever play with them? You would have been older than them.*

245 (PS): Yeah, high school-- golf with Mamo,

246 (CD): *You played golf?*

247 (PS): Yeah.

248 (CD): *Do you remember-- did your wife ever-- ever do anything in the mountains for, I don't*  
249 *know, planting plants or anything like that? Did she ever make leis?*

250 (PS): Yeah, she make lei. She was handy with the hands.

251 (CD): *Where did she get her flowers?*

252 (PS): I don't know. She-- (inaudible), she was young. She went to music, to sing, you know. I  
 253 love singing, I cannot sing. I don't have the voice. She has a talent to sing. To me, or anyone  
 254 else, a professional level, but she doesn't know it. I know how far she can go, but she say, no,  
 255 she didn't care. I mean that's one reason I told you folks Maui Police Glee club they get ah-- one  
 256 orchestra down at Kā'anapali Beach and they ask for a lady singer to sing *Ke Kali Nei Au*, the  
 257 Hawaiian wedding song, and they wanted a lady to sing that part. And I raised my hand up and I  
 258 said, "No, not you" to the Hawaiian lady, I say, "Here" and point to my wife. And then she went  
 259 up and she sang. And when she came in her part, the crowd was rowdy, but boy, came silent.  
 260 Terrific how, you know, singing can shut up people. Really, yeah.

261 (CD): *Did she sing often?*

262 (PS): No-- she doesn't care, you know. I don't know why. I have a uke. I tried to learn. Music  
 263 is something if you don't have it in you, somehow, you let the thing get you need as a musician.  
 264 Maybe I don't try hard enough, but, even tuning up a *ukulele*, four strings, some of the times I  
 265 can't. She listen and-- (inaudible). So simple for her, for me I am struggling. Yeah, it's a-- that's  
 266 why that's why these-- one of the girls Moikea, we attended, school today, and she told me,  
 267 "You know Peanuts, your wife can play any instrument. She plays the piano, she plays the bass,  
 268 she plays the guitar, the uke, and we didn't have a bass player so she played the bass." She can  
 269 play the piano, but *she* play the piano so she wanted my wife to play the bass. Whatever  
 270 instrument they want her to play, she play. Like that kine-- I guess for the person who has that  
 271 talent, they don't realize how fortunate they are, you know. To me I think, boy she get a gold  
 272 mine in there, she can utilize. But she--

273 (CD): *So can any of your kids sing? Can Coach sing? Can Coach sing? Eric?*

274 (PS): Coach sing?

275 (CD): *Can your son Eric sing?*

276 (PS): What about Eric?

277 (CD): *Can he sing?*

278 (PS): He cannot sing. He cannot sing. My other son cannot sing. My daughter cannot sing.  
 279 Maybe-- Marge comes closest but still-- no comparison. No. Nothing. That's why I want-- Talent  
 280 like that-- one of the kids should be gifted but-- no-- I guess it's a gift. It's a gift from Somebody  
 281 up there. Really, for the person that has it-- nothing can-- I don't understand it. You, you got a  
 282 gold mine, you ought to pursue your career. She doesn't hear me-- no.

283 (CD): *She's full Hawaiian right?*

284 (PS): Yeah, she's-- You look at her, she's more fair, eh?

285 (CD): *Yeah.*

286 (PS): Yeah, she's--

287 (AC): *Is-- is that her with the leis? (pointing to a picture)*

288 (PS): Yeah. My father-in-law was Ilalaole [Benjerman Lincon Kaumehewa] and Kaumehewa  
 289 didn't have any children, and so-- Kaauaewa adopted Ilaloa, my father-in-law, and I used to tell  
 290 him at that time, I said, "Hey, pop you know, Hawaiians don't have red hair. You have red hair,

291 your complexion is fair. Hawaiians, they are more dark." I said "Look at Mama. You not like the  
292 typical Hawaiians. They're dark like chocolate." But, she was a real humble lady, too--

293 (CD): *So he was-- he was-- Hawaiian?*

294 (PS): Yeah, he claim he's Hawaiian, but I think, ah, days that the Norwegians, or whatever,  
295 the relatives to come in, but if they made babies with the Hawaiian ladies, and then maybe he  
296 was one of-- those born along the line of kings.

297 (CD): *We brought these maps. I know we were out there. Remember where we were, when we*  
298 *drove around?*

299 (PS): Yeah.

300 (CD): *We were looking at-- we were looking at these rock walls around here. Remember*  
301 *those?*

302 (PS): Yeah.

303 (CD): *And you were telling us-- what were they planting around here?*

304 (PS): This was all cane fields.

305 (CD): *And, these-- within these walls, they were-- were they planting cane in there too?*

306 (PS): Yeah, that was cane too but--

307 (CD): *How did they harvest it out of there?*

308 (PS): Well, I guess that wall is more like a sacred thing.

309 (CD): *Secret thing?*

310 (PS): Sacred.

311 (CD): *Sacred.*

312 (PS): Yeah, so the plantation owners were told not to break down. There was different areas  
313 in the fields requiring (inaudible) ways, more like a stone wall, but this wall, not rigidly built,  
314 but, meaning something. I don't know-- that you run into some spiritual things, you know. It's  
315 ah-- Hawaiians believed in-- in something and they built something I guess, and they leave their  
316 (inaudible) broken down and destroyed. So, different areas of the field you find short pieces of  
317 built like that, they weren't torn down. They're under the condition of not to break them down.  
318 So, those ones get history, the other ones like John Moir tell the chiefs--

319 (CD): *Big huge rocks.*

320 (PS): Yeah, those, those were John Moyer's idea where you'd get the tractor and get all the  
321 rock-- rock piles. They'd pile 'em up all in one place to clear the land so they can go get the  
322 sugar growing. So that's how we'd find out different areas for stone pile and that's how we  
323 found out if it wasn't from Hawaiians. That was John Moyer plan, that was back in, that was '46,  
324 after the sugar strike.

325 (CD): *How did they harvest the cane around here, around the rock walls?*

326 (PS): *You have tractors that can move over, drive 'em all around--*

- 327 (AC): *But when did they-- when did they start growing sugar cane?*
- 328 (PS): When did they what?
- 329 (AC): *They start growing sugar cane?*
- 330 (PS): Ah, I don't know about that, you're going back through history now.
- 331 (CD): *The beginning of the Pioneer Mill, the Amfac?*
- 332 (PS): Yeah, well Amfac was the boss lady for Pioneer Mill. In fact the Amfac-- they had  
 333 about two or three companies under their-- their line. In fact, Sigura was Wailuku Sugar, and  
 334 then HC&S-- what's that company-- Pā'ia had the old too, Pā'ia had, which was Maui  
 335 Agriculture, came together with HC&S, Pā'ia came together with HC&S, and Līhu'e, Kaua'i  
 336 and, in fact-- and one more-- one more company on the Big Island—Hilo Sugar I think. Yeah,  
 337 they're all gone. In Hawai'i there were only 22 or 26 sugar companies-- And right now you  
 338 know, there's only one-- one sugar company. It's on, it's (inaudible).
- 339 (CD): *The last one--*
- 340 (PS): Yeah, the last one--
- 341 (CD): *Who were your friends when you were a kid? Who were some of your friends when you*  
 342 *were a kid living down on Front Street?*
- 343 (PS): Oh yeah, Front Street, that's-- The Lindsey boys. Lindsey, Kalepa-- Archie Kalepa and  
 344 the brother, Dallas. Lindsey was Tom, James, "tweet-tweet", "tweet-tweet" that was his  
 345 nickname.
- 346 (CD): *What did you guys do?*
- 347 (PS): *We used to play Cowboy-Indian, like I said, in that swamp land there--*
- 348 (CD): *That's Moku'ula. Did you guys call it Moku'ula? The swamp land, was it Moku'ula?*
- 349 (PS): No, no--
- 350 (CD): *What did you call it?*
- 351 (PS): We call it-- 'aka'akai-- 'aka'akai.
- 352 (CD): *'Aka'akai?*
- 353 (PS): Yeah-- 'aka'akai.
- 354 (CD): *Is that the place that got filled in, and now it's a baseball field?*
- 355 (PS): Yeah.
- 356 (CD): *Right there?*
- 357 (PS): Yeah, that was a ball field, but this one was right across from the mango stand.
- 358 (CD): *Oh--*
- 359 (PS): Yeah, it was all 'aka'akai.
- 360 (CD): *(Inaudible)*

361 (PS): Yeah. That's where I got my name Peanut. See I was the smallest guy. These Hawaiians  
362 are all big. Yeah--

363 (CD): *Did you guys spend a lot of time at the beach?*

364 (PS): What?

365 (CD): *Did you spend any time at the beach?*

366 (PS): Yeah, even down on from there, I learned how to swim. I tell my brothers, sisters-- I  
367 learn how to swim by myself, you know. You go into the ocean, okay, but it's not deep. Knees  
368 up to chest high. Then the first thing you learn, you talk about the dog swim, where you go and  
369 you keep-- you keep moving. As long as you keep moving you won't be going down. And then,  
370 you get tired and you know-- you know gradually, you start to put your arm up and go and be  
371 propeller. Yeah, nobody taught us how to do this. We all learned by ourselves. These people  
372 nowadays, kids, they get tutus teaching you how to swim, how to learn, how to move. Yeah, we  
373 never used to get that.

374 (AC): *How many-- how many kids do you have?*

375 (PS): How many what?

376 (AC): *Children.*

377 (PS): Two girls-- two girls and two boys. I-- (portion omitted for privacy as requested by Mr.  
378 Sodetani)-- I have one baby-- eh, you talk about siblings, I have one baby brother. He was-- was  
379 born and died, ah-- and that was back in 1920-- '21 or '22? '22-- '23 because '22 (name of  
380 sibling)'23 that baby, and '24, that was my other brother--

381 (CD): *He didn't, didn't make it?*

382 (PS): Yeah, he--

383 (CD): *Oh--*

384 (PS): Where are you folks original?

385 (CD): *Well, I'm from O'ahu, Kailua. And then um-- I moved here about nine years ago. I*  
386 *think '99-- I moved to Maui in '99. My dad's from here. My dad is Marlan Medeiros. Do you*  
387 *know any of the Medeiros'? No?*

388 (PS): What's your dad's name?

389 (CD): *Marlan. They all went to Lahainaluna.*

390 (PS): Did they play any sports?

391 (CD): *I don't know-- I don't know. But ah-- I live out in Nāpili now with my family.*

392 (AC): *I'm from-- I'm from Colorado.*

- 393 (PS): Colorado?
- 394 (AC): *Uh-huh.*
- 395 (PS): Big country.
- 396 (AC): *Big mountains.*
- 397 (PS): How-- how long you been here?
- 398 (AC): *Ah-- almost a year.*
- 399 (PS): Yeah-- studying people's life-- ah, like that a good thing, eh?
- 400 (CD): *Yeah, yeah, I mean--*
- 401 (AC): *Heard about the (inaudible)*
- 402 (PS): And ah--
- 403 (CD): *Yeah, well I guess for this study, they, they wanna, um, just try to see if-- if putting in*  
 404 *this highway is gonna have any impact on-- because what they-- they wanna skirt the highway*  
 405 *now in fact because these ,um, those-- those small enclosures we saw?*
- 406 (PS): Yeah.
- 407 (CD): *They wanna go around them now. So they're skirting the road around them and we're*  
 408 *just trying to study if this is going to have any impact on traditional practices in the area.*
- 409 (PS): Where is Lahainaluna Road? (looking at map)
- 410 (CD): *Ah, Lahainaluna Road?*
- 411 (PS): Yeah.
- 412 (CD): *Ah, right here. And you know Ikena Avenue? Ikena.*
- 413 (PS): Yeah-- yeah.
- 414 (CD): *This is Ikena. Remember when they took all those homes along Ikena, for the highway?*
- 415 (PS): Uh-huh.
- 416 (CD): *That's the pump house right here. And then it was gonna go straight like that, but then*  
 417 *we, we found these sites here, and now they're looking at moving the road down.*
- 418 (PS): They gotta go—right, right.
- 419 (CD): *Yeah. (Inaudible) So the pump house is like right over here, right? Here's ah, Kahoma*  
 420 *Stream, and this is where Kanahā Stream, and then I think the pump house is like right over*  
 421 *here? That's where you were, right?*
- 422 (PS): Cause you know a friend of mine, he was a colonel in the Air Force. He drove the F-17  
 423 through Vietnam during the war. He built a home up in Makawao, and he was telling me they  
 424 having water problems, and I said, Makawao should have enough water coming through there,

425 but he said no, they get the underground, underground...dug up. One, from the surface, one  
426 thousand feet.

427 *(CD): Underground?*

428 (PS): Yeah. One-thousand feet, that's about a foot in diameter, and a two inch pipe in the  
429 center, and you have water all the way down. See how get at some certain level, and you have  
430 (inaudible) water, and so that water supplies 39 families that live around that area. And ah...I  
431 went up there one day, and boy-- he got a home-- mansion! One, two, three, four bedroom, and  
432 ah-- "What the hell you want all this for?" He told me, "Peanuts, it's not me, the wife want it."  
433 Oh-- (Inaudible) You take a shower another one in the lake or whatever a lot of waste! The  
434 parlor alone you can hold a ballroom dancing, so big you know. It's huge. But, I said, they're  
435 having a problem right now with the distribution of that water, without getting stuck, you know.

436 *(CD): Is it their private well?*

437 (PS): Yeah.

438 *(CD): Wow-- yeah there are lots of people trying to dig their own wells nowadays.*

439 (PS): Yeah.

440 *(CD): I'm going to turn this off.*

### Ms. Mabel "Momi" (Kailihou) Jaentsch

#### Cultural Surveys Hawai'i Inc.

Archaeological and Cultural Impact Studies  
Hallett H. Hammatt, Ph.D., President



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#### Authorization and Release Form

Cultural Surveys Hawai'i (CSH) is grateful for the generosity of the Kūpuna and Kama'aina who have willingly shared their knowledge and experiences for the preparation of a cultural impact assessment for the proposed Lahaina Bypass Phase 1A Realignment.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our assessment. Here are the procedures we promise to follow:

1. You will have the opportunity to review the written transcription of our interview with you. At that time, you may make any additions, deletions, or corrections you wish.
2. You will be given a copy of the interview transcript you have approved for your records.

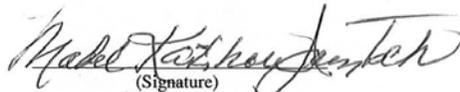
For our records and yours, we humbly request your confirmation that:

1. You were given the opportunity to review the transcript of the interview.
2. You consent to the use of the interview with any revisions specified by you for historic documentation and academic purposes.
3. You consent to the interview being made available to the public.

I, Mabel Kailihou Jaentsch, agree to the procedures outlined above and by my  
(Please print your name)

signature, given my consent and release for this interview to be used for historic documentation and academic purposes.

*Additional Comments and Clarifications:*

  
(Signature)  
9/20/08  
(Date)

September 20, 2008

Olaka Colleen

I sincerely apologise for a last minute correction as, I read the third paragraph it was unclear to me. I decided to write <sup>it</sup> out on paper the route my dad takes us to the Kokoma Valley perhaps it would be a lot easier to understand.

We lived on puunoa road our home was on the beachfront in Lāhainā. We would travel from our home crossing the old Hoopi'i Lani Hwy, then cross over the train tracks on to the dirt road going up 2 1/2 miles up, then turn left on to another dirt road. 25' till we approach Kokoma Stream (landmark), water from the stream flowing onto the dirt road into the cone fields. This is the route we traveled to get to our home in Kokoma Valley.

Kokoma Stream is the Land Mark  
Burial Site is approximately 50ft -

1

- from the bottom of the stream. However,  
 alongside of the stream is very noticeable  
 a bank such that one must cross over the  
 stream to get to the granite site. There  
 were piled up rocks to indicate burial graves,  
 my father, Iom Kaluapana Kailikou, and  
 his Kūpuna's was buried there.

Trails: My father followed the trail on the left side  
 of the stream into the valley.

Mahalo  
 Mabel Keala Kailikou Foster

Any questions  
 please call me.

1 **August 1, 2008 12:30 – Kailihou ‘Ohana from the Big Island Arrived – Phillip Jaentsch,**  
2 **Donnalyn Johns, Mabel Keala – Kailihou, and Wayne Kalani.**  
3 **(At the request of Aunty Momi Jaentsch, handwritten notes were taken for her interview)**  
4

5 Mabel “Momi” Keala (Kailihou) Jaentsch (Aunty Momi) - Her grandparents had a house at the  
6 beach at Pu‘unoa, below Paunau [it was located where the current day Bubba Gumps restaurant  
7 is]. Samuel Kaluapana Kailihou (S. Kaluapana) was her father, Samuel Nika Kailihou (Nika)  
8 was her grandfather, Kaumiumi was her great grandfather and Leleku (also known as: Kahili)  
9 was her great great grandfather.

10  
11 S. Kaluapana Kailihou was buried in lower Pu‘unoa in the 1940’s. At the time the area was  
12 rugged terrain, there were no subdivisions, just cane fields. Twice a month Aunty Momi would  
13 travel with her family from their beach house up to their home in Kahoma Valley. Her brothers  
14 had to work at the Pioneer Mill, they often stayed down at the Pu‘unoa beach house. There were  
15 trails that went up the old Kahoma Stream, if you look down from old Lahainaluna road, there  
16 was an embankment and her dad, S. Kaluapana, and other *kupuna* were buried on lower part of  
17 Kahoma Stream. This area is known as Pu‘unoa and it is below Paunau, the soil was soft here  
18 and it made digging easier.

19  
20 During more traditional times Kaumiumi, as well as other ‘*ohana*, (Haia, Pali and Makekau),  
21 worked the lands of Kahoma from *mauka* to *makai*. Portions of these lands were handed down  
22 from Kaumiumi to Nika then to S. Kaluapana. Nika’s sister, Mary (Nakilu) Reccard, went on to  
23 own portions of these lands as well. Aunty Momi recalls traveling back and forth from their  
24 beach house to their Kahoma Valley home. She describes the route they traveled; it was near the  
25 modern day Pu‘unoa street.

26  
27 It was at this section of the stream that Aunty Momi describes her four brothers carrying her  
28 father’s coffin down a good sized embankment and over the Kahoma stream. Aunty Momi  
29 recalls her family *heiau* [cemetery] being located here, along the Kahoma Stream. Grave sites  
30 were indicated by large rocks and rock piles and this cemetery was another landmark she used  
31 when walking into the valley, “we knew where the graves of our family were, that was our  
32 landmark” (Aunty Momi, per telephone conversation September 4, 2008). They would pass this  
33 family *heiau* on their way up to their home in Kahoma Valley. It is at this place that Aunty Momi  
34 remembers burying her father S. Kaluapana in 1940. She explains that it would have been  
35 impossible for her brothers to carry her father in a coffin any further *mauka*. She describes the  
36 terrain *mauka* being rugged and the ground too hard.

37  
38 The boys lived at the beach house and the girls lived at the mountain house. There was extensive  
39 *lo’i* there.

40  
41 There is a Royal Patient for the *lo’i*, for upper Kahoma Valley 9780 B. The intact remnants of  
42 this *lo’i* still exist as well as foundations from a house.

43  
44 S. Nika was 81 years old when Pioneer Mill started trying to keep his family out of the Valley.  
45

46 Donnalyn – In 1936 Pioneer Mill began diverting water and tried to kick family off the land.

47  
48 Nika and Elizabeth Paleali'i Kunukau, Kaumiumi believed to be [buried] up there still. Phillip  
49 has walked up the Valley. He walks up on the stream embankment for about 45 minutes. There  
50 are cattle in the valley, causing some damage, it's overgrown but several *lo'i* walls still exist.  
51 Approximately 100ft *makai* of Haia cemetery there are more burials, then on right, there is a  
52 cave with Kailihou burials. There are huge rocks marking graves.

53  
54 Donnalyn – In the fall of 2005 she started doing her families genealogy. She felt a pull towards  
55 Maui, a strong emotional attachment to the Kahoma area. In March 2006 she flew over for a  
56 week and brought a *ho'okupu*, went up to the area where Aunty Mabel thought her father and  
57 family were buried. When they arrived at the area that Aunty Mabel thought her father was  
58 buried she began crying and said that they were at the right place. They got out of their car and  
59 Donnalyn chanted, "Na Aumakua", butterflies surrounded Aunty Mabel and water started  
60 seeping from rocks in the wall of the stream. They felt a spiritual presence, Aunty Mabel  
61 describes a "blessed feeling, like they, the *kupuna* were happy" (telephone conversation  
62 September 4, 2008). They returned in June gathered the *kupuna* and brought *ho'okupu* and went  
63 up to the place and again felt the presence of spirits/family.

64  
65 In 1947 the Maui News published a public notice to the heirs of Kailihou. Aunty Mabel explains  
66 that her immediate family did not respond to the notice, but another relative responded on their  
67 behalf. That particular notice was for lands in Kahoma. Later, in 2005, Aunty Mabel's family  
68 read a similar type of notice calling for heirs of Kaumiumi regarding lands in Lahaina at  
69 Puehuhunui, near the current day 505 front street location.

70  
71 Aunty Mabel, her daughter Donnalyn Johns, and son Phillip Jaentsch, returned to Maui Aug 9-  
72 11<sup>th</sup>. They helped clean the Haia cemetery, they left during the hottest time of the day and came  
73 back to find water flooding down Kahoma stream. They felt this was a spiritual and supernatural  
74 experience. This family has stated that they have experienced several experiences like this in this  
75 area since 2004. This line of Kailihou's claim their families lived at least eight generations in  
76 Kahoma Valley, this Valley being their primary residence, and the beach house was for fishing.  
77 Again they claim there are several burials in upper Pu'unoa as well. [use Isabella Abbott's  
78 reference to Nika]

79  
80 Mabel mentions a silver plate in her father's leg possibly from an abscess in his right shin.

81  
82 Again Mabel tries to describe taking her father up to his resting spot; he was in a coffin and her  
83 four brothers had to carry this coffin over the Kahoma Stream embankment to the other side to  
84 the *heiau* where he was buried. There were other families buried there as well.

85  
86 S. Nika won water rights in 1928, S. Kaluapana kicked out in 1936 after S. Nika's death.

87  
88 Kaumiumi was the father of Samuel Nika Kailihou. There was also a girl, S. Nika's sister named  
89 Mary Nakilu. Leleku (aka Kaili) was Kaumiumi's father. Kaumiumi was one of the first  
90 Hawaiian men to attend Lahainaluna Seminary, he was Christian.

91  
92 Aunty Mabel lived on Maui in 1934-36 and remembers her father's outrage at being forced to  
93 leave their property in Kahoma Valley.  
94  
95 This family wants justice. They are concerned with family burials. There is distress regarding the  
96 Kahoma Stream Flood Control project, this family is unsure if S. Kaluapana and others buried in  
97 the family *heiau* were removed and taken to Honokahua and reburied there. They cannot locate  
98 their family burial site that used to be along the Kahoma Stream. They do not want any other  
99 burials or family cemeteries desecrated by the proposed Bypass and they do not want to lose  
100 their access to these ancestral lands.  
101  
102 Aunty Mabel is mainly interested in recovering her father's (and potentially others) *iwi*.  
103  
104 There was an ancient trail that goes up, left side of the stream about the grate. Rd by Pump house  
105 is not the traditional road, it's the one by the Leleku property. Leleku is their great great  
106 grandfather.  
107  
108 This family is currently in court working to reclaim family properties in Puehuhunui, Lahaina.  
109  
110 Phillip – finds it disrespectful to have a freeway running by your *tutu's* grave.  
111  
112 Donnalyn – concerns about burial caves collapsing due to construction of Bypass.  
113  
114 Phillip, Donnalyn and Mabel all express that their families have always had access to this valley  
115 until West Maui Land Company locked them out. Now the DLNR helps them with access. They  
116 do not like the gates, but with all the new people in the area and planned to be in the area they  
117 think they might need a gate of their own. Said there are seven gates!  
118  
119 Mention of Simeon and Mina Pali  
120  
121 Donnalyn- Has concerns about runoff from all phases of the Bypass, from future development of  
122 the area, major concerns. Explains that in Kona you cannot eat the reef fish or there are no reef  
123 fish due to pollution from runoff.  
124  
125

**Ms. Myra Kanoelehua Keli'ipio****AUTHORIZATION AND RELEASE FORM**

Cultural Surveys Hawai'i (CSH) appreciates the generosity of the *kūpuna* and *kama'āina* who are sharing their knowledge of cultural and historic properties, and experiences of past and present cultural practices in NAME Ahupua'a for the Cultural Impact Assessment CSH is preparing for the NAME Project at the request of NAME OF CLIENT.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our study. Here are the procedures we promise to follow:

1. The interview will not be tape-recorded without your knowledge and explicit permission.
2. If recorded, you will have the opportunity to review the written transcript of our interview with you. At that time you may make any additions, deletions or corrections you wish.
3. If recorded, you will be given a copy of the interview transcript for your records.
4. You will be given a copy of this release form for your records.
5. You will be given any photographs taken of you during the interview.

For your protection, we need your written confirmation that:

1. You consent to the use of the complete transcript and/or interview quotes for reports on cultural sites and practices, historic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.
3. If a photograph is taken during the interview, you consent to the photograph being included in any report/s or publication/s generated by this cultural study.

I, \_\_\_\_\_, agree to the procedures outlined above and, by my

(Please print your name here)

signature, give my consent and release for this interview and/or photograph to be used as specified.

*Myra P. Keli'ipio*  
 \_\_\_\_\_  
 (Signature)

*10/28/08*  
 \_\_\_\_\_

(Date)

File Name(s) Kupuna Kanoelehua Keli'ipio  
 Job Code PANAEWA 7  
 Recording Date August 13, 2008  
 Transcription Date  
 Participants Kupuna Kanoelehua Keli'ipio (Myra Pali) (KK)  
 Auli'i Mitchell (AM)

*Kupuna Myra Kanoelehua (Pali) Keli'ipio is the granddaughter of Phillip Poholopu Pali, who had several land calims in the Kanahā Valley. Kupuna Kanoelehua currently holds title to a parcel of his land mauka of the proposed Lāhainā Bypass Phase IA route.*

---

2

3 *(AM): I would like to start by asking your name?*

4

5 (KK): Myra. My maiden was Pali of course. My Hawaiian name is Kanoelehua. Like I said,  
6 my maiden is Pali. I married a Keli'ipio from this island (Hawai'i).

7

8 *(AM): I am familiar with your family name as we have shared my tūtū wahine is from Lāhainā.*

9

10 (KK): My grandfather used to be Phillip Pali he was a legislature in Hawai'i's Legislature in  
11 Lāhainā.

12

13 *(AM): And mama's name?*

14

15 (KK): My mother was Juliette Eldridge. We are related to families on this island (Hawai'i) but  
16 right now it doesn't come to mind. The Eldridge family was born on Maui. My mother met my  
17 dad, because he was a Maui Boy. His father used to be the sheriff of Lāhainā, he was Phillip  
18 Pali, my grandfather.

19

20 *(AM): What was papa's name?*

21

22 (KK): My father's name was Adam Pali, so my son is named for my dad.

23

24 *(AM): So Phillip Pali was your grandfather. Where were you born and raised?*

25

26 (KK): I was born and raised in Lāhainā. What distinction about that is we had an old prison  
27 there in Lāhainā. I was born there. In that prison, because his dad was the sheriff of Lāhainā at  
28 that time, my dad was put in charge of the prisoners in that day. Four of us children were born at  
29 that prison in Lāhainā.

30

31 *AM: May I ask what year you were born?*

32

33 (KK): 1921, lucky I can still remember that.

34

35 *(AM): Kupuna, how were you raised?*

36

37 (KK): Oh, like most Hawaiian kids, we were very independent. We lived a mile from town.  
38 We were at the edge of the plantation cane fields and my grandfather had this big property,  
39 estate. We had the property next to him so we enjoyed, of course it took us about an hour to get  
40 to school, because where we lived was the last part of town. We had to walk. There weren't any  
41 buses in those days. We walked all the way to Kam III School in Lāhainā.

42

43 *(AM): Can you mention the name of the school again, please?*

44

45 (KK): Kamehameha III, of course you know as you grow along it becomes Kam III, but  
46 Kamehameha seems so long.

47

48 *(AM): Were you raised with any traditions in your family? Cultural practices?*

49

50 (KK): We had my *tūtū's* in Kahana. We always went over every weekend to take Tūtū. He was  
51 with the agency, it was a plantation dairy farm and my *tūtū* was a cowboy. He rode his horse  
52 back and forth between that dairy all the way to his house. I remember those trips. Like I said,  
53 we lived in Lāhainā and our house was roughly about a mile from town, which is approximately  
54 the distance between Kam III School and our home. Of course Lāhaināluna was up the hill  
55 which is where I finished when I graduated.

56

57 *(AM): Being raised in Lāhainā, did you folks use the ocean for any kind of traditions?*

58

59 (KK): We lived right at the ocean. The ocean was just right there. Oh, yeah. My  
60 brothers were all good fishermen. The *wana* [sea urchin, *Diadema paucispinum* and *Echinothrix*  
61 *diadema*] was right in front of our house. You know what I mean? Whenever we wanted to eat

62 fish we had. As we grew up as children, because we were a Hawaiian household, we learn how  
63 to make the nets, the nets for throwing, the nets for pulling in the fish, *Hukilau*. We made all  
64 those and my dad too. Since we had all eight kids all of us could be put to work. We were very  
65 good.

66

67 (AM): *You made Hukilau?*

68

69 (KK): Oh! We were perfect! We made even the small little nets that were illegal at that time to  
70 catch fish, but you use it in only special cases. We were the kids that made them. Each  
71 Hawaiian family all the kids had to do stuff like that. So we were very good. It was part of my  
72 networking (laughing).

73

74 (AM): *(Laughing) there was eight children in your `ohana.*

75

76 (KK): *`Ae, eight children in our `ohana.*

77

78 (AM): *Did you gather limu (seaweed)?*

79

80 (KK): Oh! Oh! Yes, oh! Everything, *wāwae`iole (Lycopodium cernuum)*, what's the coarse one?  
81 It doesn't come to mind immediately.

82

83 (AM): *The līpoa (brown seaweed)?*

84

85 (KK): *Līpoa (Dictyopteris plagiogramma and D. australis). Limu Kohu (Asparagopsis*  
86 *taxiformis), limu `ele`ele (Enteromorpha prolifera), līpe`epe`e (Laurencia parvipapaillata, L.*  
87 *dotyi, L. succisa).* There were certain areas that the *limu* would grow so those are the areas you  
88 went when you wanted that kind.

89

90 (AM): *Is there still limu there today?*

91

92 (KK): They still there whether people haven't pulled them all out I don't know, but the  
93 Hawaiians used to be careful about how they took it because the other Hawaiians want to come  
94 down. Many of them did not live on the beach like we did. We were fortunate to live right on  
95 the beach. We were right next to the plantation manager.

96

97 (AM): *What plantation was that?*

98

99 (KK): The Pioneer Mill. The guy that lived next to us was Mr. Moyer who was the manager of  
100 the Pioneer Mill at that time.

101

102 (AM): *Did your `ohana hold the tradition of weaving?*

103

104 (KK): Ah, no *lauhala* wasn't predominate there, not in Lāhainā. In Kahana where my *tūtū* lived  
105 they had *hala* trees which were kind of spearing around. So my *tūtū* would be doing that. She  
106 would gather it during different days, roll them up and string them up and all the mats that *tūtū*  
107 had on the floor was made by her.

108

109 (AM): *What was her name?*

110

111 (KK): We call her Tūtū Wahine, but her husband's name was Hale (note: this is a cultural  
112 practice in that although Kupuna could not remember her name, she is most likely a relative of  
113 her grandmother or grandfather. All those of the same generation were called *Tutu* whether  
114 related or not. The same would be with ones parents generation in old use of the language and  
115 still some today, ones mother's siblings would also be called "*makua kane*" and "*makua hine*" or  
116 mother and father. This was true in my family and one must show the same respect to them as if  
117 they were your parents. These uses of generational terms for ones elders was practiced in the  
118 adoption of a child or *hānai*.) Of course we called him Tūtū Kāne and she was Tūtū Wahine, but  
119 because they lived out there. As she grew up bigger and she met Tūtū Kāne, he took a liking to  
120 my mother and she became somewhat like his pet. When he would go to the dairy farm, Tūtū  
121 Kāne was their most prominent cowboy, so he would ride his horse from his house in Kahana up  
122 to the dairy and ride him back every evening. Every weekend we would come on our car and  
123 come down to where Tūtū Kāne's house and pick him up and my older sister who liked to ride  
124 horses would switch. She would get out at Tūtū Kāne's house to ride horse home to his house  
125 and Tūtū Kāne would ride our car with us. We would take him home to Kahana, you know.

126

127 (AM): *Did your family hold the tradition of mahi`ai, farming and where?*

128

129 (KK): Up in the mountains all the taro patches were up Lāhaināluna Valley where the school  
130 was. Above the school was the taro patches that different Hawaiians owned and my grandfather  
131 owned that big part pass there. My father had his portion. We would go up there and we would  
132 *mahi`ai* in the taro patch, *huki* (pull) the thing, bring home the taro and my brothers were taught  
133 how to boil it in this big *pākini* (deep pan), boil that and then they were also the pounders of our  
134 *poi*. We made our own *poi*.

135

136 (AM): *Was there any mahi`ai you remember happening in the valleys of Kahoma and Kahanā?*

137

138 (KK): Like I said above the Lāhaināluna School were the taro patches were because of the free  
139 river that flows down.

140

141 (AM): *Kahoma Stream?*

142

143 (KK): Yes, but at that time the legislature permitted you to take the water and divert some of that  
144 water if you were a farmer into your taro patches. If not you didn't have any water. So, we were  
145 very good at that, because we played and lived in that valley, not lived, we lived down in  
146 Lāhainā, we would be up there almost every time my father went up, so us kids went with him,  
147 cause we helped weed the taro patches. We helped pull the taro so my brothers became good *poi*  
148 pounders.

149

150 (AM): *As you know the proposed project is the bypass.*

151

152 (KK): This bypass is way below Lāhaināluna. Our taro patches were way up here, where this is  
153 coming in is way down by Pioneer Mill.

154

155 (AM): *Kupuna can you recall any memories of Pu`unoa Point, near Māla?*

156

157 (KK): Māla Wharf you talking about?

158

159 (AM): *Yes.*

160

161 (KK): I don't know anything of Pu`unoa Point.

162

163 (AM): *A Kupuna you may be familiar with, Mabel Kailiho she would talk about they would go*  
164 *from Pu`unoa Point and straight up to access Kahoma Valley.*

165

166 (KK): That name sounds familiar. Could be, because along side of the cannery, there was a big  
167 cannery and the different Japanese camps, the Hawaiians could take all that road and go straight  
168 up the valley, sure.

169

170 (AM): *What about the split of the stream?*

171

172 (KK): Where Lāhaināluna is, that stream is like on the side, it comes all the way and it goes up  
173 and down that hill, up beyond Lāhaināluna and then down through the town, along side of the  
174 *pali* (cliff) and then comes down and discharges in the ocean.

175

176 (AM): *The stream on the maps split into Kahoma Valley and Kahanā Valley.*

177

178 (KK): Right.

179

180 (AM): *Above the Pioneer Mill was camp Kelaweā, do recall?*

181

182 (KK): There were a lot of camps over there. Most of my Japanese friends lived in those camps  
183 and those mostly the workers whose parents were working in the plantation. It seems like those  
184 homes were prepared for them.

185

186 (AM): *Were any Hawaiians at Kilauea Camp?*

187

188 (KK): There was some maybe, but mostly a lot of Japanese and Filipino.

189

190 (AM): *And that was located on the side of Kahoma Stream not far above that the Kahoma*  
191 *Stream splits into Kahanā. Is this where your family has kuleana (claimed lands) lands today?*  
192 *The lands of Poholpu.*

193

194 (KK): Poholpu was my grandfather; he was my dad's dad. He was also a sheriff of Lāhainā at  
195 one time.

196

197 (AM): *Did Poholpu have claims to many parcels?*

198

199 (KK): I think so.

200

201 (AM): *So today, Josephine tells me that your `ohana still has land claims there.*

202

203 (KK): I assume so.

204

205 (AM): *Do you recall the Pu`uwaina Resevior?*

206

207 (KK): No I don't.

208

209 (AM): *How about the Crater Village, behind is another camp?*

210

211 (KK): Oh, okay, Crater Village where the river comes down, Crater Village is sort of centered  
212 away from the river side. Crater Village is not too far, but it is in the sugar cane fields. That  
213 where Crater Village was.

214

215 (AM): *Was there other camps behind there?*

216

217 (KK): No, no there isn't. There is just Crater Village. That whole village was called, "Crater  
218 Village", because we had this dormant crater that was in there, small one. For those students to  
219 get to Lāhaināluna High School, because we were the only high school up there on the hill, there  
220 was a kind of a little bridge or something across that they had to cross over to get to the  
221 Lāhaināluna side, to get on the road that leads you up to Lāhaināluna School.

222

223 (AM): *Poholopu, was his lands used by all the family?*

224

225 (KK): That was all his land, so we had along side of this river as you are going up to Lāhaināluna  
226 Valley. Along side the river was the taro patches which were from my grandfather, so we used  
227 to *mahi`ai* in there.

228

229 (AM): *It was far from your home?*

230

231 (KK): It was quite a distance up and it wasn't easy to get to it, I mean, you know you had to be  
232 able to scramble up the sides of the *pali* and that kind.

233

234 (AM): *You had multiple `apana (land parcel)?*

235

236 (KK): Well, we had that one with all our taro patches in there, so we would go up like once a  
237 week. So we could *mahi`ai* out there and clean out the *`ōpala* (trash) and stuff like that.

238

239 (AM): *There is cemetery today that is in question that was right along the Kahoma Stream, near*  
240 *Kilauea Camp. There is one theory that the Army Corps of Engineers either covered it or took*  
241 *them laying them to rest at Honokahua, by the Ritz Carlton. Do you remember any cemetery*  
242 *there?*

243

244 (KK): Not if they went to Honokahua because where we lived we did not have any of that stuff  
245 out in Honokahua.

246

247 (AM): *Originally was the cemetery right along the Kahoma Stream, does that sound familiar?*

248

249 (KK): Right, yes of course.

250

251 (AM): *Today it is no longer there.*

252

253 (KK): Apparently they may have moved it.

254

255 (AM): *That brings me to ask about your knowledge about burials that may be encountered*  
256 *during this proposed project.*

257

258 (KK): My grandfather was right there along side that big river coming down from Lāhaināluna  
259 Valley there were graves. I remember that because as my parents died off and one of my  
260 brothers had died, then I was made in charge of the place. Then I became kind of familiar with  
261 that place.

262

263 (AM): *Was that Poholopu's grave?*

264

265 (KK): No, Poholopu is in Wainē Cemetery

266

267 (AM): *Did you have other `ohana buried in that cemetery?*

268

269 (KK): I guess, I mean, you know when you're a youngster growing up you never pay to much  
270 attention. You know that is your `ohana, but because you are still growing it's like not that  
271 important to you, maybe to the older people, you know what I mean.

272

273 (AM): `Ae, maopopo (yes, I understand). Do you remember burial sites in the Lāhaināluna,  
274 Kahoma, or Kahanā Valleys?

275

276 (KK): Our house by the beach. Poholopu used to own the whole thing. He lived at big house  
277 and we lived the house right next, down in Lāhainā, because it was all good fishing grounds,  
278 good *limu* grounds and all that kind of stuff. Most of the family was buried in Wainē Church  
279 Yard, you know that is where my grandfather and my grandmother and my kid brothers that died  
280 were buried there.

281

282 (AM): We ask about burials so that maybe someone remembers it might help when they develop  
283 to be sensitive around certain areas before they come upon some.

284

285 (KK): Where we are talking about Lāhaināluna, down there is where is not where my grandfather  
286 is, although there maybe some other *tūtūs*'. As you are growing up you are not paying to much  
287 attention to them. It is being mentioned but you are not thinking it's important, until something  
288 like this comes along then you sort of dig back and it's empty.

289

290 (AM): Did your `ohana use the mountains for hunting pua`a (pig)?

291

292 (KK): Not that I was aware of. Above our stuff, taro patches, up there was the wild figs that  
293 grow up there, sweet, sweet. You want to eat that kind of stuff they weren't down side they  
294 were all up there in the mountain. So we all went up there to hunt for these wild figs. They were  
295 white and purple/red. I remember those because you had to hunt alongside the mountains to get  
296 it.

297

298 (AM): Did you folks ever go mauka to gather plants for make lei, medicine?

299

300 (KK): For medicine most people grew it in their yard. You did not roam wild because lots  
301 around Lāhainā was the cane field and so the field was being farmed by the plantation so with all  
302 the Filipinos working in there they would grow their own. It was a nice place to grow your  
303 pumpkin and stuff, cause where the Filipinos and a lot of Japanese lived was a camp and  
304 although it was a camp with a house it didn't have nice ground to grow you know. In the cane  
305 fields where the plantation ran their water, it was the stream water, so a lot of the laborers after  
306 they got through working plant seeds of stuff, so when they went home or when it was ready  
307 they take home their squash and pumpkin and whatever they had grown in that cane field. So the  
308 cane field became like their garden. So many of them came to work with their lunch and when  
309 they went home they had all the vegetables in their bags. You can't blame them. They didn't  
310 live on the beach like we did and they weren't fishermen, but they had all these vegetables cause  
311 they had the free water, because in their camps they didn't have that much free water.

312

313 (AM): *Did you folk's kuapo or trade with people up mountain?*

314

315 (KK): You only did with people you were familiar with. Like for instance, we lived on the  
316 beach so if we surrounded some fish and stuff like that and we pulled it up, those guys that lived  
317 on the beach the Japanese whoever they were would come and help us so and we would share the  
318 fish with them, we call it the *hukilau* (a long net laid to catch fish). You know what I mean? We  
319 shared with our neighbors, although quite a few Japanese lived on the beach, but mostly were  
320 Hawaiians. Beyond us were the plantation manager and all the other *haole* (foreign) managers.  
321 Very few Hawaiians had like my grandfather, you know that was his land. So we kind of  
322 enjoyed being on the beach cause all the fish we wanted. My brothers were good fishermen, all  
323 the squid we wanted, all the lobster we wanted, they were all good fishermen. They were also  
324 good *poi* pounders. That time they didn't talk about grinding your *poi*, so when we brought the  
325 taro back from the taro patches, my brothers boiled that stuff up and they pounded our *poi*, so we  
326 ate pounded *poi*.

327

328 (AM): *Fresh. Did your `ohana practice any Hawaiian medicine?*

329

330 (KK): Oh, yeah we were surrounded by Hawaiian medicines from the cane patches we had also  
331 in our yard, we had *pōpolo* [black nightshade, *Solanum nigrum*] growing and different kinds of  
332 Hawaiian plants. I know *pōpolo* was always a favorite and one that you gargle with, I can't  
333 remember the name right now. A lot of *`ihi* [*Oxalis*]. The one I am thinking about is you pull  
334 the root and strip the root and you boil it, it's a wonderful gargle. I will say it if it comes to  
335 mind. Good, good gargle. So when us kids had sore throat that is the first thing my mother did.  
336 She pull up the thing and of course all the dirt on it, wash off all that things, strip the bark, boil it  
337 and we would gargle it. You lost your cold in a day or two. You didn't have to go to a doctor.

338

339 (AM): *Do you have any mana`o (thoughts) about this new bypass going in?*

340

341 (KK): Well if it's going in, is there anything I can do about it? (laugh)

342

343 (AM): *Pololei (correct) (laugh)*

344

345 (KK): Where the burials are separated from where the freeway would be. Now they are going to  
346 make it along side that river, but the burials are not in the way of the bypass, as I was familiar  
347 with at that time. Hawaiian graves were all separated. The Hawaiian made sure all their graves  
348 that were in the mountains, those that was not in the graveyards and stuff, were close by each  
349 other. They knew where they were going to find it because it was always there.

350

351 (AM): *Hard today for the families trying to find their iwi kūpuna (ancestral bones) but nalowale*  
352 *(lost), lost or maybe moved.*

353

354 (KK): And then people like us aren't there to be seen what is going on, how can you tell what's  
355 going on? And then too the plantation at that time, because they knew many Hawaiians didn't  
356 know the law very well, gimped them of a lot of stuff. The Hawaiians were aware it is already  
357 done, so they do something else. The plantation weren't very good neighbors. They knew we  
358 weren't as schooled as they were. So they did what they could to get by.

359

360 (AM): *Kupuna, what was different about the Kahoma and Kahanā Valleys?*

361

362 (KK): Kahoma was this very big valley where the river flowed. Kahanā didn't have this free  
363 flowing spring. Kahoma had this free flowing stream that flowed all the way to water way down  
364 in Lāhainā, but Kahanā was out in the country, it was very dry. Kahanā had some plantation  
365 villages, but nothing elaborate like Kahoma.

366

367 (AM): *Are you familiar with any cultural sites?*

368

369 (KK): I can't think of any, I mean, I guess principally is because they didn't let kids around that  
370 kind of area, you know kids had no business being there unless the parents had to go there for  
371 something. When we went it was because our parents took us there to check on some old graves  
372 or something. We did visit our family buried up in Kahoma, but most of my family is buried at  
373 Waine'e.

374

375 (AM): *Kupuna Kanoelehua it has been a great joy to sit with you here today and humbly thank*  
376 *you for your knowledge that you shared with me and for our work.*

377

378 (KK): No, *Mahalo nō* (thank you, indeed) to you, Aulii for coming here to talk-story about my  
379 family. I wish I had something for you.

380

381 (AM): *Mai hopohopo, mahalo ia `oe na ke akua pu me `oe, mahalo nō (No worry, thank you and*  
382 *may god bless you, thank you indeed).*

**Mr. Henry Ah Ying Aki**

**Cultural Surveys Hawai'i Inc.**

Archaeological and Cultural Impact Studies  
Hallett H. Hammatt, Ph.D., President



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**Authorization and Release Form**

Cultural Surveys Hawai'i (CSH) is grateful for the generosity of the Kūpuna and Kama'aina who have willingly shared their knowledge and experiences for the preparation of a cultural impact assessment for the Lahaina Bypass Phase 1A in Lahaina, Maui.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our assessment. Here are the procedures we promise to follow:

1. You will have the opportunity to review the written transcription of our interview with you. At that time, you may make any additions, deletions, or corrections you wish.
2. You will be given a copy of the interview transcript you have approved for your records.

For our records and yours, we humbly request your confirmation that:

1. You were given the opportunity to review the transcript of the interview.
2. You consent to the use of the interview with any revisions specified by you for historic documentation and academic purposes.
3. You consent to the interview being made available to the public.

I, Henry A. Aki, agree to the procedures outlined above and by my  
(Please print your name)  
signature, given my consent and release for this interview to be used for historic documentation and academic purposes.

*Additional Comments and Clarifications:*

Henry A. Aki 9-11-08  
(Signature)  
9-11-08  
(Date)

1 **Aug 5, 2008 Tuesday 11:00am – 1pm Henry Ah Ying Aki**

2 **Interview conducted by Ms. Colleen Dagan of Cultural Surveys Hawai'i, Inc.**

3

4 *Henry Aki is the grandson of Ela Kapiwelo Haia Kekai. Ela Kekai was the sister of Pili Haia*  
5 *Kekai. Pili Kekai was Jonah Keahi's great grandfather.*

6

7 Mr. Aki explained that his mother, Ela Kekai Akeo (daughter of Ela Haia Kekai and Kiu Leong)  
8 was from Kahoma Valley. He said as children (around 10 yrs old) the family went up Kahoma  
9 Valley every weekend with his mother and uncle Kahili. He describes catching shrimp,  
10 swimming and playing in the *kahawai* while his mother, uncle Kahili and other adults tended the  
11 taro *lo'i*. He said it was their family *lo'i*, all the different families from the valley had their *lo'i* up  
12 there, everyone knew whose was whose. He said they would drive the families model T, crank it  
13 up and drive up, park the car where "Tutu used to work". Then Tutu Moki had a mule. They'd  
14 take the mule up and used the mule to pack the harvested taro back down. He describes his  
15 mother as a "hard worker".

16 He said they used to stay up there in Emma Sharp's house. This house was later destroyed by a  
17 boulder, and the Huntz or the Neismans own property up there now.

18 He recalls Tutu Pili (Ela's brother) being a "big man". He said Tutu Pili took care of the water  
19 rights for the *lo'i* up in Kahoma. Tutu Pili had a house up in Kahoma, on the Hill above  
20 Lahainaluna High School. They often drove to his house, now blocked by a gate and burned  
21 down. They then dropped into the valley from there. Also, they used the plantation road to go  
22 up there. You could also go up Lahainaluna Road, walk on the ridge along Kahoma stream, then  
23 there was a trail that dropped into the gulch. You would walk under an overhang, cross the gulch  
24 to the opposite side, and then walk along that ridge. This way, you would get to the pump house.

25

26 Mr. Aki mentions Kahala (Charles Haia Sr., Luella Haia's father). Before he knew he and  
27 Charles Haia were related, he had met him in New Caledonia in the Army. He recognized him  
28 years later at a family reunion. He was holding a baby, it was Luella. He went up to him and  
29 asked if he had been in New Caledonia, then they realized they were family.

30

31 Ela Kekai Akeo could also play slack-key guitar, she taught Mr. Aki how to play. He describes  
32 her as stern; you couldn't ask any questions. "Shut your mouth and just listen!" he describes her  
33 saying. He said she taught him everything, how to play guitar, how to cook, how to fish. He said  
34 she was an excellent fisher. He said she used to walk from Kahoma to the ocean to go  
35 squidding. She used a stick, no modern squidding tools, all old fashioned. He used to follow her  
36 with a bag. She would chew coconut and spit it in the water; the water clears up and you can see  
37 the bottom. Mr. Aki said his mother knew a lot about the ocean. "Everything I know I learned  
38 from her." Later he said his mother left Lāhainā and moved back to Lāna'i to cook for her sons  
39 who were still living there.

40

41 He said he and Uncle Moon (Keahi) have also been up to the Haia Cemetery on occasion to  
42 clean the gravesites. He said there are several "different families up there, the Akionas-- lots of  
43 families up there." You could walk up Wahikuli road, by the village or you could walk up from  
44 the cannery.

- 45  
46 1- Mr. Aki's mother Ela lived in the house behind Maui Jim's, by the catholic church, Maria  
47 Lanakila. Namea Keahi lives there now. She is Uncle Moon's daughter. They used to live there.  
48 The house had quarter inch spaces between floorboards, and his mother wove *lau hala* mats and  
49 covered the floor from wall to wall. They all slept on the floor, including Tutu Pili and Uncle  
50 Kahili, who stayed with them also. Mr. Aki still has his mothers tools; pounding tool and cutting  
51 tool for making *lau hala* mats.  
52  
53 His mother walked from this area, their home up Kahoma Valley. Mr. Aki recalls walking to  
54 Lahainaluna School from this house and from Wahikuli, his sister Daisy's house, to  
55 Kamehameha III School.  
56  
57  
58 2- Grandmother Ela lived in a house in Kahoma Valley. There were lots of houses in the Valley.  
59  
60 3- When Ela moved back to Lāna'i her sons wanted her to cook for them. They worked for Dole.  
61 They said Dole would give her a house if she came to cook for them. She often got paid to cook  
62 for Adam Pali and another worker. Adam Pali's family was from Puamama and Kahoma. He  
63 paid her to cook for him.  
64  
65  
66 4- When traveling up to Kahoma, they would drive up to Tutu Pili's, park the car, and walk  
67 along the cliff then go into the valley.  
68  
69  
70 5- Tutu Pili did not live by the Catholic Church. His family lived by Catholic Church in  
71 Lāhainā, Maria Lanakila.  
72  
73  
74 6- The Aiona's had cemetery nearby, no markers, just stones.  
75  
76 7- Uncle Ah Ying's mother, Ela most likely learned to fish from her grandfather. She was a  
77 small lady, under five feet, maybe five feet tall. Very strong, pounded poi, pounded *lau hala* for  
78 mats, made her own pounding tool, very heavy, possibly mango wood. She lived to be 89 yrs  
79 old. Pokola – pounded *lau hala*, wound into large wheels.  
80  
81 Henry Aki moved to Lāna'i for two months to go to school. When the war (WWII, Pearl  
82 Harbor) broke out he was forced to return to Maui and quit school to take care of his mother. His  
83 last grade completed was ninth grade.  
84

## Appendix D Land Commission Awards within the Study area (Waihona Aina 2000)

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**No. 00277, W.C. Lunalilo, C. Kanaina, Claimant [for Lunalilo]**

Claim Number:	<b>00277</b>	Awarded:	<b>1</b>
Claimant:	<b>Lunalilo, W.C.</b>	FR:	173v2
Other claimant:	Kanaina, Charles (Lunalilo)	NR:	<b>41-42v2</b>
Other name:		FT:	<b>325v2</b>
Island:	<b>Maui</b>	NT:	<b>43v2/122v10</b>
District:	<b>Lahaina</b>	RP:	<b>5640, 5638, 5699, 8364</b>
Ahupuaa:	<b>Ilikahi, Luaehu, Loinui, Paunau, Pukala, Wainee, Kaluokiha, Hawaikekee, Aki, Kelawea</b>	Apana:	<b>17</b>
House lot:	<b>17</b>	Number of Royal Patents:	<b>4</b>
Other Mammals:	<b>No</b>	Other Edifice:	<b>Yes</b>
Road/Path:	<b>Yes</b>		
Wall/Fence:	<b>Yes</b>		
Miscellaneous:	<b>Kanaina makes claim on behalf of King, Names of house dwellers given, schoolhouse bounds Section 9, government road</b>		

**F.R. 173v1**

2 documents in Native Register page 41, volume 2

**N.R. 41-42v2**

No. 277, [W.C. Lunalilo], C. Kanaina [for Lunalilo]

Honolulu, December 1, 1846

Greetings to you, Richards, the President of the Land Commissioners:

I, the undersigned, the makua of the heir of M. Kekauluohi, Wm. Lunalilo, on whose behalf I petition for hisouselots at Lahaina on the island of Maui for you to act upon and verify for him, forever. /list/ the following lots, and the persons living on them.

1. Lot of Giles Waldo at Luaehu on the southeast of the Fort.
2. Lot of Chandless on the west of Keaweluaole's place.
- \*3. Lot of Polea at Wainee on the northwest of the church.
4. Lot of Uaea on the northwest of the pond of Mokuhinia.
5. Lot of Keaumoku adjoining the lot of Polea on the southeast of D. Malo's place.
6. Lot of Kanakaole, makai of Keaumoku's place.
7. Lot of Ninia mauka of Luaehu, makai of the road going to Mokuula.

8. Lot to Pikanele, mauka of Luaehu on the southeast of Kaimalalo's place.
9. Lot to Keawa, mauka of the road going to Wainee on the west of the children's school.
10. Lot of Umalele on the northwest of Keawa's place.
11. Lot of Keaweaeheulu on the southeast of Kahula's place, on the northwest of Keaweluaole's place.
12. Lot to Iona Kapena on the southeast of the road going up to Lahainaluna and Kahookano's place.
13. Lot to Kaenaena at Aki on the northwest of the store of Paki /translator's note: Pali might be Pake - Chinese. Illegible/.
14. Lot to Nalinu, makai of the road going to Kaanapali along the pond of Alenihi /illegible-may be misspelled/.
15. Lot of Hoai, mauka of the foreign church on the southeast of Chandler's place /A.g. Chandler/.
16. Lot of Hoai, mauka of Lahainaluna on the northwest of the road going up to Lahainaluna.
17. Lot to Hooai at Mala in the coconut grove of Kalaikoa.
18. Lot of Laahiwa ma, directly mauka of Wainee on the east of Malo's place.

The rights to all these lots were Hoapilikane's and on his death, Kekauluohi was the heir, and on her death Wm. Lunalilo was the heir. Therefore all these places are Lunalilo's.

Until this time, no one else has the right. If anyone petitions you for these lots I have mentioned, I am the one to succeed /in having possession/.

With greetings,  
CHARLES KANAINA

\* Kanaina has relinquished the claim of Lunalilo for the lot of Polea at Wainee in Lahaina.

**N.R. 43v2**

No. 277, Charles Kanaina, Honolulu, December 1, 1846

Greetings to W. Richards, the President of the Land Commissioners:

I, the undersigned, the one who has a true right to the houselots at Lahaina on the island of Maui, request that they be awarded to me:

1. Lot of Peck at Keawaiki.
2. Lot of Torbert at Kapahumanamana.
3. Lot of Kaina, mauka of the place where Mr. Kakana lived and died.
4. Lot of Kaili on the southeast of Kamakini's place, mauka of the large taro patch made by Hoapili.

The right to Peck's lot was from King Kamehameha II and has been absolutely mine until now. The right to Torbert's lot was from King Kamehameha III and has been absolutely mine until now. The right to Kaino's lot was from King Liholiho and I have continued to maintain all the rights until now. The right to Kaili's lot was from Kaiakua and he gave it when I asked for it, and it is my own, until now.

I some other persons petition for their right to these aforesaid lots, wait before you award them until I am also [considered/, then decide.

With greetings,  
C. KANAINA

**F.T. 325v2**

Claim 277, No. 1, C. Kanaina, 29 May [1848]

C. Kanaina stated that he had no witnesses here. They were in Lahaina, but that his case in this instance, which is counter to Maunahina's Award rendered (No. 20) stands not on any prior right of his own to Maunahina's but on a right acquired by the will of Hoapili in making over this place to him in the year 1840 (near the last of it). The case was postponed for the Board to decide whether the law of 1839 does not render void such a will or if otherwise to appoint a hearing upon its genuineness.

**N.T. 122-124v10**

No. 277, C. Kanaina (for W.C. Lunalilo), 21 February 1852

Polea, sworn, the house lot interest in Lahaina, Maui are:

- Section 1 - Luaehu's house lot.
- Section 2 - House lot at Paunau by Chandler.
- Section 3 - House lot at Pukala by Uaea.
- Section 4 - House lot at Wainee by Keaumoku.
- Section 5 - House lot at wainee by Kanakaole.
- Section 6 - House lot at Kaluokiha by Ninia.
- Section 7 - House lot at Kaluokiha by Pikanele.
- Section 8 - House lot at Hawaikekee by Keawa [Keawe?].
- Section 9 - House lot at Hawaikekee by Umalele.
- Section 10 - House lot at Paunau by Keaweheulu.
- Section 11 - House lot at Paunau by I. Kapena.
- Section 12 - House lot at Paunau by Hoaai.
- Section 13 - House lot at Aki by Kaenaena.
- Section 14 - House lot at Puunoa by Nalimu.
- Section 15 - House lot at Kalaewa and Paunau by Hoaai.
- Section 16 - House lot at Mala by Hoaai.
- Section 17 - House lot at Wainee by Laahiwa.

## Section 1:

Mauka by Hihio's lot, Pikanele's lot, Kaioe's lot, Kaiheekai's lot  
 Olowalu by Kaiheekai's lot / the King's lot  
 Makai by sea  
 Kaanapali by Pole's lot, Hihio's lot, J. Nouleiu's [sic Nowlein] lot.

## Section 2:

Mauka by Kahula's house lot  
 Olowalu by Keaweheulu's lot  
 Makai by (?)Halepule Street  
 Kaanapali by street.

## Section 3:

Mauka by Halepule Street  
 Olowalu by Nakaikuaana's lot  
 Makai by H.S. Swinton's lot  
 Kaanapali leading to uplands, by road.

## Section 4:

Mauka by To Olowalu, foot path  
 Olowalu by Lot Kamehameha's lot  
 Makai by Kanakaole's lot  
 Kaanapali by leading to Olowalu road.

## Section 5:

Mauka by Keaumoku's lot  
Olowalu to church, road  
Makai by M. Kekauonohi's land  
Kaanapali to Olowalu road.

Section 6:  
Mauka to Mokuula road  
Olowalu by Luaehu's gateway  
Makai by C. Kanaina's lot  
Kaanapali by Pikanele's lot.

Section 7:  
Mauka to Mokuula road  
Olowalu by Ninia's lot  
Makai by C. Kanaina's lot  
Kaanapali by Hihio's lot.

Section 8:  
Mauka by Keleleiki's lot  
Olowalu by leading to uplands road  
Makai to Olowalu road  
Kaanapali by Maunahina enclosure.

Section 9:  
Mauka by Keleleiki's lot, school house  
Olowalu by Keawe's lot  
Makai to Olowalu road  
Kaanapali to the meeting house, road

Section 10:  
Mauka by M. Kekuanoa's [sic Kekuanaoa] lot  
Olowalu by Kewaeluaole's lot  
Makai to church house, road  
Kaanapali by Kahula's lot, C. Kanaina's lot.

Section 11:  
Mauka to Kapoulu road  
Olowalu by Kaiki's lot  
Makai by Keawekolohe's land  
Kaanapali to Lahainaluna road.

Section 12:  
Mauka by Henry's lot  
Olowalu by small road  
Makai by Government road  
Kaanapali by J. Nowlein's lot.

Section 13:  
Mauka to Kaanapali road  
Olowalu and Makai by J. Kaeo's land  
Kaanapali by David Malo's land.

Section 14: Boundaries the same as section 10, it is the same lot.

Section 15:  
Mauka by Lahainaluna's lot  
Olowalu to Lahainaluna road

Makai by S. Andrew's lot  
Kaanapali by Keaweluaoe's land, Kalena's land, Kalaikini's land, Kekuanaoa's land.

Section 16: This is a stone wall only, there is no interest.

Section 17:  
Mauka by J.A. Kuakini's land  
Olowalu by Manono's lot  
Makai to Olowalu road  
Kaanapali, leading to the uplands road.

Sections 1, 3, 4, 5, 6, 7, 8, 9, 15, 17 from Mrs. Hoapili in 1841 to C. Kanaina, from C. Kanaina to M. Kekauluohi, then the land was bequested in 1845 to Wm. C. Lunalilo, her son.

C. Kanaina has lived peacefully on sections 1, 3, 5, 15, 17.

Keaumoku has section 4 permanently by Mrs. Hoapili. She had given at the time she was alive. I had seen this done.

Opposition for Section 6 was by Ninia, Section 7 by Pikanele, Section 8 by Maunahina's objection was approved by the land officers.

Keaweaeulu objected to Section 10.

C. Kanaina had received section 2 from M. Kekauluohi in 1845, she has received it before 1839 from Kinau. He received section 11 and this interest is similar to section 2.

He received section 12 from M. Kekauluohi in 1845, and she had received it a very long time ago, from the great chief of Maui, Kahekili.

Section 13 was from M. Kekauluohi in 1845, which she had received from Pualinui at the time of Kinau's death in 1839.

He received section 16 which is a stone wall only. No claim.

Keaweahulu has claimed that section 14 has been conveyed with section 10. It is one section.

POSTPONED: Until more witnesses are available.

**N.T. 124-125v10**  
No. 277, C. Kanaina

Polea, sworn, I have seen his claims in Lahaina here on Maui.

Section 1 - House lot in Keaweiki close to the fort.  
Section 2 - House lot in Kapahumanamana with Aiona.  
Section 3 - House lot in Ilikahi with Kaino.  
Section 4 - House lot in Paeohi with Kaili.

Section 1:  
Mauka by Wm. Richards' lot  
Olowalu by road  
Makai by sea  
Kaanapali by patch.

## Section 2:

Mauka by Pupuka's lot  
 Olowalu by road  
 Makai by Government road (makai)  
 Kaanapali by M. Kekauluohi.

## Section 3:

Mauka by E. Battler's land  
 Olowalu by Kahula's lot  
 Makai by Paaaoa's lot  
 Kaanapali by Kalena's lot, Keaka's lot.

## Section 4:

Mauka by E. Battler's lot  
 Olowalu by Kalena's lot, Keaka's lot  
 Makai by Ukikihi's lot  
 Kaanapali by L. Kalolou's lot.

Section 3 from Kahalau, his father at the time of Liholiho. Section 1 from M. Kekauonohi, before 1839. Section 2 from M. Kekauonohi in 1841. Section 4 from Kaiahua in 1839, and he (Kanaina) has lived peacefully on these places to the present time.

**N.T. 448-449v10**

[No. 277], W.C. Lunalilo, 20 December 1854, PROTESTED by Kahikona [395]  
 [See also 395]

Nalimu (w), sworn, I have seen this place in "Palala, Puako of Lahaina, Maui, a house lot.

[It is bounded]:

Mauka and Olowalu by pond  
 Makai by Kalaipaihala's house lot  
 Kaanapali by W.C. Lunalilo's lot.

I had first seen this place probably in 1824. Kaikuaana had lived there before 1824, he built houses for them which are still standing today. C. Kanaina is saying this place is for W.C. Lunalilo, the reason for this objection is unknown to me. I had heard only that Nakaikuaana had lived there under Hoapili, however, this is not too clear to me.

Makaulia, sworn, I have seen this place exactly as Nalimu has related here. I had first seen it at the time Liholiho was reigning. Probably that was in 1822 and Mohilio, the wife of Nakaikuaana was the first to live there while Nakaikuaana was in Makalapa, Kohala. He returned to live with his wife after being away for a year. Their place was small so they were given upon request by Hoapili the place on the Kaanapali side of the stone house. Kahikona is Mohihio's own daughter and she has been living on this place to this day. It is now known exactly why C. Kanaina feels this entire place should only be for him.

Pipipiapoo, sworn, I have known this place to have been for Kaiakoili and Hoapili had asked for it at the time Liholiho was in government service. It was then given to Nakaikuaana where he built houses and lived there until his death. The houses are still standing there and C. Kanaina is making demands for this place.  
 28 December 1854

Kuakamauna, sworn, I have seen and heard from Nakaikuaana to C. Kanaina. When he (Nakaikuaana) was near death, he brought his entire estate and all personal things including the house and said, "I have a grandchild in Hawaii, he is Kameeiamoku and is my heir." He is the kanaka of W.C. Lunalilo the King, just as he was in the olden time. Nakaikuaana had received that house lot from Mrs. Hoapili during Liholiho's reign and he lived there continuously until his death.

Kahoinea, sworn, I have known that this place had been for Nakaikuaana and he had lived there until his death. I built Nakaikuaana's house and he had received this place from Hoapili during Liholiho's reign and he lived there until his death.

Kahikona's is the own daughter Mohihio the wife of Nakaikuaana. It is my feeling that this place is for my son under W.C. Lunalilo.

J. Kapena, sworn, upon the death of Mrs. Hoapili in 1841, Mr. Kekauluohi, her heir called all persons for a declaration of property in their possession and Nakaikuaana was one of them who had come. He told of the lands which were with him and of the houses Hoapili had given him in Pakala and he was to live with the king for life. I have written about other things which may be found in M. Kekauluohi's book.

[Award 277; No. R.P. ; Ilikahi Lahaina; 1 ap.; 97 rods or 2 roods 7 rods (Location index); Pakala Lahaina; 1 ap.; 3 roods 10 rods; Puunoa Lahaina; 1 ap.; 2 Acs 1 rood 10 rods; no R.P.; Paunau Lahaina; 2 ap (Ap. 2); 69 Acs; R.P. 5699; Luaehu & Loinui; 2 ap.; 2 Acs 3 roods 37 rods; Land Patent 8364; Paunau & Kelaweua Lahaina; 1 ap.; 69 Acres; See 395 for protest to 277; see also Award 8559]

### No. 00295, Kauhi, Lahaina, December 23, 1846

Claim Number:	<b>00295</b>	Awarded:	<b>0</b>
Claimant:	<b>Kauhi</b>	FR:	
Other claimant:		NR:	<b>55v2</b>
Other name:		FT:	
Island:	<b>Maui</b>	NT:	<b>85v2</b>
District:	<b>Lahaina</b>	RP:	
Ahupuaa:	<b>Paeohi</b>	Number of Royal Patents:	
Apana:	<b>1</b>		
Loi:	<b>1</b>		
House lot:	<b>1</b>		

#### No. 295, Kauhi, Lahaina, December 23, 1846

**N.R. 55-56v2**

Greetings to you two Honorable Ones of the Kingdom of Hawaii.

I am telling you of my work for the government to know of. This work is at my houselot at Halawa. Maau was Keaweluaole's tenant. The house lot is Keaweluaole's. Maau was not given it by the ali'is. When Maau died he directed me that the group of taro patches was for the ali'is, and the houselot was Keawluaole's. Thus Maau spoke to me: "If the ali'is take the group of taro patches, it is theirs /to take/, and you live under Keaweluaole." He died and the ali'is took the taro patches.

I have lived under Keaweluaole until now. Keaweluaole said to me "Make a lot," and so I completed it. I go to work on Keaweluaole's poalima /Friday-work day for the konohiki/, and the pa'ahao /public works/ for the government. Therefore, this is my right - from Maau and Keaweluaole. This is my thought.

I am, with thanks to you two.

KAUHI

#### **N.T. 85v2**

No. 295, Kauhi

Ukikihi, sworn, At the time we had Paeohi, Hoapili was the chief and we lived on Paeohi. When Poki went to England, Loinui was built and when it was completed, Luheluhe went to live there. We have seen the officers (land) and tax assessor worked

with contention until it was favorable for Kauhi. That property is for Kauhi. A certain section of this lot was given to Luheluhe by Kekauluohi under Hoapili-whine, and was enclosed by Kauhi which later the fence was taken apart. I had seen this take place.

Kanakaole, sworn, I had seen the tearing down of the fence when the judges had favored Kauhi.

The konohiki also had heard that Luheluhe had destroyed the fence. Luheluhe had received this land from Auhea and by that statement L. (Luheluhe) had taken action.

[No. 295 not awarded]

**No. 00312, T. Keaweiki**

Claim Number:	<b>00312</b>	Awarded:	<b>1</b>
Claimant:	<b>Keaweiki, Timoteo</b>	FR:	
Other claimant:		NR:	<b>76v2</b>
Other name:		FT:	
Island:	<b>Maui</b>	NT:	<b>195v2</b>
District:	<b>Lahaina</b>	RP:	<b>2650/1180</b>
Ahupuaa:	<b>Aki, Kuhua, Waiokama, Uhao°, Moalii, Akiaiole</b>	Number of Royal Patents:	<b>2</b>
Apana:	<b>8</b>	Wall/Fence:	<b>Yes</b>
House lot:	<b>1</b>	Miscellaneous:	<b>mud house</b>

**No. 312, T. Keaweiki  
N.R. 76-77v2**

To the Land Commissioners, Greetings: I hereby tell you of my right, at Lahaina. Aki and Kuhua are the lands where my lot is, and this is my residence.

A portion has been occupied from ancient times and a portion is new. It has not been surveyed - it is for you to survey it.

Farewell, and thank you

TIM. KEAWEIKI

Witnesses: Imiwale, Kaleoku

**N.T. 12v15**

No. 312, Timoteo Keaweiki, Lahaina 15. November 1852

Ahuli, sworn, says he knows the House Lot of Claimant in Waiokama, Lahaina. Witness has lived there under Claimant for the last ten years. Claimant received this Lot from Kekahiko about 1836, and there is no dispute to his title.

The Lot is bounded:

Mauka by Nalehu

Olowalu by Malokuakea

Makai by Nalehu

Kaanapali by Napahi's house Lot.

**N.T. 87v2**

No. [312], Keaweiki, Lahaina, January 1847

Postponed - work to be resumed when (he) returns.

**N.T. 195v2**

No. 312, Timoteo Keaweiki, See T.

Hooheji, sworn by the Word of God, This place which Timoteo is claiming is at Aki and are small sections of land. It was acquired during the time of Kalehu and the right was received from Kalehu, who was the konohiki of Aki, who had received his interest from Kalaimoku and Kalaimoku had received his interest from Kamehameha. Imiwale and Kaiahua both have a small piece of that place. He (Timoteo) has two lots there which have been enclosed with a fence. There is a mud house standing in there, also another enclosure and he is living there now. No one has objected to him.

It (claim) is postponed and will resume when a witness is found.

[Award 312; R.P. 2650; Waiokama Lahaina; 1 ap.; 16 rods; Kuhua Lahaina; 1 ap.; .43 Ac. & Uhao (See 11146) Lahaina; 3 ap.; 1.36 Acs; R.P. 1180; Moalii Lahaina; 2 ap.; 7.62 Acs; Aki Lahaina; 1 ap.; 6 Acs 2 roods 10 rods; Akiiole Lahaina; 1 ap.; 3.47 Acs; See also Award 11146]

### **No. 00333, Kaahanui, Puunoo, Lahaina**

Claim Number:	<b>00333</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaahanui</b>	FR:	
Other claimant:	Kaaimahalo, wahine, wife?	NR:	<b>88v2</b>
Other name:		FT:	
Island:	<b>Maui</b>	NT:	<b>245v13</b>
District:	<b>Lahaina</b>	RP:	<b>1715</b>
Ahupuaa:	<b>Puunoo</b>	Number of Royal Patents:	<b>1</b>

---

**No. 333, Kaahanui**  
**N.R. 88v2**

To the Honorable Ones:

I will explain my right to you concerning this place. My makuakane, Kuloa, and Ailiili, and Paawela, gave this place to me - one side of Puunoo and also another side of Puunoo. After I acquired this place I fenced it completely. When these people died, their wahines survived and they are the witnesses of their /kanes/ giving me this place.  
KAAHANUI

**N.T. 65-66v2**

No. 333, Kaahanui, Lahaina, December 25, 1846

Kalailuhiolo, sworn, The houselot is for Kaahanui. I have known that is his property because he had received this from me when I was living at the house.

Question: Did Paamela give it to you for them (two)?

Answer: Kamehameha I gave it to Manini.

Question: And Manini gave it to them both

Answer: Yes.

Question: What was the work at the fort?

Answer: This was the time when the fort was taken over by this person.

Question: No one has objected to this day, isn't this so?

Kaaimahalo, sworn, Yes, it was the both of us, King Kamehameha II (and me).

Kahue, sworn, Referring to what this person here has just said, when they became separated, it (property) was acquired by her husband. When the house was built my husband gave (us) those moos over there. His village became ours because we lived together. When Halaeloa died Kamakini acquired Puunooa and when it was released from Kamakini Kaahanui received it. Then we returned to that land again and when we were released (from the land) it was acquired by Mahine. I do not know about his life there now.

[Award 333; R.P. 1715; Puunooa Lahaina; 1 ap.; 1.22 Acs]

### No. 00393, Kekuelike

Claim Number:	<b>00393</b>	Awarded:	<b>1</b>
Claimant:	<b>Kekuelike</b>	FR:	--
Other claimant:	--	NR:	<b>127v2</b>
Other name:	--	FT:	<b>156v7</b>
Island:	<b>Maui</b>	NT:	<b>38v5</b>
District:	<b>Lahaina</b>	RP:	<b>1672</b>
Ahupuaa:	<b>Puukoowali, Kelawea</b>	Number of Royal Patents:	<b>1</b>

#### N.R. 127v2

I, Kekuelike, hereby tell you of my right to my lot at Lahaina. It is at Puukoowali on the northwest of the Government Road, which I enter before the Land Commissioners.

Farewell to the Honorable Ones of the Government.

January 11, 1847, Lahaina.

KEKUELIKE

#### F.T. 156v7

Cl. 393, Kekuelike

Kaluokamano, sworn, I know the lands of the claimant. They consist of a house lot with some lois in Puuhoowali, Lahaina, and a kula land in two pieces in Kelawea, Lahaina.

The claimant received it from Kapiiwi[?] in the days of King Liholiho in 1821, and has held it without dispute ever since.

It is bounded:

Mauka by the Government road leading to Lahaina

Olowalu by the same

Makai by the same

Kaanapali by the Creek of Paunau.

It is fenced and it is the correct boundary.

Claimant received this land of lois, 15 in number, from Pikanele and his grandfather in 1838 and enjoyed them in peace until 1847, when Pikanele took away 3 of them, because the man having them in charge was too old to go to the poalima work.

The piece of 14 lois is bounded:

Mauka by Kalaikini

Olowalu by Kaheekai's land

Makai and Kaanapali by the creek of Moalii.

The piece of 1 lois is bounded:

Mauka by Pikanele's loi

Olowalu by the pali

Makai by Liu's land

Kaanapali by the creek of Moalii.

There is still one new piece, a lot in Kelaweā; a very small lot. The claimant received it from Pikanele in 1833 and he has held it without dispute to the present day.

It is bounded:

Mauka by Liu's lot

Olowalu by the pali

Makai by the street

Kaanapali by the creek of Kanaha.

See page 38v5 N.T.

**N.T. 38v5**

No. 393, Kekuelike, SEE page 157 vol. 7

Kaluokamano, sworn, He has seen 4 sections belonging to Kekuelike consisting of a house lot at Puuhoowali and 3 sections at Kelaweā, here are the boundaries:

Section 1 - House lot.

Mauka, Olowalu, and Makai by Government road

Kaanapali by Adjoining Paunau ditch.

Section 2 - 14 patches.

Mauka and Olowalu Kalaikini's land

Makai by big stream

Kaanapali by stream.

Section 3 - 1 patch.

Mauka by Pikanele's land

Olowalu by pali

Makai by Liu

Kaanapali by big stream.

Section 4 - Farming lot.

Mauka by Liu

Olowalu by oali

Makai by Alanini or Alanui

Kaanapali by Kanaha big stream

1st section had been from Kaiheekai (he is new) at the time of Kamehameha II in 1821, no one has objected to him.

Pikanele has taken 2 patches out of 14, at the same time he had taken Kaluokamano's first section in 1847.

The 4th section also had been from Pikanele at the time of Hoapili in 1839, no one has objected to the 3rd section.

[Award 393; R.P. 1672; Puuhoowali & Kelaweā Lahaina; 2 ap.; 1.21 Acs]

**No. 00470, Kuokoa, Lahaina, Puako, February 23, 1846**

Claim Number:	<b>00470</b>	Awarded:	<b>1</b>
Claimant:	<b>Kuokoa, wahine</b>	FR:	
Other claimant:		NR:	<b>187v2</b>
Other name:		FT:	<b>166v7</b>
Island:	<b>Maui</b>	NT:	<b>49v5</b>
District:	<b>Lahaina</b>	RP:	<b>1961</b>
Ahupuaa:	<b>Puako</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>5</b>	Miscellaneous:	<b>houset lot bounded on north by ascending steps, awarded 4 apana</b>
Loi:	<b>3</b>		
Kula:	<b>4</b>		
House lot:	<b>1</b>		

**No. 470, Kuokoa, Lahaina, Puako, February 23, 1846  
N.R. 187v2**

A petition for the right to our /two/ house sites from ancient times, from the time of Kahakuhaakoi and a land right from Kekauonohi for the land to the taro patch of Kaeo in the lot at Puuiki. He did not live there from the ali'i, but from us two, from the makua. We heard it was given to Namauu, therefore our house and our place was taken. That is my little explanation to you, Kaaui and Mr. Richards. A border of land, also, is inside Kilolani. It was taken arbitrarily, although we two made it with the luna, Kaenaena, and it was returned.

KUOKOA

**F.T. 166v7**

Cl. 4170, Kuokoa

L. Pahia, sworn, The claimant's lands are in "Puako" Lahaina. They are as follows:

1. a house lot.
2. One kula and 2 lois
3. Three moos of kula
4. Three lois
5. a pauku of kalo land.

The claimant, a woman, received these first from lands from Kekauonohi in 1832 and has held the first four pieces without dispute until this day.

He has seen 5 sections belonging to Kuokoa, 3 of which are makai here are 2 are in the Puako ahupuaa. This was bequest land from Kekauonohi in 1823. There has been no objections to the four sections. In the year 1838, there was opposition for the 5th section, however it was unsuccessful for there was no claim. 3 sections in this land had been given away in 1835, but in 1838, Kuokoa took those lots back, no one had objected, and there are the boundaries of those 5 lots:

Section 1 - House lot.

Mauka by Pahia's land

Olowalu by A.W. Person's land

Makai by Foot path

Kaanapali by Ascending and descending steps.

Section 2 - 1 patch and a pasture.

Mauka by Kalua's land  
 Olowalu by Pahia's land  
 Makai by Kalua's land  
 Kaanapali by Kalua and Paki's land.

Section 3 - 3 Moo.

Mauka by Kaua's land  
 Olowalu by Kamaiewa's land  
 Makai by A.W. Person's land  
 Kaanapali by Pelupelu, Ku.

Section 4 - 3 patches.

Mauka by Mumuku  
 Olowalu and Makai by Puunoo land  
 Kaanapali by Pali.

Section 5 - Taro sections.

Mauka by Pahia's land  
 Olowalu by Kahoma stream  
 Makai by Mumuku land  
 Kaanapali by Kalua and Kaeo's land.

**N.T. 49v5**

No. 470, Kuokoa

Pahia, sworn, he has seen 5 sections belonging to Kuokoa, 3 of which are makai here are 2 are in the Puako ahupuaa. This was bequest land from Kekauonohi in 1823,. There has been no objection to the four sections. In the year 1838, there was opposition for the 5th section, however it was unsuccessful for there was no claim. 3 sections in this land had been given away in 1835, but in 1838, Kuokoa took those lots back, no one had objected, and there are the boundaries of those 5 lots:

Section 1 - House lot.

Mauka by Pahia's land  
 Olowalu by A.W. Person's land  
 Makai by Foot path  
 Kaanapali by Ascending and descending steps.

Section 2 - 1 patch and a pasture.

Mauka by Kalua's land  
 Olowalu by Pahia's land  
 Makai by Kalua's land  
 Kaanapali by Kalua and Paki's land.

Section 3 - 3 Moo.

Mauka by Kaua's land  
 Olowalu by Kamaiewa's land  
 Makai by A.W. Person's land  
 Kaanapali by Pelupelu, Ku.

Section 4 - 3 patches.

Mauka by Mumuku  
 Olowalu and Makai by Puunoo land  
 Kaanapali by Pali.

Section 5 - Taro sections.

Mauka by Pahia's land

Olowalu by Kahoma stream

Makai by Mumuku land

Kaanapali by Kalua and Kaeo's land.

[Award 470; R.P. 1961; Puako Lahaina; 4 ap.; 4 Acs 3 roods 2 rods]

### **No. 00502, Pupuka, Lahaina, Maui, Feb. 17, 1847**

Claim Number:	<b>00502</b>	Awarded:	<b>1</b>
Claimant:	<b>Pupuka</b>	FR:	
Other claimant:		NR:	<b>203v2</b>
Other name:		FT:	<b>158v7</b>
Island:	<b>Maui</b>	NT:	<b>41v5</b>
District:	<b>Lahaina</b>	RP:	<b>3535</b>
Ahupuaa:	<b>Hanakaoo, Puunoo<sup>o</sup></b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>9</b>		
Loi:	<b>24</b>		
Kula:	<b>2</b>		
House lot:	<b>1</b>		
Koele/Polima:	<b>Yes</b>		

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#### **No. 502, Pupuka, Lahaina, Maui, Feb. 17, 1847 N.R. 203v2**

Hear ye, Richards and Z. Kaauwai, the Land Commissioners appointed by the Mo`i, Respectful Greetings: I, Pupuka, hereby petition for the claim to my lot at Puunoo, Kainele, for your action.

Farewell and thanks.

PUPUKA

The correct heir is D. li. Quickly record this claim in the Government Book.

The two witnesses are: Kaukamauna and Ua.

PUPUKA

#### **F.T. 158-159v7**

Cl. 502, Pupuka

Kaumauna, sworn, I know the lands of the claimant. They are six pieces in Hanakaoo and one in Puunoo, Lahaina.

The claimant received the lands in Hanakaoo in the days of Kamehameha I. The claimant received them and one in Puunoo from Mahune about 1833. His title to these lands has never been disputed.

The piece in Puunoo is bounded:

Mauka by Kaluae's lot

Olowalu by the same

Makai by Mahua's land

Kaanapali by "Kuholilea" 7 lois are connected with this.

The house lot in Hanakaoo:

Mauka by Lani's lot

Olowalu by li's lot

Makai by the sea shore

Kaanapali by Piholaalaa's lot.

The piece of kula and loi is bounded:

Mauka by the poalima lois

Olowalu by the lois of Kinoole and Mr. Pitman

Makai by "Puunooa"

Kaanapali by Paku's moos.

The other kula piece is bounded:

Mauka by "Nakalepo"

Olowalu by Kaiheekai and Kahele's land

Makai by "Puunooa"

Kaanapali by the poalima land and Alu's land.

The piece of 9 lois is bounded:

Mauka by Kaiheekai's land

Olowalu by the creek of Kanaha

Makai by Pitman and Kahele's land

Kaanapali by Kaiheekai's land.

The piece of 2 lois is bounded:

Mauka by Kaiheekai's land

Olowalu by the creek of Kanaha

Makai and Kaanapali by Kaiheekai's land

The other piece of 2 lois is bounded:

Mauka by Alu's land

Olowalu by the creek of Kanaha

Makai by Paku's land

Kaanapali by Makapo's land.

The piece of 1 loi is bounded:

Mauka by Lahainaluna and Kailikai's land

Olowalu by the creek of Kanaha

Makai by Kahele's land

Kaanapali by the same.

**N.T. 41-42v5**

No. 502, Pupuka

Kaumauma, sworn He has seen Pupuka's section of 8 interest - 6 at Hanakaoo, 1 house interest at Kainehe had 1 land section at Puunooa. 6 sections at Hanakaoo from Kaiheekai. Section at Puunooa from Mahune in 1832, no objections to Puuka.

The boundaries are:

Section 1 - Puunooa land section.

Mauka and Olowalu by Kaluae

Makai by Mahua

Kaanapali by Kuholilea 7 patches.

Section 2 - House interest.

Mauka by Iani's lot  
 Olowalu by Beach  
 Makai's lot  
 Kaanapali by Piholaalaa.

Section 3 - Pasture in Hanakao.  
 Mauka by Paaku and Friday land  
 Olowalu by Kalilmaohe and Kinoole  
 Makai by Puunoa land  
 Kaanapali by Paaku.

Section 4 - Pasture.  
 Mauka by Nakalepo  
 Olowalu by Kaiheekai and Kahele's land  
 Makai by Puunoa land  
 Kaanapali by Alu's land/ Friday land.

Section 5 - 19 patches.  
 Mauka by Kaiheekai's land  
 Olowalu by Kanaha stream  
 Makai by Konoole and Kahele's land  
 Kaanapali by Kaiheekai's land.

Section 6 - 2 patches.  
 Mauka by Kaiheekai's land  
 Makai and Kaanapali by Kaiheekai's land  
 Olowalu by Stream.

Section 7 - 2 patches.  
 Mauka by Kaiheekai's land  
 Olowalu by Kanaha stream  
 Makai by Paaku  
 Kaanapali by Makapo.

Section 8 - 1 patch.  
 Mauka by Lahainaluna land  
 Olowalu by Kanahu stream  
 Makai and Kaanapali by Kahele.

[Award 502; R.P. 3535; Hanakao Lahaina; 3 ap.; 1 Ac. 2 roods 23 rods;]

### **No. 00520, Daniel Ii, Kalanikahua, January 26, 1847**

Claim Number:	<b>00520</b>	Awarded:	<b>1</b>
Claimant:	<b>Ii, Daniel</b>	FR:	25v2
Other claimant:		NR:	<b>214v2</b>
Other name:		FT:	<b>74v15</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina°, Hamakualoa</b>	RP:	<b>5632, 6847</b>

Ahupuaa:	<b>Lahaina°, Huelo, Kilolani</b>	Number of Royal Patents:	<b>2</b>
Ii:	<b>Nakalepo</b>	Miscellaneous:	<b>house lot in Lahaina not awarded, Hamaukaloa lots not described</b>
Apana:	<b>4</b>		
House lot:	<b>1</b>		

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**[No. 520, Daniel Ii], claims No. 519 to 527 inclusive  
F.R. 25v2**

Native Register

**N.R. 214-215v2**

No. 520, Daniel Ii, Kalanikahua, January 26, 1847

Hear ye, Richards: Here is my little message to you concerning my kuleana at Lahaina. It was given me by Hoapilikane because of his sympathy because my place was so far away and I had to return from work in the dark, therefore Hoapili gave me this lot. This is ended.

Furthermore, on the right to the land - if you wish to question us, Dina will tell you of our right to the land, because I can not go there, I am in difficulties; I have a broken /a leg?/ and am unable to go.

Deep love to you, the elder one who led the spirit of aloha when we all lived together in Lahaina with the preachers of the Lord and our beloved ali'is.

Farewell to you,  
DANIEL II

**F.T. 74v15**

No. 520, Daniel Ii

Ua, sworn, and being shown the survey made by Mr. Alexander, says he knows the piece of land represented and that it belongs to Claimant. It was given to Ii by Hoapilikane in the year 1835 as an absolute gift. Claimant has held uninterrupted possession of the place up to this time, has a house on it and always cultivated it.

(Copy) Resolved, that in view of the statement of His Majesty, that it was his intention originally to have the Division of lands made to secure to Daniela Ii of Maui, "Huelo" in Hamakualoa and "Nakalepo" in Lahaina, and to the Government, "Kalulu" on Lanai, but that the matter was forgotten at the time, the Minister of the Interior is authorized to correct the decision is on record accordingly.

By order of Privy Council

January 31st 1853

A true Copy

A.G. Thruston, Chief Clerk, Interior Department, September 23d 1853

**F.T. 74v15**

No. 520, Daniel Ii

[separate entry]

Kaumauna, sworn, Knows the place claimed by Daniela Ii. It was given him by Hoapili kane in the year 1835. He has cultivated and held uninterrupted possession of the place up to this time. It is the same place as is described in the survey.

[Award 520; R.P. 6847; Huelo Hamakualoa (Ahupuaa part 1); 1 ap.; 337 Acs; R.P. 5632; Nakalepo Kilolani & Waianae (2 roods 12 rods); 2 ap.; 6 Acs 12 rods]

**No. 02037, Wahie, See No. 10968, Wahie, P. 617, V.4, R.**

Claim Number:	<b>02037</b>	Awarded:	<b>0</b>
Claimant:	<b>Wahie</b>	FR:	
Other claimant:		NR:	<b>333v3</b>
Other name:		FT:	
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	
Ahupuaa:	<b>Lahaina</b>	Number of Royal Patents:	
Apana:	<b>1</b>		
House lot:	<b>1</b>		
Miscellaneous:	<b>See Award 10978</b>		

**No. 2037, Wahie, See No. 10968, Wahie, P. 617, V.4, R.  
N.R. 333v3**

Be it known by the Land Commissioners I, Wahie, hereby present my claim for a house lot in Lahaina, Maui, to the Honorable Land Commissioners in Hawaii, for you to investigate. My interest was established in the time of the Ali'i Keeaumoku until the present. The length is 300 fathoms and 2 feet, and the width is 13 fathoms and 2 feet. The witnesses are Kuakamauna and Kamakini.

I am, respectfully,  
WAHIE

[No. 2037 not awarded; See Award 10978]

**No. 03421B, Kaaa**

Claim Number:	<b>03421B</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaaa</b>	FR:	
Other claimant:		NR:	
Other name:		FT:	<b>32v15</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>5604</b>
Ahupuaa:	<b>Lahaina, Kelawea, Kuhililea</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Nakalepo, Lainapokii</b>		
Apana:	<b>3</b>		
Auwai/Ditch:	<b>Yes</b>		
Road/Path:	<b>Yes</b>		
Miscellaneous:	<b>government road</b>		

**No. 3421B, Kaaa**  
**F.T. 32v15**

M. Kenui, sworn, says Kaaa put in his claim to the Land Commission in the year 1847.

Witness knows the land of Claimant in "Nakalepo," Lahaina. It consists of one piece of kula land,

bounded:

Mauka by a stream

Olowalu by the Konohiki

Makai by the Government Road

Kaanapali by Unale's[?] land.

Claimant received this land from Kaumauma in the life time of Nahienaena.

Kaumauma, sworn, says he is Luna for Daniela li, the Konohiki of "Nakalepo." He has heard the testimony given by the former witness and confirms it in full. The Konohiki does not dispute this Claim. (Continued at page 106)

**F.T. 106-107v15**

No. 3421B, Kaaa, (from page 32)

Hanemo, sworn, Knows that Kaaa put in his claim for these pieces of land in the year 1847. The claim was given to Z. Kaauiwai at the same time as several other persons gave in their claims.

Witness knows the pieces of land claimed by Kaaa.

The first piece is situated in "Nakalepo" and is bounded:

Mauka by the watercourse

Kaanapali by the King's and Kaeo's land

Makai by Ua's land

Olowalu by the Konohiki.

The second piece is situated in "Kuholilea" and bounded:

Mauka by the Konohiki's land

Olowalu by the watercourse

Makai by Kaaukai's land

Kaanapali by the Konohiki.

The third piece is situated in "Kelawe," and bounded:

Mauka by Pikanele's land

Olowalu by Kaanaana's land

Makai by the main road

Kaanapali by the same.

Lot No. 1 was given to claimant by Kaumauma at the time Kamakini was Tax Gatherer in the year 1839. Lot No. 2 was given to claimant by Kaenaena in the year 1847.

J. Kaleikini, sworn, I was Luna for Hoapiliwahine in 1842 and was present when she gave the lot to Naiaholu (her aikane) the wife of Ninia. Naiaholu was the bosom friend of Hoapiliwahine. When Ninia got the lot he pulled down the old grass house then standing there, and erected a house of stone and mud. There were several chiefs present when Hoapiliwahine gave the lot to Naiaholu. The reason of the gift was that Hoapili wished to have her friend Naiaholu close to her own residence. I understood the gift to be absolute and lila loa.

Lot no. 3 was given to claimant by Keawaluaole in the year 1847. He held undisturbed possession of these several lots up to the time of his death in 1851.

Kupena, sworn, knows that Kaaa put in his claim for three pieces of land. Knows the pieces of land and confirms in full the testimony of the former witness.

[Award 3421B; R.P. 5604; Kelaweā Lahaina; 1 ap.; .26 rods; Lainapokii Kuholilea Lahaina; 1 ap.; .3 Ac.; Nakalepo Lahaina; 1 ap.; .56 Ac.; See also 3421B not awarded]

### **No. 03422B, Kekahuna, Lahaina Maui**

Claim Number:	<b>03422B</b>	Awarded:	<b>1</b>
Claimant:	<b>Kekahuna</b>	FR:	
Other claimant:		NR:	<b>50v9</b>
Other name:		FT:	<b>133v13/19v15</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1678</b>
Ahupuaa:	<b>Uhao</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>1</b>	Miscellaneous:	<b>2 houses</b>
Loi:	<b>17</b>		
House lot:	<b>1</b>		

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#### **Cl. 3422B, Kekahuna, Lahaina Maui F.T. 376v3**

Kenaoe of Lahaina, Maui being sworn before W. Ap. Jones, P. Magistrate, made oath that Kekahuna put into deponant's hands a land claim for a kuleana on "Uhai" (Ahilupuaa) in Lahaina, and that he took the claim to Honolulu and gave it to Namaau, Commissioners, which claim was written by a schoolmaster "Nahia."

The above signed in presence of H.W. Daniels, 31 August

Nahia, sworn, made oath that he wrote a claim as above described & saw it put into Kenaoe's hands to take to the Land Commission and he also swears that he wrote another claim at the same time for Opunui which was given to Kanaoe has since been found to have been delivered. Signed before W. Ap. Jones 3 September 1852.

<>

No. 3422B, Kekahuna

Napohaku, sworn, says he knows the land of Claimant in Uhao, Lahaina. It consists of two pieces.

The first piece is a House Lot bounded:  
Mauka and Olowalu by "Aki"  
Makai and Kaanapali by the Konohiki.

The second piece is bounded:  
Mauka and Olowalu by "Aki"  
Makai by the Konohiki  
Kaanapali by a stream.

Claimant derived the land through his wife about 1842 (or through her sister) and has occupied it in peace up to a short time since when Puuki has disputed his claim.

Timoteo Keaweii, sworn, says he knows the land claimed by Kekahuna. He has occupied and cultivated it the same as all other Hoainas, since he got it in the time of Kinau, and held the land in peace till lately, when Puuki raised a counter claim. There are no poalima patches in it.

**N.T. 112v10**

Kekahuna, 4 February 1852

[No number given]

Kainawe, sworn, I have seen his land sections in the ahupuaa of Uhao, Lahaina, Maui.

Section 1 - 17 taro patches.

Section 2 - 1 house lot with two houses.

Section 1:

Mauka and Olowalu by Namauu's land

Makai by Puuki's land, government land

Kaanapali by Kaleipaihala's land.

Land from Luukia in 1841, when Kaenaena had been tax assessor, no objections.

Napohaku, sworn, every statement above is true, I have known in the same way.

[Award 3422B; R.P. 1678; Uhao Lahaina; 2 ap.; 1.25 Acs]

**No. 04320, Kaua, Lahaina, January 20, 1848**

Claim Number:	<b>04320</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaua</b>	FR:	
Other claimant:		NR:	<b>163v6</b>
Other name:		FT:	<b>14v7</b>
Island:	<b>Maui</b>	NT:	<b>68v5</b>
District:	<b>Lahaina</b>	RP:	<b>1960, 5615</b>
Ahupuaa:	<b>Kopili</b>	Number of Royal Patents:	<b>2</b>
Apana:	<b>5</b>		
Kula:	<b>1</b>		
House lot:	<b>1</b>		
Kihapai/Pakanu:	<b>1</b>		
Wall/Fence:	<b>Yes</b>		

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**No. 4320, Kaua, Lahaina, January 20, 1848**  
**N.R. 163-164v6**

Greetings to you, Kolopalela Kaaui and Keoni li and Namaui and the haole members of the Commission, and the Governor, being the Commissioners to Quiet Land Titles for house lots and kihapais: Here is my message to you: You may or may not have received some petitions concerning the harm done, because this is the fourth of the months /since the petitions/, and I think they may have been thrown away or torn up.

Here is my message to you all. Hamoa is my land from which I was dispossessed in 1845 in the month of June. Since then there has been no investigation. The land was taken - this was a genuine dispossession. Here is my claim: I received my land from Hoapili. When he died the land was bequeathed to Hoapili wahine, then Hoapili wahine directed Keohokalole, "Hear ye, Keohokalole, here is the man, Kaua," and Keohokalole consented that I possess the land under her.

The witnesses are Keaweluaole, Kalukini, Kalai, and Kauakahi. This bequest was made on April 26, 1842. Then Hoapili wahine died, and then Kauluohi took the land absolutely for herself, and dying, it went to Keohokalole. It is for you all to think about this being taken, as to whether the trouble is mine - it is not clear.

Furthermore, there is my kihapai in Puako and my house lot and pig enclosure in the kula of Maulukai. Here is my claim: it was from Hoapilikane. Also, my land in Lahaina was from Hoapili. I received my house lot from Nahienaena. The witnesses are David Malo, Laahili, Malue, Kamanawa and Paaniani. They are my witnesses for all these things.

KAUA

**F.T. 14-15v7**

Cl. 4320, Kaua, See page 186

For ahupuaa in Lahaina called Kopili & a small fenced house lot in Puako also a land in Hana. Claimant says the ahupuaa of Kopili was given him by the King at late division for a land in Molokai called "Kipu." See Oahu Book.

Moku, sworn, I know the claimants lands in Puako, Lahaina, a house lot and small adjoining farm.

Bounded by  
The kula of Maulukoi Mauka

Olowalu by Pahala  
Makai by kalo land called Alapai  
Kaanapali by Paunau and small portion of Waianae.

Claimant had this land from Nahienaena and ever since held it in peace. The King gave the ahupuaa of Kopili to claimant ho has held it peaceably since 1825. I never heard of his title being disputed.

**F.T. 186v7**

Cl. 4320, Kaua, from page 14, No. 737 first claim.

This claim was mostly heard May 31.

Z. Kaauwai, sworn, I know the claimant's land in Hana. It is a Ahupuaa called "Hamo." "

The claimant received it from Hoapili Kane about 1838. His title is disputed by Keohokalole who took it away in 1845. It was the land of Keohokalole when Hoapili gave it away and as soon after the death of Hoapili Kane, as she saw fit, she took it back again.

**N.T. 68v5**

No. 4320, Kaua, See page 72

Z. Kaauwai, sworn, he has seen the ahupuaa of Hamoa of Hana in East Maui, Hoapili had given this in 1838. Upon Hoapili's death kapa was willed to live under Lot Kamehameha. Keohokalole objected to this in 1845, it has been for him previously.

**N.T. 72v5**

No. 9794D!, Kaua, from page 68, 4320  
[should be 9795D not awarded]

I have filed my claim in Oahu, before February 1848, but there is no return. A copy of that claim is at Kahakuloa.

Kahikona, sworn, he has seen this taro section in the ili of Kuahana of Kahakuloa ahupuaa (?) and 1 prisoner [patch] is in there. This had been from Pikanele in 1839, now it has been from Kuakamauna in 1845, and Kaua is living under him at the present time.

[Award 4320; R.P. 5615; Kopili Lahaina; 1 ap.; 1 rood 20 rods; R.P. 1960; Kopili Lahaina; 2 ap.; 2 Acs 4 rods; Puako Lahaina; 1 ap.; 9 Acs 1 rood 24 rods]

**No. 05006, Kalena**

Claim Number:	<b>05006</b>	Awarded:	<b>1</b>
Claimant:	<b>Kalena</b>	FR:	
Other claimant:		NR:	<b>227v6</b>
Other name:		FT:	<b>4v6</b>
Island:	<b>Maui</b>	NT:	<b>110v10</b>
District:	<b>Lahaina</b>	RP:	<b>1692,662</b>
Ahupuaa:	<b>Kelaweia, Iikahi</b>	Number of Royal Patents:	<b>2</b>

**N.R. 227v6**

Greetings to the Land Commissioners on the Island of Oahu, of the Hawaiian Kingdom: I hereby claim my kihapai and kula land. It is at Lahaina on the Island of maui at Kelaweia where I live. The one from whom I received my land was Keaweluaole and I am under him in peaceful possession, with no opposition until this day.

KALENA  
Lahaina, Maui

**F.T. 4v7**

No. 5006, Kalena

Keaweluaole, sworn, I know the lands of claimant. They are in Lahainawaena in Ahupuaa of Kalawea, ili of Opiopio, consisting of kula and kalo land. He has a house lot also, separate from the other land farther down. The kula and kalo lie together:

On the Mauka is Pikanele's land  
 Olowalu is my land Kukuikapu  
 Makai is Pikanele's  
 Kaanapali is the creek of Aki.

I gave this land to claimant in 1843. I had it from Hoapilikane in 1832. Claimant has held it without dispute to the present time.

The house lot is fenced and the fence is the true boundary. He had this land from his wife, who had it in time of Kamehameha I. The name of his wife is Kailaa. His title to this house lot was disputed in 1846 for the first time. (Stated August 19th 1850 by Kauhi 5017).

Kenui, sworn, I know these lands well, and have heard the testimony of Keaweluaole.

**N.T. 110-111v10**

No. 5006, Kalena (See page 121), Lahaina, Maui, 3 February 1852

Lui, sworn, I have seen his house site over which there is a dispute between Kauhi and Kelawea - Lahaina, Maui. Several houses for Kalena are standing there.

Mauka by Keaka's house lot  
 Olowalu and all around C. Kanaina's land.

Land to Kalena in 1840, from Kaohekanu, his father-in-law. Kaohekanu had received it from Kamakapelapela, his father-in-law. I had first seen him at the time of Liholiho, the king, but he had lived there prior to this, his houses were there. He lived there until he gave it to his son-in-law, Kalena, there were no objections to this. Kalena lived there peacefully to 1851, then Kauhi started to stir for this place. I did not see the old place, but I did see the construction of the old adobe in 1840, on the site which Kauhi is claiming as his place. The house had fallen apart in 1851, but its foundation is still intact. There is [are] disputes over the breadfruit trees, but I have not known who had planted them, probably, Kaululaau.

POSTPONED: Till Timoteo Keaweui is available and for Kauhi and C. Kanaina's objections.

**N.T. 121v10**

No. 5006, Kalena vs. Paahao (from page 110)

Paele, sworn, there is a dispute over this place in Ilikahi, Lahaina, Maui. Kalena's surveying has taken a section of Iilitahi and it has been included in his house lot. I think this is an error.

Timoteo, sworn, Kalena's surveying of his place is correct, the boundary of Kalawea has extended to the houses of Paahao. It is not an error, because this is just as I have known long ago and the natives of Kelawea have indicated similarly. As for the dispute between Kauhi and Kalena, the latter is in the right.

[Award 5006; R.P. 1692; Kelawea Lahaina; 1 ap.; 2 roods 11 rods; R.P. 662; Kelawea Lahaina; .36 Ac.]

**No. 05017, Kauhi**

Claim Number:	<b>05017</b>	Awarded:	<b>1</b>
Claimant:	<b>Kauhi</b>	FR:	
Other claimant:		NR:	<b>225v6</b>
Other name:		FT:	<b>3v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1842</b>
Ahupuaa:	<b>Kuiaha</b>	Number of Royal Patents:	<b>1</b>

**No. 5017, Kauhi  
N.R. 225v6 [228v6]**

Greetings to the Land Commissioners in the Hawaiian Kingdom. I hereby petition you for my claims in Lahaina, Maui, in the Ahupua'a of Kelaweia. I state to you that there are some kihapais and some lo'is where were received from Keaweluaole. I live under him in peace, with no opposition until this day. Therefore let it e entered in the record book of the Kingdom.

KAUHI

Lahaina, Maui

**F.T. 3-4v7**

No. 5017, Kauhi

Ukekihi, sworn, I know the claimant's house lot, but not his other lands. This house lot is in Lahaina.

It is bounded:

Mauka by yard of Kalena

Olowalu by Keaweluaole's

Makai by a large kalo patch of Hoapili's in old times

Kaanapali by my yard.

It is fenced with adobies and the fence is the true boundary.

The claimant received this land as an heir form Luluhi in Hoapili's governorship time; according to my best knowledge. He has held possession of the lot to the present time, but not in peace. Keaweluaole is a counter claimant.

Keaweluaole, sworn, for claimant about his kalo land says, I know the kalo land or kihapai of claimant. It lies in one piece consisting of several patches, but its boundaries are very irregular. It is at Lahainaluna in Ahupuaa of Kelaweia in ili of Kukaikapu.

Mauka it is bounded by Lahainaluna school lands

Olowalu also

makai by land of Kahookane

Kaanapali by land of Daniel li.

Claimant had these lands from me in 1843 and I received them from Kekupuohi in 1832. The claimant has held this land without dispute till 8146 when Kanaina set up one.

I dispute the house lot claim, made by claimant in Lahaina, and I have sent in my claim to Land Commission for the same.

See page 83 volume 15

**F.T. 83v15**

No. 5017, Kauhi, from p. 3v7

Keaka, sworn, says he knows the Claimant's House lot in "Kelawea," Lahaina. It formerly belonged to Kaluakau, who went abroad and died in the time of Kaahumanu. Kauhi, his brother-in-law, has held this lot ever since. Keaweluaole, the late Konohiki, attempted some years ago to take away this lot from Kauhi because he owed the Konohiki \$10 for Poalima labor. This is the only difficulty about claimant's title that I have ever heard of. He paid the \$10 to Keaweluaole, in 1848, perhaps.

[Award 5017; R.P. 1842; Kelawea Lahaina; 2 ap.; .52 Ac.]

**No. 05116\*M, S. Kanae**

Claim Number:	<b>05116*M</b>	Awarded:	<b>1</b>
Claimant:	<b>Kanae, Samuela</b>	FR:	
Other claimant:	Kekaula, wife & heir	NR:	<b>239v6</b>
Other name:	Keleuila	FT:	<b>33v16</b>
Island:	<b>Maui</b>	NT:	<b>35v5</b>
District:	<b>Lahaina</b>	RP:	<b>1833, 1871</b>
Ahupuaa:	<b>Panaewa, Aupokopoko</b>	Number of Royal Patents:	<b>2</b>

**No. 5116\*M, S. Kanae  
N.R. 239v6**

Greetings to you, Z. Kaauwai: I hereby tell you of a claim for a lot, which you may have written in the Government's Depository of Claims. If you have not entered it, then enter this claim.

If you wish to know the boundaries you may ask B. Manakaeha.

Furthermore, Aupokopoko should be entered with it. It is a little land in Lahaina.

Farewell to you and everyone in your house.

I am, respectfully,

S. KANAe

Lahaina, Maui, 19 January 1848

**F.T. 152v7**

Cl. 5116, S. Kanae (is dead)

Z. Kaauwai, sworn, The claimant's land they consist of one ili of land called Kiokapu in Waikiki, Oahu and an Ahupuaa in Lahaina called Aupokopoko and one house lot in Lahaina also.

Kiokapu and Aupokopoko he received from the king at the recent division. There are 7 lands. Claimant's living on Kiokapu and on Aupokopoko.

The claimant had the house lot from Hoapili Kane in 1835 and his title has never [been] disputed. He died in 1848. He left a widow named Keleuila and one daughter.

He has a house lot also in Honolulu, Oahu. He received this from his wives in olden time in 1837 and he has held it but not without dispute. William Smith disputed his title to this lot and so does Noihonua.

The house lot at Lahaina is bounded:

Mauka by Kapaakea's lot  
 Olowalu by the same  
 Makai by the Alanui Aupuni  
 Kaanapali by Kuakamauna's lot.

I don't know the bounds of the house lot in Honolulu, but it is the one near Mr. Woods, claimed by William Smith.

See page 32v15

**F.T. 32v15**

No. 5116, S. Kanae, (Deceased) from page 152v7

The widow of Claimant presented the following Certificate of Division.

"No Samuela Kanae"  
 Aupokopoko, Ahupuaa, Lahaina, Maui  
 Kiokapu, Ili no Waikiki, Kona, Oahu  
 E hookomo i ka Hoona Kuleana  
 (Signature) S.P. Kalama  
 Hale Alii  
 Feberuari, 7, 1848, See P. 53 [sic: See 33]

**F.T. 33v15**

No. 5116, Samuela Kanae, (Deceased) from page 152v7

Hauola, sworn, says, he knows the House Lot in dispute between Kanae and Kaolulo. This place was occupied by Kanae from the time of Nahienaena up to the time of his death, about 1840. Kanae built the house which now stands on the Lot, in the time of Hoapili, and rented it out to some foreigners. Kanae's first wife got the place from her brother Kaolulo, deceased, and when she died, it came to Kanae and now belongs to his heirs. (Decided in favor of S. Kanae.)

**N.T. 35-36v5**

No. 5116, S. Kanae

Z. Kaauiwai, sworn, He has seen Kanae's land on Oahu, Kiokapu in Waikiki and the house lot in Honolulu; Aupokopoko in Lahaina and the house lot, 4 sections. These are farming sections in Aupokopoko was from Hoapili in 1835, no one had objections for that land until his (Kanae) death in 1848. 2 servants are at Aupokopoko with their claim.

Moehonua and a half Caucasian have objected to the lot in Honolulu. The district officers of Maui have enforced these lots for Kekaula, wife and heir of Kanae. The house lots on Oahu have been from Kanae's wives, Pulehu and I, in 1837. The boundaries to the Lahaina lot are:

[It is bounded]:  
 Mauka and Olowalu by Kapaakea's land  
 Makai by Government road  
 Kaanapali by E. Kuakamauna's land.

No. 2. Kaauiwai has not known the boundaries of the house lot in Honolulu, Oahu.

**N.T. 414v10**

No. 5116, L. [S] Kanae, 7 October 1854

COPY

L. Kanae's land distribution

Aupokopoko ahupuaa, Lahaina, Maui.

TRUE COPY

A.G. Thruston, Chief Clerk, Interior department, 7 October 1854

[Award 5116; R.P. 1833; Panaewa ; Panaewa Lahaina; 1 ap.; .07 Ac.; R.P. 1871; Aupokopoko Lahaina; 1 ap.; 6.58 Acs]

**No. 06408, Kalaikini, Lahaina, February 4, 1848**

Claim Number:	<b>06408</b>	Awarded:	<b>1</b>
Claimant:	<b>Kalaikini, Ioba</b>	FR:	
Other claimant:		NR:	<b>367v6</b>
Other name:		FT:	<b>9v7</b>
Island:	<b>Maui</b>	NT:	<b>119v10</b>
District:	<b>Lahaina</b>	RP:	<b>1723</b>
Ahupuaa:	<b>Kelaweā, Ukumehame</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Makanewa</b>		

**N.R. 367-368v6**

Greetings to the land Commissioners: I, Kalaikini, am a resident on the Island of Maui.

I hereby present my /claim for/ my lo`is and my separate `ili at Puaalou in Ukumehame, four lo`i and four potato mo`o.

Two mo`o are in another `ili in the Ahupua`a, also two mo`o are in another separate `ili, this is the land of Makaikē, an `ili, Kelaweā, in Lahaina - the name of that `ili is Kumunui. These lo`is and the mo`os and this `ili were received from Hoapili wahine in 1839. The witnesses are Davida Malo, Keaweluaole and Maele.

Here is this claim of mine, a house lot at Kailua on Hawaii.

It is at Kianaloli [Hianaloli] in Kailua, being the land of Olohana, from friends. It was received in 1837. Those are my land claims.

Respectfully,  
J. KALAIKINI

**F.T. 9v7**

Cl. 6408, Kalaikini, See Page 119 Vol. 10

Claimant has sent in several claims for the same lands but says they are all comprised in this Claim (See 5124)

Keaweluaole, sworn, I know the lands in this Claim. One is in Lahainawaena where Claimant lives in "Kalaweā" Ahupuaa. It is an ili called "Kumunui." I know Hoapili Wahine gave claimant this land in 1837. I think in compensation for his building her stone house of "Luāhu." He has improved it, and occupied it in peace to this time paying taxes on it. He pays 1 dollar a year to Kekuanāoa as an acknowledgement of Lordship, "Hapaumi."

It is bounded:  
Mauka by the ili of "Iauāloa"  
Olowalu by my land  
Makai by ili of Auwaiolima  
Kaanapali by ili of "Opilopilo" my land.

He has also lands at Ukumehame. They consist of 4 ridges of dry land together called Ahupuaa moos. Also 4 kalo patches apart. These and the moos were given to claimant as I have always heard in pay for keeping cattle for Lot Kamehameha or Kekuanāoa. He received them in 1845 and has ever since held them undisputed.

Claimant said he relinquished his claim to land in Hawaii, a house lot in Kailu[a], district of Kailua. He also said that his claim for a house lot at Lahainawaena was heard by Mr. Richards; and a survey was then made of it.

(Nothing of the kind on record under this number. J.H. Smith, Sec. No. 347 delivered)

**N.T. 119v10**

No. 6408, Kalaikini (from page 9, volume 7) 9 February 1852

Polea, sworn, I have seen his land at Kelaweā, Lahaina, Maui - 7 patches and a pasture section in one section of land.

[It is bounded]:

Mauka by Kalena's land  
Olowalu by Keaweluaole's land  
Makai by Kekuelike's land  
Kaanapali by Kalena's land.

Land from Mrs. Hoapili in 1838. No disputes to the present.

[Award 6408; R.P. 1723; Makenewa Ukumehame Lahaina; 2 ap.; 9 acs 1 rood 9 rods (9.3 Acs); Kelaweā Lahaina; 1 ap.; 2.58 Acs]

**No. 06432, Kaninau, Lahaina w/aena/?, 3 February 1848**

Claim Number:	<b>06432</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaninau</b>	FR:	
Other claimant:		NR:	<b>376v6</b>
Other name:		FT:	<b>11v7</b>
Island:	<b>Maui</b>	NT:	<b>25v15</b>
District:	<b>Kaanapali</b>	RP:	<b>1843</b>
Ahupuaa:	<b>Kelaweā, Honokowai</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Wanaloa</b>		

**N.R. 375v6**

Greetings to the Land Commissioners: I hereby enter my claim for lo`is and land. My lois are in Lahaina at Kelaweā, in the lot of Pikanele, above Kapoulu, on the north adjoining the lot of Loreina Anelu /Lorrin Andrews/. One mo`o with 17 lo`i and 3 separate lo`i outside /the mo`o/ which are in the kahawai /valley/ of Kapoulu, making a total of 20 lo`i.

Furthermore, there is an `ili in Honokawai in kaanapali District, Island of Maui. My wahine and I received it from Hana Kaunahi. That is my claim.

Respectfully,  
KANINAU

**F.T. 11-12v7**

Cl. 6432, Kaninau

Claim for 20 kalo patches in Ahupuaa of Kelaweā, Lahaina and an ili at Honokawai in Kaanapali.

Keaweluaole, sworn, I know part of claimant's lands. He has 17 kalo patches in one lot lying in Kelaweā which he got from Pikanele in 1842. I was witness to the gift. Claimant is a mason & worked for him. Pikanele had this land from Kekuaanoa. This land is not comprised in the ilis kupono. Claimant has held it without dispute.

It is bounded:

Mauka by my land "Kukuikapu"  
Olowalu by Kahookanu's land, a yard  
Makai by my house lot  
Kaanapali by "Kapoulu"

Claimant has also one lot (loi) in the land of Pikanele or Victoria, and 2 others far inland, but they are all in Kelaweā. He had them from Pikanele, and has held them from him ever since in peace. I know of no counter claimant.

Keawahaulu, sworn, I know claimant's Ili in Honokawai. Its name is "Walaloa." He had it from Pikanele in 1842 who had it from Kekuanaoa. Claimant has held it ever since in peace.

The boundaries of this Ili are well known to me but I cannot well describe them. I was witness to the Gift. Claimant had this land for work done for Pikanele.

See page 25 volume 15 (N.T.)

**N.T. 25v15**

No. 6432, Kaninau, from page 11v7

Kaleikini, sworn, says he knows the land claimed by Kaninau, in Kalawaa, Lahaina, and disputed by Pikanele. I live close to it, and know that Pikanele enclosed this piece of land along with his other land in 1840. Pikanele gave Pokai the husband of Kaninau, the privilege of living on this place, under him. Pokai was a mason and was sometimes employed by Pikanele, who also allowed him to live on the place in question but the land belongs to Pikanele.  
(Decided in favor of Pikanele)

[Award 6432; R.P. 1843; Kelawea Lahaina; 1 ap.; .56 Ac.; Wanaloa Honokowai Kaanapali; 1 ap.; .41 Ac.]

**No. 6498-6500, [Kakio], Lahaina, February 3, 1848**

Claim Number:	<b>06498</b>	Awarded:	<b>1</b>
Claimant:	<b>Kakio</b>	FR:	
Other claimant:		NR:	<b>394v6</b>
Other name:	<b>Kokio</b>	FT:	<b>108v7</b>
Island:	<b>Maui</b>	NT:	<b>2v5</b>
District:	<b>Lahaina</b>	RP:	<b>5596</b>
Ahupuaa:	<b>Kainehe</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>2</b>	Road/Path:	<b>Yes</b>
Loi:	<b>5</b>	Stream/Muliwai/River:	<b>Yes</b>
Kula:	<b>1</b>	Pali:	<b>Yes</b>
House lot:	<b>1</b>	Miscellaneous:	<b>government road</b>

**[No. 6498-6500], [Kakio], Lahaina, February 3, 1848**

**N.R. 394v6**

Hear ye, ye Land Commissioners sitting on the Island of Oahu. We hereby state our claims for house lots, mo`os, lo`is, and breadfruit trees. Our names are below:

No. 6498, Kakio. 5 mo`o, 1 pauku of taro, 4 breadfruit trees, 1 house lot

No. 6499, Nakoelua 2 mo`o, 1 house lot, 2 breadfruit trees.

No. 6500, Pihalaalaa 2 mo`o, 1 house lot

Those are our claims.

F.T. 108-109v7

Cl. 6498, Kakio, See page 170

Nakoelua, sworn, I know the lands of the claimant. They are in "Kainehe" Lahaina. They consist of a house lot and kula in one piece, and one piece of kalo land up mauka of 5 lois.

The claimant received these lands from Aki in 1845 and he has held them without dispute ever since. J. Piikoi is the Lord of the land.

The house lot and kula piece is bounded:

Mauka by "Hanakao"  
 Olowalu by my land and a path  
 Makai by the Alanui Aupuni  
 Kaanapali by "Puunooa."

The kula piece is bounded:

Mauka by "Kalimaohe"  
 Olowalu by the high pali  
 Makai by the creek of Kahoma  
 Kaanapali by the same.

(See further testimony in this claim)

F.T. 170v7

Cl. 6498, Kokio, See page 108

This claim has been partly heard before (See page 108)

Samuela Jackson, born in Madras, sworn, I know the land of the claimant. It is in Kainehe, Lahaina. It consists of a house lot and kula in one piece and a kalo land of 5 lois.

My wife, Aki, gave this land into the charge of Hookio [Kokio] in 1845, but the care of the land was all he had. He did not take proper care of the land. He did not plant it as he ought and he was told to leave it about two weeks ago. He said I will go for I have plenty of business in killing beef. The land never was his but is for Piikoi (the claimant was sent for three times to appear before the Commission, and substantiate his claim, but he did not come).

See page 57 volume 15

F.T. 57-59v15 & N.T. 57-59v15

No. 6498, Kokio, Disputed by J. Pukoi, from 108v7

Sam Jackson, being sworn, says he knows the land now in dispute between these parties Piikoi gave this land in charge to my wife, Aki, before 1840. The lot Kokio cultivates the land under her. The house lot was occupied by us. We had a house on it which was purchased by Piikoi from someone and given by him to my wife Kokio had no house of his own there until within these two years last past. Aki never gave any part of the land to Kokio, lilo loa. She only allowed him to cultivate as a tenant at will.

Nakoailua, sworn, says Aki held this land in 1842, Kokio was one of her kanakas and lived in her house and worked for her & her husband as a servant. I do not know that Kokio ever cultivated this piece of land mauka but it was cultivated by a relation of his named Aki, who formerly lived on a part of the same Ahupuaa, but left it for Oahu three years ago. The house he lived in is still standing unoccupied. I do not know that Aki, the Konohiki of the land ever gave any part of it to Kokio or to his father. Kokio never had a house of his own on the land till recently when, being left in charge of the konohiki's house, he pulled it down and built one for himself out of the materials, about the year 1849

T. Haneino, sworn for claimant, says he knows the pieces of land now in dispute, knows that Aki got the land from J. Piikoi in 1842, perhaps. After she got the land she looked round for a man to work on it. She got Kokio to work on the land and he cultivated different spots here and there all over "Kainehe." He also lived at the same time in the house of Aki and her husband, which stood on the makai part of what Kokio now claims as his own. So the parties lived up to the year 1850. Kokio built a

house on the makai part about 1848. I know that Kokio went to the Poalima labor of the konohiki and he was a sort of Luna also under Aki (the konohiki) for the whole Ahupuaa.

T. Keaweiiwi, sworn, says he knows the house bum llae, on Molokai some years ago. Knows that Kokio lived with the konohiki and was a luna on the land. He also cultivated some spots of it.

Ali, sworn, says he knows the land in dispute. Kokio was a kanaka of Aki's to whom Piikoi gave this land, I have seen Kokio working for Aki mixing food for her. The house which originally stood on the land was purchased by Piikoi from my brother-in-law and given to Aki when this house was pulled down. Kokio built a new one on the land. This was about four years ago. He live previously on another place. Kokio appears to have put in his claim secretly, without the konohiki having suspected anything of it till recently. I ever know of Aki giving any land to Kokio. I only know that he worked for her as a laborer.

M. Kenui, sworn, says he knows the pieces of land in dispute. Aki gave the two makai strips to Kokio, I do not recollect at what time exactly. When Piikoi gave the land to Aki there was no kanaka living on it. That was about 1841 perhaps. Kokio lived at Aupokopoko. Aki sent a man named Mahoe to bring Kokio down to work on her land and go to the poalima labor. Kokio came down and lived in Ali's house with her family. He then went to work on the makai strips and also mauka. Kokio was in charge of Kainehe for Aki. but he lived there as a hoaina. The house now standing was built about 3 or 4 years ago by Kokio, Before he built the house he lived up at Aupokopoko for 2 or 3 years during which time he was sick and unable to go to the labor of the konohiki. During this time his uncle (Aki) cultivated the land in question. I think his uncle lived on the mauka part of the makai moos but I do not know to whom the house belonged which he occupied.

Mahoe, sworn, says Aki (the konohiki) directed him to look for a hoaina to cultivate her land. He did so & brought Kokio to her. Kokio lived in Aki's house and cultivated her land both makai and mauka (Witness says that Nakoaelua, Piikoi's man, endeavoring to wrong Kokio out of this land for his own advantage)  
continued page 73

F.T. 73v15 & N.T. 73v15 /B>  
No. 6498, Kokio, (from page 59)

Disputed by Piikoi.

Upai, sworn, says Kokio was the hoaina of "Kainehe" from the year 1841 to the year 1845, and paid the tax of that land from three to seven dollars every year to witness, who was then the Tax Collector.

N.T. 2v5  
No. 6467!, Kakio, Cont. page 53  
[Should be No. 6498]

Nakoaelua, sworn, He has seen Kakios interest in Kainehu ahupuaa of 5 patches and a pasture, the sections of the two parcels are:

Section 1 - Pasture.  
Mauka by Hanakoo  
Olowalu Nakoaelua's land  
Makai by Road  
Kaanapali by Puunooa?.

Section 2 - Taro.  
Mauka by Kalimaole ?  
Olowalu Pali  
Makai by Stream  
Kaanapali by Kahoma ?

Interest from Aki in 1845, it has been filed, no objections.

N.T. 53v5

No. 6498, Kokio, from page 2

Work has been done previously on this claim by Piikoi, Kokio had been in error in claiming this interest.

Keahina, sworn, He has seen these sections which Kokio had claimed, he (Kokio) has no interest here. Keahina's wife had given Kokio custody of the interest only, the interest belonged to Piikoi. Aki had given it to him in 1845, Kokio had been summoned before the land commissioners, but he had not responded. 1 house lot and a pasture.

Section 2 - 5 patches - 8 patches is absolutely correct.

[Award 6498; R.P. 5596; Kainehe Lahaina; 2 ap.; 3 roods 20 rods; 6478 also awarded]

### **No. 06621, Nalehu, Lahaina**

Claimant:	<b>Nalehu</b>	Awarded:	<b>1</b>
Other claimant:		FR:	
Claim Number:	<b>06621</b>	NR:	<b>383v5</b>
Other name:		FT:	<b>183v7</b>
Island:	<b>Maui</b>	NT:	<b>65v4</b>
District:	<b>Lahaina</b>	RP:	<b>1722</b>
Ahupuaa:	<b>Kuholilea</b>	Number of Royal Patents:	<b>1</b>

#### **No. 6621, Nalehu**

#### **N.R. 383v5**

Hear ye, ye Land Commissioners: I hereby state my claim for land. There are 3 /?/ taro lo'i, three sweet potato kula, eight lauhala trees, and a house lot.

NALEHU

Kuholilea, February 3, 1848

#### **F.T. 183v7**

Cl. 9212C, Nalehu, See Index 6621

The claimant made oath that he sent his claim to Oahu February 1, 1848. The Commission resolved to hear it.

Kanalu, sworn, I know the lands of the claimant. They are in "Kuholilea," Lahaina. There are 3 pieces.

No. 1 contains of 32 lois

No. 2 of one loi.

No. 3 is a kula land.

The claimant received these lands from Kipa about 1831, and his title to the same has not been disputed, except that the claimant and the new konohiki, Opunui, had some angry words about the kula land in February last.

No. 1 is bounded:

Mauka by my land

Olowalu by "Puunoa"

Makai by Aha's land  
Kaanapali by the creek of Kahoma.

No. 2 is bounded:  
Mauka by my land  
Olowalu by "Puunoa"  
Makai by Kanaina's poalima  
Kaanapali by my land.

No. 3 is bounded:  
[Mauka] by Aha's land  
Olowalu by the pali of "Paunau"  
Makai and Kaanapali sides by Kanaina's poalima.

**N.T. 65v5**

No. 9812C, Nalehu

He has filed, but there has been no answer, here is the copy of that claim:

Kanalu, sworn, He has seen 3 sections at Kuholilea, Kipa and had given Nalehu this land, no one had objected except for Opunui who had objected to the pasture, but did not take it away.

Section 1 - 32 patches.  
Mauka by Kanahi's land  
Olowalu by Puunoa land  
Makai by Aha  
Kaanapali by Kahoma stream.

Section 2 - 1 patch.  
Mauka by Kanalu's land  
Olowalu by Puunoa land  
Makai by Friday land  
Kaanapali by Kanalu's land.

The Friday area is for C. Kanaina.

[Award 6621; R.P. 1722; Kuholilea, Lahaina; 1 ap.; 1.8 Acs; See also No. 9812C not awarded]

**No. 06783, Kauhi**

Claim Number:	<b>06783</b>	Awarded:	<b>0</b>
Claimant:	<b>Kauhi</b>	FR:	
Other claimant:		NR:	<b>424v6</b>
Other name:		FT:	<b>55v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	
Ahupuaa:	<b>Haleu</b>	Number of Royal Patents:	
Apana:	<b>3</b>		

Loi: 2  
Kula: 1

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**Cl. 6783, Kauhi (See page 57)**  
**F.T. 55v7**

Makaulia, sworn, I know the lands of claimant. They are in "Polanui" Lahaina. They consist of two sections of kalo land and a piece of kula. The claimant received these lands from me in the days of Hoapili 1839 and he has held them without dispute ever since.

The kula piece is bounded:  
Mauka by the road leading to Olowalu  
Olowalu by the land of John White  
Makai by the land of Makuahine  
Kaanapali by my kula.

The Makai section of kalo land is bounded:  
Mauka by the stream of Alio  
Olowalu by the pali  
Makai by the creek of Alio  
Kaanapali by the same.

The other section is bounded:  
Mauka by Ilikalu  
Olowalu by the high pali  
Makai by the stream of Polanui  
Kaanapali by the high pali and stream.

**F.T. 57-58v7**

Cl. 6783, Kauhi (see page 55)

Mahaulia, sworn, I know the lands of claimant. They are in "Polanui," Lahaina. They consist of two sections of kalo land and one piece of kula.

The claimant received these lands from me in the days of Hoapili 1839, and he has held them without dispute ever since.

The kula land is bounded:  
Mauka by the road leading to Olowalu  
Olowalu by the land of John White  
Makai by the land of Makuahine  
Kaanapali by my kula.

The makai section of kalo land is bounded:  
Mauka by the stream of Alai  
Olowalu by the pali  
Makai by the creek of Alae  
Kaanapali by the same.

The other section is bounded:  
Mauka by Kikela  
Olowalu by the high pali  
Makai by the stream of "Polanui"  
Kaanapali by the high pali and stream.

(Copy twice)

[No. 6783 not awarded; See 6781 for Native Register document]

**No. 07587\*M, Luika Kealoha**

Claim Number:	<b>07587*M</b>	Awarded:	<b>0</b>
Claimant:	<b>Kealoha, Luisa</b>	FR:	
Other claimant:		NR:	<b>358v5</b>
Other name:	Kealoha, Luika	FT:	
Island:	<b>Maui</b>	NT:	<b>219, 316v10</b>
District:	<b>Lahaina</b>	RP:	
Ahupuaa:	<b>Kipili</b>	Number of Royal Patents:	
Apana:	<b>1</b>		

**No. 7587\*M, Luika Kealoha****N.R. 358v5**

Luita Kealoha's share from the Mo'i: Puahuula, an `Ili of Kaneohe, Oahu /and/ Kapili Ahupua`a in Lahaina. By direction to have the title quieted, it is for you to work on.

Respectfully,  
LUITA KEALOHA  
9 February 1848

**N.T. 219v10**

No. 7587, Luisi Kealoha

Puahuula ili for Kaneohe, Koolaupoko, Oahu.  
Kipili ahupuaa, Lahaina, Maui.  
TRUE COPY  
A.G. Thruston, Clerk, Interior Department  
14 April 1853

See page 316

**N.T. 316v10**

No. 7587, Luisi Kealoha (from page 219), 29 September 1853

Luisi Kealoha's lands in the Registry of the Mahele Book.  
Puahuula ili for Kaneohe, Koolaupoko, Oahu.  
Kopili ahupuaa, Lahaina, Maui.  
True Copy  
A.G. Thruston, Clerk, Interior Department

[No. 7587 not awarded on Maui; See Oahu]

**No. 07591, Kalakoa, Lahaina, February 5, 1848**

Claim Number:	<b>07591</b>	Awarded:	<b>1</b>
Claimant:	<b>Kalakoa</b>	FR:	
Other claimant:		NR:	<b>434v6</b>
Other name:		FT:	<b>55v7/165v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1887</b>
Ahupuaa:	<b>Kuholilea</b>	Number of Royal Patents:	<b>1</b>

**No. 7591, Kalakoa, Lahaina, February 5, 1848****N.R. 435v6**

I, the one whose name is below, have 18 taro lo'i in the valley of Kahoma. That is my claim.  
KALAKOA

**F.T. 165v7**

Cl. 7591, Kalakoa

Ihu, sworn, I know the land of the Claimant. It is one piece of 18 lo'is of kalo land, in Kuholilea. It is fenced and there is some kula in the [left blank - it?].

The claimant received this lot from Kahie in the year 1827 and his title has never been disputed.

It is bounded:

Mauka by my land

Olowalu by the kula of Paunau

Makai by the road leading to Kaanapali

Kaanapali by the Creek of Kahoma.

[Award 7591; R.P. 1887; Kuholilea Lahaina; 1 ap.; .73 Ac.]

**No. 07625, Kahoomaemae, Lahaina, February 2, 1848**

Claim Number:	<b>07625</b>	Awarded:	<b>1</b>
Claimant:	<b>Kahoomaemae</b>	FR:	
Other claimant:		NR:	<b>436v6</b>
Other name:		FT:	<b>118v7</b>
Island:	<b>Maui</b>	NT:	<b>10v5</b>
District:	<b>Lahaina</b>	RP:	<b>1747</b>
Ahupuaa:	<b>Kuholilea</b>	Number of Royal Patents:	<b>1</b>

**No. 7625, Kahoomaemae, Lahaina, February 2, 1848****N.R. 436v6**

Greetings to the Land Commissioners: I, Kahoomaemae, have some lo`is in the ahupua`a of Kuholilea at the two branches of the stream of Lahainaluna. I have a total of nine lo`i and also a lauhala clump.

I have had this little place from the time that the school was established at Lahainaluna, going to the po`alima work days of the konohiki.

I held the land until this new konohiki, Kaenaena, and no one dispossessed me from my cultivation.

KAHOOMAEMAE

**F.T. 118v7**

Cl. 7625, Kahoomaimai

Kanalu, sworn, I know the lands of the Claimant It is in "Kuholilea", Lahaina, and consists of 9 lois all in one piece.

The claimant received these lands from Kalawaia, in the year 1831, and he has possessed them in peace down to the present day.

It is bounded:

Mauka by the poalima lois of Kanaina

Olowalu by his land, son of Kapaki

Makai by the same

Kaanapali by the Creek of Kahema.

[Award 7625; R.P. 1747; Kuholilea Lahaina; 1 ap.; 1 rood 17 rods]

**No. 07713\*M, Victoria Kamamalu, Land Division, See Page 569**

Claim Number:	<b>07713*M</b>	Awarded:	<b>1</b>
Claimant:	<b>Kamamalu, Victoria</b>	FR:	
Other claimant:		NR:	<b>440v5,569v5</b>
Other name:		FT:	<b>408v3</b>
Island:	<b>Maui</b>	NT:	<b>650v1</b>
District:	<b>Lahaina, Wailuku, Hamakualo</b>	RP:	<b>4475</b>
Ahupuaa:	<b>Waihee, Paunau, Aki, Kelawea, Moalii, Kalua, Haiku, Makapuu, Kawela, Onouli, Kaumanu, Kahalehili, Kaeleku, Honokalani, Kawaipapa, Niumalu, Palemo, Pakakia, Kahuakamalii, Ihuula, Oloewa, Papalahau, Mokae, Puekahi, Puuiki, Kapohoe, Pukuilua, Kaou, Hal</b>	Number of Royal Patents:	<b>1</b>

**N.R. 440-444v5**

Opukaula, `Ili, Waimano, Ewa, Oahu  
 Kilauluna, `Ili, Waimano, Ewa, Oahu  
 Hananau, `Ili, Waimano, Ewa, Oahu  
 Kananelu, `Ili, Waimano, Ewa, Oahu  
 Pohe, `Ili, Waimano, Ewa, Oahu  
 Kaulu, `Ili, Waimano, Ewa, Oahu  
 Kapuna, `Ili, Waimano, Ewa, Oahu  
 Poupouwela, `Ili, Manaiki, Ewa, Oahu  
 Kapaloa, `Ili, Waiawa, Ewa, Oahu  
 Panio, `Ili, Waiawa, Ewa, Oahu  
 Kuhialoko, `Ili, Waiawa, Ewa, Oahu  
 Kahoai, `Ili, Waiawa, Ewa, Oahu  
 Papaa, `Ili, Waiawa, Ewa, Oahu  
 Kaohai, `Ili, Waiawa, Ewa, Oahu

Kalona, `Ili, Waiawa, Ewa, Oahu  
 Kuhiawaho, `Ili, Waiawa, Ewa, Oahu  
 Kapuaihalulu, `Ili, Waiawa, Ewa, Oahu

2.

Haleaka, `Ili, Waiawa, Ewa, Oahu  
 Piloaumo, `Ili, Waiawa, Ewa, Oahu  
 Kionaole, `Ili, Waiawa, Ewa, Oahu  
 Hanakehau, `Ili, Waiawa, Ewa, Oahu  
 Kapopou, `Ili, Waiawa, Ewa, Oahu  
 Kalimukele, `Ili, Waiawa, Ewa, Oahu  
 Kumuulu, `Ili, Waiawa, Ewa, Oahu  
 Hapuna, `Ili, Kalihi, Kona, Oahu  
 Waiaula, `Ili, Kalihi, Kona, Oahu  
 Kalaepohaku, `Ili, Kapalama, Oahu  
 Kauluwela, `Ili, Honolulu land, Oahu  
 Kanewai, `Ili, Waikiki, Oahu  
 Kapaakea, `Ili, Waikiki, Oahu  
 Komoawaa, `Ili, Waikiki, Oahu  
 Waialae, `Ili, Waikiki, Oahu

3.

Halawa, Ahupua`a, Koolau, Molokai

Kaa, Ahupua`a, Lanai

Kelawe, Ahupua`a, Lahaina, Maui  
 Moalii, Ahupua`a, Lahaina, Maui  
 Aki, Ahupua`a, Lahaina, Maui  
 Paunau, Ahupua`a, Lahaina, Maui  
 Waihee, Ahupua`a, West Puali, Maui  
 Kalua, `Ili, Wailuku, Maui  
 Haiku, Ahupua`a, Hamakualoa, Maui  
 Makapuu, Ahupua`a, Hana, Maui  
 Kawela, Ahupua`a, Hana, Maui  
 Onouli, Ahupua`a, Hana, Maui  
 Kaumanu, Ahupua`a, Hana, Maui  
 2 Kahalehili, Ahupua`a, Hana, Maui  
 3 Kaeleku, Ahupua`a, Hana, Maui  
 Honokalani, Ahupua`a, Hana, Maui  
 Kawaipapa, Ahupua`a, Hana, Maui  
 5 Niunalu, Ahupua`a, Hana, Maui  
 2 Palemo, Ahupua`a, Hana, Maui  
 3 Pakakia, Ahupua`a, Hana, Maui  
 2 Kahuakamalii, Ahupua`a, Hana, Maui  
 Ihuula, Ahupua`a, Hana, Maui  
 Oloewa, Ahupua`a, Hana, Maui  
 4 Papalauhau, Ahupua`a, Hana, Maui  
 4 Moka, Ahupua`a, Hana, Maui  
 Puekahi, Ahupua`a, Hana, Maui  
 Puuiki, Ahupua`a, Hana, Maui  
 3 Kapohoe, Ahupua`a, Hana, Maui  
 Pukuilua, Ahupua`a, Hana, Maui  
 2 Kaou, Ahupua`a, Hana, Maui  
 Halehana, Ahupua`a, Hana, Maui  
 Kaukuhalahala, Ahupua`a, Hana, Maui  
 2 Piapia, Ahupua`a, Hana, Maui  
 Koakapuna, Ahupua`a, Hana, Maui  
 Kawaalua, Ahupua`a, Hana, Maui

Pueokahi, Ahupua`a, Hana, Maui  
 Pueokauiki, Ahupua`a, Hana, Maui  
 Pohakanele, Ahupua`a, Hana, Maui  
 Ahuakaio, Ahupua`a, Hana, Maui  
 Kihapuhala, Ahupua`a, Hana, Maui  
 Papahawahawa, Ahupua`a, Hana, Maui  
 Muolea, Ahupua`a, Hana, Maui  
 Puuhaoa, Ahupua`a, Hana, Maui  
 Kahalawe, Ahupua`a, Hana, Maui  
 Ohia, Ahupua`a, Hana, Maui  
 Kolokole, Ahupua`a, Hana, Maui  
 Kapuomahuka, Ahupua`a, Hana, Maui  
 Mahulua, Ahupua`a, Hana, Maui  
 Poopoo, Ahupua`a, Hana, Maui  
 Lapalapaiki, Ahupua`a, Hana, Maui  
 Waieli, Ahupua`a, Hana, Maui  
 Paihala, Ahupua`a, Hana, Maui  
 Kalihi, Ahupua`a, Hana, Maui  
 Kakiweka, Ahupua`a, Hana, Maui  
 Kailihiakoko, Ahupua`a, Hana, Maui  
 Puukohola, Ahupua`a, Hana, Maui  
 Kahalawe, Ahupua`a, Hana, Maui  
 Puaaluu, Ahupua`a, Hana, Maui

Kahua, Ahupua`a, Kohala, Hawaii  
 Honokane, Ahupua`a, Kohala, Hawaii  
 Holualoa 1,2, Ahupua`a, Kona, Hawaii  
 Kahaluu, Ahupua`a, Kona, Hawaii  
 Keopunui, Ahupua`a, Kona, Hawaii  
 Keauhou, Ahupua`a, Kona, Hawaii  
 Honuaino, Ahupua`a, Kona, Hawaii  
 2 Honokua, Ahupua`a, Kona, Hawaii  
 Haukalua 1, 2, Ahupua`a, Kona, Hawaii  
 Pakini, Ahupua`a, Kau, Hawaii  
 Keauhou, `Ili, KapapalaKau, Hawaii  
 Kahuai, Ahupua`a, Puna, Hawaii  
 Kauhaleau, Ahupua`a, Puna, Hawaii  
 Kauaea, Ahupua`a, Puna, Hawaii  
 Piopio, Ili in Waiakea, Puna, Hawaii  
 Kalalau, Ahupua`a, Puna, Hawaii  
 Honohononui, `Ili in Waiakea, Puna, Hawaii  
 Pahoehoe, Ahupua`a, Puna, Hawaii  
 Onomea, Ahupua`a, Puna, Hawaii  
 Alae, Ahupua`a, Puna, Hawaii  
 Kekelani, `Ili in Waimanu, Hamakua, Hawaii  
 Kuilei, Ahupua`a, Puna, Hawaii

**N.R. 569v5**

0No. 7713, Victoria Kamamalu, from page 440

Victoria Kamamalu's lands in the Mahele by the Mo`i, in the month of January 1848, continued:

Huleia, a district of Kauai, however, the Government cattle shall graze there.

Makaweli, Ahupua`a, Kona, Kauai  
 Places unsuitable for the soldiers and the fort  
 Maunalua, `Ili, Waimanalo, Koolaupoko, Oahu  
 Paho, `Ili, Waianae, Waianae, Oahu  
 Kaluanui, Ahupua`a, Koolauloa, Oahu

Kawailoa, Ahupua`a, Waialua, Oahu  
 Paalaa, Ahupua`a, Waialua, Oahu  
 Kaelepulu, `Ili, Kailua, Koolaupoko, Oahu  
 Kikiwelawela, `Ili, Kaneohe, Koolaupoko, Oahu

**F.T. 408-411v3**

No. 7713, V. Kamamalu  
 No. 10474, N. Namauu  
 No. 7716, R. Keelikolani  
 No. 7714B, M. Kekuaiwa  
 No. 7712, M. Kekuanaoa [7712B]  
 A True Copy  
 (Sig). A. G. Thurston  
 Clerk Interior Department.  
 Copy of the Division of Lands agreed upon in Privy Council August 27, 1850

Kekuanaoa and his children to receive Fee simple titles for those lands here set off to them- they resigning to the Gov. all title to the other lands granted them in the Buke Mahele.

No. 7713, Ko Victoria Kamamalu mau aina ma ke ano Alodio

Honokane, Ahupuaa, Kohala, Hawaii  
 Kahua, Ahupuaa, Kohala, Hawaii  
 Keopu, Ahupuaa, Kona, Hawaii  
 2 Holualoa, Ahupuaa, Kona, Hawaii  
 Kahaluu, Ahupuaa, Kona, Hawaii  
 Keauhou, Ahupuaa, Kona, Hawaii  
 Honuaino, Ahupuaa, Kona, Hawaii  
 Honokua, Ahupuaa, Kona, Hawaii  
 Pakini, Ahupuaa, Kau, Hawaii  
 Keauhou, Ili is Kapapala, Kau, Hawaii  
 Kahuwai, Ahupuaa, Puna, Hawaii  
 Kauwalehau, Ahupuaa, Puna, Hawaii  
 Kauaea, Ahupuaa, Puna, Hawaii  
 Honohononui, ili o Waiakea, Hilo, Puna, Hawaii  
 Piopio, ili o Waiakea, Hilo, Puna, Hawaii  
 Kalalau, Ahupuaa, Puna, Hawaii  
 Pahoehoe, Ahupuaa, Hilo, Hawaii  
 Alae, Ahupuaa, Puna, Hawaii  
 Onomea, Ahupuaa, Puna, Hawaii  
 Kuilei, Ahupuaa, Hamakua, Hawaii  
 Kekelani, ili no Waimanu, Hamakua, Hawaii

Kalua, Ahupuaa, Wailuku, Maui  
 Waihee, Ahupuaa, Puali, Kom. [Komohana]

Aki, Ahupuaa, Lahaina, Maui  
 Paunau, Ahupuaa, Lahaina, Maui  
 Kelaweia, Ahupuaa, Lahaina, Maui

Halawa, Ahupuaa, Koolau, Molokai

Kaa, Ahupua, Kona, Lanai

Maunalua, ili no Waimanalo, Koolaupoko, Oahu  
 Kaelepulu, ili no Kailua, Koolaupoko, Oahu

Kikiwelawela, Ahupuaa, Heeia, Koolaupoko, Oahu  
 Kaluanui, Ahupuaa, Koolauola, Oahu  
 Kawailoa, Ahupuaa, Wailalua, Oahu  
 Paalaa, Ahupuaa, Waialua, Oahu  
 Waiawa, Ahupuaa, Ewa, Oahu  
 Pahoa, ili no Waianae, Waianae, Oahu  
 He mau ili ma Waimano, Ewa, Oahu  
 Poupouwela, ili in Mananaiki, Ewa, Oahu  
 Kumuulu, no Waiuu, Ewa, Oahu  
 Kapuna no Kalihi, Kona, Oahu  
 Waiula no Kalihi, Kona, Oahu  
 Kalaepohaku no Honolulu, Kona, Oahu  
 Kauluwela no Honolulu, Kona, Oahu  
 Kapaakia no Waikiki, Kona, Oahu  
 Komowaa no Waikiki, Kona, Oahu  
 Kanewai no Waikiki, Kona, Oahu  
 Waialae no Waikiki, Kona, Oahu

Makaweli, Ahupuaa, Kauai  
 Huleia, Puna, Kauai  
 Kikiaola, Waimea, Kauai

Ko ke Aupuni hapakolu loko o ko V. Kamamalu mau aina. Makapu, Kawela, Oniuli, Kaumanu, 2 Kahalehili, Kaeleku, Honokalani, Kawaiipapa, 5 Niūmalu, 2 Palemo, 2 Pakakea, Nahuakamaii, Ihuuloi, Hoewaa, 2 Papauhau, Hamoa, 3 Mokae, Puekahi, Puuiki, 3 Pohue, Pukuilua, Haou, Halehana, Kaukuhalahala, Peapea, Koakupuna, Kawalua, Pueokauiki, Pohakanele, Ahuakaio, Kihapuhala, Papahawahawa, Muolea (The above ahupuaa in Hana, Maui) Moalii Ahupuaa Lahaina Maui.

**F.T. 538-539v3**

No. 7713, M. Kekuanaoa (for Victoria), 1 April 1854, Counter the government

A. Paki, sworn, for the Government, Knows that the fish pond called "Kawa", in Honolulu, was broken up in the year 1847 & the materials of the wall taken to help to construct the wall or breakwater erected by the Government on the west side of the harbor. The Government got permission from M. Kekuanaoa to take the materials of the wall of "Kawa" to make the Breakwater. He did not give the Government any portion of the soil of "Kawa," or of "Kaakaukukui." The land on which now stands the Government slaughter House, occupied by John Meek, is a portion of the ili of "Kalui." [?] I do not know what title the Government has to that place, but I have heard that Kekualoa had given it to the Government - this I state as hearsay only.

G.P. Judd, sworn, for Government, says, I was the Hawaiian Minister of Finance in the year 1847, and remember when the wall was built from the present lime kiln House running over to the land of sea & Sumner, Known as Kohololoa." It was built to prevent the filling up of the Harbor of Honolulu. It was thought advisable to remove a part of the wall of a fish pond in "Kawa," which I supposed belonged to the Government. Finding, however, that it was claimed by M. Kekuanaoa, for Victoria, Mr. Young and I applied to him for the privilege of removing it, which he granted to us, and accordingly it was removed under the direction of Piikoi and the stones put into the new wall first named, and my impression is that we built a new partition wall for the Governor's fishpond. I will not be certain however. Piikoi will know. Piikoi ran a plow through the fish pond to give direction to the stream and divert it from the harbor. I never knew of any definite cession of the fish pond or other land to the Government, but I think Kekuanaoa consented that the Government should divide the fish pond, in Privy Council. I didn't know that he claimed the land where the wall runs from the Lime Kiln, but I don't recollect that he said anything particular about it.

See P. 548. [about Pearl Harbor]

**F.T. 548v3**

No. 7713, M. Kekuanaoa (V. Kamamalu), April 19, 1854, counter the Government, from page 538

Keone Ana, sworn says, I have nothing to testify to in reference at the claim of M. Kekuanaoa in Kaakuukukui, pertaining to the wall built to protect the harbor from filling in, which wall runs from the Lime Kiln to Sea & Sumner's land.

I am sure he gave it to Government in 1847, but I will not swear anything about it until I have laid the matter before the Privy Council, as to "Kaliu," he said he had nothing to say.

To page 555

**F.T. 555-557v3**

No. 7713, M. Kekuanaoa (for V. Kamamalu) from page 538, counter the Government

Keoni Ani, sworn, presents a plan which he says was made by Order of the King in Council, in the year 1848, perhaps, and placed in my charge, as minister of the Interior. The plan shows two rows of lots laid out from the Beach seaward. The Government built the wall or breakwater in the year 1847, I think. The Government claimed no more land as I understood the matter than what is shown on the plan. When the wall was built by the Government no opposition was made to its erection by any private party. The wall was erected by the Government to prevent the harbor from being filled up with the mud washed down by the Nuuanu River. When this wall was built the wall of the loko called "Kawa" was taken down and the size of the loko reduced. After the wall was built, this plan was made by the Government and laid before the Privy Council, who resolved to sell the lots as laid out for the benefit of the Treasury. Two of the lots were accordingly disposed of with the approval of the Privy Council, to Louis Gravier. After that, a proposition was made in Privy Council to sell some of the lots to a steam boat company, but at the suggestion of M. Kekuanaoa, the proposition was dropped. Kekuanaoa advising the Council that they were disposing of the Government property too fast. After the report of a committee appointed by the Privy Council on the subject of the filling up of the harbor, the Council resolved to remove the wall of the loko called "Kawa" and M. Kekuanaoa assented.

I do not know to whom the land really belonged. I have always seen this, that when the government wanted a piece of land for their purposes, the konohikis have always given their consent. A. Paki, who had charge of Kaliu, and M. Kekuanaoa, who had charge of Kaakaukukui were both in Privy Council at the time referred to. I consider that the place where this wall is built belonged to the Government previous to that time, because by law, the papakoa and the harbor belongs [sic] to the Government. All the chiefs were in Council at the time these things were transacted. The place where the wall is built is papa koa, perhaps, mud perhaps.

Iona Kapena, sworn, says the names of the land lying between the wall of the Government and the loko called "Kawa" are Kaakaukukui and Kaliu. I pointed out the boundary line between Kaakaukukui and Kaliu a few days ago to Messers Lee and Robertson. The boundary has been well known to me ever since I was a boy. The breakwater or wall is built on the land of Kaakaukukui.

M. Kekuanaoa states that he never understood before that the Government meant to take this place now in dispute. I have heard the testimony of Young, who says the Government took it. I gave my consent to the Government to remove the wall of Kawa and for the materials, but I did not intend that the Government should take away any part of Kaakaukukui.

**N.T. 598-599v3**

No. 7713, V. Kamamalu - protest

M. Kekuanaoa and Mahuka were the persons who settled the land of V. Kamamalu with objections to C. Kanaina's rights to that property over which there was a dispute. Below are the statements of witnesses clarifying their /two/ rights.

Kumuhonua, sworn, I have seen the place over which there is a dispute between C. Kanaina and V. Kamamalu, Kaanaenui is the name. I have seen that it is the center for Waialae. The boundaries as I have seen from Kaiahaki to Kauhaki, from there to Pohakuaumiumi, then to Kaananiau and run directly to Puukuaka; from there to Kalohupale; Kapahulu is on this side and from there run directly to Kupikipikio point.

Mt. Leahi is for Kapahulu.

The boundaries of the land Kekio: on the mauka direction of Makahuna road is the taro land, detached and following to the sea of Kapua and the coconut grove.

Poo wahine: I am a native of Waiale and since I was very young and at the time of Kahekili, I have known that place over which there is a dispute. Keanaenui is the name and it is the center of Waialae. I have known the boundaries as they are at Kuaialauahi to Aumeume Rock, to Kaananiau, to Mount Kuaka and from there to Kalahu to the lae of Kupikipikio. Those are the boundaries which separate Waialae from Kapahulu. Mt Leahi is for Kapahulu.

The land Kekio runs from mauka of Makahuna Street, then separated to the extreme makai to the sea and the coconut grove.

Kuapuu, sworn, I am a land child of Waialae and I have seen the boundaries of Waialae as they were pointed out to me by my parents, from Kuahaki to Kauhaki, therefrom to Aueume Rock and so on just as Poo has related here.

The boundaries of Kekio run from mauka of Makahuna road, then it separates until the extreme makai of Kapua sea and a road called Kukii. The report given of this survey is imperfect because he had taken Waialae's pasture.

Kaula, sworn, I have not been a native very long, but I have heard the same thing from my older brother whose name is Hanakinau, as the reports given by those people above. I had heard these things after the death of Kaahumanu I.

Hehea, sworn, I am a land child of Waialae and have seen the boundaries of Waialae exactly as those witnesses have related above.

The boundaries of the land, Kekio by name, of Keekapu, are exactly as the statements given

**N.T. 373-375v10**

No. 7713, Victoria Kamamalu, Waianae, 17 August 1854

Testimony on the boundary between the ahupuaa of Waianae and the ili of "Pahoa."

Nahinu, sworn, says the ili of Pahoa is but small. The loko, makai, belongs to this ili. The boundary of the piece is dispute runs along to the eastward of an enclosure belonging to Kaapuiki, and up through the coconut grove and along a stone wall to some hau trees, and then up mauka and across to the east corner of the land, and from thence running makai to the loko.

This ili consists of three pieces, first, the fish pond; second, the piece which I have tried to describe; third, the mauka piece undisputed.

I learned these boundaries from my ancestors who lived here from ancient times.

Cross examined. I accompanied Kekuanaoa and M. Hopkins when they suspected [inspected?] the boundary line in question. I saw the marks made at that time on the coconut trees by order of Kekuanaoa, in presence of M. Hopkins. The line marked out by them on the northwest side, runs farther mauka than that described by me in my testimony.

Ohule, sworn, says he knows the middle Mana of Pohao about which the present dispute exists. It is only of late that I have heard that the boundary was disputed. This middle piece is bounded: Mauka by a stone wall. The western boundary runs up through the coconut grove and then runs to the southward, and then at the corner of what used to be a wauke patch, turns seaward and runs down to the hau trees and the stone wall. I was born on this land. The land on which stand the church and parsonage belongs to the ahupuaa of Waianae.

Kaapuiki, sworn, says when I came here to live, the boundaries of the middle piece of Pahoa were nearly the same as have been described by the preceding witnesses. Afterwards, when the law was made to restore the ancient boundaries of all the lands, Kulepe, the then tax officer, gave to "Pahoa" the land now claimed by Victoria, on the southeast side of the coconut grove, and disputed by the King. I was luna of Waianae when that arrangement was made by Kulepe. I was under Kekuanaoa. The people who live on the disputed land formerly went to the labor days on Waianae," but of late they labor on "Pahoa."

Kulepe, sworn, says, "Pahoa" consists of two pieces; the fish pond forming the part of the mauka piece. I have lived here about 15 years. I was appointed tax officer of Waianae in 1841. In 1850, the boundaries of the makai piece of "Pahoa" were pointed out to me by three kamaainas, who are all now dead. In the same year, Hopkins and Kekuanaoa came down here but I did not accompany them when they went round this land. I do not know anything myself of the true boundary, except what I heard from these kamaainas in 1850. About 1841, I restored a lihi of "Pahoa," which lies between the fish pond and the stone wall, and was claimed for "Pahoa," on account of some coconut trees. This was the only lihi of "Pahoa" restored by me. The people who formerly lived on the land now in dispute used to do konohiki labor for the ahupuaa of "Waianae."

Molea, sworn, confirms in full, the testimony of Nahinu and Ohule.

[Award 7713; (Maui) R.P. 4475; Kalua Waihee Wailuku, 1 ap. (Ap. 23); Iliaina; Puali Waihee Wailuku; R.P. 4475; Paunau Lahaina; 1 ap.; ahupua`a (Ap. 26); Aki Lahaina; 1 ap.; ahupua`a (Ap. 25); Kelawe Lahaina; 1 ap.; ahupua`a (Ap. 27); (Island of Hawaii) R.P. 4475; Keopu, Honuaino, Holualoa, Keauhou Kona and Keauhou Kau, Kuilei Hamakua, Honokane & Kahua Kohala, Honohonou, Piopio, Kalalau; Kekelani, R.P. 4475 & 6856, Kahaluu; R.P. 6857, Honokua; R.P. 6865, Haukalua; R.P. 4475, 6883 & 8220, Kauaea R.P. 6884, Kahuwai Puna; R.P. 4475 & 6887 Pakini nui Kau; R.P. 4475 & 8117 Onomea; R.P. 4475 & 8199 Kaueleau; R.P. 4475 & 6860 Pahohoe Hilo; R.P. 4475 & 6864 Alae Hilo; (Molokai) R.P. 4475 Halawa, Molokai 1 ap. Ahupuaa; (Oahu) R.P. 227 Kamoaaa, Waikiki; no R.P. for Kanewai Manoa; R.P. 4475, Waialaenu, Maunala, Waiawa, Poupuwela, Mananaiki, Hapuna & Waialua Kalihi; Waimano, Waiiau; R.P. 4475 & 7834, Kalaepohaku Kapalama; R.P. 4475 & 7805 Kaluanui; R.P. 4475 & 7793, Kauluwela; R.P. 4475 & 7789, Kapaakea; R.P. 4475, Kikiwelawela Heeia, Kawailoa Waialua, Paalaa Waialua, Kaelepulu Koolaupoko; (Lanai) R.P. 4475, Kaa; (Kauai) Kikiaola Waimea, R.P. 4476 Makaweli; R.P. 4477, Haiku, Nawiliwili, Niumalu; R.P. 4480, Kalapaki, R.P. 4481, Hanamaulu; R.P. 4482 Kipu & Mahaulepu; See 7713 for Oahu, Kauai, Lanai, Hawaii and Molokai]

### No. 07724, Poholapu, Lahaina, February 2, 1848

Claim Number:	<b>07724</b>	Awarded:	<b>1</b>
Claimant:	<b>Poholapu/Poholapu</b>	FR:	
Other claimant:		NR:	<b>440v5</b>
Other name:		FT:	<b>113v7</b>
Island:	<b>Maui</b>	NT:	<b>6v5</b>
District:	<b>Lahaina</b>	RP:	<b>1688</b>
Ahupuaa:	<b>Kuholilea, Wahikuli</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Kahoma</b>		

**N.R. 440v5**

Greetings to the Land Commissioners: I have been delayed in writing because of my illness.

I have a taro land which is spread out, with 33 lo`i in it, and in it are 3 lauhala clumps and four breadfruit -- three of which I planted with my own hands. In this taro land I have some kulas planted in sweet potatoes; they are not large.

My land is in the Ahupua`a of Kuholilea, and this is where there are the separate streams of Lahainaluna /and Kuholiea/ and these streams unite towards the sea.

This land was in ancient times given to my makuakane, from the time when Kamehameha I was living. That was when we, that is, my makuakane, began to farm this land. He was the first konohiki who "ate" Kuholilea\*.

Kamehameha I gave it to Hanape, who gave it to my makuakane. When Kamehameha I died, Hanape was dispossessed, and also my makuakane became a kanaka /subject/ under the new konohiki, having returned to him the right to the place made by his own hands. From thence my makuakane occupied it, and a lihi /edge/ of the land became mine. That is my first thought.

Furthermore, I have another thought, about a lot which is mine, since Kalaikoa gave it to Aha, and Aha gave it to me. I have held it from thence until Kaenaena, the new konohiki, and he has given it to me /again/. My house stands there, and I believe that place is mine.

POHOLAPU

/Claimant probably means that his makuakane was the first konohiki to take sustenance from the land after Kamehameha I became the ruler./

**F.T. 113v7**

**Cl. 7724, Poholapu**

Kanalu, sworn, I know the lands of the claimant. They are in "Kuholilea," and "Wahikuli." His house lot is in Wahikuli and one piece of kula and another small piece in Wahikuli, both in Lahaina.

The house lot in Wahikuli he received from Aha before 1839 and his title has never been disputed.

The lands in Kuholilea were received from Lakai long before 1839 and have been in his undisputed possession ever since.

The house lot is bounded:

Mauka by the high pali

Olowalu by the creek of Lahainaluna

Makai by the yard of Kamapuni

Kaanapali by the pasture of Kamapuni.

The piece of 34 lois and kula in Kuholilea is bounded:

Mauka by Opunui

Olowalu by part creek

Makai by the lois of Kukapu

Kaanapali by Wahikuli.

The piece of 3 lois is bounded:

Mauka by the lois of Kalualani

Olowalu by the lois of Kaenaena

Makai by the lois of Kukapu

Kaanapali by Kukapu's and Kauainoa's lois.

The one small loi is bounded:

Mauka by Kukapu's

Olowalu by the same

Makai by Kanaina's

Kaanapali by Kekoko's.

The next is one loi and kula is bounded:

Mauka by Alanui

Olowalu by Halualani

Makai and Kaanapali by Kukapu's land.

**N.T. 6v5**

**No. 7724, Poholopu**

Kanalu, sworn, He has seen Poholopu's interests a house lot in Ahikuli ahupuaa and 4 taro patches in Huholilea ahupuaa. The boundaries of the five sections are:

Section 1 - House lot.

Mauka and Olowalu by Pali

Makai by I. Kalaikini's land

Kaanapali by Ditch

Section 2 - Taro.

Mauka by Opunui's land

Olowalu by Stream

Makai by Kukapu's land

Kaanapali by Ahikili land.

Section 3 - 3 patches.

Mauka by Kalualani's land

Olowalu by Kaenaena's land

Makai by Kukapu's land

Kaanapali by Kauainoa Kukapu's land.

## Section 4 - Patch.

Mauka, Olowalu by Kukapu's land  
 Makai by Kanaina's land  
 Kaanapali by Kekoko's land.

## Section 5 - 1 patch.

Mauka by Road  
 Olowalu by Kalualani's land  
 [no makai or Kaanapali sides given]

Aha had given the house lot of the first section in 1839. The sections in Kuholilea were received in 1839 also, no one has objected.

[Award 7724; R.P. 1688; Kahoma Kuholilea Lahaina; 1 ap. 2 Acs 12 rods; Wahikula Lahaina; 1 ap.; 12 Acs; family says name should be Poholopu 6/19/2007]

**No. 07762\*M, Kainaulii**

Claim Number:	<b>07762*M</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaninaulii Kaleoku</b>	FR:	
Other claimant:		NR:	<b>451v5</b>
Other name:	Kaleoku, Kaninaulii	FT:	<b>196v10</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>8279</b>
Ahupuaa:	<b>Wahikuli</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>1</b>		
House lot:	<b>1</b>		

**No. 7762\*M, Kainaulii****N.R. 451v5**

The Land Commissioners, greetings, I hereby state my claim for land. It is an `aina maoli\*, named Pohakupli, an Ahupua`a on Molokai, and a house site house lot. I have lived a very long time on these claims with no oppositin from any one. Kindly award me these claims.

I am, with respect,  
 KANINAUALII KALEOKU X, his mark  
 Honolulu, February 8, 1848  
 Witness to his mark: Kaleleiki  
 L.P. Kalama

/\*Land to which he believes he has a genuine right./

**N.T. 196v10**

No. 7762, Kaninaulii Kaleoku

COPY

Kaninaulii Kaleoku's land as listed in the Mahele Registry.  
 Pohakupili ahupuaa, Kona, Molokai  
 TRUE COPY  
 A.G. Thruston, Secretary, Interior Department

10 February 1853

See page 45, vol. 15

**N.T. 45v15**

No. 7762, Kaninaualii, from page 196v10

Pupuka, sworn, knew Kalaoku, father of the present claimant, Kaninaualii, knows the piece of land described in the survey now produced. It is situated in Aupokopoko, Lahaina. It was given to Kalaoku by Kaina, a former konohiki, when Kamakini was Luna Auhau of Lahaina. Cannot say in what year it was given, thinks that Hoapili Kane was alive at the time. Kalaoku cultivated it till his death when it became his son's (Kaninaualii) for whom witness cultivated it for some time. Kaninaualii has had uninterrupted possession of it up to this time, and still cultivates it.

Maukeha, sworn, knows the piece of land claimed, knows of Kaina giving it to Kalaoku, in Hoapili Kane's time Kalaoku held possession of it till his death, when it became Kaninaualii's who has cultivated and held possession of it up to this time.

Napohaku, sworn, knows the piece of land claimed by Kaninaualii. It belonged to his father, Kalaoku who received it from Kaina. Cannot say what time it was given to him. It is a long time since. Kalaoku cultivated it till his death (in 1846) when his son Kaninaualii took it and held possession of it ever since.

Sworn to before me at Lahaina, Maui, this 24th day of March 1853.

Signature, Wm. Ap Jones. Agent for Board of Land Commissioners

[No. 7762; R.P. 8279; Aupokopoko Lahaina; 1 ap.; 1 rood 17 rods; R.P. 8282 Pohakupili Kona; 1 ap.; 220 Acs]

**No. 07777, Kaiaino, Lahaina w/aena/ February 3, 1848**

Claim Number:	<b>07777</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaiaino</b>	FR:	
Other claimant:	Naomi/Kanui, daughter	NR:	<b>444v6</b>
Other name:		FT:	<b>170v7</b>
Island:	<b>Maui</b>	NT:	<b>53v5</b>
District:	<b>Lahaina</b>	RP:	<b>8269, 8272</b>
Ahupuaa:	<b>Kelaweae nui</b>	Number of Royal Patents:	<b>2</b>
Ili:			

**N.R. 444v6**

Greetings to the Land Commissioners: I, Kaiaino, hereby enter my claim for my house lot and my lo'i, in Lahaina, in Kelaweae Nui. This is my message.

Respectfully,  
KAIAINO

**F.T. 170-171v7**

Cl. 7777, Kaiaino, See Cl. 10667, page 132

Liu, sworn, The claimant is dead, but his only child, Kanui, his daughter is his heir. He died in 1848 with the measles and so did his wife Nalima. Kanui, I should say is an adopted child. He has one true child a little girl which Kanui takes care of. It is a baby.

It is a house lot in "Kelaweae," including 2 lois. Kaiaino received this land from Kanui, mother of Nalima in 1842. Nalima lived under Kapihenui, who has sent in a claim for this same lot. (See Kapihenui's claim. I heard a few days since Kapihenui now occupies the house lot. There were 33 lois, but Pikanele took away one in 1845 and he has lately thrown down Kaenui's house. Kaenui has two lois in this lot now dry. Kapihenui said she was still wishing that Kanui should live there and have the two lois if she desired them).

The claimant had also 3 lois in separate pieces outside of the house lot which he received from Niuli in 1835 which he held until 1845 in peace when Pikanele took them away owing to his great power and has held them to this day, although the Luna Auhau, and the Premier, John Young, have both decided that they should be restored to her (See Pikanele's claim No. 10667).

Pikanele was called up and upon being questioned said that Kaiaino gave him one of these lois, and the other two he had not taken away, but he had no proof that Kaiaino had given him these lois. Pikanele further said, Kaiaino had put in a claim for these lois, but that he had not (See claim No. [left blank]).

The Commission were of the opinion after all they heard to [?] that the claimant Kaiaino was the one truly entitled to these 3 lois.

The witness then proceeded to give the boundaries:

The first piece is bounded:

Mauka by Pikanele's loi  
Olowalu by Mr. Peck's lot  
Makai by Pikanele's  
Kaanapali by Kaluaokamano's land.

The second piece of 3 lois is bounded:

Mauka by the creek of Kapoulu  
Olowalu by the same  
Makai by Kaununu's land  
Kaanapali by "Wahikuli."

**N.T. 53-54v5**

No. 7777, Kaiaino

Liu, sworn, Kaiaino had died of leprosy in 1848, and had bequested to Naomi, his daughter, a land section at Kalawea with 2 patches. Kaiaino had received this from his wife at the time of Liholiho. In 1842 Kaiaino had lived with Nalima in that lot under Papihenui. Recently this interest has been made to Kapihonui. Pikanele had bought one of these patches from Nawai and he also has destroyed Naomi's house. These 3 patches are in Kapihenui's lot all in the same area. Kaiaino had been from Kamakapelapela. Maele had given this interest Kanakapelapela in 1838. Pikanele had said that he has taken these patches for himself because of his role as a konohiki.

Work on this claim was done before the tax assessor and the secretary of interior John Young when they had ruled it for Kaiaino. The land commissioners had also opposed in the same way, in that the 3 patches outside (of the lot) and the single patch on the inside which Pikanele had bought from Nawai and expecting the Friday lot were for Kaiaino. Both Pikanele and Kaninau had become destitute.

Here are the boundaries:

Section 1 - 1 patch outside.

Mauka by Pikanele's lot  
Olowalu by Peke's land  
Makai by Pikanele's lot  
Kaanapali by Kaluaokamano.

Section 2 - 2 patches.

Mauka and Olowalu by Kapoulu stream  
Makai by Kaununu  
Kaanapali by Ahikuli ahupuaa.

[Award 7777; R.P. 8269; Kelawea Lahaina; 1 ap.; 2 roods 12 rods; R.P. 8272; Kelawea Lahaina; 3 ap.; 1 rood 14 rods; See 481 disputed case]

**No. 08021, Aha, Lahaina, February 5, 1848**

Claim Number:	<b>08021</b>	Awarded:	<b>1</b>
Claimant:	<b>Aha</b>	FR:	
Other claimant:		NR:	<b>452v6</b>
Other name:		FT:	<b>161v7</b>
Island:	<b>Maui</b>	NT:	<b>45v5</b>
District:	<b>Lahaina</b>	RP:	<b>1732</b>
Ahupuaa:	<b>Kuholilea</b>	Number of Royal Patents:	<b>1</b>

**No. 8021, Aha, Lahaina, February 5, 1848  
N.R. 452v6**

I, the one whose name is below, hereby state my claim to you, the Land Commissioners of the Hawaiian Islands, as follows: 34 lo'i from Kaenaena, in the valley of Kahoma, on the west of Lahainaluna. Kuholilea is the name of this land.

AHA

Living in the house of Keouhiuhi on the west side of Lahainaluna.

**F.T. 161v7**

Cl. 8021, Aha

Kalakoa, sworn, The claimant's land is in Kuholilea, one piece of kalo land.

The claimant received it from Kaenaena and he has held it without dispute to this day.

It is bounded:

Mauka by Nalehu's land

Olowalu by Paunau

Makai by my land

Kaanapali by creek of Kahoma.

**N.T. 45v5**

No. 8021, Aha, SEE page 117, Vol. 10

Kalakoa, sworn, He has seen this land section at Kuholilea which had been from Kaenaena in 1842, no one has objected.

Here are the boundaries:

Mauka by Nalehu's land

Olowalu by Paunau land

Makai by Kalekoa

Kaanapali by Kahoma stream.

**N.T. 117v10**

No. 8121, Aha, 6 February 1852, vs Opunui

Opunui has been requested to appear for settlement for a suit filed by Aha. Opunui had taken Aha's land in 1849 without cause.

Today, Opunui has admitted that he had taken Aha's land, thinking that he (Aha) had not filed for the claim and now that he definitely understand that aha has a claim, he is returning the land to him just as he had received it originally. He has asked for the taro that is ready to be harvested and Aha may have that which has just been planted.

"All is well," commented Aha, "there is not a thing more to do, the land has been surveyed, my fear has ended and there will be no disputes again."

[Award 8021; R.P. 1732; Kuholilea Lahaina; 3 ap.; .54 Ac.]

**RP. 01833, Kanae, Samuela, Panaewa Ahupuaa, District of Lahaina, Island of Maui, Vol. 7, pps. 289-290**

Royal Patent Number(RP)	<b>1833</b>	LCA Number:	<b>05116*M</b>
Patentee:	<b>Kanae, Samuela</b>	Book::	<b>7</b>
Island	<b>Maui</b>	Page	<b>289</b>
District:	<b>Lahaina</b>	TMK	<b>4-5-09</b>
Ahupua'a	<b>Panaewa</b>	Miscellaneous	

**No. 1833, Kanae, Samuela, Panaewa Ahupuaa, District of Lahaina, Island of Maui, Vol. 7, pps. 289-290** [RP Reel 4, 00973-00974.tif]

Helu 1833

PALAPALA SILA NUI.

A KE ALII, MAMULI O KA OLELO A KA POE HOONA KULEANA

No ka mea, ua hooholo na Luna Hoona i na kumu kuleana aina i ka olelo, he kuleana oiaio ko Samuela Kanae, Kuleana Helu 5116, ma ke ano Kuleana Nui malalo o ke Ano Alodio. iloko o kahi i oleloia malalo, a no ka mea ua haawi mai o ua S. Kanae, iloko o ka Waihona Dala aupuni i ekolu dala no ko ke aupuni Kuleana iloko o ia aina.

Nolaila, ma keia Palapala Sila Nui, ke hoike aku nei o Kamehameha III., ke alii nui a ke Akua i kona lokomaikai i hoono ai maluna o ko Hawaii Pae Aina, i na kanaka a pau, i keia la, nona iho a no kona mau hope alii, ua hoolilo, a ua haawi aku oia ma ke Ano Alodio ia Samuela Kanae, i kela wahi a pau loa ma Panaewa Lahaina, ma ka mokupuni o Maui, penei na mokuna.

E hoomaka ana ma Ke Kahi Hema, ma ma Kalu i pili ae i ko Huahivi a me Ke alanui aupuni, a e holo ana

Akau 44° Hikina 0.41 Kaulahao ma ko Huakini

Akau 44 1/2° Komohana 1.72 Kaulahao ma ko Huakini laua o I. Kamakini

Hema 44° Komohana 0.53 Kaulahao ma ko E. Kuakumauna

Hema 49° Hikina 1.74 Kaulahao ma Ke alanui a hiki i Kahi i hoomakai

[Page 290]

Maloko o ia Apana 0.07 Eka a oi iki aku, a emi iki mai paha. Ua koe nae i ke Aupuni na mine minerala a me na metala a pau.

No Samuela Kanae ua aina la i haawii ma ke ano Alodio, a no kona mau hoolina, a me kona Waihona; ua pili ka auhau a ka Poe Ahaolelo e kau like ai ma na aina alodio i kela manawa keia manawa.

A i mea e ikeai, ua kau i ko'u inoa, a me ka Sila Nui o ko Hawaii Pae Aina ma Honolulu i keia la 20 o Ianuali, 1855.

Inoa { Kamehameha IV

V.K. Kaahumanu

Keoni Ana

[Royal Land Patent No. 1833, Kanae, Samuela, Panaewa Ahupuaa, District of Lahaina, Island of Maui, .07 Acre, 1855]

**No. 09780B, Kuumiumi, Lahaina, 5 February 1848**

Claim Number:	<b>09780B</b>	Awarded:	<b>1</b>
Claimant:	<b>Kuumiumi, N.</b>	NR:	<b>506v6</b>
Other claimant:		FT:	<b>157v7</b>
Other name:		NT:	<b>40v5</b>
Island:	<b>Maui</b>	RP:	<b>1864</b>
District:	<b>Lahaina</b>	Number of Royal Patents:	<b>1</b>
Ahupuaa:	<b>Aki nui, Panau</b>		
Ili:	<b>Ohia</b>		

**[No. 9780B], Kuumiumi, Lahaina, 5 February 1848**

**N.R. 506v6**

[Listed as 9779]

My claim is for twenty-eight lo'i of taro at Aki of Namauu.  
N. KUUMIUMI

**F.T. 157v7**

[Cl. 9780B], Kaumiumi

[Listed as 9779]

Leleka, sworn, I know the land of the claimant. It is in Aki, and Paunau, Lahaina. The land in Aki is 27 loi, the land in Paunau is one loi in one piece, and one kula in another.

The claimant received this land in Aki from Namauu's wife in 1842 and he has held them [it] ever since in peace. The two pieces in Paunau he received from Kahuna at the same time and his title to them has never been disputed.

The piece in Aki is bounded:

Mauka by the creek of Kahoma

Olowalu by the pali

Makai by Palula and Kauhi's land

Kaanapali by the creek of Kahoma.

I have included in these lands one poalima loi, and 3 belonging to Paluhi.

The one loi in Paunau is bounded:

Mauka by Kakoaa[?]

Olowalu by the creek of Kahoma

On the other two sides by Kahuna's land.

The kula is bounded:

Mauka by Kuia

Olowalu by the pali

Makai and Kaanapali by the creek of Kahoma.

**N.T. 40-41v5**

No. 9780B, Kaumiumi

Leleku, sworn, he has seen Kaumiumi's 27 patches at Aki and 1 patch and a farming moo at Paunau.

The 27 patches at Aki were from Kaehunui in 1841 and the land at Paunau was from Kekahuna, no objections. The boundaries are:

Section 1 - 27 patches.

Mauka by Kahoma stream

Makai by Kauhi and Paaluhi

Olowalu by Pali

Kaanapali by Kahoma stream.

Section 2 - 1 patch at Paunau.

Mauka by Kekahuna

Olowalu by Kahoma Stream

Makai and Kaanapali by Kekahuna.

Section 3 - Moo.

Mauka by Kuia

Olowalu and Makai by Pali

Kaanapali by Kahoma Stream.

The 3 patches of Paaluhi and the Friday patch have been excluded from Leleku's 27 patches.

[Award 9780B; R.P. 1864; Ohia Aki nui Lahaina; 1 ap.; 2 roods 32 rods; Paunau Lahaina; 1 ap.; 6 rods (total .74 ac.)]

## No. 9795B, Kaaua

Claim Number:	<b>09795B</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaaua</b>	FR:	
Other claimant:		NR:	
Other name:		FT:	<b>190v7</b>
Island:	<b>Maui</b>	NT:	<b>71v5</b>
District:	<b>Lahaina</b>	RP:	<b>3455</b>
Ahupuaa:	<b>Akinui</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Waiieiki</b>		
Apana:	<b>2</b>		
Loi:	<b>1</b>		
House lot:	<b>1</b>		
Stream/Muliwai/River:	<b>Yes</b>		
Pali:	<b>Yes</b>		

**Cl. 9795B, Kaaua**

**F.T. 190-191v7**

This claimant appeared and made oath that he had sent in his claim to the Land Commission in 1847. The Commission then resolved to hear the claim.

Ilae, sworn, I know the lands of the claimant. It is in two pieces, in Aki, Lahaina. N

No. 1 is a house lot.

No. 2 is a pauku of kalo land.

The claimant received them from his wife in the days of Hoapili before 1839. Her parents had it in the days of Kamehameha 2nd.

No. 1 is bounded:

Mauka by Kaua's land

Olowalu by Wahie's land

Makai by Kimo's and Kuonaena's and my lot

Kaanapali by Namauu's lot.

No. 2 is bounded:

Mauka by Kaauwai's land

Olowalu by creek of Kapoulu

Makai by "Uhao"

Kaanapali by "Moalii."

**N.T. 71v5**

No. 979B!, Kaana, SEE page 117, Vol. 10

[should be 9795B]

Ilae, sworn, he has seen Kaana's interest at Aki of 2 sections consisting of a house lot and land. This interest had been since the time of Kamehameha II.

Section 1 - House lot.

Mauka by Kaua

Olowalu by Wahie's land

Makai by Ilae's land

Kaanapali by Namauu's land.

Section 2 - Taro section.

Mauka by Z. Kaauwai's land

Olowalu by Kapoulu stream

Makai by Uhao ahupuaa

Kaanapali by Moalii ahupuaa.

**N.T. 117v10**

No. 9794B, Kaau, Lahaina, 6 March 1852 (from page 71, Volume 5)

Hoohei, sworn, I have seen his land in the Aki, Lahaina, Maui - taro and pasture in one land section.

Mauka by Z. Kaauwai's land

Olowalu by a stream

Makai by Moikeha's land

kaanapali by Kukae's land.

Land from Namauu in 1844 and life was peaceful until his death in 1849. This land was bequeathed to Henry, the son of his wife and he is living there presently.

Timoteo Keaweiui, sworn, the statements above are true. A poalima patch is also in this place but I have known that Namauu had sold this poalima to Kaana for a piece of land that Kaana had for Namauu.

**N.T. 258v13**

[No. 9795B], Kaaua (See Kaawa No. 365?)

[No. number listed]

Kapule, sworn, I know his taro section in the ahupuaa of Aki up mauka in Lahaina, Maui. There is one section. I did not make an accurate count of the lois but I know the boundaries of that taro land.

[It is bounded]:

Mauka by Napohaku's land

Olowalu by stream

Makai by stream

Kaanapali by a cliff.

He received this land from Kaweka, his wife through bequest when she died in 1846, and he lived there peacefully until he died in 1848. He willed this land and all his property to Heneri, true child of Kaweka who was his wife, and child has it as of the present. No one has objected to the present.

[Award 9795B; R.P. 3455; Waieiki Aki nui Lahaina; 3 ap.; 3.75 Acs 20 rods; See also 1311]

**No. 09816, Kaumunui, June 6, 1849**

Claim Number:	<b>09816</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaimunui</b>	FR:	
Other claimant:		NR:	<b>508v6</b>
Other name:		FT:	<b>98v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1164, 4468</b>
Ahupuaa:	<b>Kelaweia</b>	Number of Royal Patents:	<b>2</b>

**F.T. 98v7**

Kapihenui, sworn, I know the lands of the claimant. They are in "Kelaweia," Lahaina. they consist of one kalo land of 10 lois, and one kula with a house on it.

The claimant had them from Hoapili in his early days, and has held them without dispute ever since.

The kalo land is bounded:

Mauka by Pikanele's land

Olowalu by the Creek of Kapoulu

Makai by Paeohi's lois

Kaanapali by the pali.

The other piece is bounded:

Mauka by Kanaina's land

Olowalu and Makai by Pikanele's land

Kaanapali by Kuailike's land.

[Award 9816; R.P. 1164; Kelaweia Lahaina; 1 ap.; .62 Ac.; R.P. 4468; Kelaweia Lahaina; 1 ap.; 2 roods 14 rods; See 9811 for Native Register document]

**No. 09950, Leleku, Lahaina, 5 February 1848**

Claim Number:	<b>09950</b>	Awarded:	<b>1</b>
Claimant:	<b>Leleku</b>	FR:	
Other claimant:		NR:	<b>509v6</b>
Other name:		FT:	<b>130v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1861</b>
Ahupuaa:	<b>Puunooa, Puako</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>1</b>		
Loi:	<b>37</b>		
Kula:	<b>1</b>		

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**No. 9950, Leleku, Lahaina, 5 February 1848**  
**N.R. 509v6**

Here is my claim for 37 lo'i and a kula adjoining it, at Puunooa uka.  
 Respectfully,  
 LELEKU

**F.T. 130v7**

No. 9950, Leleku, June 8, 1849

Kaumiumi, sworn, I know the lands of the claimant is in Puunooa 2 and a kula and kalo land in Puako, both in Lahaina.

The claimant received the land in Puunooa from Mahune in the year 1831. The claimant received the land in Puako from Kuohia, the konohiki in 1840. He has held them without dispute to the present time.

The land in Puunooa consists of 21 lois and is bounded:

Mauka by Paula[?]  
 Olowalu by the creek of Kahoma  
 Makai by the poalima of the konohiki  
 Kaanapali by Kuholike.

The other piece in Puako is bounded:

Mauka by Paunau 2  
 Olowalu by the creek of Kahoma  
 Makai by the lois of Kaeo  
 Kaanapali by Kuholike.

[Award 9950; R.P. 1861; Puunooa Lahaina; 1 ap.; 2 roods 30 rods; Puako Lahaina; 1 ap.; 1 rood 10 rods]

**No. 10465, Nalehu, Waiokama, February 3, 1848**

Claim Number:	<b>10465</b>	Awarded:	<b>1</b>
Claimant:	<b>Nalehu</b>	FR:	
Other claimant:		NR:	<b>520v6</b>
Other name:		FT:	<b>61v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1676</b>
Ahupuaa:	<b>Pahoa</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>1</b>	Sea/Shore/Dunes:	<b>Yes</b>
Loi:	<b>15</b>	Road/Path:	<b>Yes</b>
House lot:	<b>1</b>	Miscellaneous:	<b>government road</b>
Hala:	<b>1</b>	Loko:	<b>Yes</b>
Breadfruit:	<b>8</b>	Coconut:	<b>14</b>

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**No. 10465, Nalehu, Waiokama, February 3, 1848**  
**N.R. 520v6**

To the Land Commissioners of the Hawaiian Government sitting at Honolulu, Island of Oahu: I hereby petition you to enter my claim. It is for a house lot, five ponds, eight breadfruit trees, 15 cultivated mo`os, 14 coconut trees, and the clumps of lauhala.

I am under Namaau, living in Waiokama in Lahaina, Island of Maui, and under Lot Kamehameha.  
NALEHU

**F.T. 61v7**

Cl. 10465, Nalehu, June 2, 1849

Muaa, sworn, I know the land of the claimant is in "Waiokama," Lahaina. It is in two pieces, He has an house lot which was heard [by] Mr. Richards. There is remaining one house lot. The claimant received this land from Maele in 1839 and his title has not been disputed seriously from that time to the present.

It is bounded:

Mauka by the Alanui Aupuni

Olowalu by the lot of Kukokelele

Makai by the sea shore

Kaanapali by the foreigner who tried to shoot Kekaulueki; his Hawaiian name is Kokana.

There is also a pond on this side.

[Award 10465; R.P. 1676; Pahoa Lahaina; 3 ap.; 2 Acs 3 roods 10 rods]

**No. 10579, Opunui**

Claim Number:	<b>10579</b>	Awarded:	<b>1</b>
Claimant:	<b>Opunui</b>	FR:	
Other claimant:		NR:	<b>524v6</b>
Other name:		FT:	<b>126v7</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>1882</b>
Ahupuaa:	<b>Kuholilea</b>	Number of Royal Patents:	<b>1</b>

**No. 10579, Opunui****N.R. 524v6**

Greetings to the Land Commissioners: I have a land at Lahaina, which is named Puulaina. On the north is a pali, on the east is a stream, on the south it is rocky, on the west is Puulaina. There are 18 lo'i which I received from Hoomakaukau in 1840. The witnesses who know of my acquisition are Hoomakaukau, Kanawaliwali, Kanaka, Paola, Naohelo.  
OPUNUI

**F.T. 126v7**

Cl. 10579, Opunui

Kalehu, sworn, The claimant's land is in "Kuholilea" Lahaina. It consists of one section of kalo land.

The claimant received this land from Kalaikea in 1838 and he has held it in peace ever since. There is one poalima loi in this section belonging to Kanaina.

It is bounded:

Mauka by Elemakule's loi  
Olowalu by the creek of Kakoma  
Makai by Poholopu's land  
Kaanapali by the high pali.

[Award 10579; R.P. 1882; Kuholilea, Lahaina; 1 ap.; .35 Ac]

**No. 10667, K. Pikanele, Lahaina, 8 February 1848**

Claim Number:	<b>10667</b>	Awarded:	<b>1</b>
Claimant:	<b>Pikanele, K.</b>	FR:	
Other claimant:	konohiki, counter	NR:	<b>531v6</b>
Other name:		FT:	<b>132v7/97v15</b>
Island:	<b>Maui</b>	NT:	<b>17v5</b>
District:	<b>Lahaina, Wailuku</b>	RP:	<b>2399, 2400</b>
Ahupuaa:	<b>Kelaweā, Waianaē, Polapola, Wanaloa, Waihee</b>	Number of Royal Patents:	<b>2</b>
Ili:	<b>Luaehu, Kapoho</b>	Loko:	<b>Yes</b>
Apana:	<b>9</b>	Miscellaneous:	<b>government road, Section 9 bounded by uhi patch, houses on house lot</b>
Loi:	<b>39</b>		
House lot:	<b>1</b>		

**No. 10667, K. Pikanele, Lahaina, 8 February 1848  
N.R. 531-532v6**

Hear ye, ye Land Commissioners: I, Pikanele, hereby petition for my parcels of land in various `ilis in Lahaina.

Their names are Kelaweā, Waianaē, Polapola and Pahoā. My kihapai lo`i are in these `ilis. When you send a surveyor I will point out the boundaries of all my places within these `ilis.

Also, at Waihee there is a land named Kapoho which lies as follows: from the sea to the mountain, bounded on the north by a Pu`uone /pond/, on one side is Hakaaka, the two sides adjoin in one place. It will not be obscure to you when the time comes and you have it property surveyed.

I am, with aloha.

K. PIKANELE

**F.T. 132v7**

Cl. 10667, Pikanele, Part 1 (See Cl. 7777) page 170

Kauhiwahine, sworn, I know this land. It is an ili of land in "Waihee" near Wailuku, the name of the ili is "Kapoho."

The claimant had this land from Hoapili kane and now hold it under Kekuanaoa, paying him therefore the sum of 5 dollars per year, and if he does not pay him, the five dollars yearly then his title will be pau. But he has to fish ponds in this, that belong to Pikanele alone.

The two fish ponds lie together and are bounded:

Mauka by the poalima fish ponds

Olowalu by Kimikeo's land, the head man of Kekuanaoa

Makai by the government lois

North by Mileka's land.

See page 97 volume 15.

**F.T. 132-134v7**

Cl. 10667, Part 2, Pikanele

Kauhiwahine, sworn, I know the lands of the claimant is [are] in Kelawea, Lahaina. 6 lois in one piece up mauka, 8 lois in another piece makai. He received these lands from Kekuanaoa in 1840 and he has held them without dispute ever since. He likewise has 2 pieces of poalima lois, each of 3 lois, which he holds under Kekuanaoa paying therefore the sum of 15 dollars per years [year].

The piece of 6 lois up mauka that belongs to Pikanele truly is bounded:

Mauka by the pali  
Olowalu by the same and the kula of Kanaina  
Makai by Keawehuali's land  
Kaanapali by the creek of Kelawea.

The piece of 8 lois, makai, is bounded:

Mauka by Kalaikini's land  
Olowalu by the land occupied by Keaweluaoli  
Makai by the lot of Kualike  
Kaanapali by the creek of Kelawea.

The land of the claimant in Waianae, Lahaina, consists of 3 pieces. The first piece up mauka loa has 6 lois. The second piece up mauka contains 5 lois. The third piece down makai, contains 2 lois.

The claimant had this land from Kaemalolo, Kaeo's mother in 1834, and he has held them in peace ever since.

The piece of 6 lois up mauka loa is bounded:

Mauka by Kauwa's land  
Olowalu by Palani's land  
Makai by the same  
Kaanapali by the pali of Waianae.

The second piece of 5 lois, is bounded:

Mauka by Kaulu's lot  
Olowalu by Waianaeiki  
Makai by the King's land  
Kaanapali by "Kulahuhu."

The 3d piece is bounded:

Mauka by Kaihukai's land  
Olowalu by Puako and Kaihukai's land  
Makai by "Puako"  
Kaanapali by Kaihukai's land.

The lands of the claimant in Boabola were heard in the time of Mr. Richards.

His lands in "Pahoa," Lahaina, consist of 2 pieces of kalo land, one piece of kula land.

One piece of kalo land contains 7 lois, the other piece has 5 lois. The claimant received these lands from Kaele, the luna, in 1849. His title to the kalo lands has never been disputed. But Nalehu has disputed the title to the kula. When Kaele died in February 1845, her brother, Nalehu took this kula from him and gave it to Kua. Kua and three others living on the land have put in their claims for the kula, which have been heard. The land was taken from him for some cause, known [unknown?] to me, perhaps because Kaele died.

The piece of kalo land of 7 lois is bounded:

Mauka by Upai's land  
Olowalu by Nalehu's land

Makai by the same  
Kaanapali by the high pali.

The piece of 5 lois is bounded:  
Mauka by the high pali  
Olowalu by Nalehu's land  
Makai by Nalehu's kula  
Kaanapali by the creek and the pali.

The kula piece is bounded:  
Mauka by Kapua's little village  
Olowalu by Keohokalole's lois  
Makai by the Government road  
Kaanapali by the land of the heirs of Namauu.

Nalehu, sworn, I am the brother of Kaele, now dead. The kula land in dispute between Pikanele and Moku and others was the property of Moku and others before Kaele gave it to Pikanele. Consequently, it was their land, and Kaele had no right to give it away. She might give away poalima land, but not the land of the tenants. It was very wrong for her to dispose of this land, and consequently it was restored to them.

**F.T. 97v15**

No. 10667, Pikanele, Waihee, September 10, 1853, Kue Konohiki, from page 132v7

He mau loko keia ma ka Ili o Kapoho, Waihee, Maui.

Kealoha, hoohikiia, ua ike au i na loko o Kaiwiau a me Kealiika ma ka Ili o Kapoho, Waihee. Ua maopopo iau he mau loko no ke konohiki ua hana mau ia o ma ua la o konohiki mai ka wa mamua mai a hiki i keia manawa.

Kaihumua, hoohikiia, Ua oiaio no he mau loko keia no konohiki a Pikanele e hookohu nei i kuleana nona, ua hanaaia ma na la hana o ke konohiki a hiki i keia manawa.

(Hooholoia, ua nele o Pikanele, ua pono o konohiki)

**F.T. 97v15**

No. 10667, Pikanele, Waihee, September 10, 1853, See page 132 volume 7, counter konohiki

These are ponds in the `Ili of Kapoho, Waihee, Maui.

Kealoha, sworn, I know of the ponds of Kaiwiau and Kealuka in the `Ili` of Kapoho, Waihee. I understood these ponds were for the konohiki; they were always worked on the /labor/ days of the konohiki from formerly until the present.

Kaihumua, sworn, It is true that these ponds which Pikanele is assuming as a claim for himself are for the konohiki. They have been worked on on the labor days of the konohiki until the present.

(It was decided that Pikanele's claim was deificient and the konohiki was right.)

**N.T. 17-19v5**

No. 10667, K. Pikanele, (No. 819667)

Kauhiwahine, sworn, He has seen Pikanele's interest in Kapoho at Waihee and two parcels at Kelawaa in Lahaina here. Land had been from Mrs. Hoapili previously, however it is now under Kekuanaoa. 2 ponds are there. Land at Kelawea from Kekuanaoa in 1840. There will be separations from the land should there [be?] no \$5.00 for Kapoho at Waihee and \$15.00 for Kelawaa in Lahaina, the boundaries are:

Section 1 - Kapoho.  
 Mauka by Friday pond  
 Kahukuloa by Timoteo's land  
 Makai by Kiao patch  
 Wailuku by Makaaka's land.

Section 2 - 6 patches in uplands of Kelaweā.  
 Mauka by Stream  
 Olowalu by C. Kanaina's land  
 Makai by Keaweluaole's land  
 Kaanapali by Stream.

Section 3 - 8 patches.  
 Makai by Kelaweā land  
 Mauka by J. Kalaihini's land  
 Olowalu by Keaweluaole's lot  
 Makai by Kekulike's lot.  
 Kaanapali by Kelaweā stream.

3 land sections at Waianae, Lahaina

Section 4 - 6 patches in uplands.  
 Mauka by Kana  
 Olowalu by Palau  
 Makai and Kaanapali by Waianae pali.

Section 5 - 5 patches.  
 Mauka by Kanaulu's lot  
 Olowalu by Waianaeiki  
 Makai by Kaihukai  
 Kaanapali by Kulahuhu's land.

Section 6 - 2 patches.  
 Mauka and Olowalu by Kaihukai of Puako  
 Makai by Puako land  
 Kaanapali by Kaihukai.

Land from Kaaimalolo in 1834, no objections to all of these parcels.

Section 7 - 7 patches by the stream.  
 Mauka by Upai  
 Olowalu and Makai by Nalehu  
 Kaanapali by Pali.

Section 8 - 5 patches by the stream.  
 Mauka by pali  
 Olowalu and Makai by Nalehu  
 Kaanapali by stream and pali.

Section 9 - Pasture.  
 Mauka by Kapua's house  
 Olowalu by Keohokalole's uhi (shell fish) patch  
 Makai by Government road  
 Kaanapali by Maele's sugar cane moo.

These sections in Pahoā from Maele in 1840-41?, no one has objected to the 2 taro sections. Nalehu had objected to the pasture. Nawaa and some other people had filed this pasture as a claim. Nalehu, A. Moku, Muwaa and others as witnesses.

Maele did not give that pasture because people were already living there. It would have been well to give it, if the pasture had been a Friday area.

Lui, sworn, He has seen that single patch which belongs to Kaluaokamano at Kelawaa, it is for Pikanele now. He had taken it because of non-attendance on Friday.

**N.T. 113v10**

No. 10667, K. Pikanele

Kana, sworn, I have seen his house lot in Lahaina, Maui, also his land sections.

Section 1 - House lot at "Kaluaokiha".

Mauka by Government road

Olowalu by Ninia's house lot

Makai by C. Kanaina's lot

Kaanapali by Hihio's lot.

Section 2:

Mauka by Mahoe's lot

Olowalu by "Mokuhinia," pond

Makai by Kaiheekai's house lot

Kaanapali by Namauu's land.

Section 3:

Mauka by Kanaulu's land

Olowalu by Waianaeki ahupuaa

Makai by Kaiheekai's land

Kaanapali by "Kulahuhu" pasture.

Section 4:

Mauka by Kaiheekai's land

Olowalu by Ninia's land

Makai by "Haleu," Rikeke's land

Kaanapali by Government land.

Section 1 was a vacant and idle land in 1823, Pikanele built houses since and had lived there to the present time without disputes. Section 2 from Kalaiwohi in 1823, no disputes. Section 3 and 4 from Kaaimalolo in 1835, no objections.

Kaiheekai, sworn, every statement above is true. Kaiheekai's land sections in Waiauenui are his own property. I have known this for I am the assistant konohiki of this land, therefore I will not oppose to his claim there.

POSTPONED: Until T. Keaweiui returns for his claim at Kelawea.

[Award 10667; R.P. 1729; Waianaenui Lahaina; 2 ap. 1.63 Acs; Luaehu Waianaeh Lahaina; 1 ap.; 1.087 Acs; (See also Award 310); R.P. 2399; Waianaeh Lahaina; 1 ap.; 8 rods; Kelawea Lahaina; 1 ap. 2 roods 25 rods; Kelawea Lahaina; 1 ap. 1 Ac.; R.P. 1729; Polapola Lahaina; 2 ap.; .505 Ac.; R.P. 2400, Wanaloa Lahaina; (amount unknown)]

**No. 10968, Wahie, Honolulu, February 8, 1848**

Claim Number:	<b>10968</b>	Awarded:	<b>1</b>
Claimant:	<b>Wahie</b>	FR:	
Other claimant:	Kalaaula, Kahanui, Kipa, Haalilo	NR:	<b>617v4</b>
Other name:		FT:	
Island:	<b>Maui</b>	NT:	<b>119v10</b>
District:	<b>Lahaina</b>	RP:	<b>1752</b>
Ahupuaa:	<b>Lapakea</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>3</b>		
Loi:	<b>1</b>		
House lot:	<b>2</b>		
Miscellaneous:	<b>government road</b>		

**No. 10968, Wahie, Honolulu, February 8, 1848  
N.R. 617-618v4**

To the Land Commissioners: I hereby enter my claim for your work. Here are all the house lots: the house lot occupied by the Chinese, the house lot occupied by Keaka Koloa and Domo Menese (Henese?) - two house lots. My house and kula make up the third of my own lots. The lihi /edge/ of my land which was transferred to my punalua, /he/ wants to survey t to be a different place where his house is, where the forest grows. However, I did not give it absolutely to him. I consented to the occupancy of the house, but it was not conveyed absolutely, to be bequeathed to his keikis. The lihi was mine and only the house was his and if it should collapse, he would end, and not resume his occupancy of that place. Here is this claim of mine for some lo`is inland of Kahoomaamena's place, the land was abandoned. Those are my claims which I am thinking of entering.  
Witness: I.G. Haalelea, Secretary

Because I got this land from the Ali`i, therefore I enter this claim, to clarify my right. This land of mine is at Lahaina, Maui, adjacent to Hikiiau in the Ahupua`a of Lapakea.

WAHIE

Honolulu, February 7, 1848

Witness: Kapihenui

**N.T. 119v10**

No. 10968, Wahie, Lahaina, 6 March 1852

Hoohei, sworn, Wahie's land sections are in Lapakea, Lahaina, Maui in 3 land sections.

Section 1 - house lot.

Mauka by old Government road

Olowalu by Hikiiau's land, foreigner's land

Makai by Makai government road

Kaanapali by Ilae's house lot, Kana's house lot.

Section 2 - House lot.

Mauka by Mapu's land

Olowalu by Hikiiau's land

Makai by old road

Kaanapali by "Kopili" Kaana's land.

Section 3 - Taro land.

Mauka by "Lapakea," Hikiau's land

Olowalu by "Aki," a stream

Makai by "Kaula," Keanu's land

Kaanapali by Hikiau's land.

One patch in section 2 has been set aside for prisoners day as a help for the pastures. Ua has the pastures now. Land from King Kamehameha III at the time of Kaahumanu I where he had lived peacefully until his death in 1850. He had received a land grant in 1848. The children who inherited these places were Kalaaula, Kahanui, Kipa and Haalilio and they have lived peacefully to the present time.

The custody of the place for Wahie's children is by Wahie the young brother of Wahie, the father, no objections.

T. Keaweiui, sworn, the statements above are true and the children listed as his heirs are correct. The place for which there has been an objection is the house site which John Shaw had sold to Uilama, the dark foreigner. This is in section 1. William A. Jones has appeared before me and has verified John Shaw's claim in that he has received a warrant from the officers who quiet land titles, therefore, whatever has been warranted by the land officers for John Shaw is his and it should be removed from the claim of Wahie. Whatever remains is Wahie's own land.

[Award 10968; R.P. 1752; Lapakea Lahaina; ; 2 ap.; 3.1 Acs; See 10964 for Native Register and Foreign Testimony; also supplemental Board notes, document AAAC]

### **No. 11086, J.H. Kaiheekai**

Claim Number:	<b>11086</b>	Awarded:	<b>1</b>
Claimant:	<b>Kaiheekai, J.H.</b>	FR:	
Other claimant:		NR:	
Other name:		FT:	<b>135v7</b>
Island:	<b>Maui</b>	NT:	<b>21v5</b>
District:	<b>Lahaina</b>	RP:	<b>3581</b>
Ahupuaa:	<b>Hanakaoo, Puuhoowali</b>	Number of Royal Patents:	<b>1</b>
Ili:	<b>Puuhoowali</b>		
Apana:	<b>4</b>		
Miscellaneous:	<b>government road</b>		

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### **No. 11086, J.H. Kaiheekai N.R. 551v6**

To the Land Commissioners: Here are these claims to enter: 12 taro lo'i at Hanakaoo, Lahaina, Maui, 4 mo'o at Hanakaoo, Lahaina, 1 lo'i at Puahoowali. Those are my claims to have title quieted.

I.H. KAIHEEKAI

### **F.T. 135-136v7**

Cl. 11086, Kaiheekai, June 9, 1849

Alu, sworn, I know the lands of the claimant in Hanakaoo, Lahaina, It consists of one piece of kalo land (iuka loa) and one piece of kalo land makai and one piece of 4 moos of kula, also makai. Lot's the Lord of this land.

The claimant received this land from his father Hoolulu in 1844, who had it from the days of Kamehameha I. He has held quiet[?] possession to this present day.

The piece of 9 lois is bounded:  
 Mauka by paahao lois  
 Olowalu by the creek  
 Makai by Uilama's lois  
 Kaanapali by the pali of Paunau.

The 2d kalo land is bounded:  
 Mauka by Kahele's land  
 Olowalu by poalima land  
 Makai by Uilama's and paahao land  
 Kaanapali by Pupuka's land.

The kula piece is bounded:  
 Mauka by Pitman's land  
 Olowalu by Kalimaohe's land  
 Makai by the King's land "Kainehe"  
 Kaanapali by Puunui.

There is one loi more to which his title is the same in "Puahoowali," Lahaina.  
 It is bounded:  
 Mauka by Lono's lot  
 Olowalu by Puahoowali  
 Makai by "Paunau"  
 Kaanapali by the Government road leading mauka.

**N.T. 21v5**

No. 11086, Kaiheekai

Alu, sworn, He has seen Kaiheekai's 2 taro sections, 1 pasture section, 9 patches mauka, 1 taro section, makai, also a pasture and that 1 patch at Puuhoowali.

The boundaries are:

Section 1 - 9 patches  
 Mauka by Paaku  
 Olowalu by Auwaiawao  
 Makai by Uilama's patch  
 Kaanapali by Paunau pali.

Section 2 - Taro land.  
 Mauka by Kahele  
 Olowalu by Friday land  
 Makai by Paaku and Uilama's land  
 Kaanapali by Pupuka's land.

Section 3 - Pasture.  
 Mauka by Kinoole's land  
 Olowalu by Kalimaohe's land  
 Makai by Kainehe's land  
 Kaanapali by Puunua ahupuaa of Hanakaoo.

Section 4 - 1 patch at Puuhoowali.  
 Mauka by Lono's lot

Olowalu by Puuhoowali 2 land  
 Makai by Paumau land  
 Kaanapali by Government going up and down road.

Bequest land from Hoolulu in 1844, no objections.

[Award 11086; R.P. 3581; Hanakaoo Lahaina; 4 ap.; 3 Acs 1 rood 3 rods]

### **No. 11150, Keone**

Claim Number:	<b>11150</b>	Awarded:	<b>1</b>
Claimant:	<b>Keone, wahine</b>	FR:	
Other claimant:		NR:	
Other name:		FT:	<b>68v15</b>
Island:	<b>Maui</b>	NT:	
District:	<b>Lahaina</b>	RP:	<b>2651</b>
Ahupuaa:	<b>Kuhua</b>	Number of Royal Patents:	<b>1</b>
Apana:	<b>4</b>		

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#### **No. 11150, Keone F.T. 68v15**

Claimant, being sworn, deposed that she gave in her claim to Mr. Richards, at lahaina, in the year 1847, and had it surveyed at the same time by J. Richardson (produced a copy of the survey).

T. Keaweiwi, sworn, says he knows the House lot of Keone, in Kuhua, Lahaina.

It is bounded on:  
 Olowalu side by Alaala's land  
 Makai by Hale's lot  
 Kaanapali side by "Kuhuanui"  
 Mauka by Imiewale's land.

Claimant has also a piece of Kula land, in "Kuhuanui," it is surrounded by the land of Konohiki, I think.

She has also another House lot, in "Kuhuanui,"

Bounded on:  
 Olowalu side by a stream  
 Makai by Moaliis[?]  
 Kaanapali side by Timoteo  
 Mauka by Kekahuna's land.

It is enclosed and belonged to Claimant's husband and is still occupied by some of her relatives.

Claimant has also a kalo patch, adjoining the first mentioned House lot, in "Kuhua." It is

Bounded on:  
 Olowalu side by a watercourse  
 Makai by Wahine's land

On the other side by the same.

Claimant derived her lands from her husband who got them from Kipa in ancient times, and has always held undisturbed possession of them.

Kuheleloa, sworn, says he is Luna of "Kuhua" under Haalelea and he knows the pieces of land claimed by Keone. She and her family have held them ever since witness came to live on "Kuhua," seven years ago.

[Award 11150; R.P. 2651; Kuhua Lahaina; 4 ap.; 1 Ac. 3 roods 21 rods]

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# **Appendix E Formal Response Regarding Cultural Impacts Added During Formal DEA Comment Period**

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TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION

December 28, 2008

TO: Hawaii State Department of Transportation  
601 Kamokila Blvd. Room 688  
Kapolei, Hawaii 96707  
Attn: Misako Mimura, PE

From: Kupuna Edwin Lindsey,  
1087-A Pookela Rd  
Makawao, Hi. 96768

Subject: Lahaina Bypass, Phase I

Thank you for allowing me to give you my thoughts for the construction of the Lahaina bypass phase I.

Being that the location of three schools in the Lahainaluna road area was a bad decision, we must try to correct this by allowing the construction of Phase I to begin as soon as possible. We the community members of Lahaina, give thanks for the work and sensitivity to Lora Mau Kupuna in trying to mitigate the concerns of the families who have burials in the original proposed road alignment.

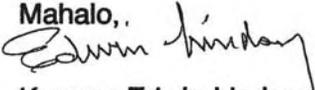
In today's society and as population increases, care must be given to protect as much of our prehistoric sites and burials as possible. Developers, government, and the general populace need to look at things from the prospective that our ancestors have been coming to these islands before Columbus discovered America in 1492, before the Ming Dynasty in the 1500s, before the Vikings explorations to Nova Scotia, before the Middle Ages in Europe, they had been sailing to these islands at about the height of the Roman Empire 264 AD. That also puts them at the beginning of the height of the Mayan civilization and before Machu Pichu!

Our archaeological sites deserve the respect and reverence that the world gives to the 12 wonders of the ancient world. Imagine the intellect, and the connectiveness our seafarers had to the elements and spiritual world. They have explored an area in the Pacific larger than any culture in the history of humanity, as illustrated by the Polynesian Triangle.

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JAN 2 7 33 AM '09  
DESIGN DIVISION  
HAWAII STATE DEPARTMENT OF TRANSPORTATION

However, in today's world and the bad decisions by planners to crowd three schools together, it is paramount that our children be safe in the event of any kind of natural disaster or emergency. We cannot allow to sacrifice the life of one mo'opuna for all the archaeological sites or burials on Maui. The health and safety and needs of the community must be given strong consideration.

Please feel free to call me any time at home phone number, 572-8085. Thank you for following the process so all views could be respectfully presented.

Mahalo,  
  
Kupuna Edwin Lindsey

Mr. Brennon Morioka, Director  
State of Hawaii  
Department of Transportation  
Highways Division - Design Branch  
601 Kamokila Blvd., Room 688  
Kapolei, Hawaii 96707  
Attention: Ms. Misako Mimura, P.E., Project Manager

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JAN 02 2008

TECHNICAL DESIGN SVCS OFC  
DEPT. OF TRANSPORTATION



**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
LAHAINA BYPASS MODIFIED ALIGNMENT  
KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

I do not agree with 1.5.2 that SHPD & FHWA should have final say, there are still the families of the area that should be included in the final signing. Again the families of Kahoma where not involved or aware of the 1990 EIS to make their comments nor the 2002 comment period.

p2-7 → The Keilihon ohana has shared their concern about the bridge being in the area and there may be iwi kupuna there!

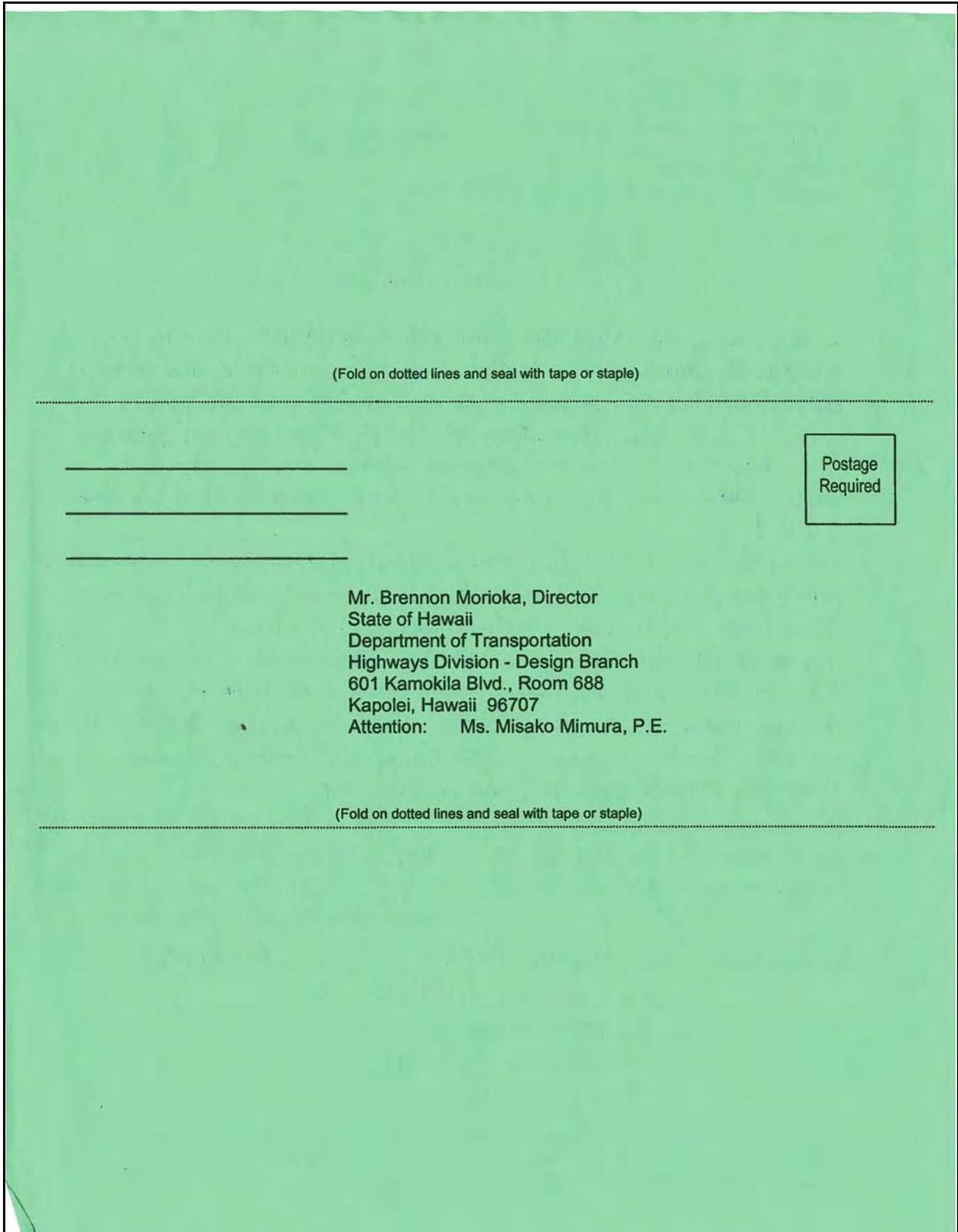
2.5.2. We have a hard time seeing "friendly acquisition or condemnation" which tax payer will be funding to a land owner? who just purchased these lands - How does Leialii mixed use residential community fit into this area? Are the Ceded Lands? We would like to note that the historic agricultural push prices you refer to may contain iwi or other artifacts stated by families that worked for P.H. 4.6.1 you make no mention of the Kahoma ohana that pay property taxes to lands in this area.

p4-70 #3 referring to people to contact (should also be "Cultural Resource Commission" Criterion D) is not sufficient in this find - The families need to be able to travel to their lands above the bypass.

(include additional sheets as necessary)

PLEASE PRINT: Name: Ulani Kapu Phone: 250-1479  
Organization: Kuleana Ku'ikahi LLC  
Address: PO Box 11524  
Lahaina HI 96761  
Email: \_\_\_\_\_

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.



Mr. Brennon Morioka, Director  
 State of Hawaii  
 Department of Transportation  
 Highways Division - Design Branch  
 601 Kamokila Blvd., Room 688  
 Kapolei, Hawaii 96707  
 Attention: Ms. Misako Mimura, P.E., Project Manager

2

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE  
 LAHAINA BYPASS MODIFIED ALIGNMENT  
 KAHOMA STREAM TO FUTURE KEAWE STREET EXTENSION**

changes

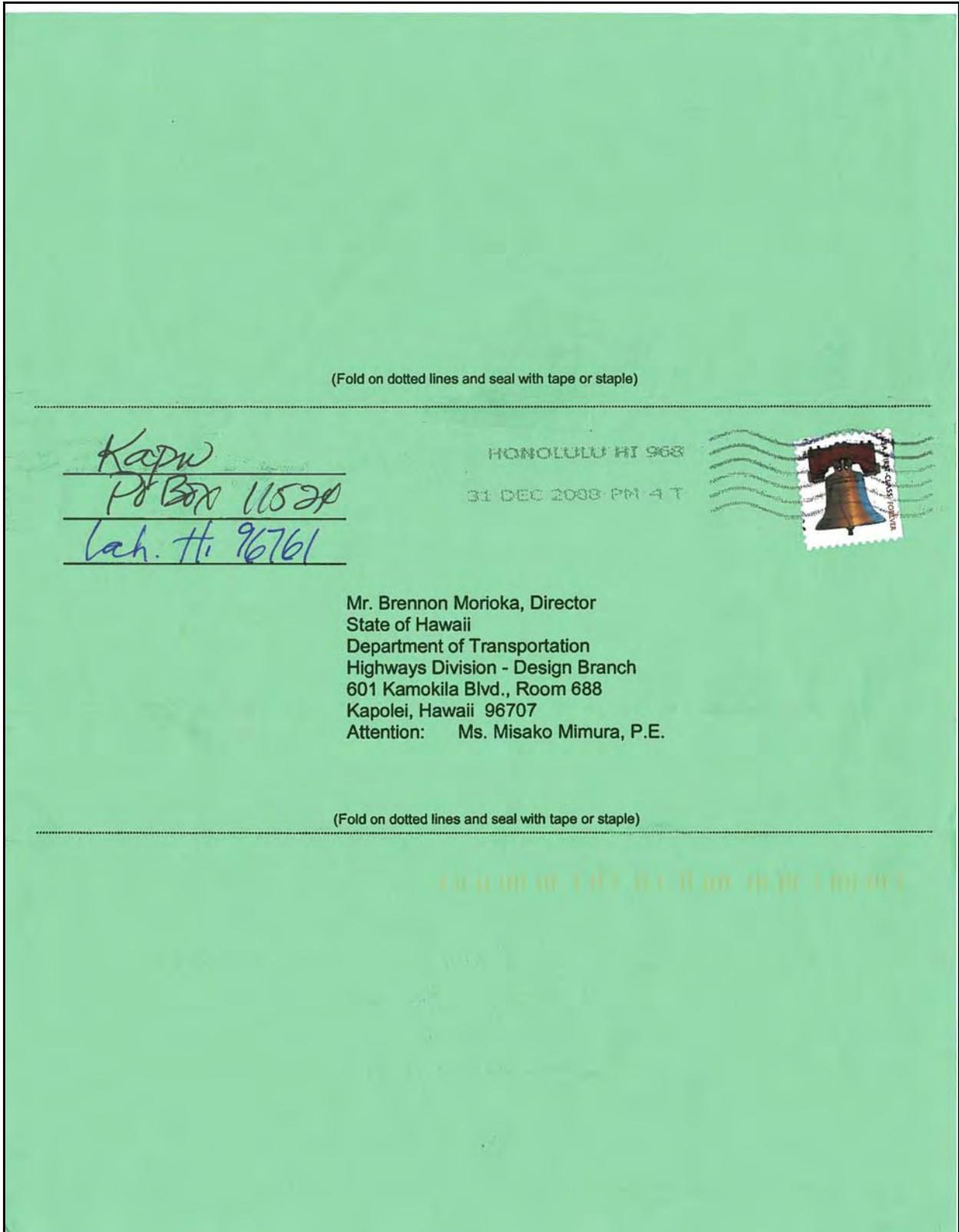
Cultural Impact Ass - Sec. 5 p 99 last par. Kuleana  
 Ku'ikahi LLC - "not non profit organization"

I did not see anything about an access road for  
 the families to travel to there lands located  
 above the bypass - please make sure that  
 is also set in this book and shown on a  
 map -

(include additional sheets as necessary)

PLEASE PRINT: Name: Uilani Kapu Phone: 250-1479  
 Organization: Kuleana Ku'ikahi LLC  
 Address: Po Box 11524  
Lahaina HI 96761  
 Email: \_\_\_\_\_

In order for your comments to be considered in the forthcoming Final Environmental Assessment, comments must be received or postmarked by January 7, 2009, or send via facsimile by the same date to (808) 692-7555.



U'ilani Kapu  
President  
Kuleana Ku'ikahi, LLC  
P.O. Box 11524  
Lahaina, Hawai'i 96761  
September 24, 2007

Ms. Melanie A. Chinen  
Administrator  
State Historic Preservation Division  
601 Kamokila Blvd., Room 555  
Kapolei, Hawai'i 96707

**Subject: Lahaina By-Pass Project Adjacent to Kahoma Stream  
Archaeological Data Recovery 1989-90 versus 2007 Studies**

My name is U'ilani Kapu and I represent 'ohana members whom are extremely concerned about the ongoing Lahaina By-Pass Project and the irreparable harm which will occur to our sacred wahi kūpuna in and around the path of this planned roadway.

Our 'ohana has reason to believe, in despite of previous findings which were done numerous times in the past, that there was no follow up measures to ensure additional protections for this special area, and worse yet, there appears to be none implemented now in the current project.

I have obtained a copies of survey reports, as well as osteological studies performed on our kūpuna by Dr. Michael Pietrusewsky which were excavated and recovered during the Kahoma Stream Flood Control Project in Lahaina, Maui. (Exhibits A and B).

Even though these matters involve two separate projects over an expanse of time, we are talking about the same traditional cultural landscape and the same wahi kūpuna in the same area. We maintain that identified cultural and lineal descendants should have been informed of these findings in light of the new work occurring in the same area.

Our 'ohana is also very concerned as to the proper disposition of these kūpuna and would like to know where they were reinterred and if any are currently in your possession. We understand that some may be reinterred in the Mala Wharf area.  
**WHERE ARE THEY!**

We also understand that your office is moving forward with plans to reinter iwi backlogged on your shelves and in your possession. Our 'ohana wants to be consulted and involved in this effort to mālama our iwi kūpuna to ensure that when they go back, they go back in a pono manner and are not forgotten about and in danger of being disturbed again.

We, Kuleana Ku`ikahi, are very disturbed on the pattern of neglect from your office on Historic Preservation matters and how your office, with its public trust duties under the Constitution of the State of Hawai`i, can wholly ignore such significant findings and disturbances of our beloved iwi kūpuna for the 1989-1990 Flood Control Project in your statutory review and mitigation of the current studies and findings of the By-Pass Project.

Our 'ohana would like to know:

1. Is the identification phase of the historic review process complete or still on-going?
2. Are the significance assessments being made in consultation with Hawaiian 'ohana and the proper agencies?
3. What phase is the data recovery in and when can we see the findings?

We, Kuleana Ku`ikahi, have reason to believe that data recovery information has already been submitted to your office earlier this month and if so, when will the public be allowed to provide comment on these findings before your agency accepts or rejects it?

If your agency won't allow proper and sufficient public notice, consultation and input into this process, pursuant to Chapter 6E, Hawai`i Revised Statutes, and your administrative rules, then we hereby putting you and your office on notice that we are demanding to be consulting parties under both Chapter 6E, HRS and Section 106 of the National Historic Preservation Act of 1966, as amended.

As the representative of the State Historic Preservation Officer (SHPO), we ask that you inform Federal Highways and any other federal agency, that our 'ohana and organization wants to be actively consulted on this project.

It appears that your office, Ms. Chinen, is wholly lacking in internal consistency and enforcement of the historic preservation laws. This project is a good example and the "no-significance" and "no adverse impact" findings, on our wahi kūpuna, is unacceptable. We have reviewed these in light of the report done by Cultural Surveys of Hawai`i for the Department of Transportation (Exhibit C).

We, Kuleana Ku`ikahi, will be sending this letter to other departments for notice, review and an opportunity to comment, basic considerations that our 'ohana has repeatedly been denied.

There is a sense that the SHPD is lacking in its stated mission, and the mission as stated by the Hawai`i State Legislature, in the identification and protection of historic properties and upholding the public trust in this important area. It appears that correspondence emanating from your office repeatedly and consistently fails to adequately identify and protect these sites because your division is lacking in qualified

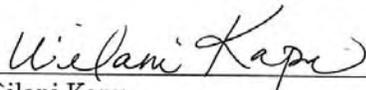
or experienced individuals, and it appears that you cater to big business and the development sector.

We at Kuleana Ku'ikahi demand a cessation of activity on this development project until such time that you can demonstrate that your office is upholding its Constitutional and statutory mandates and that the iwi kūpuna removed from this area be accounted for, by your department, for the 'ohana.

It may be time to seriously consider another route for this portion of the By-Pass, especially in light of the extensive and significant terraces recently identified and given the knowledge of the extensive burials removed from the area prior. There are most likely many more burials present and we are aware of lineal descendants to 'ohana burials in the area who would certainly have legal standing in any resultant litigation on this matter.

We look forward to your timely response regarding these important and serious matters, for time possesses no veil. If you have any questions, you may contact me at the aforementioned address.

Lastly, a word of caution. Our 'ohana will not abandon our kūpuna.

  
U'ilani Kapu,  
President, Kuleana Ku'ikahi

- c. Senator Colleen Hanabusa  
Representative Mele Carrol  
Office of Hawaiian Affairs Board of Trustees/Legal  
OHA Native Hawaiian Historic Preservation Council  
Mayor Charmaine Tavares, County of Maui  
Charles Maxwell, Chair, Maui/Lana'i Islands Burial Council  
Department of Transportation, State of Hawai'i  
Hal Hammatt, Cultural Surveys of Hawai'i



**WILSON OKAMOTO**  
C O R P O R A T I O N

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