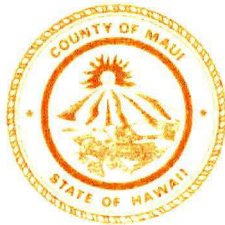


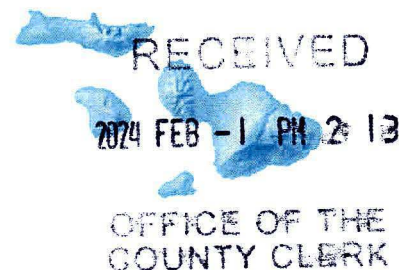
**RICHARD T. BISSEN, JR.**  
Mayor

**KATE L.K. BLYSTONE**  
Acting Director

**GARRETT E. SMITH**  
Deputy Director



**DEPARTMENT OF PLANNING**  
COUNTY OF MAUI  
ONE MAIN PLAZA  
2200 MAIN STREET, SUITE 315  
WAILUKU, MAUI, HAWAII 96793



January 29, 2024

Honorable Richard T. Bissen, Jr.  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**APPROVED FOR TRANSMITTAL**

*Richard T. Bissen, Jr.* 2/1/24  
Mayor Date

For Transmittal to:

Honorable Alice L. Lee, Chair  
and Members of the Maui County Council  
200 South High Street  
Wailuku, Hawaii 96793

Dear Chair Lee and Members:

**SUBJECT: DISTRICT BOUNDARY AMENDMENT (DBA) FOR HALE  
MAHAOLU KE KAHUA PROJECT PROCESSED AS A CHAPTER  
2.97 APPLICATION (ZPA2023-00002)**

The Department of Planning (Department) is transmitting for your review and action the proposed DBA, summarized as follows:

PROPOSAL	
Action	DBA
Applicant	Ms. Kate L.K. Blystone, Acting Planning Director on Behalf of Waiehu Housing, LP
Owner	Maui Economic Opportunity Inc.
Tax Map Key	(2) 3-3-001:106 (Por.)
Address	Corner of Kahekili Highway and Waiehu Beach Road, Waiehu, Island of Maui, Hawaii
Area	Approximately 9.798 acres of a 11.476 acre property



Honorable Richard T. Bissen Jr., Mayor  
 For Transmittal to:  
 Honorable Alice L. Lee, Chair  
 January 29, 2024  
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<b>PROPOSAL</b>	
Current Land Use Designations	State: Urban/Agricultural District Maui Island Plan: Urban Growth Boundary/Outside Protected Areas Wailuku-Kahului Community Plan: Wailuku-Kahului Project District 2 (Piihana)/Agriculture Title 19, Zoning: Interim/Agricultural District Other: Outside of the Special Management Area
Brief Description	Waiehu Housing, LP is proposing the Hale Mahaolu Ke Kahua Project on approximately 11.476 acres of land in Waiehu, located at the corner of Kahekili Highway and Waiehu Beach Road. The project proposed is a 100 percent affordable housing community consisting of 120 multi-family units in 13 two-story buildings, a 3,477 square foot non-profit building, a 3,231 square foot clubhouse, parking, landscaping and related improvements.  A District Boundary Amendment for approximately 9.798 acres from 'Agricultural' to 'Urban' is proposed, for land use and zoning consistency.
Public Hearing	Held by Maui Planning Commission (Commission) on October 24, 2023 at the Maui County Service Center in Kahului, Maui, Hawaii.
Testimony	Nine people provided oral testimony in opposition to the project and three people testified in support of the project at the October 24, 2023 Maui Planning Commission meeting.  As of January 29, 2024, the Department has received one letter of protest or support.
Recommendation	The Commission recommended approval of the DBA.

The Commission reviewed the subject proposal at its October 24, 2023, public meeting and recommended approval of the DBA with two conditions to the Maui County Council (Council):

1. The Applicant shall work in concert with the State Department of Transportation to inspect the existing drainage culvert for blockage and request that they clear it.
2. That the Ginger, Heliconia, Fern tree, Tropha, Golden Glory, and the Singapore Plumeria shall be replaced with natives, fruit trees, or non-invasive lei plants. The Koai'a shall be substituted for the fern tree.

As Council approval is required, the Department respectfully transmits the subject application to the Council for consideration. Accordingly, attached for your review are the following documents:

1. Proposed bill entitled, "A BILL FOR AN ORDINANCE TO AMEND THE STATE LAND USE DISTRICT CLASSIFICATION FROM AGRICULTURAL TO URBAN FOR PROPERTY SITUATED AT WAILUKU, MAUI, HAWAII, TAX MAP KEY (2) 3-3-001:106;"

Honorable Richard T. Bissen Jr., Mayor  
For Transmittal to:  
Honorable Alice L. Lee, Chair  
January 29, 2024  
Page 3

2. Department of Planning Report and Recommendation, including agency comments and exhibits, to the Commission dated October 24, 2023;
3. Adopted Minutes of the October 24, 2023, Commission meeting; and
4. Letter dated November 9, 2023, regarding Maui Planning Commission's "Recommendation of Approval of a District Boundary Amendment (DBA) from 'Agricultural' to 'Urban' for the Hale Mahaolu Ke Kahua Affordable Housing Community Located on Approximately 11.476 Acres of Land in Waiehu, Maui, Hawaii; TMK (2) 3-3-001:106 (Por.) (ZPA2023-00002).

Thank you for your attention to this matter. Should you have any questions, please feel free to transmit them to the Department of Planning via transmittal through the Office of the Mayor.

Sincerely,



KATE L.K. BLYSTONE  
Acting Planning Director

Attachments: Proposed Bill  
Department Staff Report and Recommendation  
Maui Planning Commission Meeting Minutes dated October 24, 2023  
Maui Planning Commission Recommendation letter dated November 9, 2023  
xc: Maui Planning Commission Members (PDF)  
Danny A. Dias, Planning Program Administrator (PDF)  
Kurt F. Wollenhaupt, Acting Land Use Planning Supervisor (PDF)  
Tara K. Furukawa, Staff Planner (PDF)

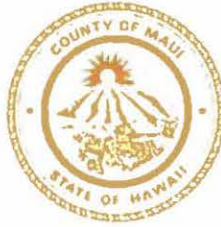
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**RICHARD T. BISSEN JR.**  
Mayor

**KATHLEEN ROSS AOKI**  
Director

**GARRETT E. SMITH**  
Deputy Director



**DEPARTMENT OF PLANNING**  
COUNTY OF MAUI  
ONE MAIN PLAZA  
2200 MAIN STREET, SUITE 315  
WAILUKU, MAUI, HAWAII 96793

November 9, 2023

CERTIFIED MAIL - # 7019 2970 0001 1970 5217

Mr. Monte Heaton  
Waiehu Housing, LP  
330 West Victoria Street  
Gardena, California 90248

Dear Mr. Heaton:

**SUBJECT: RECOMMENDATION OF APPROVAL OF A DISTRICT BOUNDARY AMENDMENT (DBA) FROM 'AGRICULTURAL' TO 'URBAN' FOR THE HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY LOCATED ON APPROXIMATELY 11.476 ACRES OF LAND IN WAIIEHU, MAUI, HAWAII; TMK: (2) 3-3-001:106 (POR.) (ZPA2023-00002)**

At its regular meeting on October 24, 2023, the Maui Planning Commission (Commission) took public testimony, reviewed the above requests, and after due deliberation voted to recommend approval of the DBA (ZPA2023-00002) to the Maui County Council (Council).

The Commission recommended approval of the DBA subject to the following two conditions:

1. That the Applicant shall work in concert with the State Department of Transportation to inspect the existing drainage culvert for blockage and request that they clear it.
2. That the ginger, heliconia, fern tree, tropha, golden glory, and the Singapore plumeria shall be replaced with natives, fruit trees, or non-invasive lei plants. The Koai'a shall be substituted for the fern tree.

We highly stress that you consider the following recommendations:

1. The Applicant shall aspire to increase the size of the proposed drainage system to accommodate pre-construction flow and post-development flow.



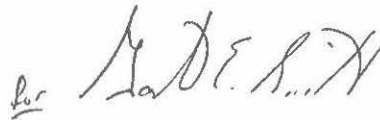
Mr. Monte Heaton  
November 9, 2023  
Page 2

2. Priority of the units shall be given to those who have lived here longer and those affected by the wildfire to the extent allowed by law.
3. The Applicant shall attempt to offset energy use by 50 percent with renewable energy.

The Commission also adopted the Report and Recommendation prepared by the Department for the October 24, 2023 meeting as its Findings of Fact and Conclusions of Law, and authorized the Planning Director to transmit the Commission's recommendation to the Council on its behalf.

Thank you for your cooperation. If additional clarification is required, please contact Staff Planner Tara Furukawa at [tara.furukawa@mauicounty.gov](mailto:tara.furukawa@mauicounty.gov) or at (808) 270-7520.

Sincerely,

A handwritten signature in black ink, appearing to read "Kathleen Ross Aoki", with a small "for" written to the left.

KATHLEEN ROSS AOKI  
Planning Director

xc: Ann T. Cua, Planning Program Administrator (PDF)  
Jordan E. Hart, Planning Program Administrator (PDF)  
Tara K. Furukawa, Staff Planner (PDF)  
Department of Housing and Human Concerns (PDF)

KRA:TKF:th

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BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAII

In the Matter of the Application of

MS. KATHLEEN ROSS AOKI, DIRECTOR  
OF PLANNING on Behalf of WAIEHU  
HOUSING, LP

To Obtain a State Land Use District  
Boundary Amendment from 'Agricultural' to  
'Urban' for the Hale Mahaolu Ke Kahua  
Affordable Housing Community, to be  
Located on Approximately 11.476 Acres of  
Land in Waiehu, Maui, Hawaii, TMK: (2) 3-3-  
001:106 (Por.).

DOCKET NO. ZPA2023-00002

Ms. Kathleen Ross Aoki, Director of  
Planning on Behalf of Waiehu Housing, LP

(T. Furukawa)

DEPARTMENT OF PLANNING  
REPORT AND RECOMMENDATION  
AUGUST 22, 2023 MEETING

DEPARTMENT OF PLANNING  
COUNTY OF MAUI  
2200 MAIN STREET, SUITE 619  
WAILUKU, HAWAII 96793

**District Boundary Amendment**

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BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAII

MS. KATHLEEN ROSS AOKI, DIRECTOR  
OF PLANNING on Behalf of WAIEHU  
HOUSING, LP

To Obtain a State Land Use District  
Boundary Amendment from 'Agricultural' to  
'Urban' for the Hale Mahaolu Ke Kahua  
Affordable Housing Community, to be  
Located on Approximately 11.476 Acres of  
Land in Waiehu, Maui, Hawaii, TMK: (2) 3-  
3-001:106 (Por.).

DOCKET NO. ZPA2023-00002

Ms. Kathleen Ross Aoki, Director of  
Planning on Behalf of Waiehu Housing, LP

(T. Furukawa)

**DESCRIPTION OF THE PROJECT**

Waiehu Housing, LP ("Applicant") is proposing to develop a 100 percent affordable rental community consisting of 120-multi-family units on approximately 11.476 acres of land in Waiehu, Maui, Hawaii at TMK: (2) 3-3-001:106. (See Regional Location Map, Project Location Map and Site Photographs attached as **Exhibits 1-3.**)

The project will consist of 13 two-story multi-family residential buildings, a 3,477 square foot non-profit building, a 3,231 square foot clubhouse for project residents, parking, landscaping and related improvements. (See Conceptual Site Plan, Elevations, Floor Plans and Conceptual Lighting Plan attached as **Exhibits 4-7**). There will be twenty-eight 652 square foot one-bedroom, one-bathroom units, including one that meets Americans With Disabilities Act (ADA) compliance. There will be sixty 852 square foot two-bedroom, two-bathroom units, including one that meets ADA requirements, and thirty-two 1,208 square foot three-bedroom, two-bathroom units, including one that meets ADA compliance. For project residents, there will be two play areas, two onsite laundry facilities, and one maintenance room. Access will be via three entrances off Kahekili Highway. There will be a total of 264 parking stalls and two loading stalls.

Proposed landscaping (**Exhibit 8**) consists of the following: Foxtail and Loulu Palm (Native) trees, Rainbow Shower and Kamani (Native) Canopy trees, Milo (Native) and Fern medium shade canopy trees for the parking areas, Ohe Makai (Native), Singapore Plumeria and Jatropha small accent trees, Citrus, Avocado and Papaya fruit trees, Ti, Heliconia, Ginger, Golden Glory and Lauae Fern shrubs. Perimeter shrubs will consist of Naio/Aalii Mix (Native). Native shrubs will consist of Aweoweo, Akia, Ilima Shrub, Pohinahina, Ulei, Ilima Papa, Naio, Aalii, Alahee, Naupaka, Ilima Papa, Mao, and Kupukupu Fern.

Units will be restricted to applicants earning 60 percent or less of the Area Median Income (AMI), in accordance with the annual affordable rent guidelines set by the County



Department of Housing and Human Concerns (DHHC). In accordance with the Maui County affordable rent guidelines 2023, proposed rent per month is listed in the 'Rent/Month' column, as follows:

Type of Unit	Income Limit	Rent/Month
One Bedroom	30%	\$595
One Bedroom	60%	\$1,190
Two Bedroom	30%	\$714
Two Bedroom	60%	\$1,428
Three Bedroom	30%	\$825
Three Bedroom	60%	\$1,651

The property has been owned by Maui Economic Opportunity, Inc. since June, 2008. Hale Mahaolu will serve as property manager and handle project operations.

The project valuation is estimated to be approximately \$33.5 million. The project is anticipated to take approximately 16 months to construct, and construction will commence upon receipt of building permit approvals.

#### **REASON FOR PLANNING COMMISSION REVIEW**

Pursuant to Hawaii Revised Statutes Section 205-3.1 (c), Amendments to district boundaries, involving land areas of 15 acres or less, except in conservation districts, shall be determined by the appropriate county land use decision-making authority (County Council).

Pursuant to Maui County Code, Chapter 19.68, State Land Use District Boundaries, certain responsibilities for the administration of boundary amendments are delegated to the Maui Planning Commission. The Planning Commission shall conduct a public hearing and provide a recommendation to the County Council.

Further, pursuant to Section 19.68.040, the County Council, prior to the enactment of an ordinance effecting any reclassification/boundary change, may impose conditions upon the Applicant's use of the property, fulfillment of such conditions to be prerequisite to the adoption of such ordinance or applicable part thereof. Such conditions shall have already been performed prior to council action on the reclassification/change of boundary or be enforceable by the county after council action. Conditions shall be fulfilled within the time limitation established by the council, or, if no time limitation is established, within a reasonable time. Such conditions, if any, shall run with the land and be recorded in the bureau of conveyances or filed with the assistant registrar of the land court. Conditions shall be imposed only if the council finds such to be necessary to prevent adverse effects upon public health, safety and welfare, and shall be reasonably conceived to fulfill needs arising directly out of the proposed land use in the following respects:

1. Protection of the public from the potentially deleterious effects of the proposed use; or
2. Fulfillment of the needs for public service demands created by the proposed use.

The Maui Planning Commission makes a recommendation to the County Council, who will be the final authority on the District Boundary Amendment request.

For this project, a Maui County Code (MCC) Chapter 2.97 fast-track housing application was submitted for review and approval by the Maui County Council. See **Exhibit 9**. Chapter 2.97 allows for exemptions and waivers from conditions relating to planning, zoning and construction standards for subdivisions, land development and improvement, and unit construction. A few MCC Title 19 exemptions were sought to enable project development, and Title 19 is enforced by the County Department of Planning (Department). An exemption was sought from MCC Chapter 19.36B, Off-Street Parking and Loading to allow for only one parking stall per unit for the one-bedroom units, and a reduction in dimensions for loading spaces. An exemption was sought from MCC Chapter 19.68 State Land Use District Boundaries and MCC Chapter 19.510 Application and Procedures to enable the DBA to proceed to the Maui County Council without requiring a DBA application and enable a review by the County Council concurrently with the MCC Chapter 2.97 application. An exemption was also sought for the project so that a Wailuku-Kahului Community Plan amendment would not be needed to change the designation from 'Wailuku-Kahului Project District 2 (Piikana)' and 'Agriculture' to 'Multi-Family.' An exemption was also sought so that a Change of Zoning would not be needed to amend the designation from 'Interim' and 'Agricultural' to 'A-1, Apartment District.' As per MCC Section 2.97.170, the Council is required to approve the application within 60 days of receipt. If the Council cannot approve the application within that timeframe, the Department of Housing and Human Concerns (DHHC) Director can approve the application within 14 days of the expiration of the 60-day Council approval timeframe.

Despite the numerous meetings held by the County Council's Housing and Sustainable Land Use Committee, the item was not approved within 60 days of receipt of the application. The Director of DHHC was then tasked with reviewing and approving the application with exemptions within 14 days of receipt.

The MCC Chapter 2.97 application was approved with modified exemptions on May 4, 2023. Refer to **Exhibit 9**. One of the modifications was to the MCC Chapter 19.36 Off-Street Parking and Loading request to include two bicycle racks onsite to support the County's initiative to increase multimodal transportation opportunities. Another modification was to the exemption request for MCC Chapters 19.68 and 19.510 to enable the District Boundary Amendment to be Council or Planning Director-initiated to the Planning Commission, as required by Section 8-8.4 of the Revised Charter of the County of Maui (1983), as amended.

The Planning Director is now initiating the District Boundary Amendment process for a portion of the parcel, 9.798 acres, from 'Agricultural' to 'Urban' for land use consistency with the Maui Island Plan and Community Plan designation and County zoning exemptions. See **Exhibit 36**. The Commission must make a recommendation to Council for approval of the amendment.

## **PROJECT NEED**

According to the Hawaii Housing Planning Study, 2019, which was prepared for the County Department of Housing and Human Concerns, for years 2020-2025 there is a demand for 10,404 units among people who would qualify for affordable housing. In addition, there is a demand in Maui County for 5,799 rental units.

By income level, the greatest demand is for 2,955 units for those who earn greater than 180 percent of the Area Median Income (AMI) range set by the U.S. Department of Housing and Urban Development. There is a demand for 1,800 units for those earning between 140 to 180

percent AMI; 1,721 units for those earning less than 30 percent AMI; 1,272 units for those earning 60 to 80 percent AMI; 777 units for those earning between 30 to 50 percent AMI; 740 units for those earning 80 to 120 percent AMI; 647 units for those earning between 120 to 140 percent AMI; and 492 units for those earning between 50 to 60 percent AMI.

The greatest multi-family housing rental demand on Maui is for 776 units for those who earn less than 30 percent AMI; 555 units for those who earn greater than 180 percent AMI; 415 units for those earning between 60 to 80 percent AMI; 319 units for those earning between 140 to 180 percent AMI; 234 units for those earning between 50 to 60 percent AMI; 196 units for those earning between 80 to 120 percent AMI; 106 units for those earning between 30 to 50 percent AMI; and 105 units for those earning between 120 to 140 percent AMI.

## **DESCRIPTION OF THE PROPERTY**

1. The property is currently undeveloped and overgrown with grass and macadamia nut trees. There is an approximately three percent slope to the property. The property lies at an elevation of 155 feet above mean sea level (AMSL) at the southeast portion of the site to 48 AMSL in the northwest portion. Along the eastern property boundary, there is an existing bank.
2. **Land Use Designations**  
 State Land Use District.....Urban/Agricultural  
 Maui Island Plan ..... Urban Growth Boundary/Outside Protected Areas  
 Wailuku-Kahului Community Plan...Wailuku-Kahului Project District 2 (Piilana)/Agriculture  
 County Zoning.....Interim/Agricultural District  
 Other .....Outside of the Special Management Area
3. **Surrounding Uses**  
 North.....Waiehu Beach Road/Oceanview Estates  
 East.....Waiehu Heights Subdivision/Lower Waiehu/  
 .....Pacific Ocean  
 South.....Agricultural land  
 West.....Kahekili Highway/Agricultural and
4. The properties lie in Flood Zone 'X,' an area of minimal flooding, and does not require a Flood Development Permit.
5. The property is located outside of the 3.2-foot scenario sea level rise exposure area, per the Pacific Islands Ocean Observing System.
6. The property is located outside of the tsunami evacuation zone and the extreme tsunami evacuation zone.
7. There are no open Requests for Service on the property.
8. There was one police report for the subject property from January 2023. The property owner requested police assistance to clear out land and remove squatters/trespassers from the site.



9. Offsite improvements will potentially affect State of Hawaii and County of Maui Right-of-Way lands. The use of State or County lands or funds is a “trigger” for an Environmental Assessment (EA), per Chapter 343, Hawaii Revised Statutes. A Draft EA was published in the September 23, 2021 issue of *The Environmental Notice*. The Final EA and Finding of No Significant Impact (FONSI) was published in the June 8, 2022 issue of *The Environmental Notice*.

### **PROCEDURAL MATTERS**

1. On September 23, 2021, the Draft EA was published in *The Environmental Notice*.
2. On June 8, 2022, the Final EA was published and a FONSI was issued in *The Environmental Notice*.
3. On February 21, 2023, the Maui County Council received the MCC Chapter 2.97 application. As per MCC Section 2.97.170, the Council is required to approve the application within 60 days of receipt. If the Council cannot approve the application within that timeframe, the DHHC Director can approve the application within 14 days of the expiration of the 60-day Council approval timeframe.
3. On March 2, 8, and 23, 2023, the Maui County Council Housing and Land Use Committee reviewed the MCC Chapter 2.97 application. The application failed to pass review by Council, so it was forwarded to the DHHC Director for approval.
4. On May 4, 2023, the project was approved by the DHHC Director, with exemptions. However, the approval required that a DBA be submitted for the project.
5. On July 10, 2023, the DBA application was submitted to the County.
6. On July 31, 2023, the Maui Planning Department emailed the Applicant and consultant, notifying them of the scheduled public hearing.
7. On July 21, 2023, a notice of public hearing on the District Boundary Amendment was published in the Maui News by the Maui Planning Department for the August 22, 2023 hearing.

### **REVIEWING AGENCIES**

<b>County Agencies</b>	<b>Comment</b>	<b>Exhibit Number</b>
Department of Environmental Management	No	
Department of Finance	No	
Department of Fire and Public Safety	Yes	10
Applicant Response		10a
Department of Parks and Recreation	Yes	11
Applicant Response		11a
Department of Planning	Yes	12
Applicant Response		12a
Department of Public Works dated October 19, 2021	Yes	13
Department of Public Works dated November 5, 2021	Yes	13a

Applicant Response		13b
Department of Transportation	Yes	14
Applicant Response		14a
Department of Water Supply dated 10/25/21	Yes	15
Applicant Response dated 6/1/22		15a
Department of Water Supply dated 10/21/21	Yes	15b
Applicant Response dated 6/1/22		15c
Maui Emergency Management Agency	Yes	16
Applicant Response		16a
Office of Economic Development	No	
Police Department	Yes	17
Applicant Response		17a

<b>State Agencies</b>	<b>Comment</b>	<b>Exhibit Number</b>
Department of Health - Clean Air Branch	Yes	18
Applicant Response		18a
Department of Accounting and General Services	No	
Department of Agriculture	No	
Department of Defense	No	
Department of Education	Yes	19
Applicant Response		19a
Department of Hawaiian Homelands	No	
Department of Health – Clean Water Branch	No	
Department of Health – Environmental Health Administration	No	
Department of Health – Maui District Office dated October 6, 2021	Yes	20
Applicant Response		20a
Department of Health – Office of Environmental Quality Control	No	
Department of Health – Solid and Hazardous Waste Branch	No	
Department of Land and Natural Resources – Commission on Water Resource Management	Yes	21
Applicant Response		21a
Department of Land and Natural Resources – Division of Forestry and Wildlife	Yes	22
Department of Land and Natural Resources – Engineering Division	Yes	22a
Department of Land and Natural Resources – Land Division Maui District	Yes	22b
Applicant Response	Yes	22c
Department of Land and Natural Resources – State Historic Preservation Division dated June 13, 2008	Yes	23
Department of Land and Natural Resources – State Historic Preservation Division dated November 10, 2021	Yes	23a
Department of Transportation dated October 19, 2021	Yes	24
Department of Transportation dated February 7, 2022	Yes	24a
Applicant Response		24b
Hawaii Housing Finance and Development Corporation	No	
Land Use Commission	No	
Office of Hawaiian Affairs	No	

Office of Planning & Sustainable Development	Yes	25
Applicant Response		25a

<b>Federal Agencies</b>	<b>Comment</b>	<b>Exhibit Number</b>
U.S. Army Corps. Of Engineers dated December 23, 2008 and September 2, 2009	Yes	26
U.S. Department of Agriculture	No	
U.S. Department of the Interior – Fish and Wildlife Service	Yes	27
Applicant Response		27a
U.S. Department of Transportation – Federal Aviation Administration	No	

<b>Other Agencies</b>	<b>Comment</b>	<b>Exhibit Number</b>
Aha Moku O Wailuku	Yes	28
Applicant Response		28a
Habitat for Humanity Maui	Yes	29
Applicant Response		29a
Hawaiian Electric	No	
Hawaiian Telcom	No	
Maui Behavioral Health Resources	Yes	30
Applicant Response		30a
Maui Planning Commission	Yes	31
Applicant Response		31a
Parents and Children Together	Yes	32
Applicant Response		32a
Spectrum	No	
University of Hawaii Manoa – Institute for Astronomy	Yes	33
Applicant Response		33a
Urban Design Review Board	Yes	34
Applicant Response		34a
Waiehu Kou Phase 3 Association	Yes	35
Applicant Response		35a
Waiehu Terrace Community Association	No	
Waihee Community Association	No	

## **ANALYSIS**

### **LAND USE**

1. The proposed land use entitlements are in conformance with the goals, objectives and policies of the Hawaii State Plan.
  - A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.



- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.
- Physical, social, and economic well-being for individuals and families in Hawaii that nourishes a sense of community responsibility, of caring and of participation in community life.

### **Objectives and Policies of the Hawaii State Plan**

The proposed reclassification is in conformance with the following objectives and policies of the Hawaii State Plan:

#### **Chapter 226-6, HRS, Objectives and Policies for the economy – in general.**

- (a) Planning for the State's economy in general shall be directed toward achievement of the following objectives:
  - (1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawaii's people.
  - (2) A steadily growing and diversified economic base that is not overly dependent on a few industries.
- (b) To achieve the general economic objectives, it shall be the policy of this State to:
  - (6) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.
  - (9) Foster greater cooperation and coordination between the public and private sectors in developing Hawaii's employment and economic growth opportunities.
  - (10) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.

#### **Chapter 226-13, HRS, Objectives and Policies for the physical environment – land, air, and water quality.**

- (a) Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawaii's economic base.
- (b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:

- (6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.
- (7) Encourage urban developments in close proximity to existing services and facilities.

**Chapter 226-19, HRS, Objectives and Policies for socio-cultural advancement – housing.**

- (a) Planning for the State's economy socio-cultural advancement with regard to housing shall be directed towards achievement of the following objectives:
  - (1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals.
- (b) To achieve the housing objectives, it shall be the policy of this State to:
  - (1) Effectively accommodate the housing needs of Hawaii's people.
  - (2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.
  - (3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.
  - (4) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

**Chapter 226-104, HRS, Population growth and land resources priority guidelines.**

- (a) Priority guidelines to effect desired statewide growth and distribution:
  - (5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.
- (b) Priority guidelines for regional growth distribution and land resource utilization:
  - (1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.

- (2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands or importance in the agricultural district.
- (9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.

**Chapter 226-106, HRS, Affordable Housing.**

- (1) Seek to use marginal or non-essential agricultural and public land to meet housing needs of low and moderate-income and gap-group households.
- (4) Create incentives for development which would increase home ownership and rental opportunities for Hawaii's low and moderate-income households, gap-group households, and residents with special needs.
- (6) Encourage public and private sector cooperation in the development of rental housing alternatives.

2. **State Land Use Designation.** The project requires a State Land Use District Boundary Amendment for approximately 9.798 acres of the 11.476-acre parcel from the State 'Agricultural' District to the 'Urban' District. Refer to **Exhibit 36**. The proposed use is consistent with the 'Urban' District. The proposed reclassification of the 9.798-acre project site from the 'Agricultural' to the 'Urban' District has been analyzed with respect to the following criteria, as discussed below.

**Chapter 15-15-18, HAR**

- (1) It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses;

**Comment:** The project area is located within the 'Urban' Growth Boundary, as designated by the Maui Island Plan, which means urban-density development requires a full-range of services. In addition, the property lies adjacent to the Waiehu Heights subdivision and in close proximity to the Waiehu Terrace and Oceanview Estates subdivisions.

- 2) It shall take into consideration the following specific factors:
  - (A) Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;

**Comment:** The proposed project will be located approximately three miles away from Wailuku and Kahului, centers of trade and employment.

- (B) Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and

**Comment:** The proposed project will be connected to County water, wastewater and drainage systems. Various schools and parks are located in Waihee, Wailuku, and Kahului; approximately two to three miles away. In addition, police and fire protection service is located approximately three miles away. Solid waste service will be provided by the County of Maui.

- (C) Sufficient reserve areas for foreseeable urban growth;

**Comment:** There are sufficient reserve areas for foreseeable urban growth mauka of the site and to the south that are designated 'Agricultural' and can be amended to 'Urban.'

- (3) It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil condition, and other adverse environmental effects;

**Comment:** The property is relatively flat, with only a three percent slope, and is located outside of areas subject to flood and tsunami hazard areas. No adverse impacts are anticipated in association with the proposed project.

- (4) Land contiguous with exiting urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans;

**Comment:** The property is contiguous with existing urban areas, in particular, the Waiehu Heights subdivision. In addition, the property is designated as lying within the 'Urban' Growth Boundary, as per the Maui Island Plan, so it is indicated for future urban use.

- (5) It shall include lands in appropriate locations for new urban concentrations and shall give consideration with areas of urban growth as shown on the state and county general plans;

**Comment:** The property is appropriately located for an extension of urban lands. As mentioned previously, the area is contiguous to urban concentrations. Consideration to granting the urban designation to this property should be granted in that it is designated as lying within the 'Urban' Growth Boundary, as per the Maui Island Plan. The 'Urban' Growth Boundary designation, "Ensure(s) that future development occurs in an orderly fashion."

- (6) It may include lands which do not conform to the standards in paragraphs (1) to (5):

- (A) When surrounded by or adjacent to existing urban development; and

**Comment:** The land conforms to the standards in paragraphs 1 to 5, so this criteria would not apply.

- (B) Only when those lands represent a minor portion of this district;

**Comment:** This criteria would not apply, as the land conforms with the standards in paragraphs 1 to 5.

- (7) It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and

**Comment:** The proposed project would not contribute toward spot development, necessitating an unreasonable investment in public infrastructure or support services. The property is located adjacent to existing urban land and in proximity to other subdivisions. In addition, the property can be accommodated by public services, without the need for additional investment.

- (8) It may include lands with a general slope of 20 per cent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any federal, state, or county agency, are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.

**Comment:** The property has a slight slope of approximately three percent, so this criteria is not applicable.

3. As stated in the Maui County Charter, as amended in 2002:

"The General Plan shall indicate desired population and physical development patterns for each island and region within the county; shall address the unique problems and needs of each island and region; 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."

The County of Maui 2030 General Plan Countywide Policy Plan, adopted by the Maui County Council on March 19, 2010, is the first component of the decennial General Plan update. The Countywide Policy Plan replaces the General Plan as adopted in 1990 and amended in 2002. The Countywide Policy Plan acts as an over-arching values statement and umbrella policy document for the Maui Island Plan and the nine Community Plans that provides broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future. The plan includes:

1. A vision statement and core values for the County to the year 2030
2. An explanation of the plan-making process
3. A description and background information regarding Maui County today
4. Identification of guiding principles



5. A list of countywide goals, objectives, policies, and implementing actions related to the following core themes:
  - A. Protect the Natural Environment
  - B. Preserve Local Cultures and Traditions
  - C. Improve Education
  - D. Strengthen Social and Healthcare Services
  - E. Expand Housing Opportunities for Residents
  - F. Strengthen the Local Economy
  - G. Improve Parks and Public Facilities
  - H. Diversify Transportation Options
  - I. Improve Physical Infrastructure
  - J. Promote Sustainable Land Use and Growth Management
  - K. Strive for Good Governance
  - L. Mitigate Climate Change and Work Toward Resilience

The proposed DBA is in keeping with the following Countywide Policy Plan goals, objectives and policies:

**THEME:** Expand Housing Opportunities for Residents

**GOAL:** Quality, island-appropriate housing will be available to all residents.

**Objective:** Reduce the affordable housing deficit for residents.

**Policies:**

- a. Ensure that an adequate and permanent supply of affordable housing, both new and existing units, is made available for purchase or rental to our resident and/or workforce population, with special emphasis on providing housing for low- and moderate-income families, and ensure that all affordable housing remains affordable in perpetuity.

**Objective:** Increase the mix of housing types in towns and neighborhoods to promote sustainable land use planning, expand consumer choice, and protect the County's rural and small-town character.

**Policy:**

- b. Design neighborhoods to foster interaction among neighbors.

**Objective:** Increase and maintain the affordable housing inventory.

**Policies:**

- a. Recognizing housing as a basic human need, and work to fulfill that need.
- b. Prioritize available infrastructure capacity for affordable housing.
- e. Develop public-private and nonprofit partnerships that facilitate the construction of quality affordable housing.
- f. Streamline the review process for high-quality, affordable housing developments that implement the goals, objectives, and policies of

the General Plan.

**THEME:** Improve Parks and Public Facilities

**GOAL:** A full-range of island-appropriate public facilities and recreational opportunities will be provided to improve the quality of life for residents and visitors.

**Objective:** Expand access to recreational opportunities and community facilities to meet the present and future needs of residents of all ages and physical abilities.

**Policies:**

- g. Promote the development and enhancement of community centers, civic spaces, and gathering places throughout our communities.

**Objective:** Improve the quality and adequacy of community facilities.

**Policies:**

- b. Provide and maintain community facilities that are appropriately designed to reflect the traditions and customs of local cultures.

**THEME:** Improve Physical Infrastructure

**GOAL:** Maui County's physical infrastructure will be maintained in optimum condition and will provide for and effectively serve the needs of the County through clean and sustainable technologies.

**Objective:** Direct growth in a way that makes efficient use of existing infrastructure and to areas where there is available infrastructure capacity.

**Policies:**

- a. Capitalize on existing infrastructure capacity as a priority over infrastructure expansion.
- d. Promote land use patterns that can be provided with infrastructure and public facilities in a cost-effective manner.

The proposed DBA is consistent with the policies in the Countywide policy plan.

4. The Maui Island Plan (MIP) is applicable to the island of Maui only. The MIP provides more specific policy-based strategies for population, land use, transportation, public and community facilities, water and sewage, visitor destinations, urban design, and other matters related to future growth.

As provided by MCC Chapter 2.80B, the MIP shall include the following components:

1. *An island-wide land use strategy, including a managed and directed growth plan*
2. *A water element assessing supply, demand and quality parameters*

3. *A nearshore ecosystem element assessing nearshore waters and requirements for preservation and restoration*
4. *An implementation program which addresses the County's 20-year capital improvement requirements, financial program for implementation, and action implementation schedule*
5. *Milestone indicators designed to measure implementation progress of the MIP*

The MIP addresses a number of planning categories with detailed policy analysis and recommendations which are framed in terms of goals, objectives, policies and implementing actions. These planning categories address the following areas:

1. *Population*
2. *Heritage Resources*
3. *Natural Hazards*
4. *Economic Development*
5. *Housing*
6. *Infrastructure and Public Facilities*
7. *Land Use*

Additionally, an essential element of the MIP is its directed growth plan which provides a management framework for future growth in a manner that is fiscally, environmentally, and culturally prudent. Among the directed growth management tools developed through the MIP process are maps delineating urban growth boundaries (UGB), small town boundaries (SRB) and rural growth boundaries (RGB). The respective boundaries identify areas appropriate for future growth and their corresponding intent with respect to development character.

According to the *Maui Island Plan* (MIP), the property lies within the 'Urban' Growth Boundary and 'Outside' Protected Areas.

The proposed action has been reviewed with respect to pertinent goals, objectives, policies and implementing actions of the MIP. A summary of the policy statement most applicable is provided below:

**Goal 1.1** Maui's people, value, and lifestyles thrive through strong, healthy, and vibrant island communities.

**Objective 1.1.1** Greater retention and return of island residents by providing viable work, education, and lifestyle options.

**Policy:**

**1.1.1.b** Expand housing, transportation, employment, and social opportunities to ensure residents are able to comfortably age within their communities.

**Goal 4.1** Maui will have a balanced economy composed of a variety of industries that offer employment opportunities and well-paying jobs and a business environment that is sensitive to resident needs and the island's unique natural and cultural resources.

**Objective 4.1.3** Improve the island's business climate.

**Policy:**

**4.1.3.b** Ensure an adequate supply of affordable workforce housing.

5. According to the *Wailuku-Kahului Community Plan*, the parcel is designated 'Agriculture' and 'Wailuku-Kahului Project District 2 (Piikana).' An exemption was sought and received, as part of the MCC Chapter 2.97 approval, for a Community Plan Amendment to change the 'Agriculture' portion to 'Multi-Family' to allow for the proposed use.

The proposal is for affordable housing and the proposed action is in keeping with the following *Wailuku-Kahului Community Plan* goals, objectives and policies:

Housing

Goal: A sufficient supply and choice of attractive, sanitary and affordable housing accommodations for the broad cross section of residents, including the elderly.

Objectives and Policies:

2. Provide sufficient land areas for new residential growth which relax constraints on the housing market and afford variety in type, price, and location of units. Opportunities for the provision of housing are presently constrained by a lack of expansion areas. This condition should be relieved by a choice of housing in a variety of locations, both rural and urban in character.
3. Seek alternative residential growth areas within the planning region, with high priority given to the Wailuku and Kahului areas. This action should recognize that crucial issues of maintaining important agricultural lands, achieving efficient patterns of growth, and providing adequate housing supply and choice of price and location must be addressed and resolved.

Social Infrastructure

Goal: Develop and maintain an efficient and responsive system of public services which promotes a safe, healthy and enjoyable lifestyle, accommodates the needs of young, elderly, disadvantaged persons, and offers opportunities for self-improvement and community well-being.

Recreation - Objectives and Policies:

4. Provide for a major regional multi-purpose center for the planning district to accommodate resident needs for banquet and meeting facilities with adequate parking.
16. Ensure that adequate regional/community park facilities are provided to service new residential developments.

The land use entitlements for the parcels are consistent with the Wailuku-Kahului objective and policies of said plan.

6. Zoning

As previously mentioned, the parcel is zoned 'Interim' and 'Agricultural.' The Applicant sought and received a Chapter 2.97 exemption to allow the proposed project without having to obtain a Change of Zoning from 'Interim' and 'Agricultural' to 'A-1, Apartment District' zoning. Information about 'A-1, Apartment' zoning is as follows:

**A-1 Apartment:** Section §19.12.010, "Generally" reads as follows:

- A. *The purpose of the apartment districts are to provide higher density housing options than the residential and duplex districts. Multiple-family apartment districts are generally established within or near the urban core of a town to provide residents with access to jobs, services, amenities, and transportation options. Uses within the apartment districts are appropriately located near, and are compatible with, uses in the various business, residential, public/quasi-public, and park districts. Apartment districts can provide a transition between residential districts and business districts.*
- B. *Apartment districts must consist of two types: A-1 apartment district and A-2 apartment district.*
- C. *Residential buildings and structures within the apartment district must be occupied on a long-term residential basis, except as otherwise allowed by code.*

*(Ord. No. 5126, § 2, 2020; Ord. No. 4076, § 1, 2013; Ord. 1797 § 7, 1989: prior code § 8-1.6(a))*

**19.12.020 Permitted uses.**

- A. *Any use permitted in the residential and duplex districts.*
- B. *Apartment houses.*
- C. *Boarding houses, rooming houses, and lodging houses.*
- D. *Bungalow courts.*
- E. *Apartment courts.*
- F. *Townhouses.*
- G. *Transient vacation rentals in building and structures meeting all of the following criteria:*
  - 1. *The building or structure received a building permit, special management area use permit, or planned development approval that was lawfully issued by and was valid, or is otherwise confirmed to have been lawfully existing, on April 20, 1989.*
  - 2. *Transient vacation rental use was conducted in any lawfully existing dwelling unit within the building or structure prior to September 24, 2020 as determined by real property tax class or payment of general excise tax and transient accommodations tax.*
  - 3. *The property owner or operator holds general excise tax and transient accommodations tax licenses and is current in payment of State and County taxes, fines, or penalties assessed in relation to the transient vacation rental.*
  - 4. *If a building or structure is reconstructed, renovated, or expanded, transient vacation rental use is limited to the building envelope and number of bedrooms that can be confirmed as approved or lawfully existing on April 20, 1989.*



5. Advertisements for transient vacation rental use must include the subject property's registration number, which is the subject property's tax map key number, without punctuation marks.
- H. Bed and breakfast homes, subject to the provisions of chapter 19.64.
- I. Short-term rental homes, subject to the provisions of chapter 19.65.

(Ord. No. 5301, § 3, 2021; Ord. No. 5126, § 3, 2020; Ord. No. 4315, § 3, 2016; Ord. No. 4168, § 5, 2014; Ord. No. 4167, § 2, 2014; Ord. No. 4076, § 1, 2013; Ord. No. 3622, § 3, 2009; Ord. 1797 § 8, 1989: prior code § 8-1.6(b))

19.12.020 Permitted uses.

Accessory uses and buildings	Criteria or limitations
A. Energy systems, small-scale	Provided there will be no detrimental or nuisance effect upon the neighbors
B. Fences, mail boxes, trash enclosures	
C. Garages	
D. Subordinate uses and structures which are determined by the director of planning to be clearly incidental and customary to the permitted uses listed herein	

(Ord. No. 4076, § 1, 2013; Prior code § 8-1.6(c))

19.12.050 Development Standards.

	A-1	A-2	Notes and exceptions
Minimum lot area (in acres)	10,000	10,000	
Minimum lot width (in feet)	70	70	
Maximum building height (in feet)	35	60	Except that vent pipes, fans, elevator and stairway shafts, chimneys, cell or antennae, and equipment used for small scale energy systems on roofs shall not exceed 10 feet above the maximum building height or structure whichever is less
Minimum yard setback (in feet)			
Front and rear	15 feet for the portion of the building 35 feet or less in height, and 20 feet for the portion of the building taller than 35 feet		
Side	10 feet for the portion of the building 35 feet or less in height, and 15 feet for the portion of the building taller than 35 feet		
Maximum lot coverage	25%	35%	

Maximum floor area ratio	40% for lots 3 acres or more 50% for lots less than 3 acres	90%	
Accessory structures within setback area	Mail boxes, trash enclosures, boundary walls, and ground signs		Shall not exceed 8 feet in height except for signs for which a greater height is allowed in <u>chapter 16.13</u> of this code

(Ord. No. 4076, § 1, 2013; Prior code § 8-1.6(e))

## **ARCHAEOLOGICAL, HISTORIC AND CULTURAL RESOURCES**

An Archaeological Inventory Survey was conducted in 2008. A pedestrian survey and representative testing was conducted with negative findings, so the study was termed an "Archaeological Assessment." See **Exhibit 37**. After the pedestrian survey, there were 17 trenches throughout the project area. No archaeological sites were identified during the inventory survey. While no sites or cultural materials were identified, the presence of sand, number of site and other cultural significant subsurface deposits could yield archaeological sites, so an Archaeological Monitoring Plan was recommended. In a letter dated June 13, 2008, SHPD accepted the Archaeological Assessment. Refer to **Exhibit 23**.

In an agency letter dated October 15, 2020, DHHC recommended archaeological monitoring during construction as a precautionary measure. See **Exhibit 38**. DHHC noted that previous archaeological studies documented the potential for buried cultural deposits and human burials in the region. DHHC proposed onsite archaeological monitoring for all ground disturbance. An Archaeological Monitoring Plan was submitted to SHPD in 2020. See **Exhibit 39**. On November 10, 2021, SHPD concurred that archaeological monitoring should be conducted for identification purposes to determine if historic properties are present. Refer to **Exhibit 23a**. SHPD requested that it be notified prior to the start of archaeological monitoring.

A Cultural Impact Assessment was prepared for the project by Cultural Surveys Hawaii, Inc. See **Exhibit 40**. Seventy-three individuals and groups were contacted and four responded. Through the consultation and background research, the cultural practices conducted in the Waiehu Ahupuaa were kalo farming, fishing, limu gathering and burial practices. To preserve Native Hawaiian and other ethnic groups' cultural beliefs, practices, and resources, mitigation measures were recommended and they are as follows: 1) project staff should be aware of weather patterns, the potential for tidal events, noise and traffic, water usage, runoff from an increase in impervious surface, and the need for affordable housing for local Maui residents; 2) project construction workers should be made aware of the possibility of the existence of cultural finds, including human remains and should be told to contact SHPD and the Police Department immediately in the event of discovery of the remains; 3) project proponents should consult with area cultural and lineal descendants to develop cultural protocol, a reinterment plan and cultural preservation plan procedures.

## **INFRASTRUCTURE, PUBLIC FACILITIES, AND SERVICES**

**Water** – The average daily demand of water for the project is approximately 70,800 gallons per day. (See Preliminary Engineering Report attached as **Exhibit 41**.) Approximately 2,000 feet of

8-inch waterline will be installed adjacent to Kahekili Highway. Currently, there are 8-inch and 12-inch lines along Kahekili Highway to the north that extend to Waiehu Beach Road. There is an existing 1.0 million-gallon reservoir located approximately 6,000 feet to the west of the project site at the 490-foot elevation. The source of water is the wells in Upper Waiehu and Waihee. Non-potable reclaimed water will be utilized for irrigation. Rainwater harvesting will also be incorporated, where possible. Fire hydrants will also be installed at a maximum spacing of 250 feet. The Department of Water Supply (DWS) recommended the use of Best Management Practices for pollution prevention, including dust control, replanting in unplanted areas, vehicle maintenance, installation and maintenance of erosion control barriers and runoff.

In addition, DWS said that there is no water meter for the property, so a service lateral and box from the new water main and backflow prevention device should be provided. The Applicant is also requested to deliver perpetual easements for all water system improvements installed in other than publicly owned rights-of-way. Refer to **Exhibit 15** and **15b**. One of the Chapter 2.97 exemptions sought was from MCC Chapter 14.07 Water System Development Fees to pay the water system development fees. Refer to **Exhibit 9**. Another approved exemption was from MCC Chapter 14.12 Water Availability exempting the development from a verification of long-term, reliable water supply. The approved exemption modification was that there is no exemption from payment of fees but that the fee shall be reimbursed from the Affordable Housing Fund, pursuant to Chapter 3.35, MCC. No adverse impacts to water systems are anticipated in association with the proposed project.

**Sewers** – The proposed project will generate approximately 30,600 gallons of wastewater per day. Refer to **Exhibit 41**. The onsite collection system will be designed to accommodate the flow. A lift station will need to be installed to connect to the nearest gravity sewer station approximately 1,500 feet along Waiehu Beach Road. There is a 6-inch force main along Waiehu Beach Road. Wastewater from the Wailuku and Waiehu areas is transported to the Wailuku-Kahului Wastewater Reclamation Facility (W-K WWRF) approximately 3.9 miles away from the project site. As of July 28, 2020, the W-K WWRF had a capacity of 1.0 million gallons per day (mgd), the flow was approximately 5.8 mgd, and the allocated capacity is 6.9 mgd. The remaining affordable housing allocation is 0.29 mgd. The County of Maui, Department of Environmental Management (DEM) Wastewater Division did not have any comment on the proposed land use entitlements. One of the approved Chapter 2.97 exemptions sought is from MCC Chapter 14.35, Wastewater Assessment Fees for Facility Expansion for the Wailuku/Kahului Wastewater Treatment System. The approved modification to the exemption request is that the wastewater collection and conveyance system be constructed by the Applicant, and owned and maintained by the project. Refer to **Exhibit 9**. There should be no adverse impact to the County system associated with the proposed project.

**Drainage** – The increase in runoff is calculated to be 14.337 cubic feet per second (cfs). The estimated 50-year, one-hour runoff will be 22.205 cfs, with an increase in volume of 7.868 cfs. To accommodate the increase in runoff, catch basins will be installed in the paved parking area that will convey runoff to a subsurface drainage system. The system will consist of a perforated drain embedded in crushed rock, wrapped in filter fabric. Surface runoff will be allowed to infiltrate into the ground. Best Management Practices (BMPs) will be utilized for erosion control and to mitigate impacts to downstream properties. BMPs may include an implementation of sedimentation trap measures and basins, the control of access and vehicular movement across disturbed areas, prompt and proper disposal of loose and excavated soil, and debris material from drainage structure work, retention of ground cover, construction time minimization, etc. There should be no adverse impact to existing drainage conditions. The Department of Public

Works commented in request of a project drainage report. See **Exhibit 13**.

**Roadways, Curbs, Gutters, and Sidewalks** – The project should not have any adverse impacts on roadways, curbs, gutters or sidewalks. It is a two-lane, two-way County road that extends from Mokuhau Road/Piihana Road and North Market Street northward and then westward along the coastline until it meets Honoapiilani Highway west of the intersection with Honokohau Valley Road. Kahekili Highway meets Waiehu Beach Road, a north-south two-way road that begins at Kahului Beach Road/Lower Main Street and extends to the north and terminates at the intersection with Kahekili Highway. Market Street is a two-way, two-lane road between its terminus and Vineyard Street.

Three driveways are proposed along Kahekili Highway. Driveway 2 is proposed as a full-service intersection. Driveways 1 and 3 are proposed for right-turn in/right-turn out access. For Driveways 1 and 3, a northbound entering deceleration lane is recommended. Due to right-of-way constraints, for Driveway 2, the project engineer has stated that a south-bound left-turn lane should be prioritized over a northbound entering deceleration lane. Traffic speed should be limited to 30 miles per hour.

A Traffic Impact Analysis Report was prepared by Austin, Tsutsumi & Associates, Inc. See **Exhibit 42**. With the project, it is anticipated that the project will generate 64 (79) trips during the AM (PM) peak hours. The project will result in an approximately 3.46 percent traffic increase or add approximately ten to 35 vehicles along Waiehu Beach Road, and five to ten vehicles along Kahekili Highway. The intersections are anticipated to be similar to Base Year 2024 conditions. There will continue to be heavy AM traffic along Waiehu Beach Road. With the project, 32 more vehicles will be headed southbound. The overall delay will be approximately five seconds during the AM and PM peak hours. At the Market Street/Vineyard Street intersection, movements will continue to operate at Level of Service (LOS) E/F as Base Year conditions, which equates to a one to three vehicle addition for various turn movements. Given the project's minimal increase on existing traffic conditions (3.46 percent), no significant impacts are anticipated. The Department of Public Works requested a roadway widening lot along the frontage to accommodate 11-foot travel lanes, turn lane bike lanes and six-foot sidewalks. The Department also requested the design and construction of a six-foot sidewalk, bike lane and turn lanes on the adjacent half of Kahekili Highway into the project. One of the exemption modifications was from MCC Section 16.26B.3600, Improvements to Public Streets, and MCC Sections 18.20.040, 18.20.070 and 18.20.080, Existing Streets, Sidewalks, Curbs, and Gutters, from the construction of curbs, gutters, and sidewalks from the frontage of the project adjacent to Kahekili Highway. Refer to **Exhibit 9**. The approved modification exemption is that the Applicant shall construct the frontage improvements to urban standards, required by MCC Title 16 and 18, including pavement widening, right-of-way widening, curbs, gutters, and sidewalks. Costs for the frontage improvements to Kahekili Highway can be reimbursed from the Affordable Housing Fund, pursuant to MCC Chapter 3.35.

**Electrical, Telephone, and Cable** – The proposed project will not have an adverse impact on electrical, telecom and cable services. The Applicant will be working with various service providers to ensure that there is timely service to the site. Currently, the Wailuku-Kahului region has electrical service from Hawaiian Electric, telephone service from Hawaiian Telcom, and cable from Spectrum. Overhead utility lines are located along Kahekili Highway. No comments were received from Hawaiian Electric, Hawaiian Telcom, or Spectrum.



**Parks** – There should be no adverse impacts to existing public parks. The future project residents are anticipated to be people already residing in the County, so there will be a population redistribution from other areas on-island. In Central Maui, there are various parks and recreational activities for the region's residents. Parks in the Waiehu-Waihee region include: the Waiehu Municipal Golf Course, Waiehu Beach Park, Oceanview Estates Park, Richard Pablo Caldito Sr. Park, Waiehu Heights Subdivision, Waiehu Terrace Park, etc. State parks include the Halekii-Pihana Heiau State Monument and Waiehu Ridge Trail. The Department of Parks and Recreation did not have any comment on the proposed housing development. Refer to **Exhibit 11**. One of the exemptions sought and approved was from MCC Section 18.16.320 Parks and Playgrounds, requiring a payment of park assessment fees. See **Exhibit 9**.

**Schools** – The proposed development should not have any impact on public schools, as it is not a population generator. The area is served by Waihee Elementary School for grades kindergarten through fifth grade, Iao Intermediate for grades six through eight, and Baldwin High School for grades nine through 12. There should be no adverse impacts associated with the proposed project.

**Solid Waste** – Residential waste will be disposed of by the County DEM, Solid Waste Division. The waste is transported to the Central Maui Landfill, about seven miles away from the site. The Central Maui Landfill has available capacity. There should be no adverse impact to solid waste as a result of the proposed land use entitlements. DEM did not have any comment with regard to the proposed entitlements. One of the exemption requests is from MCC Section 8.04.040 Disposal Permits – Application and Suspension and MCC Section 8.04.050 Disposal Charges, for having to apply for a disposal permit and pay disposal fees. The approved modification is that the project is exempt from fees but that disposal permits are still required. Refer to **Exhibit 9**.

**Public Services** – Police protection is provided by the Maui Police Department at the Wailuku Police Station, approximately three miles away from the project site. There should be no adverse impact to police service as a result of the proposed land use entitlements. The Police Department commented that if the roads are temporarily closed for alternating traffic, that the project manager utilize flag men for traffic control and post signage along construction routes. Refer to **Exhibit 17**.

Fire prevention, suppression, and protection services for the region are provided by the Department of Fire and Public Safety's Wailuku Fire Station, located approximately three miles away and the Kahului Fire Station located approximately five miles away from the project site. There should be no adverse impact to fire services as a result of the proposed land use entitlements. The Department of Fire and Public Safety did not have any objections to the proposed entitlements; however, they did note that they would comment on the project when detailed plans are submitted for subdivision and building permit review. Refer to **Exhibit 10**.

Maui Memorial Medical Center, the only major medical facility on the island, is located approximately three miles away from the project area. Acute, general, and emergency care services are provided by this facility, which is licensed for approximately 231 beds. In addition, numerous privately-operated medical/dental clinics and offices are located in the area to serve the region's residents.

No adverse impact to public services will occur as a result of the proposed land use



entitlements.

### **SOCIO-ECONOMIC IMPACT**

The project area is located in Wailuku, which had a population of 17,697, according to the 2020 United States (U.S.) Census. The Maui Island Plan also provides population data and projections for the Wailuku-Kahului Community Plan area. By 2030, the population is anticipated to be 64,853. Between 2017-2021, there were 5,863 households (U.S. Census, 2020). The Wailuku-Kahului area ranked second after the Makawao-Kula Pukalani area as the preferred location for new housing. The proposed project will accommodate some of the demand for housing.

The Wailuku economy is comprised primarily of health care, retail sales, accommodations, food service, transportation, and warehousing industries (U.S. Census, 2020). Residents will most likely be moving from various parts of the island. The population for Maui County was 164,754, according to the 2020 U.S. Census. The county economy is driven by the accommodations and food service industries.

In the short-term, the project will support construction and construction-related employment. In the long-term, the project will stimulate the local economy through the generation of business in the area. There should be no adverse impact to the population or economy associated with the proposed land use entitlement changes.

### **ENVIRONMENTAL IMPACTS**

**Topography** – The property is located at an elevation of 60 to 160 feet above mean sea level. The property has a moderate slope to the northwest. There should be no adverse impact associated with the proposed District Boundary Amendment.

**Soil Conditions** – The property is classified as consisting of 'IaA' or 'Iao silty clay,' 'IbB' or 'Iao cobby silty clay' and 'PZUE' or 'Puuone sand,' according to the soil survey posted to the U.S. Department of Agriculture, Natural Resources Conservation Service website. Properties and qualities are as follows:

#### **IaA, Iao silty clay**

Depth (inches): More than 80 inches

Slope (percent): 0 to 3

Drainage: Well drained

Runoff class: Low

Mean Annual Precipitation (inches): 25 to 40

Elevation (feet): 100 to 500

Farmland classification: Not prime farmland if irrigated

#### **IbB, Iao cobby silty clay**

Depth (inches): More than 80 inches

Slope (percent): 3 to 7

Drainage: Well drained

Runoff class: Medium

Mean Annual Precipitation (inches): 25 to 40

Elevation (feet): 100 to 500

Farmland classification: Prime farmland if irrigated

PZUE, Puuone sand

Depth (inches): 20 to 40 inches to cemented horizon

Slope (percent): 7 to 30

Drainage: Somewhat excessively drained

Runoff class: Medium

Mean Annual Precipitation (inches): 20 to 30

Elevation (feet): 50 to 350

Farmland classification: Not prime farmland

There are three categories of land to identify Agricultural Lands of Importance in the State of Hawaii, according to the State Department of Agriculture. The categories are 'Prime,' 'Unique,' and 'Other Important' land. The remaining land is unclassified. The project site consists of 'Prime' and 'Other' land. 'Prime' land has soil quality, growing season, and moisture supply to produce crop yields. 'Other' land includes land not yet rated as 'Prime' or 'Unique.'

According to the Hawaii Land Study Bureau, the portion of the land nearest Kahekili Highway has a rating of Class 'B' and a portion that is inland, closer to Waiehu Heights, is unclassified. Productivity is rated 'A' (the highest class) through 'E' (the lowest class).

A geotechnical investigation was conducted by Shinsato Engineering, Inc. because the property primarily consists of dirt and sand, and there was concern about the stability of the property for construction. See **Exhibit 43**. Sixteen test pits were trenched at depths of between seven to nine feet below grade. Eight soil tests were conducted. In the test pits, there was medium-stiff silt, medium dense silty sand and sand at the bottom of the pits. Medium-dense silty gravel was found in one of the test pits at a depth of six feet, followed by medium dense sand. No groundwater was discovered. Given the findings, it was concluded that the site can be developed for the proposed use. It was recommended that the proposed structures be supported by shallow footings on firm onsite soil or compacted structural fill. Because the silt soil has a potential to swell when allowed to air-dry, it was further recommended that where the subgrade soil consists of silt, the surface should be kept moist through intermittent water sprinkling to maintain the moisture content until non-expansive fill is placed over the soil. Where there is elastic silt beneath concrete floor slab, the elastic silt should be excavated to a depth of 12-inches below the bottom of the slab and backfilled with non-expansive fill. For exterior slab, the thickness may be a minimum of six inches. It was further stated that the onsite elastic silt should not be used as fill and backfill within 12 inches from finished subgrade elevation under building slabs. Depending on the moisture content, it can be used as fill below 12-inches from the finished grade.

A Phase I Environmental Site Assessment Report was conducted by Partner Engineering and Science, Inc. because the property was formerly undeveloped and in agricultural use. Therefore, the use of fertilizers and pesticides could be hazardous. See **Exhibit 44**. Information found was garnered through personal interviews and research of government and private agency documents, records and maps. It should be noted that there was no ability to determine the historical use of the property prior to 1922. During the course of assessment, no historical release of hazardous substances or petroleum products was found. A water well was observed in a wood shed structure. The well provides access to groundwater, which could pose a liability in the future due to the environmental exposure. It was recommended that a limited subsurface investigation be conducted to identify agricultural

chemicals historically utilized onsite. It was also recommended that the water well be decommissioned in accordance with regulations.

A Phase II Subsurface Investigation Report was also conducted by Partner Engineering and Science, Inc. See **Exhibit 45**. The work includes observations of site conditions and results provided by collected lab samples. For the lab samples, the property was portioned off by 14.75-acre subareas and soil was collected. Surface vegetation and six inches of soil were removed prior to collection. Upon completion of soil collection, sample locations were backfilled. Pesticides and arsenic were identified; but, none tested above Tier 1 Environmental Action Levels. There was no release onsite from former onsite agricultural use. No further investigation was recommended at this time.

**Sea Level Rise, Flood and Tsunami** – According to the Hawaii Sea Level Rise Viewer, the project area is outside of the 3.2-foot sea level rise exposure area.

As previously mentioned, according to the Federal Emergency Management Agency's Flood Insurance Rate Map, the properties are located within Flood Zone 'X,' an area of minimal flooding.

The property is located outside of the Tsunami Evacuation Zone and the Extreme Tsunami Evacuation Zone. No adverse impact to existing flood or tsunami conditions are anticipated in connection with the proposed zoning change.

**Flora and Fauna** – A Botanical and Fauna Survey was conducted by Robert Hobdy in April, 2020. See **Exhibit 46**. The property consists primarily of macadamia nut trees with guinea grass, koa haole, and straggler daisy. Three native species: hao, aalii and keahi were found onsite. No endangered or threatened species were found onsite. It was recommended that native species be planted to accentuate the project area. There should be no adverse flora impacts.

There were no mammal species onsite. Eleven species were found onsite. One indigenous, native bird, the kolea or Pacific golden plover, was observed. Eight insect species were present. One indigenous species, the native dragonfly, pinao or golden skimmer was seen onsite. No threatened or endangered species were observed onsite. On occasion, seabirds fly over the area. It was recommended that lighting be down-shielded to prevent birds from distraction to prevent crashes to the ground. No adverse impacts to fauna are anticipated.

**Air Quality** – Air quality in the vicinity is generally good and trade winds disperse contaminants. The project area is located in close proximity to Kahekili Highway and Waiehu Beach Road, so vehicle emissions are the main source of air pollution. In addition, the project area is located downwind of parcels being farmed and there is windblown dust.

During construction, there may be short-term impacts related to fugitive dust. A grading and grubbing permit will be sought prior to work onsite. BMPs will be utilized and dust fences will be erected. There should be no adverse long-term impacts to air quality associated with the proposed project.

**Noise** – Noise in the area can be largely attributed to vehicular traffic traversing the adjacent roadways, and farm equipment in use on neighboring agricultural properties. The proposed project is not anticipated to cause much change in existing noise conditions. There may be

short-term noise impacts associated with construction, however, hours of use can be limited. BMPs will be submitted when the Applicant applies for grading and building permits. The Applicant will adhere to Department of Health Administrative Rules, Chapter 11-46, Community Noise Control. There should be no adverse impact to neighboring properties is anticipated as a result of the proposed land use entitlements.

**Scenic and Open Space Resources** – There are no significant views from Kahekili Highway toward the ocean, as the property is set behind and downhill from the adjacent Waiehu Heights subdivision. There should be no adverse impacts to scenic and open space resources associated with the proposed entitlement actions.

**Streams, Wetlands and Reservoirs** – There are no wetlands or rivers on or in the vicinity of the properties.

#### **OTHER GOVERNMENTAL APPROVALS**

A State National Pollutant Discharge Elimination System permit may be required, as applicable. A State Community Noise Permit may also be required.

#### **TESTIMONY**

As of August 3, 2023, the Department has received no letters of protest.

#### **ALTERNATIVES**

1. ***Deferral:*** The Commission may defer action to another meeting date in order to obtain additional information that will assist in their deliberation on the request.
2. ***Recommend Approval Without Conditions:*** The Commission may take action to recommend that the Maui County Council approve the request without imposing any conditions.
3. ***Recommend Approval With Conditions:*** The Commission may take action recommend that the Maui County Council approve the request with conditions.
4. ***Recommend Denial:*** The Commission may take action to recommend that the Maui County Council deny the request.

## **CONCLUSIONS OF LAW**

### **DBA**

State Land Use Commission District Boundary Amendments are reviewed pursuant to Chapter §205-3.1 Hawaii Revised Statutes (HRS) and is stated accordingly:

#### ***§205-3.1 Amendments to district boundaries.***

- (a) *District boundary amendments involving lands in the conservation district, land areas greater than fifteen acres, or lands delineated as important agricultural lands shall be processed by the land use commission pursuant to section 205-4.*
- (b) *Any department or agency of the State, and department or agency of the county in which the land is situated, or any person with a property interest in the land sought to be reclassified may petition the appropriate county land use decision-making authority of the county in which the land is situated for a change in the boundary of a district involving lands less than fifteen acres presently in the rural and urban districts and lands less than fifteen acres in the agricultural district that are not designated as important agricultural lands.*
- (c) *District boundary amendments involving land areas of fifteen acres or less, except as provided in subsection (b), shall be determined by the appropriate county land use decision-making authority [Maui County Council] for the district and shall not require consideration by the land use commission pursuant to section 205-4; provided that such boundary amendments and approved uses are consistent with this chapter. The appropriate county land use decision-making authority may consolidate proceedings to amend state land use district boundaries pursuant to this subsection, with county proceedings to amend the general plan, development plan, zoning of the affected land, or such other proceedings. Appropriate ordinances and rules to allow consolidation of such proceedings may be developed by the county land use decision-making authority.*

**Conclusion:** The State Land Use Commission District Boundary Amendment will change the land use designation for the proposed project area designated 'Agricultural' to 'Urban.' The proposed action is consistent with and is supported by the above listed criteria of a DBA to 'Urban' pursuant to Chapter §205-3.1 HRS, as stated in the accompanying Department Report.

### **Hawaii Administrative Rules (HAR)**

There are eight 'Urban' District rules that must be met when reviewing a Land Use Commission District Boundary Amendment to 'Urban.' These standards are found under the Hawaii Administrative Rules (HAR) Title 15, Subtitle 3 State Land Use Commission, Chapter 15 Land Use Commission Rules, Subchapter 2, 15-15-18. These rules are:

1. *It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses;*



2. *It shall take into consideration the following specific factors:*
  - (A) *Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;*
  - (B) *Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and*
  - (C) *Sufficient reserve areas for foreseeable urban growth;*
3. *It shall include lands with satisfactory topography, drainage and reasonably free from the danger of any flood, tsunami, unstable soil condition, and other adverse environmental effects;*
4. *Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans;*
5. *It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the state and county general plans;*
6. *It may include lands which do not conform to the standards in paragraphs (1) to (5):*
  - (A) *When surrounded by or adjacent to existing urban development; and*
  - (B) *Only when those lands represent a minor portion of this district;*
7. *It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and*
8. *It may include lands with a general slope of twenty percent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction controls, as adopted by any federal, state, or county agency, are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.*

**Conclusion:** The Applicant's proposed action is consistent with and is supported by the above listed criteria of a DBA pursuant to Hawaii Administrative Rules (HAR) Title 15, Subtitle 3, State Land Use Commission, and Chapter 15 Land Use Commission Rules, Subchapter 2, §15-15-18 as stated in the accompanying Department Report.

#### Maui Planning Commission and County Council

The DBA is processed at the County level: At the County level, Maui County Code (MCC), Chapter 19.68, State Land Use District Boundaries, states: "*certain responsibilities for the administration of boundary amendments are delegated to the Maui Planning Commission;*"

i.e. for example: enforcement of the DBA conditions, title changes, conducting the public hearing on the petition, making a recommendation to the Council, and/or any other administrative-related duties necessary to process the petition according to Chapter 19.68.

Further, pursuant to Section 19.68.040 the County Council prior to the enactment of an ordinance affecting any reclassification/boundary change, may impose conditions upon the applicant's use of the property, fulfillment of such conditions to be prerequisite to the adoption of such ordinance or applicable part thereof. Such conditions shall have already been performed prior to council action on the reclassification/change of boundary or be enforceable by the County after Council action. Conditions shall be fulfilled within the time limitation established by the Council, or, if no time limitation is established, within a reasonable time. Such conditions, if any, shall run with the land and be recorded in the Bureau of Conveyances or filed with the assistant registrar of the land court. Conditions shall be imposed only if the council finds such to be necessary to prevent adverse effects upon public health, safety and welfare, and shall be reasonably conceived to fulfill needs arising directly out of the proposed land use in the following respects:

1. *Protection of the public from the potentially deleterious effects of the proposed use;*  
*or*
2. *Fulfillment of the needs for public service demands created by the proposed use.*

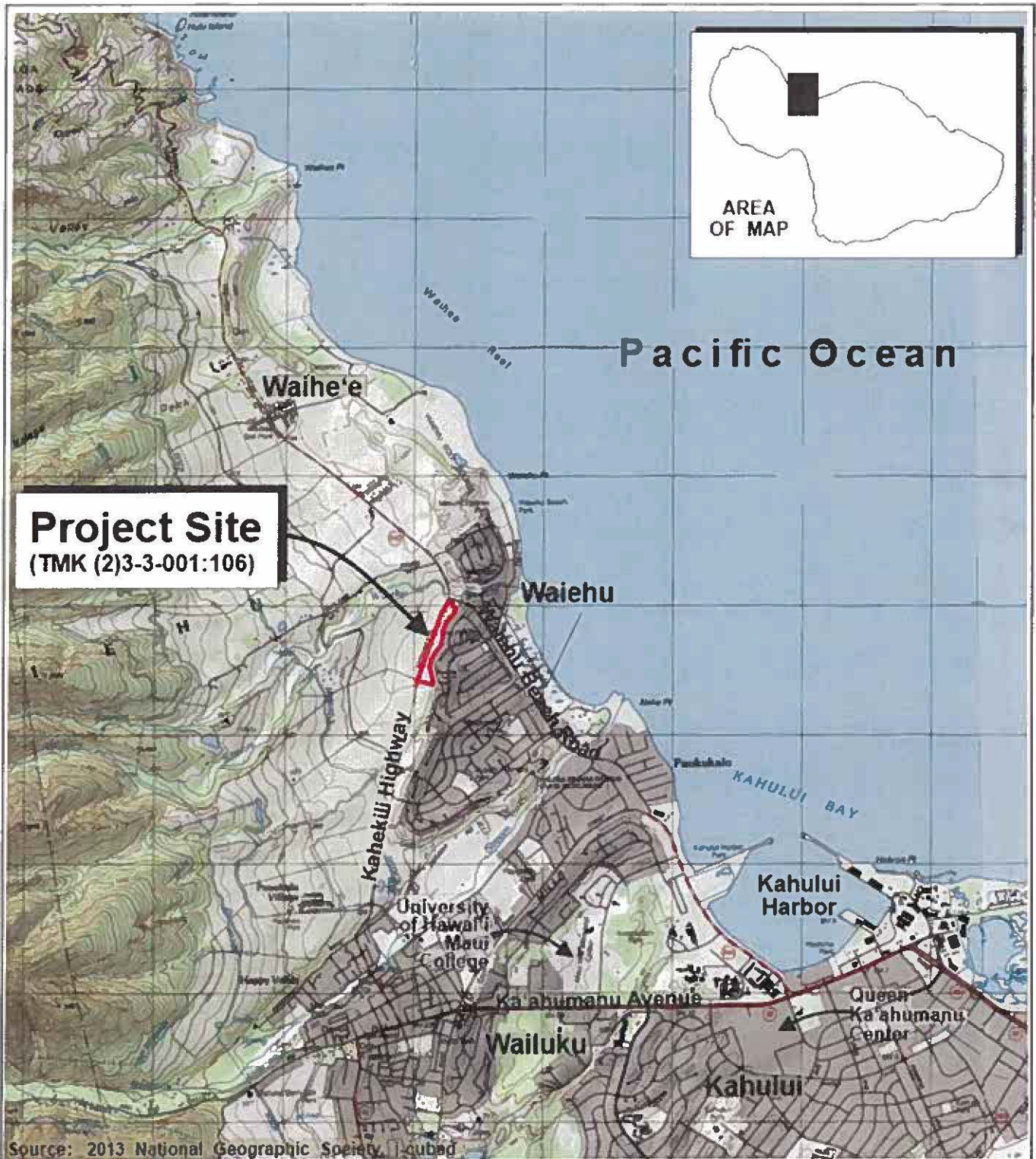
**Conclusion:** The Department is not recommending any conditions for the DBA. The proposed action is consistent with the above listed criteria of a DBA, pursuant to Maui County Code (MCC), Chapter 19.68, State Land Use District Boundaries, as stated in the accompanying Department Report.

### **RECOMMENDATION**

The Planning Department recommends to the Maui Planning Commission that it recommend "approval" to the Maui County Council for the DBA from 'Agricultural' to 'Urban.'

APPROVED:

  
\_\_\_\_\_  
KATHLEEN ROSS AOKI  
Planning Director



**Figure 1 Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community  
Regional Location Map**



0 875 1750 3500 Feet

Prepared for: Waiehu Housing, LP

**MUNEKIYO HIRAGA**

Highridge Waiehu, HI PERMITTING Applications Figures Regional, PEA





**Figure 2 Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community  
Project Location Map**



Prepared for: Waiehu Housing, LP

 **MUNEKIYO HIRAGA**

Hale Mahaolu Affordable Housing Community Project Location Map





**Photo No. 1: View of Subject Property Grounds Looking West**



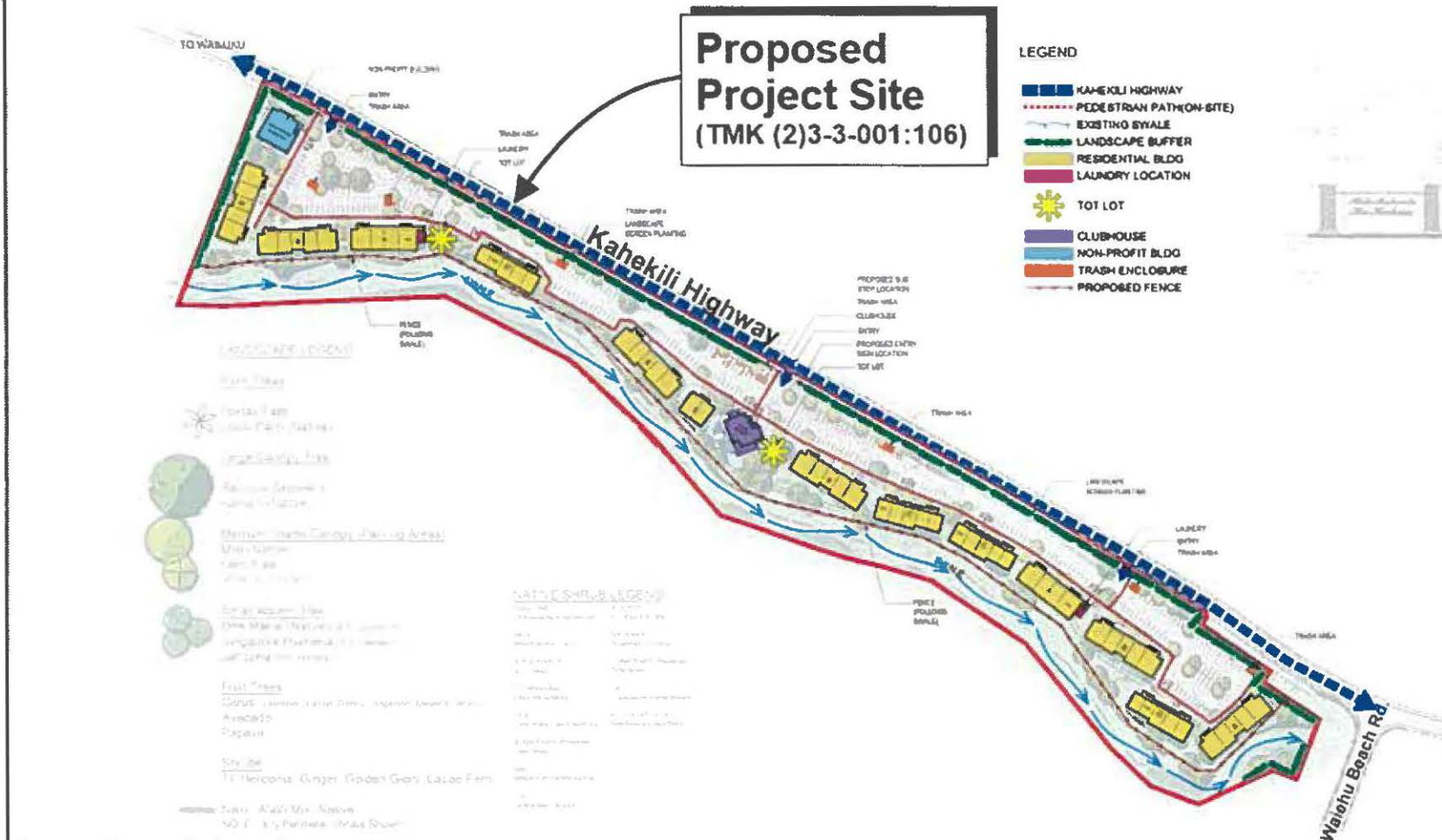
**Photo No. 2: View of Subject Property Grounds Looking North**



**Photo No. 3: Adjacent Property to the West**



**Photo No. 4: Adjacent Intersection to the Northwest**



**Source:** Design Partners, Inc.

Figure 3

# Proposed Hale Mahaolu Ke Kahua Affordable Housing Community Conceptual Site Plan

NOT TO SCALE



Prepared for: Waiehu Housing, LP



MUNEKIYO HIRAGA

Herzog, Naveh AM PERMITTING Applicants Figure Concerns Of Pan FEA





REAR ELEVATION



FRONT ELEVATION

0 2' 4' 8' 16'  
SCALE 1/8" = 1'-0"

WAIEHU PARCEL  
WAIEHU HOUSING, LP

BUILDING 'A' EXTERIOR ELEVATIONS  
FEBRUARY 8, 2022

DESIGN PARTNERS  
INCORPORATED





**REAR ELEVATION**



**FRONT ELEVATION**

0 2' 4' 8' 16'  
SCALE 1/8" = 1'-0"

**WAIIEHU PARCEL**  
WAIIEHU HOUSING, LP

**Building 'B' Exterior elevations**  
**FEBRUARY 8, 2022**

**DESIGN PARTNERS**  
**INCORPORATED**





**REAR ELEVATION**



**FRONT ELEVATION**

0 2' 4' 8' 16'  
SCALE: 1/8" = 1'-0"

**WAIEHU PARCEL**  
**WAIEHU HOUSING, LP**

**Building 'C' Exterior elevations**  
**FEBRUARY 8, 2022**

**DESIGN PARTNERS**  
**INCORPORATED**





**REAR ELEVATION**



**FRONT ELEVATION**

0' 2' 4' 8' 16'  
SCALE: 1/8" = 1'-0"

**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

**Building 'D' Exterior elevations**  
**FEBRUARY 8, 2022**

**DESIGN PARTNERS**  
**INCORPORATED**



**REAR ELEVATION**



**FRONT ELEVATION**

0' 2' 4' 8' 16'  
SCALE 1/8" = 1'-0"

**WAIEHU PARCEL**  
WAIEHU HOUSING, LP

**Building 'E' Exterior elevations**  
FEBRUARY 8, 2022

**DESIGN PARTNERS**  
INCORPORATED





**FRONT ELEVATION**



**REAR ELEVATION**

0 2 4 8  
SCALE 1/4" = 1'-0"

**WAIIEHU PARCEL**  
WAIIEHU HOUSING, LP

**CLUBHOUSE EXTERIOR ELEVATIONS**  
FEBRUARY 8, 2022

**DESIGN PARTNERS**  
INCORPORATED



**FRONT ELEVATION**



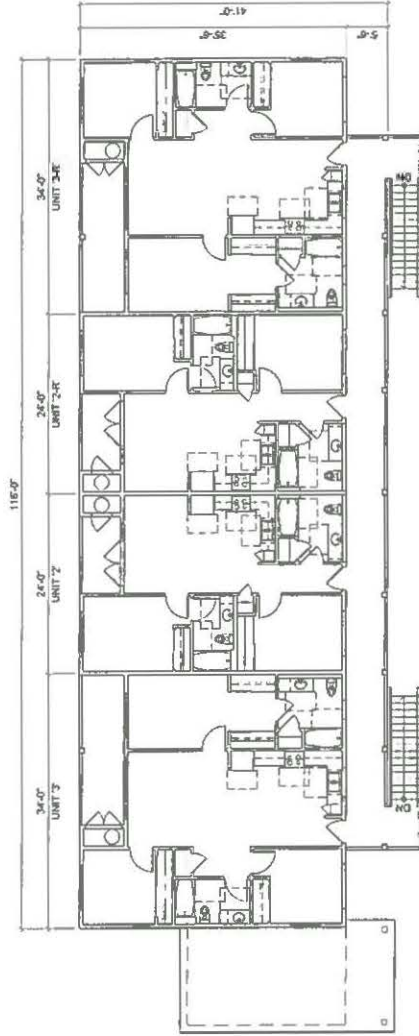
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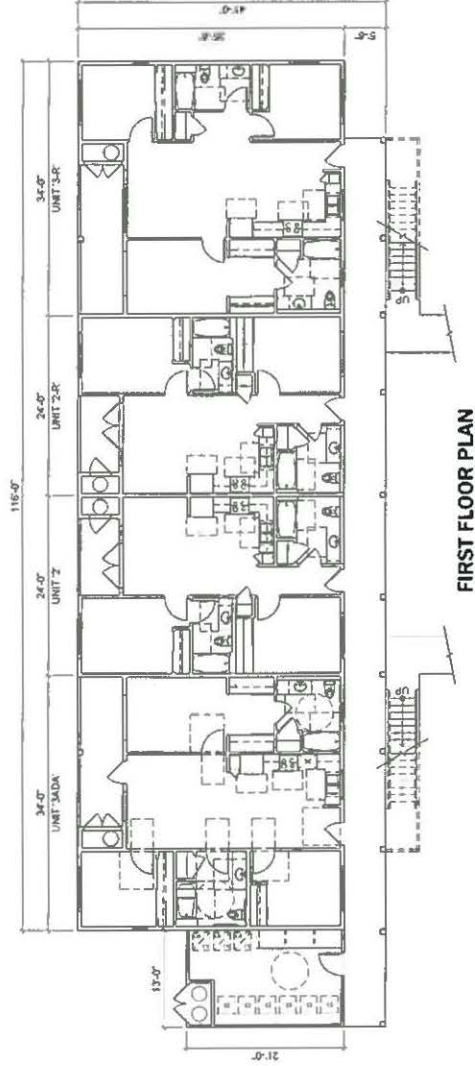
**WAIERU PARCEL**  
WAIERU HOUSING, LP

**NON PROFIT BUILDING EXTERIOR ELEVATIONS**  
FEBRUARY 8, 2022

**DESIGN PARTNERS**  
INCORPORATED



**SECOND FLOOR PLAN**



**FIRST FLOOR PLAN**

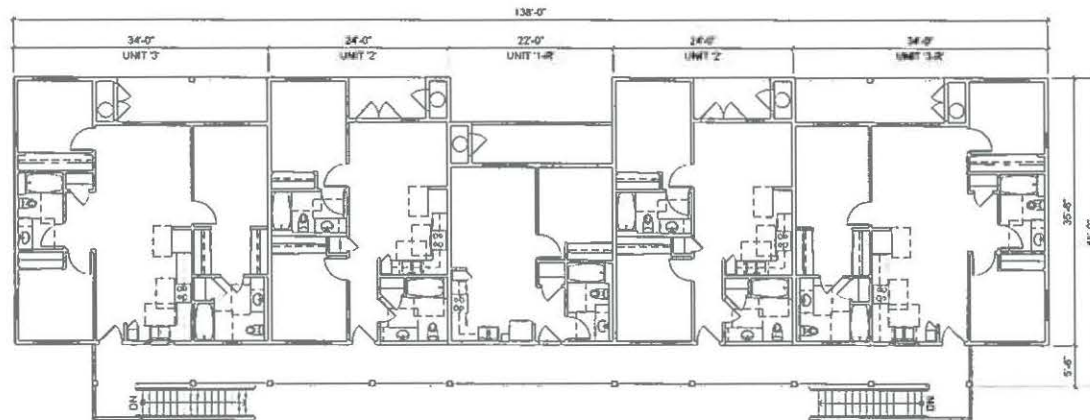
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**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

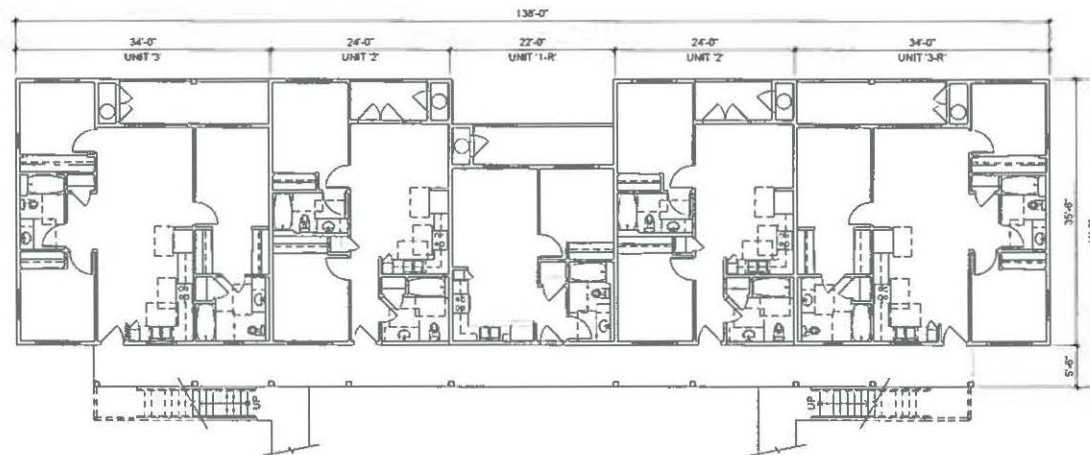
**Building 'A' Floor Plans**

**JUNE 24, 2021**





**SECOND FLOOR PLAN**



**FIRST FLOOR PLAN**

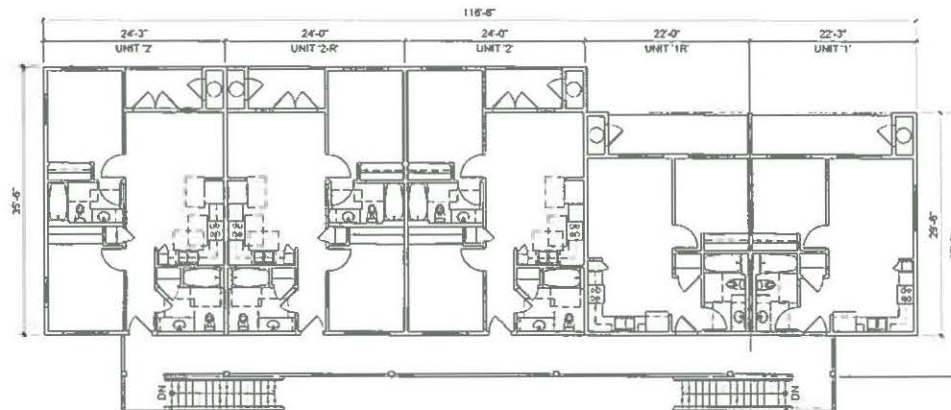
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**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

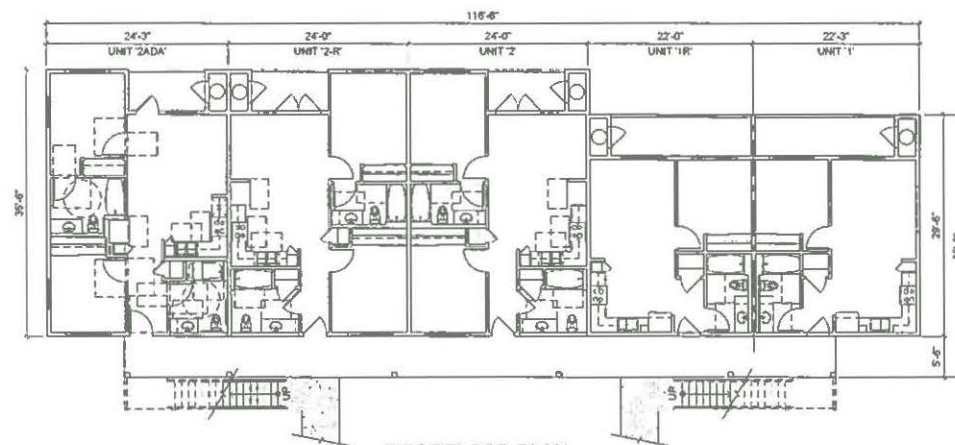
**Building 'B' Floor Plans**

**JUNE 24, 2021**

**DESIGN PARTNERS**  
**INCORPORATED**



**SECOND FLOOR PLAN**



**FIRST FLOOR PLAN**

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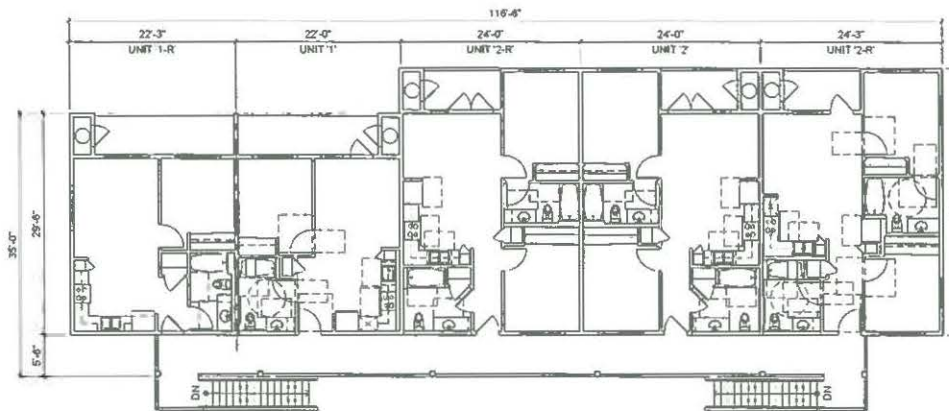
**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

**Building 'C' Floor Plans**

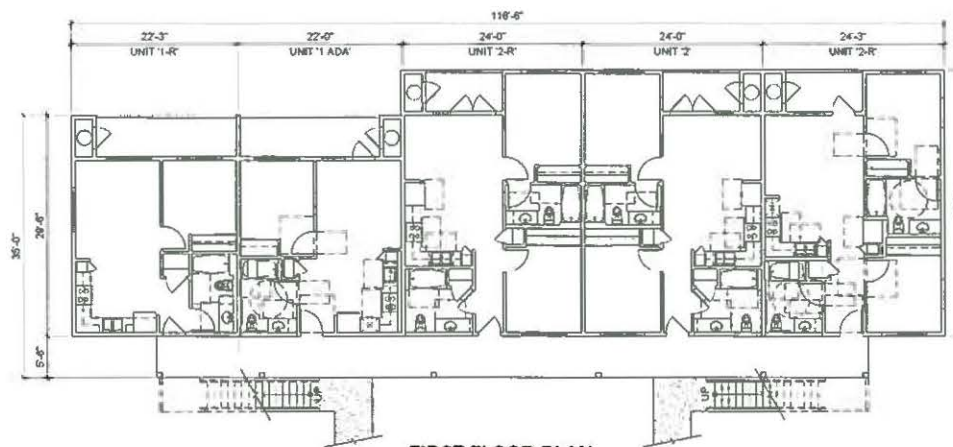
**JUNE 24, 2021**

**DESIGN PARTNERS**  
**INCORPORATED**





**SECOND FLOOR PLAN**



**FIRST FLOOR PLAN**

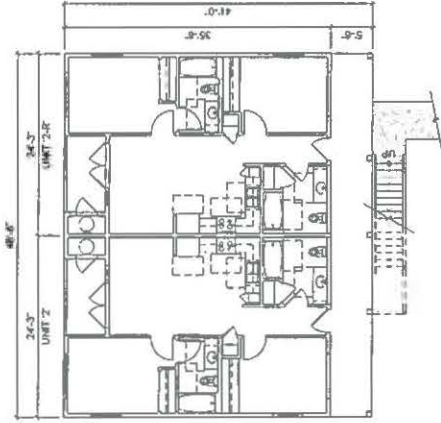
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**WAIEHU PARCEL**  
**WAIEHU HOUSING, LP**

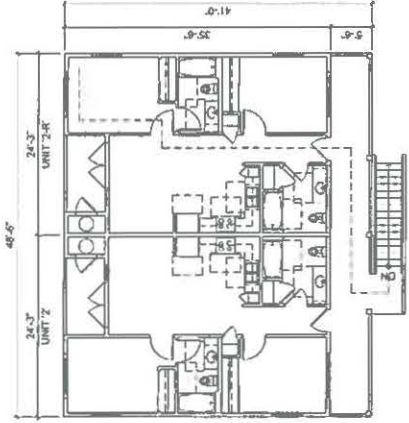
**Building 'D' Floor Plans**

**JUNE 24, 2021**

**DESIGN PARTNERS**  
**INCORPORATED**



**FIRST FLOOR PLAN**



**SECOND FLOOR PLAN**

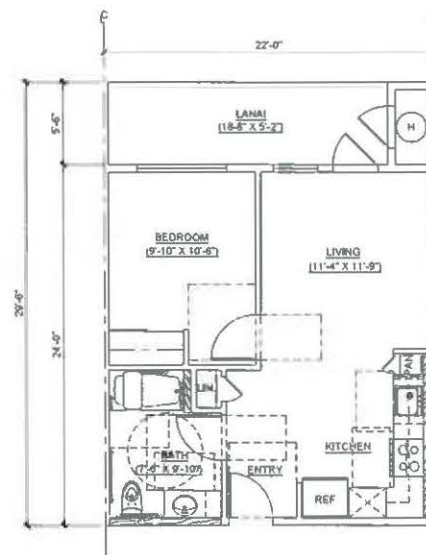
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**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

**Building 'E' Floor Plans**  
**JUNE 24, 2021**



**1-BEDROOM UNIT**  
652 SF



**1-BEDROOM ADA UNIT**  
652 SF

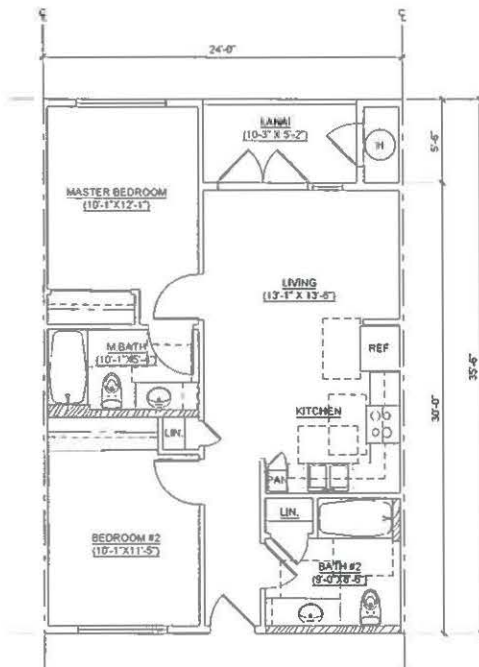
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**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

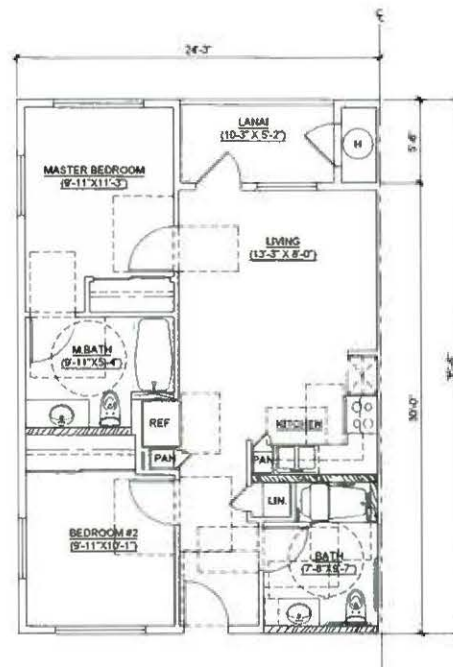
**1BR Unit Floor Plans**

**JUNE 24, 2021**

**DESIGN PARTNERS**  
**INCORPORATED**

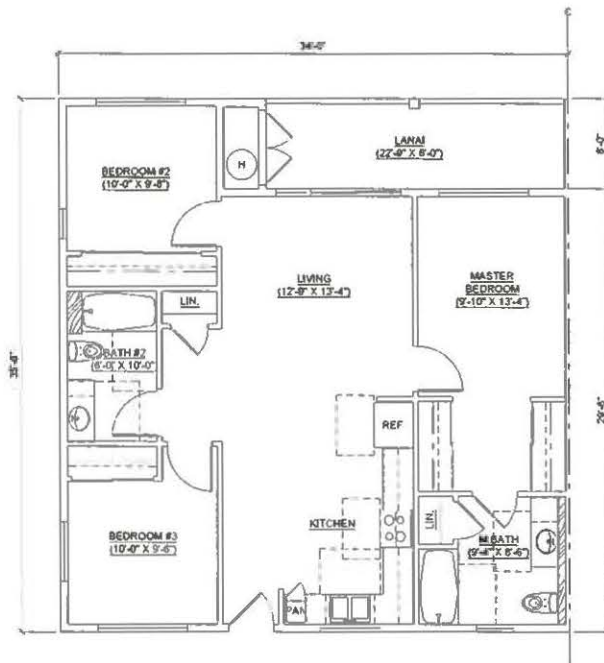


**2-BEDROOM UNIT**  
852 SF

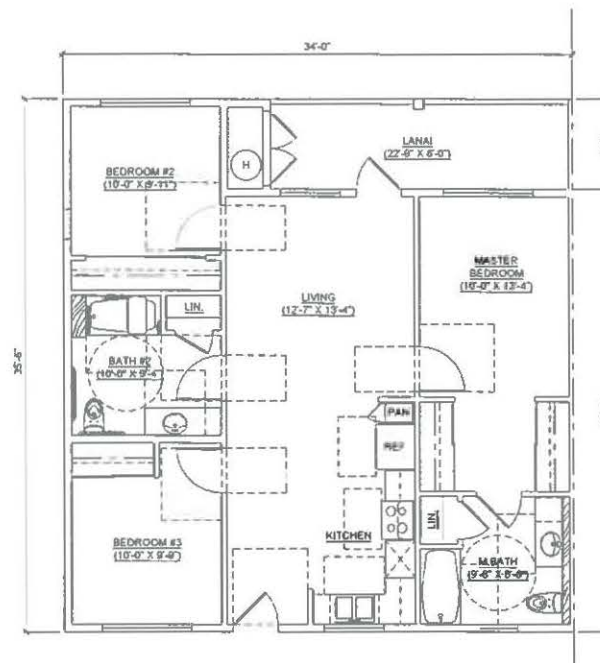


**2-BEDROOM ADA UNIT**  
852 SF

0 2 4 6'  
SCALE 1/4" = 1'-0"



**3-BEDROOM UNIT**  
1,208 SF



**3-BEDROOM ADA UNIT**  
1,208 SF

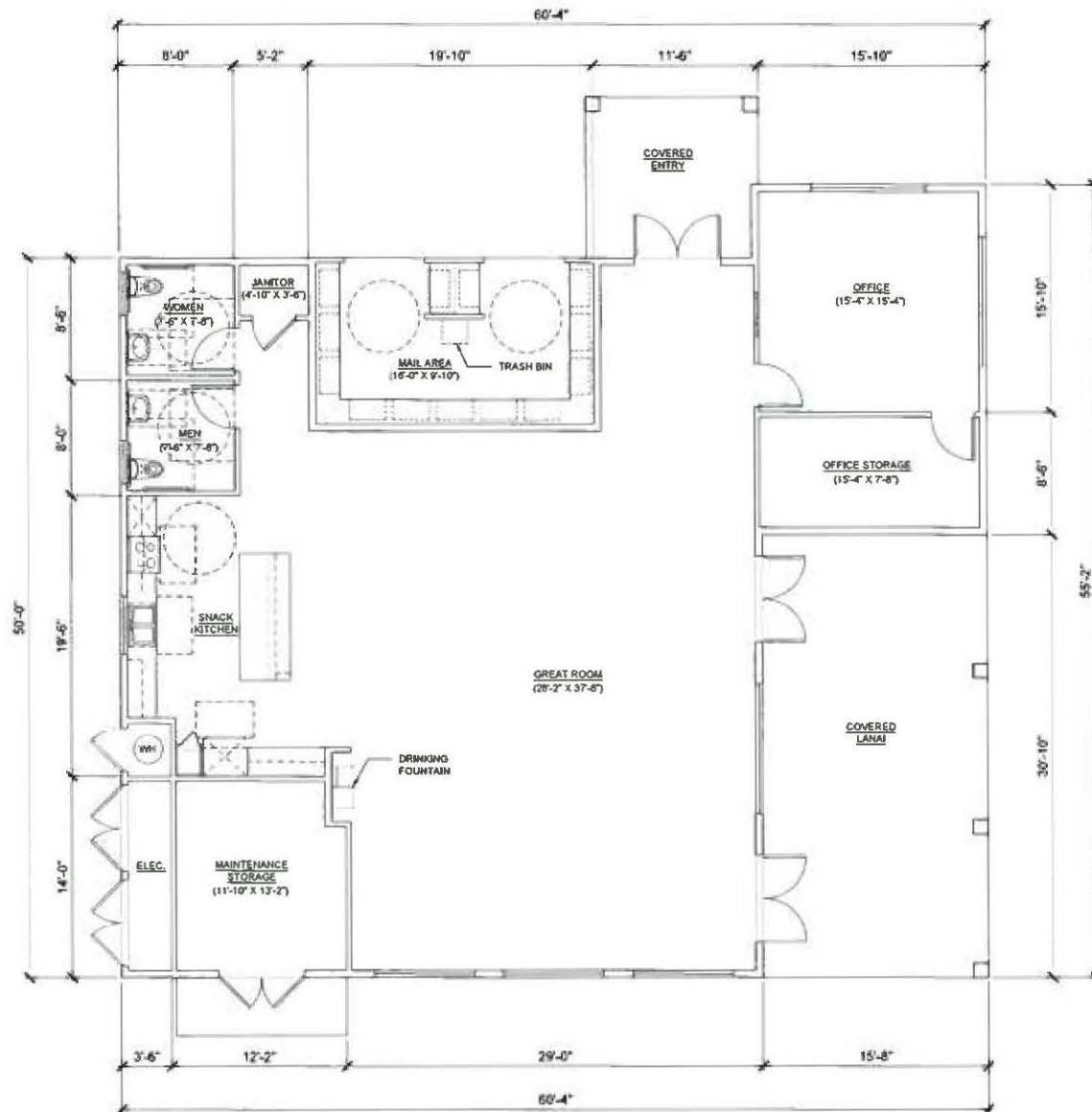
0 2 4 6'  
SCALE 1/4" = 1'-0"



# CLUBHOUSE

## AREA CALCULATION

INTERIOR SPACE	1,260 SF
COVERED ENTRY	131 SF
COVERED LANAI	482 SF
MAIL AREA	222 SF
<b>TOTAL</b>	<b>2,721 SF</b>



0 2' 4' 6'  
SCALE 1/4" = 1'-0"

**WAIIEHU PARCEL**  
**WAIIEHU HOUSING, LP**

**CLUBHOUSE FLOOR PLAN**

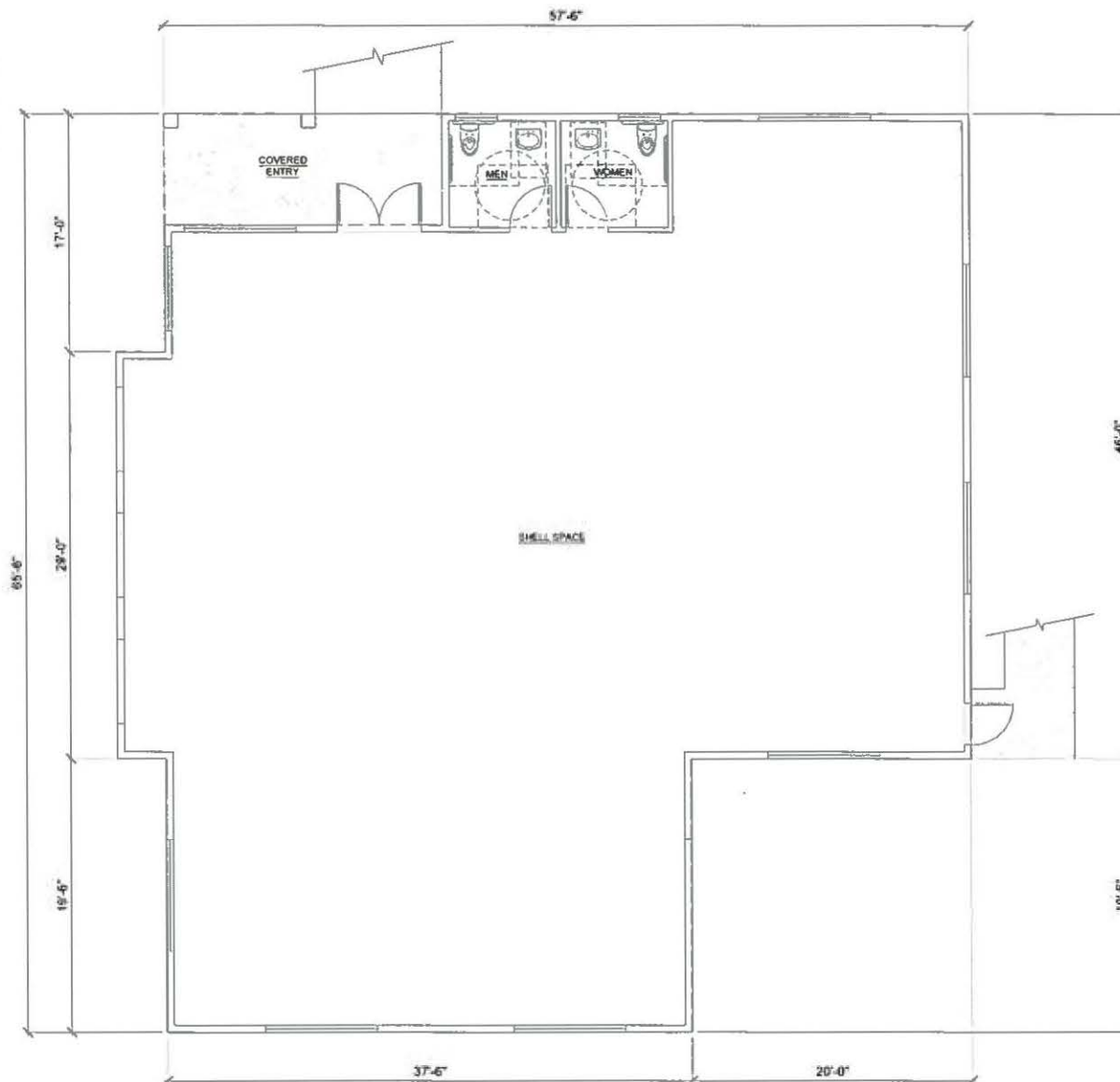
**JUNE 24, 2021**

**DESIGN PARTNERS**  
**INCORPORATED**

NON-PROFIT BUILDING

AREA CALCULATION

INTERIOR SPACE	3,318 SF
COVERED ENTRY	158 SF
TOTAL	3,477 SF



0 2' 4' 6'  
SCALE 1/4" = 1'-0"

WAIEHU PARCEL  
WAIEHU HOUSING, LP

NON-PROFIT BUILDING PLAN

JUNE 24, 2021

 DESIGN PARTNERS  
INCORPORATED

# CONCEPTUAL LIGHTING PLAN

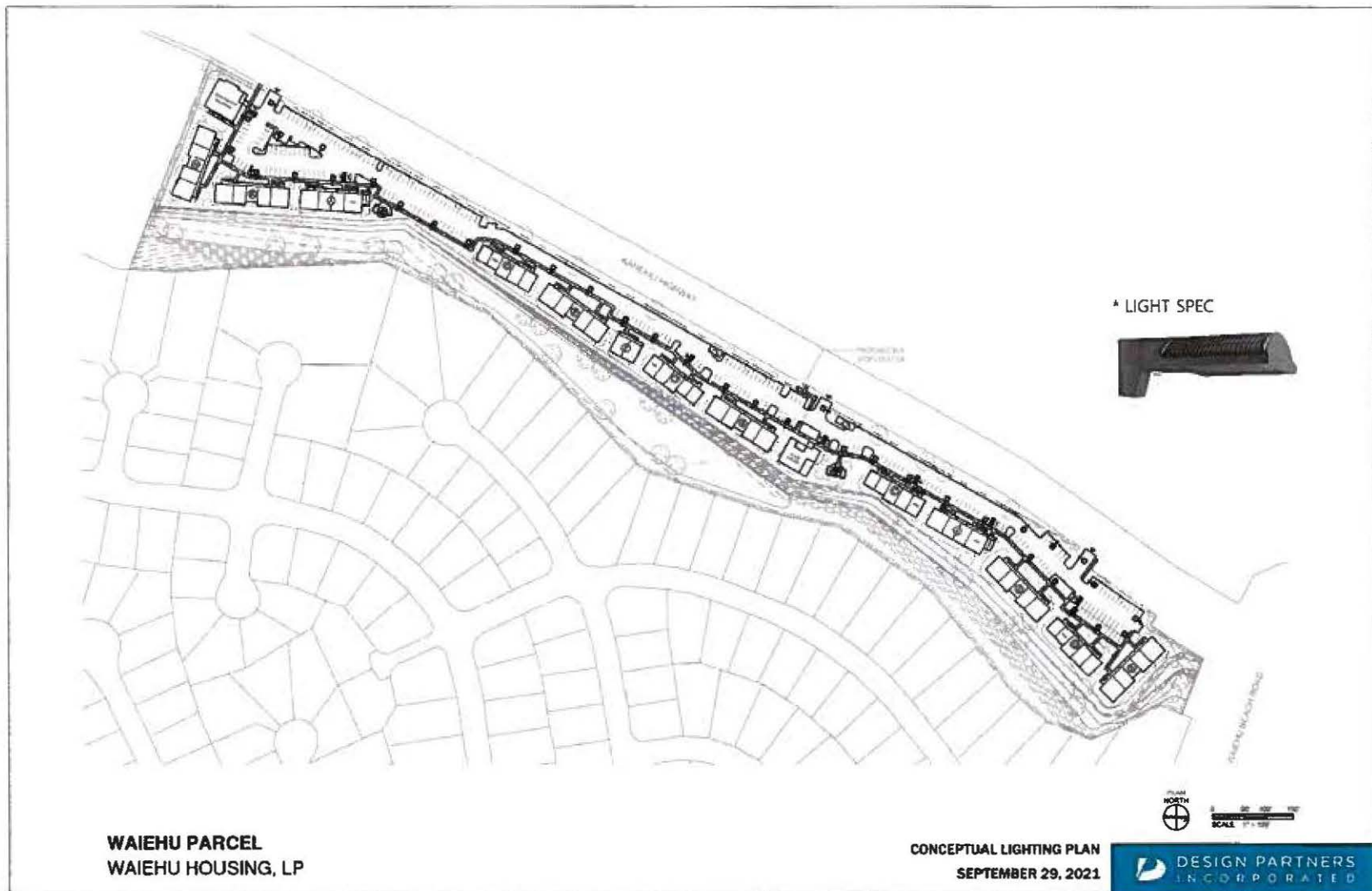


EXHIBIT 7



**WAIIEHU PARCEL**  
WAIIEHU HOUSING, LP

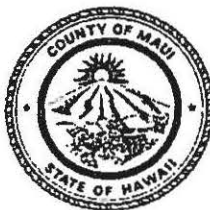
Landscape Plan  
FEBRUARY 8, 2022



**RICHARD T. BISSEN, JR.**  
Mayor

**LORI TSUHAKE**  
Director

**SAUMALU MATA' AFA**  
Deputy Director




**DEPARTMENT OF HOUSING  
& HUMAN CONCERNS**  
COUNTY OF MAUI  
2200 MAIN STREET, SUITE 546  
WAILUKU, MAUI, HAWAII 96793  
PHONE: (808) 270-7805

May 4, 2023

CERTIFIED MAIL RETURN RECEIPT REQUESTED  
70202450000001955512

Honorable Richard T. Bissen, Jr.  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

**APPROVED FOR TRANSMITTAL**

 5.5.23  
Mayor Date

For Transmittal to:

Monte Heaton  
Waiehu Housing, LP  
330 West Victoria Street  
Gardena, California 90248

Dear Mr. Heaton:

**SUBJECT: APPROVING WITH MODIFICATIONS THE INDEPENDENT  
DEVELOPMENT OF THE HALE MAHAOLU KE KAHUA AFFORDABLE  
HOUSING COMMUNITY PROJECT UNDER CHAPTER 2.97, MAUI  
COUNTY CODE**

By correspondence dated February 21, 2023, attached as Exhibit A, the Department of Housing and Human Concerns ("DHHC") transmitted the Hale Mahaolu Ke Kahua Affordable Housing Community Project ("Application" or "Project"), submitted by Waiehu Housing LP ("Applicant"), in accordance with Chapter 2.97, Maui County Code ("MCC"), to Maui County Councilmember Tasha Kama, Chair of the Housing and Land Use Committee.

The Application lists exemptions requested by the Applicant, authorized by Chapter 2.97, MCC. A list of the proposed exemptions is attached as Exhibit B.

On March 17, 2023 Chris Sugidono of Muneikiyo Hiraga, received a letter from Otomo Engineering, Inc., setting out the estimated costs of the proposed exemptions. A copy of the letter is attached as Exhibit C.

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TO SUPPORT AND EMPOWER OUR COMMUNITY TO REACH ITS FULLEST  
POTENTIAL FOR PERSONAL WELL-BEING AND SELF-RELIANCE

**EXHIBIT 9**

Pursuant to Section 2.97.170, MCC, the Maui County Council ("Council") was required to approve, approve with modifications, or disapprove the Application via resolution within sixty days of receipt, which occurred on February 21, 2023. The Council failed to take any action within the prescribed time period. Section 2.97.170, MCC, provides that in the event Council fails to take action, the DHHC director is then given the authority to approve, approve with modifications, or disapprove the Application within fourteen days of the expiration of Council's 60-day time limit.

The Application anticipates providing 120 affordable multi-family rental housing units in Waiehu, Maui, Hawaii, for residents earning 60 percent or less of the Area Median Income ("AMI"). The latest *Hawai'i Housing Planning Study, 2019*, conducted by SMS Research, specifies that Maui County requires the completion of more than 10,400 housing units by 2025 to meet its residents needs. The study further specifies that Maui County needs 1,116 multi-family rentals to be completed by 2025 for residents earning 60% AMI and below.

The DHHC has independently reviewed the merits of the Project and considered the need to provide suitable housing for Maui County residents, and also considered the concerns regarding traffic impact, infrastructure, and historic preservation. The Project meets the 100 percent affordability requirement and other application requirements in order to qualify to request exemptions and incentives under Chapter 2.97, MCC. Relevant County departments and the administration were also consulted to consider the Application and potential concerns. After substantive review, it has been determined that the Project team, through its Application, representations to Council, and department meetings, have satisfactorily addressed the aforementioned concerns.

Through this correspondence, and pursuant to the Project's preliminary plans and specifications, as submitted to the Council on February 21, 2023, except that the Applicant must comply with all statutes, ordinances, charter provisions, and rules of governmental agencies relating to planning, zoning and construction standards for subdivisions, development and improvement of land, and the construction of units, unless exempted, I exercise the approval power given to me under Chapter 2.97, MCC, to approve the project with modifications. All exemptions in Exhibit B shall be approved, except for those exemptions listed and modified below under the sections entitled "Exhibit B – Exemption Modifications" and "Additional Modifications".

The final plans and specifications for the Project are approved if the final plans and specifications do not substantially deviate, as determined by the DHHC director or the director assigned to oversee this project, from the preliminary plans and specifications submitted to the Council. Any substantial deviation from the preliminary plans and specifications must be approved by the DHHC director or the director assigned to oversee this project for prior approval. The final plans and specifications constitute the zoning, building, construction, and subdivision standards for the Project. In the event of any conflict between the plans and specifications of the Project and this letter, the terms of this letter and any exhibits shall control.

The Applicant and the DHHC shall enter into a Residential Workforce Housing Agreement ("RWFHA") pursuant to 2.96.080, MCC. This letter shall be attached to that RWFHA, and the terms and conditions herein shall be incorporated into that RWFHA as binding conditions.

Exhibit B-Exemption Modifications

1. Exemption 1: The Project shall not be exempt from Chapter 8.04.040, MCC, relating to disposal permits. The Project shall be exempt from payment of fees associated with Chapter 8.04.040, MCC. In accordance with Chapter 2.97, MCC, a request for exemption or modification of any section of the code still needs to meet the minimum requirements for health and safety. To help ensure health and safety and that only non-hazardous waste is accepted at the Maui County landfills, the Applicant shall have a valid landfill account and Construction & Demolition Number which can be obtained by completing and submitting a Declaration of Non-Hazardous Construction and Demolition Waste Form, which is attached as Exhibit D. The Project shall not be exempt from 8.04.050, MCC. Disposal fees may be waived by the Director of Environmental Management upon request via a Landfill Tipping Fee Waiver Request, which is attached as Exhibit E.
2. Exemption 2: The wastewater collection and conveyance system constructed by the Applicant shall be owned and maintained by the Project.
3. Exemption 3: The Project shall not be exempt from the requirement of payment of the water system development fee as established in Chapter 14.07, MCC. Reimbursement of the water system development fee will be made from the Affordable Housing Fund, pursuant to Chapter 3.35, MCC. The cost of the fee shall be determined upon acceptance of the water system improvements and fees shall be charged in the amounts as set forth in the annual budget for the year when acceptance occurs, for the water system development fee.
4. Exemption 8: The Project shall be exempt from the requested exemptions from Chapter 19.36, related to off-street parking and loading. The Project shall include two (2) bike racks on the property to support the County's initiative to increase opportunities for multimodal transportation.
5. Exemption 9: The Project shall construct its frontage improvements to urban standards as required by Title 16 and Title 18, MCC, including but not limited to pavement widening, right-of-way widening, curbs, gutters, and sidewalks. The Project shall also construct any other improvements to Kahekili Highway, including relocating or underground existing overhead utilities, as necessary to accommodate the frontage improvements. The Director of Public Works may modify the standards of Title 16 and 18, MCC, as necessary to accommodate the Project's site constraints. Costs for construction of the frontage improvements and related improvements to Kahekili Highway are eligible for reimbursement from the Affordable Housing Fund, pursuant to Chapter 3.35, MCC. It is the intent of all parties that the Applicant be allowed to produce the proposed 120 affordable multi-family rental housing units.

6. Exemption 10: An exemption from Chapter 19.68, MCC and Chapter 19.510, MCC is granted to enable the District Boundary Amendment ("DBA") to be submitted either to Council for direct referral or through the Planning Director to the Maui Planning Commission for review as required under Section 8-8.4 of the Revised Charter of the County of Maui (1983), as amended. Further, a DBA application shall be submitted into Maui's Automated Planning & Permitting System ("MAPPS") with the accompanying Final Environmental Assessment ("EA"). The Project shall also be exempt from payment of fees associated with Chapter 19.510, MCC. The Project shall be constructed consistent with any additional terms and conditions as may be included in any Ordinance approving the DBA. In the event the DBA is not approved by Council, the approval herein is automatically rescinded.
7. Exemption 11: The Project shall be exempt from Section 19.510.040, MCC; Chapter 19.30A, MCC; and Chapter 19.02A, MCC. The Project shall abide by Section 19.12.050, MCC, related to Apartment District, A-1, development standards. The Project shall memorialize the exemption of Section 19.510.040, MCC; Chapter 19.30A, MCC; and Chapter 19.02A, MCC; and the required compliance with Section 19.12.050, MCC, by recordation with the State of Hawaii Bureau of Conveyances.
8. Exemption 12: The Project shall be exempt from Chapter 2.80B, MCC. The Project shall memorialize the exemption of Section 2.80B, MCC, by recordation with the State of Hawaii Bureau of Conveyances.

*Additional Modifications*

The Applicant will utilize Ground Penetrating Radar ("GPR") methodologies to survey the Project parcel for potential archaeological findings prior to the submittal of a grading permit application, and shall consult with the State Historic Preservation Division ("SHPD") prior to conducting these activities.

I am requiring the construction of the Project to be initiated within two years and completed within five years from the date of this correspondence. Construction of the Project shall be considered initiated when a building permit is issued and construction of a building has begun. Extensions of these time limits may be allowed by a formal request from the Applicant, in writing, to the DHHC director, or the director responsible for overseeing this project. An approved extension of these time limits shall be in writing.

I am also requiring the submittal of an annual report to the DHHC director, or the director responsible for overseeing this project, until every proposed unit in the development is initially rented. The annual report shall contain information relating to the progress of the Project and shall be due within 30 days of the annual anniversary of this correspondence. Failure to submit the annual report may result in forfeiture of the refundable application fee.

The Applicant shall submit in writing to the DHHC director, **and within 14 days of the date of this correspondence**, its acknowledgement of an agreement to indemnify the County in accordance with Section 2.97.190, MCC.



Section 2.97.200, MCC shall apply to this project.

Should you have any questions, please do not hesitate to contact me at (808) 270-7805.

Sincerely,



LORI TSUHAKO, LSW, ACSW  
Director of Housing and Human Concerns

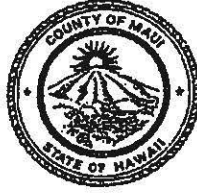
Attachments

xc: Victoria Takayesu, Corporation Counsel  
Shayne Agawa, Director of Environmental Management  
Bradford Ventura, Fire Chief  
Kekuhaupio Akana, Managing Director  
Patrick McCall, Director of Parks & Recreation  
Kathleen Aoki, Director of Planning  
Jordan Molina, Director of Public Works  
Marc Takamori, Director of Transportation  
John Stufflebean, Director of Water Supply  
Buddy Almeida, Housing Administrator  
Maui County Councilmembers  
Debbie Cabebe, Chief Executive Officer, Maui Economic Opportunity  
Grant Chun, Executive Director, Hale Mahaolu  
Karlynn K. Fukuda, President, Munekiyo Hiraga  
Moe Mohanna, President, Highridge Costa Development

RICHARD T. BISSEN, JR.  
Mayor

LORI TSUHAKE  
Acting Director

SAUMALU MATA' AFA  
Deputy Director



RECEIVED

'23 FEB 21 17

OFFICE OF THE MAYOR

DEPARTMENT OF HOUSING  
& HUMAN CONCERNS  
COUNTY OF MAUI  
2200 MAIN STREET, SUITE 546  
WAILUKU, MAUI, HAWAII 96793  
PHONE: (808) 270-7805

February 21, 2023

Honorable Richard T. Bissen, Jr.  
Mayor, County of Maui  
200 South High Street  
Wailuku, Hawaii 96793

APPROVED FOR TRANSMITTAL

*Richard T. Bissen, Jr.*  
Mayor  
2-21-23  
Date

For Transmittal to:

Honorable Tasha Kama, Chair  
Housing and Land Use Committee  
Maui County Council  
200 South High Street  
Wailuku, Hawaii 96793

Dear Chair Kama:

**SUBJECT: HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING  
COMMUNITY PROJECT UNDER CHAPTER 2.97, MAUI COUNTY  
CODE**

The Department of Housing and Human Concerns is transmitting for your review and action the Maui County Code (MCC) Chapter 2.97 application for the proposed independent development of the Hale Mahaolu Ke Kahua Affordable Housing Community Project.

The applicant, Waiehu Housing, LP proposes to develop approximately 11.476 acres of land, identified as TMK (2) 3-3-001:106 (Parcel 106) in Waiehu, Maui, Hawaii, pursuant to Chapter 2.97, MCC. The applicant and Maui Economic Opportunity, Inc. (MEO) plan to enter into a long-term lease to develop the affordable housing community. The project will be developed in cooperation with Hale Mahaolu.

The proposed project will consist of 120 multi-family residential units for rent. All units will be 100 percent affordable to households earning at or below 60 percent of the County of Maui's area median income, as set forth by the County of Maui, Department of Housing and Human Concerns' Affordable Sales Price Guidelines.

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TO SUPPORT AND EMPOWER OUR COMMUNITY TO REACH ITS FULLEST  
POTENTIAL FOR PERSONAL WELL-BEING AND SELF-RELIANCE

**EXHIBIT A**

Copies of the project's preliminary application were distributed to various federal, state and county agencies for review and comment prior to the application being finalized. Agency comments and responses to substantive comments are included in the application for your information.

Enclosed for consideration by the County Council are the following documents:

1. Nineteen (19) copies and one (1) jump drive containing a digital version of the Application for Chapter 2.97, MCC Fast-Tracked Residential Workforce Housing Project Approval for the Hale Mahaolu Ke Kahua Affordable Housing Community TMK (2) 3-3-001:106;
2. Proposed resolution entitled, "APPROVING THE INDEPENDENT DEVELOPMENT OF THE HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY WORKFORCE HOUSING PROJECT UNDER CHAPTER 2.97, MAUI COUNTY CODE";
3. Proposed resolution entitled, "APPROVING WITH MODIFICATIONS THE INDEPENDENT DEVELOPMENT OF THE HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY WORKFORCE HOUSING PROJECT UNDER CHAPTER 2.97, MAUI COUNTY CODE"; and
4. Proposed resolution entitled, "DISAPPROVING THE INDEPENDENT DEVELOPMENT OF THE HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY WORKFORCE HOUSING PROJECT UNDER CHAPTER 2.97, MAUI COUNTY CODE".

Thank you for your attention to this matter. If you have any questions or require additional information, please feel free to contact me at Ext. 7805.

Sincerely,



LORI TSUHAKE, LSW, ACSW  
Acting Director of Housing and Human Concerns

Enclosures

xc: Buddy Almeida, Housing Administrator  
Munekiyo Hiraga  
Waiehu Housing, LP

### Chapter 2.97 Exemption List

Development Standard or Requirement	Relevant Section/ Requirement	Requested Exemption	Rationale for Request
1. Requirements for acquiring disposal permit and payment of disposal charges	Title 8, Health and Safety, Maui County Code (MCC):  Chapter 8.04, Refuse Collection and Landfills	<u><b>MCC 8.04.040 Disposal Permits – Application and Suspension; MCC 8.04.050, Disposal Charges</b></u>  Exemption for project to dispose of construction waste during the construction of the project without the need to apply for a disposal permit and pay for disposal charges.	An exemption from the requirements to apply for a disposal permit and pay associated charges will provide cost savings and ensure that the project is financially feasible.
2. Requirement for payment of wastewater assessment fees	Title 14, Public Services, MCC:  Section 14.35, Wastewater Assessment Fees for Facility Expansion for the Wailuku/Kahului Wastewater Treatment System	<u><b>MCC 14.35 Wastewater Assessment Fees for Facility Expansion for the Wailuku/Kahului Wastewater Treatment System</b></u>  Exemption to allow the project to receive its building permits without the need to pay wastewater assessment fees.  Section 14.35.080, Exemptions, exempts developments comprised of 100% residential workforce housing units from the provisions of this chapter.	An exemption from the requirements to pay the wastewater assessment fee for the Wailuku/Kahului Wastewater Treatment System will advance the affordability objectives of the project.
3. Requirement for payment of water system development fees	Title 14 – Public Services, MCC:  Chapter 14.07 – Water System Development Fees	<u><b>MCC 14.07 Water System Development Fees</b></u>  Exemption requested from Section 14.07 water system development fees to allow the project to receive its building permits without the need to pay water system development fees.	An exemption from the requirements to pay the water system development fees will advance the affordability objectives of the project.

### EXHIBIT B



Chapter 2.97 Exemption List

Development Standard or Requirement	Relevant Section/Requirement	Requested Exemption	Rationale for Request
4. Requirement to demonstrate water availability	Title 14 – Public Services, MCC: Chapter 14.12 – Water Availability	<u>MCC 14.12 Water Availability</u>  Exemption requested from Section 14.12 Water Availability.  Section 14.12.030, Exemptions, exempts developments comprised of 100% residential workforce housing units from the provisions of this chapter.	
5. Requirements for payment of permit and inspection fees	Title 16, Buildings and Construction, MCC: Sections 16.04C, Fire Code 16.18B, Electrical Code 16.20B, Plumbing Code 16.26B, Building Code	<u>MCC Title 16 Building and Construction</u>  Exemptions from MCC Chapters: <ul style="list-style-type: none"> <li>• 16.04C, Fire Code,</li> <li>• 16.18B, Electrical Code,</li> <li>• 16.20B, Plumbing Code, and</li> <li>• 16.26B, Building Code.</li> </ul> To exempt the project from payment of the fire, electrical, plumbing, and building permit, plan review, and inspection fees.	These exemptions provide savings to ensure the project is financially feasible. The project intends to meet all inspection and code requirements.
6. Requirements for payment of permit and inspection fees	Title 20, Environmental Protection, MCC: Chapter 20.08, Soil Erosion and Sedimentation Control Section 20.08.090, Grubbing and Grading Permit Fees	<u>MCC 20.08.090, Grubbing and Grading Permit Fees</u>  An exemption is sought to payment of grubbing and grading permit and inspection fees.  Section 20.08.090(D) exempts developments comprised of 100% residential workforce housing units from grubbing and grading permit fees.	This exemption provides savings to ensure the project is financially feasible. The project intends to meet all inspection and code requirements.

### Chapter 2.97 Exemption List

Development Standard or Requirement	Relevant Section/Requirement	Requested Exemption	Rationale for Request
<p>7. Requirement for payment of park assessment fee</p>	<p>Title 18, Subdivisions, MCC:</p> <p>Chapter 18.16, Design Standards</p> <p>Section 18.16.320, Parks and Playgrounds</p>	<p><b><u>MCC. 18.16.320 Parks and Playgrounds</u></b></p> <p>An exemption is sought from the provision to pay park assessment fees.</p> <p>Pursuant to Section 18.16.320(1)(5) Park Assessment Fees are exempt for workforce housing projects.</p>	<p>This exemption provides savings to ensure the project is financially feasible. The project will provide two (2) play areas designed to serve the recreational needs of the residents living within the housing community. One play area will be centrally located near the clubhouse and the second located near a common laundry room.</p>
<p>8. Requirements for number of parking stalls and number and sizes of loading areas</p>	<p>Title 19, Zoning, MCC:</p> <p>Chapter 19.36B, Off-Street Parking and Loading</p> <p>Sections</p> <p>19.36B.020 Designated Number of Off-Street Parking Spaces</p> <p>19.36B.030 Designated Number of Loading Spaces</p>	<p><b><u>MCC 19.36B, Off-Street Parking and Loading</u></b></p> <p>An exemption from Section 19.36B.020 (Designated Number of Off-Street Parking Spaces) for off-street parking requirements for the proposed clubhouse, which will only be used by onsite residents and is not open to the public.</p> <p>An exemption from Section 19.36B.020 (Designated number of off-street parking spaces) for off-street parking for the proposed residential units to require only one stall per unit for the proposed 28 one bedroom units planned for the project.</p> <p>An exemption from Section 19.36B.030 to allow for reduced dimensions (8.5 ft. x 19 ft.) of the two (2) required loading spaces.</p>	<p>The proposed project will provide adequate parking for residents and the exemptions will enable flexibility in the number of parking stalls and dimensions of loading spaces. The requested exemptions would also minimize potential queuing issues by reducing the number of stalls near driveway entrances. This will further the affordability of the project. Smaller loading stalls, which can be used for moving vans and furniture delivery, would also improve the flexibility as to where they are located and make them more useful to the housing community. Larger stalls would require them to be located in areas that may not be as useful due to them requiring turning areas and back up space.</p>

Chapter 2.97 Exemption List

Development Standard or Requirement	Relevant Section/ Requirement	Requested Exemption	Rationale for Request
<p>9. Urban standards relating to curb, gutters and sidewalks</p>	<p>Title 16.26B, Building and Construction MCC:</p> <p>Chapter 16.20B Building Code</p> <p>Title 18, Subdivision, MCC:</p> <p>Chapter 18.20 – Improvements</p>	<p><u><b>MCC 16.26B.3600, Improvements to Public Streets</b></u></p> <p><u><b>MCC 18.20.040, 18.20.070, and 18.20.080, Existing Streets, Sidewalks, Curbs, and Gutters.</b></u></p> <p>Exemption from constructing curbs, gutters, and sidewalks for the frontage of the project adjacent to Kahekili Highway.</p>	<p>This exemption will allow the Applicant to implement the project without providing improvements to public streets and ensuring the project is financially feasible. The exemption would also allow the provision of a northbound right-turn lane into the project at the central access, which would provide a safeguard from traffic spilling out onto Kahekili Highway.</p>
<p>10. Requirement for State Land Use District Boundary Amendment for Agricultural portion of Subject Property</p>	<p>Title 19, Zoning, MCC:</p> <p>Chapter 19.68 – State Land Use District Boundaries</p> <p>Chapter 19.510 - Application and Procedures</p> <p>Article 8, Chapter 8, Revised Charter of the County of Maui (1983), as amended</p>	<p><u><b>MCC 19.68 State Land Use District Boundaries</b></u></p> <p><u><b>MCC 19.510 Application and Procedures Article 8, Chapter 8, Revised Charter of the County of Maui (1983), as amended</b></u></p> <p>Exemptions from these provisions are sought to enable the District Boundary Amendment (DBA) request to proceed directly to the Maui County Council, without requiring the preparation of a DBA application and subsequent processing through the Maui Planning Commission. An ordinance for a DBA will be reviewed by the County Council concurrently with the MCC 2.97 application.</p>	<p>The project site is 11.476 acres and located within the State "Urban" and "Agricultural" Districts. This exemption would expedite the delivery of affordable workforce housing.</p>

Chapter 2.97 Exemption List

Development Standard or Requirement	Relevant Section/ Requirement	Requested Exemption	Rationale for Request
11. Requirements of Change of Zoning and all provisions relating to "Agricultural" and "Interim" development standards to allow the use of the "A-1" district zoning standards.	Title 19, Zoning, MCC:  Chapter 19.02A, Interim Zoning Provisions and 19.30A, Agricultural District Chapter 19.12, Apartment District	<u><b>MCC 19.510.040 Change of Zoning</b></u>  <u><b>MCC 19.02A Interim Zoning Provisions</b></u>  <u><b>MCC 19.30A Agricultural District</b></u>  Exemptions from these provisions to allow the project to proceed without obtaining a Change of Zoning approval and to permit the development and use of the property for multi-family residential use according to the permitted uses, accessory uses and buildings, and development standards of the "A-1" District pursuant to the provisions set forth in Chapter 19.12, Apartment District.	The project site is zoned "Agricultural" and "Interim". These exemptions would expedite the delivery of affordable workforce housing by allowing the project to be developed in accordance with the "A-1" District zoning provisions, which are more applicable to the proposed development, without the need to obtain a Change of Zoning.
12. Requirement for General Plan, Community Plan Consistency	Title 2, Administration and personnel, MCC:  Chapter 2.80B, General Plan and Community Plans	<u><b>MCC 2.80B, General Plan and Community Plans</b></u>  An exemption from MCC 2.80B to allow the project to be implemented (1) without a Community Plan Amendment; and (2) without the need for consistency to be demonstrated between the community plan and zoning designations.	These exemptions would expedite the delivery of affordable workforce housing. The project site is located within the Urban Growth Boundary of the Maui Island Plan.



March 17, 2023



CONSULTING CIVIL ENGINEERS  
305 SOUTH HIGH STREET, SUITE 102  
WAILUKU, HAWAII 96792  
PHONE: (808) 242-0032

Mr. Chris Sugidono  
Munekiyo Hiraga  
chris@munekiyohiraga.com

Dear Chris:

Subject: Hale Mahaolu Ke Kahua  
Estimated Costs for Requested Exemptions from the Revised Exhibit "A"

In response to the requests for estimated costs associated with the requested exemptions listed in Exhibit "A", we offer the following:

**Item 1A - Exemption from Section 8.04.040, "Disposal permits—Application and suspension"**

Disposal permits cost \$25. Since most contractors already have a disposal permit, one will most likely not be required.

**Item 1B - Exemption from Section 8.04.050, "Disposal charges"**

The Department of Environmental Management (DEM) allows these fees to be waived. The Contractor shall fill out an application at the time of construction. Since these fees are based on the amount of material being disposed of, the estimated dollar amount associated with this exemption cannot be determined at this time.

**Item 1C - Exemption from Section 14.07.030, "Water system development fee schedule"**

The water system development fees are based on water meter size. Since the project is still in the conceptual design phase, the exact water demand has not been determined. Based on the preliminary site and building plan, it is estimated that one 3" water meter for domestic use and one 2" water meter for irrigation use will be required for this project. The anticipated water system development fee is \$404,392.

**Item 1J - Exemption from Section 16.26B.3600, "Improvements to Public Streets";**  
**Item 1K - Exemption from Section 18.20.040, "Existing Streets"; Item 1L -**  
**Exemption from Section 18.20.070, "Sidewalks"; Item 1M - Exemption from Section**  
**18.20.080, "Curbs and gutters"**

The project is requesting to be exempt from constructing curb, gutter, and sidewalk along its frontage with Kahekili Highway. Since the project is still in the conceptual design phase and has not gone out to bid, it is not possible to determine construction costs. A rough order of magnitude estimate is \$70,000 for sidewalks and \$110,000 for curb and gutter. The total estimated cost for these improvements is \$180,000.

**EXHIBIT C**



**MUNEKIYO HIRAGA**

Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda  
PRESIDENT

Mark Alexander Roy  
VICE PRESIDENT

Tessa Munekiyo Ng  
VICE PRESIDENT

Michael T. Munekiyo  
SENIOR ADVISOR

September 21, 2021

Bradford Ventura, Chief  
County of Maui  
Department of Fire and Public Safety  
200 Dairy Road  
Kahului, HI 96732

SUBJECT: Draft Environmental Assessment and Maui County Code 2.97  
Application for the Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i

Dear Chief Ventura:

On behalf of the County of Maui, Department of Housing and Human Concerns, enclosed for your review and comment is the Draft Environmental Assessment (EA) (prepared pursuant to Chapter 343, Hawai'i Revised Statutes, and Hawai'i Administrative Rules, Title 11, Chapter 200.1) and the County of Maui, Maui County Code Chapter 2.97 Fast-Tracked Residential Workforce Housing Application for the Hale Mahaolu Ke Kahua Affordable Housing Community.

We would appreciate receiving any comments you may have on the Draft EA and Chapter 2.97 Application no later than October 25, 2021.

Please send your comments to the following:

Approving Agency: County of Maui  
Address: Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku Hawai'i 96793

Contact Person: Buddy Almeida, Housing Administrator  
Email: [Buddy.Almeida@co.maui.hi.us](mailto:Buddy.Almeida@co.maui.hi.us)  
Phone No.: (808) 270-7805

---

Maui: 305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Tel: 808.244.2015 • Fax: 808.244.8729  
Oahu: 735 Bishop Street, Suite 412 • Honolulu, Hawaii 96813 • Tel: 808.983.1233  
[www.munekiyohiraga.com](http://www.munekiyohiraga.com)

Bradford Ventura, Chief  
September 21, 2021  
Page 2

In addition, may we ask that a copy of your comments be sent to the following:

Consultant: Munekiyo Hiraga  
Address: 305 High Street, Suite 104  
Wailuku, Hawai'i 96793

Contact Person: Chris Sugidono, Senior Associate  
Email Address: [planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com)  
Phone No.: (808) 244-2015

Thank you for your participation in the review of this project. Should you have any questions, please feel free to contact me at (808) 244-2015.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:yp  
Enclosure

cc: Buddy Almeida, Department of Housing and Human Concerns (w/out enclosure)  
Monte Heaton, Waiehu Housing, LP (w/out enclosure)  
Grant Chun, Hale Mahaolu (w/out enclosure)  
Debbie Cabebe, Maui Economic Opportunity, Inc. (w/out enclosure)

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**County of Maui Department of Fire and Public Safety**

Thank you for the opportunity to review your project.  
At this time Fire Prevention Bureau has no comments.

Our office does reserve the right to comment on the proposed project during the building permit review process when detailed plans for this project are routed to our office for review. At that time, fire apparatus access, water supply for the fire protection, and fire and life safety requirements associated with the subject project will be formally reviewed.

Should you have any specific fire related public safety concerns please identify those to us on this or any future projects you would like us to review.

Plans Review - Fire Prevention Bureau  
[Fire.Prevention@mauicounty.gov](mailto:Fire.Prevention@mauicounty.gov)



June 1, 2022

**Via email: [fire.prevention@mauicounty.gov](mailto:fire.prevention@mauicounty.gov)**

County of Maui  
Department Fire and Public Safety  
**Attn: Plans Review – Fire Prevention Bureau**  
200 Dairy Road  
Kahului, Hawai'i 96732

**SUBJECT: Draft Environmental Assessment and Maui County Code Chapter 2.97  
Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i**

Dear Sir or Madame:

Thank for your comment letter dated October 5, 2021, regarding the Draft Environmental Assessment (EA) and (Draft) Maui County Code Chapter 2.97 Fast-Track Residential Workforce Housing Application for the subject project. On behalf of the Applicant, we acknowledge that the Fire Prevention Bureau has no comments to offer at this time. We acknowledge that during the building permit review process, fire apparatus access, water supply for fire protection, and fire and life safety requirements associated with the project will be formally reviewed.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA, as well as the Chapter 2.97 application that will go to the Maui County Council for approval. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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**MICHAEL P. VICTORINO**  
Mayor

**KARLA H. PETERS**  
Director

**MARCI M. SATO**  
Deputy Director

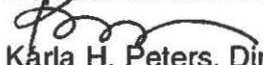


## **DEPARTMENT OF PARKS AND RECREATION**

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawai'i 96793  
Main Line (808) 270-7230 / Facsimile (808) 270-7942

## **MEMORANDUM**

**TO:** Lori Tsuhako, Director  
Department of Housing and Human Concerns

**FROM:**   
Karla H. Peters, Director

**DATE:** October 4, 2021

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND MAUI COUNTY CODE 2.97  
APPLICATION FOR THE HALE MAHAOLU KE KAHUA AFFORDABLE  
HOUSING COMMUNITY AT TMK: (2) 3-3-001:106, WAIEHU, MAUI, HAWAII**

Thank you for the opportunity to review the proposed Hale Mahaolu Ke Kahua Affordable Housing Community project. In review of the project, we note that the applicant is currently proposing to develop 120 affordable housing units and is planning to apply for Maui County Code Chapter 2.97 approval from the Maui County Council for the proposed development.

The Department of Parks and Recreation looks forward to reviewing the final application for compliance with Maui County Code 18.16.320. We have no further comments at this time.

Should you have any questions or concerns, please feel free to contact me or Samuel Marvel, Chief of Planning and Development, at (808) 270-6173.

**c:** Buddy Almeida, Housing Administrator  
Samual Marvel, Chief of Planning and Development  
Chris Sugidono, Munekiyo Hiraga

KHP:SM:csa

June 1, 2022

Karla H. Peters, Director  
County of Maui  
Department of Parks and Recreation  
700 Hali'a Nakoia Street, Unit 2  
Wailuku, Hawai'i 96793

**SUBJECT: Draft Environmental Assessment and Maui County Code Chapter 2.97  
Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i**

Dear Ms. Peters:

Thank you for your comment letter dated October 4, 2021, regarding the Draft Environmental Assessment (EA) and Maui County Code Chapter 2.97 Fast-Track Residential Workforce Housing Application for the subject project. On behalf of the Applicant, we acknowledge that the Department of Parks and Recreation has no further comments to offer at this time.

We appreciate your input and a copy of your comment letter and this response will be incorporated into the Final EA, as well as the Chapter 2.97 application that will go to the Maui County Council for approval. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
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MICHAEL P. VICTORINO  
Mayor

MICHELE CHOUTEAU MCLEAN, AICP  
Director

JORDAN E. HART  
Deputy Director



**DEPARTMENT OF PLANNING**  
COUNTY OF MAUI  
ONE MAIN PLAZA  
2200 MAIN STREET, SUITE 315  
WAILUKU, MAUI, HAWAII 96793

October 22, 2021

Ms. Lori Tsuhako, Director  
Department of Housing and Human Concerns  
County of Maui  
2200 Main Street, Suite 546  
Wailuku, Hawaii 96793

Dear Ms. Tsuhako:

**SUBJECT: CONSOLIDATED APPLICATION FOR CHAPTER 2.97, MCC FAST-TRACKED RESIDENTIAL WORKFORCE HOUSING PROJECT APPROVAL AND DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY IN WAIIEHU, MAUI, HAWAII AT TAX MAP KEY (TMK) (2) 3-3-001:106 (EAC 2021/0006)**

The Department of Planning (Department) has reviewed the consolidated MCC Chapter 2.97 application document and Draft EA filed for the above-referenced project. The Department has the following comments:

- 1) In various sections throughout the Draft EA, the existing Community Plan designation is listed incorrectly. It should be 'Wailuku-Kahului Project District 2 (Piihana).' For the Final EA, please ensure that it is listed accurately.
- 2) For the Final EA, please include more information on the nonprofit building in the project scope. Will it serve Hale Mahaolu, or other groups? Also, we are wondering if it might be possible to combine the nonprofit building and clubhouse into one two-story building to minimize impervious surfaces and aggregate massing on the site.
- 3) In our early consultation letter, we requested that a review of the potential for installing photovoltaic panels (PV) be explored. We understand that it could be installed, pending funding availability. We strongly encourage that PV panels be installed atop rooftops for hot water, at the very least. Even though the operating cost savings are not passed on to the tenants, there will be a net environmental benefit overall.
- 4) Also, in our early consultation letter, we mentioned that it is difficult to determine if a multi-use path will be constructed in the landscaped area, connecting one end of the development to the other. For the Final EA, please clearly show the path.
- 5) In addition, there does not appear to be a pathway between the parking lot and the units that fully extends from one site of the development to the other. There also does not seem to be mid-block raised crosswalks or speed humps within the parking lot. For the Final EA, please evaluate extending the pathway between the parking lot and units, and also adding traffic calming measures.
- 6) Please evaluate locating resident parking behind or to the side of each building to provide more spaces closer to each building and hide them from street view.



- 7) A sidewalk exemption is being sought along Kahekili Highway, but one should be added along the project frontage.
- 8) We note that two of the driveways will be limited to right-turn in, right-turn out movement. Please ensure that there are bollards or something ensuring there is a forced right-turn in and out. The north driveway is near the intersection of Kahekili Highway and Waiehu Beach Road, and there could be traffic accidents, if left turns in/out of the project area are not blocked.
- 9) We strongly suggest that you consider relocating the north driveway further south and away from the Waiehu Beach Road intersection. We further suggest you coordinate its proposed location with the Department of Public Works due to the 750-unit proposed development across the highway.
- 10) Provide a northbound turnout lane at the mid entrance along Kahekili Highway and coordinate with the Maui Department of Transportation to provide a bus stop facility at that location.
- 11) Screen the residences from Kahekili Highway with earthen berms and/or landscaping to mitigate the noise of passing traffic. Use plantings on the berms to reduce polluted air migration on to the site and to provide a visually and physical buffer to and from the highway.
- 12) Secure bike parking/storage should be provided on-site.
- 13) For the Final EA, please ensure that the Site Plan is on 11 x 17 paper and that trash and recycling bins are all clearly shown. There is an arrow pointing to one of the trash receptacles, but the plan is small it is difficult to easily see.
- 14) The laundry facility is shown on the plans in small print; however, please call them out so that they are more visible for the Final EA.
- 15) There is no Conceptual Landscape Plan or a Landscape Planting Plan, and this should be included in the Final EA. We encourage the use of drought tolerant native plants. Trees for shade and the pocket parks should be installed in the park area.
- 16) For the Final EA, please clearly show the pocket parks. They cannot be easily identified on the existing Site Plan. Because of the site's remote location from other recreational areas, please consider installing playgrounds and benches amidst the parks. Also, please include this information in the Recreational Resources section.
- 17) Provide space for community gardens and composting.
- 18) For site security, please ensure that there is adequate lighting throughout the development.
- 19) The site is located in Flood Zone 'X,' an area of minimal flooding, but it is located next to a 48-inch culvert and extreme weather events are occurring more frequently. Evaluate drainage improvements built to accommodate a 100-year, one hour storm runoff. Also, the flood code requires that the applicant has an engineer certify that the proposed work will not affect the carrying capacity of the drainage facility or adversely impact adjacent and downstream properties. Please provide a letter from the project engineer along with building permit plans to the Zoning Administration and Enforcement Division.




- 20) Please consider the use of green swales or bioswales to capture storm runoff from the parking lot.
- 21) Because the area consists primarily of sand, provide a geotechnical report in the Final EA so that it is possible to assess site stability.
- 22) For the Final EA, existing water capacity consumption and conservation methods should be evaluated.
- 23) Please also consider the use of non-potable water for irrigation. Consider incorporating rainwater harvesting systems into each building to irrigate site landscaping where possible.
- 24) Overhead utility lines should be placed underground as much as practicable.
- 25) For the Final EA, please include colored renderings. It would be beneficial to envision what the development would look like once built.
- 26) For the Final EA, please update the project financing section. It says that the award of a bond, State Rental Housing Revolving Fund and Low-Income Housing Tax Credit is anticipated in September 2021.
- 27) The project is proposed to provide rental housing for residents earning 60 percent or less of the Area Median Income (AMI); however, there was no income group distribution provided, as per MCC 2.96.040(C). For the Final EA, please include this information.
- 28) In the Final EA, please indicate that more recently the property was planted with dry land taro. Maui Economic Opportunity had a volunteer program that worked the land. Please indicate what will happen to this farming activity.
- 29) For the Final EA, in the Socio-Economic section, please provide housing demand numbers by income group. Also state approximately how many construction jobs will be generated to work on the project and indicate whether local construction labor will be employed.
- 30) In the Draft EA, there is a land ownership section, but there is only the lease agreement. For the Final EA, please include a copy of the title document.
- 31) In the lease agreement between the landowner and Applicant, under the 'Grant of Option' section, 1c., it says, "The Optionee shall use or cause the Premises to be used for the purpose of developing, construction, operating and maintaining the following: (a) a multifamily rental housing project consisting of approximately 120 number of units (including 1 manager's unit) known as Hale Mahaolu Ke Kahua." The Draft EA does not mention the manager's unit in the project scope, or show it on the plans. An onsite manager would be beneficial to help monitor the area for security purposes. For the Final EA, please disclose whether there will be a unit and show the location.
- 32) Under 'Project Time Schedule and Costs,' it says that the project is estimated to be completed in 16 months. For the Final EA, please provide more detailed construction timing information, such as whether the project will be built in a single phase, around when the Applicant plans to initiate construction and by when construction will be completed.

Ms. Lori Tsuchako, Director  
October 22, 2021  
Page 4

- 33) For the Final EA, please add to the 'Alternatives' section. Did the landowner consider other density alternatives, such as perhaps single-family residential homes, duplexes or townhomes?
- 34) In Appendices J-2 and J-3, some policies are listed and checked when they do not seem to be applicable. For the Final EA, please ensure the correct boxes are checked.

We look forward to future reviews of this project. Should you have any questions, please contact Staff Planner Tara Furukawa by email at [tara.furukawa@mauicounty.gov](mailto:tara.furukawa@mauicounty.gov) or by phone at (808) 270-7520.

Sincerely,



MICHELE MCLEAN, AICP  
Planning Director

xc: Clayton Yoshida, Planning Program Administrator (PDF)  
Jacky Takakura, Acting Planning Program Administrator (PDF)  
Pam Eaton, Planning Program Administrator, Long-Range Division (PDF)  
Kathleen Aoki, Planning Program Administrator (PDF)  
Tara Furukawa, Staff Planner (PDF)  
Danny Dias, Supervising Planner (PDF)  
Jennifer Maydan, Supervising Planner (PDF)  
Grant Chun, Hale Mahaolu (PDF)  
Mark Roy, Munekiyo Hiraga (PDF)  
Chris Sugidono, Munekiyo Hiraga (PDF)  
Project File

MCM:TKF:lak

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June 1, 2022

Michele Chouteau McLean, Director  
County of Maui  
Department of Planning  
2200 Main Street, Suite 315  
Wailuku, HI 96793

**SUBJECT:** Draft Environmental Assessment and Maui County Code Chapter 2.97  
Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i

Dear Ms. McLean:

Thank you for your comment letter dated October 22, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Comment No. 1:**

*In various sections throughout the Draft EA, the existing community Plan designation is listed incorrectly. It should be 'Wailuku-Kahului Project District 2 (Piikaha).' For the Final EA, please ensure that it is listed accurately.*

**Response:** The Applicant acknowledges the comment and will ensure the change is reflected in the Final EA.

**Comment No. 2:**

*For the Final EA, please include more information on the nonprofit building in the project scope. Will it serve Hale Mahaolu, or other groups? Also, we are wondering if it might be possible to combine the nonprofit building and clubhouse into one two-story building to minimize impervious surfaces and aggregate massing on the site.*

**Response:** The nonprofit building will be operated by Maui Economic Opportunity (MEO) in its own capacity. Since this building is meant to function separately from the residential development, it would not be operationally appropriate to include both of them in the same building as the clubhouse.

**Comment No. 3:**

*In our early consultation letter, we requested that a review of the potential for installing photovoltaic panels (PV) be explored. We understand that it could be installed, pending funding availability. We strongly encourage that PV panels be installed atop rooftops for hot water, at the very least. Even though the operating cost savings are not passed on to the tenants, there will be a net environmental benefit overall.*

**Response:** The Applicant and development team remains open to the inclusion of solar panels to the extent that funding is available.

**Comment No. 4:**

*Also, in our early consultation letter, we mentioned that it is difficult to determine if a multi-use path will be constructed in the landscaped area, connecting one end of the development to the other. For the Final EA, please clearly show the path..*

**Response:** A continuous path connecting all of the buildings within the project site, which can be used for pedestrians as well as bicycles, will be included in the conceptual site plan within the Final EA.

**Comment No. 5:**

*In addition, there does not appear to be a pathway between the parking lot and the units that fully extends from one site of the development to the other. There also does not seem to be mid-block raised crosswalks or speed humps within the parking lot. For the Final EA, please evaluate extending the pathway between the parking lot and units, and also adding traffic calming measures.*

**Response:** As previously mentioned, a continuous path connecting all of the buildings within the project site, which can be used for pedestrians as well as bicycles, will be included in the conceptual site plan within the Final EA. Additional opportunities for traffic calming measures will be evaluated during the construction plans preparation phase of the project.

**Comment No. 6:**

*Please evaluate locating resident parking behind or to the side of each building to provide more spaces closer to each building and hide them from street view.*

**Response:** The Applicant will provide a greenway buffer along Kahekili Highway to help visually screen the property and to help with noise attenuation. The development team will make every effort to provide parking stalls as close to each unit as possible. At minimum, the project will provide at least one stall for each unit in close proximity to the assigned unit.

**Comment No. 7:**

*A sidewalk exemption is being sought along Kahekili Highway, but one should be added along the project frontage.*



**Response:** The Applicant is requesting an exemption from frontage improvements, including curb, gutter, and sidewalks. There are currently no sidewalks to connect to in the vicinity of the project site along Kahekili Highway.

The Applicant notes that the costs of the frontage improvements would negatively impact feasibility of the 100 percent affordable housing community. The improvements would also infringe on the narrow project site plan and parking area.

**Comment No. 8:**

*We note that two of the driveways will be limited to right-turn in, right-turn out movement. Please ensure that there are bollards or something ensuring there is a forced right-turn in and out. The north driveway is near the intersection of Kahekili Highway and Waiehu Beach Road, and there could be traffic accidents, if left turns in/out of the project area are not blocked.*

**Response:** The Applicant acknowledges the comment. The development team will work with the County Department of Public Works (DPW) to determine the appropriate measures to restrict illegal left-in and left-out movements at the right-in, right out accesses.

**Comment No. 9:**

*We strongly suggest that you consider relocating the north driveway further south and away from the Waiehu Beach Road intersection. We further suggest you coordinate its proposed location with the Department of Public Works due to the 750-unit proposed development across the highway.*

**Response:** The Applicant and development team has met with County DPW on a number of occasions and DPW was acceptable to the number and location of project accesses. The development team will continue to work with DPW throughout the process to address any issues regarding the project access points.

The development mauka of Kahekili Highway is aware that their accesses will need to be coordinated with the accesses for the Hale Mahaolu Ke Kahua Affordable Housing Community.

**Comment No. 10:**

*Provide a northbound turnout lane at the mid entrance along Kahekili Highway and coordinate with the Maui Department of Transportation to provide a bus stop facility at that location.*

**Response:** The Applicant and development team is coordinating with the County Department of Transportation to determine the feasibility of providing a bus stop within or near the project vicinity.

**Comment No. 11:**

*Screen the residences from Kahekili Highway with earthen berms and/or landscaping to mitigate the noise of passing traffic. Use plantings on the berms to reduce polluted air migration on to the site and to provide a visually and physical buffer to and from the highway.*

**Response:** The Applicant will provide a greenway buffer along Kahekili Highway to help visually screen the property and to help with noise attenuation and air migration mitigation. The use of berms will be examined given the physical constraints of the property layout and they will be installed if practicable and feasible.

**Comment No. 12:**

*Secure bike parking/storage should be provided on-site.*

**Response:** The Applicant will work with the development team to provide bicycle storage within the project site.

**Comment No. 13:**

*For the Final EA, please ensure that the Site Plan is on 11 x 17 paper and that trash and recycling bins are all clearly shown. There is an arrow pointing to one of the trash receptacles, but the plan is small it is difficult to easily see.*

**Response:** The Applicant acknowledges the comment and will provide the conceptual site plan at 11 x 17, with the trash areas clearly labeled in the Final EA.

**Comment No. 14:**

*The laundry facility is shown on the plans in small print; however, please call them out so that they are more visible for the Final EA.*

**Response:** The Applicant acknowledges the comment and will label the laundry facilities clearly on the conceptual site plan in the Final EA.

**Comment No. 15:**

*There is no Conceptual Landscape Plan or a Landscape Planting Plan, and this should be included in the Final EA. We encourage the use of drought tolerant native plants. Trees for shade and the pocket parks should be installed in the park area.*

**Response:** A Conceptual Landscape Plan will be included in the Final EA. The plant palette will include drought-tolerant native plants. Shade canopy trees will be installed to help mitigate the 'Heat Island Effect' and provide comfort for residents.

**Comment No. 16:**

*For the Final EA, please clearly show the pocket parks. They cannot be easily identified on the existing Site Plan. Because of the site's remote location from other recreational areas, please consider installing playgrounds and benches amidst the parks. Also, please include this information in the Recreational Resources section.*

**Response:** The Applicant acknowledges the comment and will label the site amenities clearly on the conceptual site plan in the Final EA.

**Comment No. 17:**

*Provide space for community gardens and composting.*

**Response:** The Applicant acknowledges the comment. It is the development team's experience that community gardens and the like only work when there is buy-in and commitment on the part of the residents. While the Applicant does not oppose the inclusion of these amenities, they will need to be considered later in the project development process.

**Comment No. 18:**

*For site security, please ensure that there is adequate lighting throughout the development.*

**Response:** Parking lot lighting will be provided as well as bollard lighting along the walkways to provide adequate lighting throughout the development. In addition, lighting will be provided at the building entrances and stairwells.

**Comment No. 19:**

*The site is located in Flood Zone 'X,' an area of minimal flooding, but it is located next to a 48-inch culvert and extreme weather events are occurring more frequently. Evaluate drainage improvements built to accommodate a 100-year, one hour storm runoff. Also, the flood code requires that the applicant has an engineer certify that the proposed work will not affect the carrying capacity of the drainage facility or adversely impact adjacent and downstream properties. Please provide a letter from the project engineer along with building permit plans to the Zoning Administration and Enforcement Division.*

**Response:** The Applicant is aware of previous localized flooding events within the vicinity of the project site. MEO has reported to the Applicant that debris blocking the culvert to the north of the Kahekili Highway and Waiehu Beach Road intersection has caused drainage issues and flooding. The HDOT is responsible for maintaining the culvert and has cleared trash and debris from the culvert, which has mitigated the issue. Hale Mahaolu will coordinate with HDOT on ensuring the culvert is clear and operating properly during heavy rain events.

It should be noted that the proposed drainage plan will meet the requirements of Chapter 4, "Rules for the Design of Storm Drainage Facilities in the County of Maui" and Chapter 111, "Rules for the Design of Storm Water Treatment Best Management Practices". The drainage design criteria will be to minimize any alterations to the natural pattern of the existing onsite surface runoff.

A letter from the project engineer and building permit plans will be provided to the Zoning Administration and Enforcement Division as the project progresses.

**Comment No. 20:**

*Please consider the use of green swales or bioswales to capture storm runoff from the parking lot.*

**Response:** The Applicant acknowledges the comment and will implement Low Impact Development (LID) measures to the greatest extent practicable.

**Comment No. 21:**

*Because the area consists primarily of sand, provide a geotechnical report in the Final EA so that it is possible to assess site stability*

**Response:** The Applicant has prepared a geotechnical report for the project site and it concluded that the site may be developed for the proposed project. The Applicant also intends to utilize slope stabilization materials to the greatest extent practicable. The report will be included in the Final EA.

**Comment No. 22:**

*For the Final EA, existing water capacity consumption and conservation methods should be evaluated.*

**Response:** The landscape design will utilize water-efficient drip irrigation in areas of shrub & groundcover and utilize water-efficient spray equipment in areas of lawn. Plant selection will be appropriate for the climate and many plant species will be drought-tolerant. The Applicant will also implement the use of low-flow plumbing fixtures within the project.

Additionally, the Applicant and its design team are in coordination with the Department of Water Supply regarding water infrastructure requirements for the project.

**Comment No. 23:**

*Please also consider the use of non-potable water for irrigation. Consider incorporating rainwater harvesting systems into each building to irrigate site landscaping where possible.*

**Response:** The use of non-potable water features such as rainwater harvesting systems for irrigation will be evaluated and incorporated as practicable and feasible.

**Comment No. 24:**

*Overhead utility lines should be placed underground as much as practicable.*

**Response:** The Applicant acknowledges the comment. Service to the site will be via the existing overhead utilities. Within the site, utilities will be placed underground.

**Comment No. 25:**

*For the Final EA, please include colored renderings. It would be beneficial to envision what the development would look like once built.*



**Response:** The Applicant will work with the development team to develop colored elevation renderings to be included in the Final EA.

**Comment No. 26:**

*For the Final EA, please update the project financing section. It says that the award of a bond, State Rental Housing Revolving Fund and Low-Income Housing Tax Credit is anticipated in September 2021.*

**Response:** The Applicant will update this section to read "September 2022".

**Comment No. 27:**

*The project is proposed to provide rental housing for residents earning 60 percent or less of the Area Median Income (AMI); however, there was no income group distribution provided, as per MCC 2.96.040(C). For the Final EA, please include this information.*

**Response:** The Applicant acknowledges the comment and will include the income group distribution information in the Final EA.

**Comment No. 28:**

*In the Final EA, please indicate that more recently the property was planted with dry land taro. Maui Economic Opportunity had a volunteer program that worked the land. Please indicate what will happen to this farming activity.*

**Response:** According to Maui Economic Opportunity, the nonprofit was planting taro and other plants when it had operating funding for the project. When the funding was exhausted, MEO tried to maintain the property with volunteers which was unsuccessful due to the lack of supervised oversight. Additionally, the property was vandalized numerous times and over time all of the equipment was stolen, including the well pump, hoses, engine and the generator. It was at this time MEO decided to look for alternative uses of the property, which would benefit the community and the low-income families the nonprofit serves.

**Comment No. 29:**

*For the Final EA, in the Socio-Economic section, please provide housing demand numbers by income group. Also state approximately how many construction jobs will be generated to work on the project and indicate whether local construction labor will be employed.*

**Response:** The Applicant acknowledges the comment regarding housing demand numbers and local construction labor and will incorporate this information into the Final EA, as available. It is noted, though, that 1,721 units (ownership and rental units) are needed for U.S. Housing and Urban Development (HUD) incomes of less than 30 percent, 777 are needed for 30 to 50 percent and 492 are needed for 50 to 60 percent for the island of Maui by the year 2025 (Hawai'i Housing Planning Study, 2019). Local union labor will be employed and it is estimated the project will create approximately 50 construction jobs.

**Comment No. 30:**

*In the Draft EA, there is a land ownership section, but there is only the lease agreement. For the Final EA, please include a copy of the title document.*

**Response:** The land ownership section was included in the (draft) Ch. 2.97 Application submitted concurrently with the Draft EA to the Department of Planning. A copy of the title document will be included within the appropriate section of the final Ch. 2.97 Application for the Department's review.

**Comment No. 31:**

*In the lease agreement between the landowner and Applicant, under the 'Grant of Option' section, 1 c., it says, "The Optionee shall use or cause the Premises to be used for the purpose of developing, construction, operating and maintaining the following: (a) a multifamily rental housing project consisting of approximately 120 number of units (including 1 manager's unit) known as Hale Mahaolu Ke Kahua." The Draft EA does not mention the manager's unit in the project scope, or show it on the plans. An onsite manager would be beneficial to help monitor the area for security purposes. For the Final EA, please disclose whether there will be a unit and show the location.*

**Response:** The Applicant and development team agree that an onsite manager will greatly enhance the resident experience at Hale Mahaolu Ke Kahua. As such, a manager's unit will be provided onsite. The exact location of this unit has not yet been selected, but is anticipated to be in a central location to serve residents most efficiently.

**Comment No. 32:**

*Under 'Project Time Schedule and Costs,' it says that the project is estimated to be completed in 16 months. For the Final EA, please provide more detailed construction timing information, such as whether the project will be built in a single phase, around when the Applicant plans to initiate construction and by when construction will be completed.*

**Response:** The Applicant is targeting to start construction in Q1/Q2 2023. The project will be built in a single phase, with completion targeted around Q3 2024.

**Comment No. 33:**

*For the Final EA, please add to the 'Alternatives' section. Did the landowner consider other density alternatives, such as perhaps single-family residential homes, duplexes or townhomes?*

**Response:** A variety of alternative designs and uses were considered for the project site. While all the uses mentioned are needed on Maui, the site's challenging configuration quickly made it clear that no use other than multifamily rentals would be able to achieve the density needed to make a significant dent in Maui's affordable housing crisis. Multifamily rentals also allow the development team to leverage the most substantial sources of non-county resources, including tax-exempt bonds, low

Michele Chouteau McLean, Director  
June 1, 2022  
Page 9

income housing tax credits (federal and state), and state Rental Housing Revolving Funds. The Final EA will include this information in the Alternatives chapter.

**Comment No. 34:**

*In Appendices J-2 and J-3, some policies are listed and checked when they do not seem to be applicable. For the Final EA, please ensure the correct boxes are checked.*

**Response:** The Applicant notes the comment and will revise Appendices J-2 and J-3, as appropriate.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Tyler Fujiwara, Austin, Tsutsumi & Associates, Inc.  
Kelcee Fujimoto, Austin, Tsutsumi & Associates, Inc.  
Ashley Otomo, Otomo Engineering, Inc.  
Lena Tamashiro, Design Partners, Inc.  
Debbie Cabebe, Maui Economic Opportunity, Inc.

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MICHAEL P. VICTORINO  
Mayor

ROWENA M. DAGDAG-ANDAYA  
Director

JORDAN MOLINA  
Deputy Director

WADE SHIMABUKURO, P.E.  
Development Services Administration

RODRIGO "CHICO" RABARA, P.E.  
Engineering Division

JOHN R. SMITH, P.E.  
Highways Division

Telephone: (808) 270-7745  
Fax: (808) 270-6267



COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS  
ENGINEERING DIVISION**  
200 SOUTH HIGH STREET, ROOM NO. 410  
WAILUKU, MAUI, HAWAII 96793

October 19, 2021

**CHAPTER 2.97 APPLICATION REVIEW**

**Project Name: HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY**

**Site Address: TMK: (2) 3-3-001:106**

**Design Section Review Comments:**

1. Upon submittal of the drainage report, please ensure compliance with the following:
  - Title MC-15, Chapter 4, "Rules for the Design of Storm Drainage Facilities in the County of Maui"
  - Title MC-15, Chapter 111, "Rules for the Design of Storm Water Treatment Best Management Practices"
  - Title 20, Chapter 20.08, "Soil Erosion and Sedimentation Control"
2. The project drainage report should demonstrate that post-development discharge will not adversely affect downstream properties and conveyances. Provide analysis of pre-developed and post-developed conditions for discharge locations along the property line, and describe in terms of quantity, quality, and form.
3. The project drainage report should discuss how offsite runoff enters the site. Please note that the recurrence interval is based on the drainage area and not the developed area. Review the drainage area contributing to the project site and select the criteria and design methodology accordingly.
4. Please provide the following information with the project drainage report:
  - Hydraulic grade lines on drainline profiles
  - Backwater calculations, if applicable
  - Calculations for sizing of drainlines and drainage structures
  - Post development hydrology and hydraulic calculations to show adequate capacity of the existing drainageway along the eastern boundary in relation to the proposed development

If you have any questions regarding the above comments, please contact Wendy Kobashigawa at 270-7745 or [wendy.kobashigawa@co.maui.hi.us](mailto:wendy.kobashigawa@co.maui.hi.us).

**EXHIBIT 13**



MICHAEL P. VICTORINO  
Mayor

ROWENA M. DAGDAG-ANDAYA  
Director

JORDAN MOLINA  
Deputy Director

WADE SHIMABUKURO, P.E.  
Development Services Administration

RODRIGO "CHICO" RABARA, P.E.  
Engineering Division

JOHN R. SMITH, P.E.  
Highways Division

Telephone: (808) 270-7745  
Fax: (808) 270-6267



COUNTY OF MAUI  
**DEPARTMENT OF PUBLIC WORKS**  
**ENGINEERING DIVISION**  
200 SOUTH HIGH STREET, ROOM 410  
WAILUKU, MAUI, HAWAII 96793

November 5, 2021

**Project Name: Hale Mahaolu Ke Kahua Affordable Housing**  
**TMK: (2) 3-3-001: 106**

**Engineering Services Comments:**

1. Provide a roadway widening lot along frontage to accommodate an ultimate section consisting of 11' travel lanes, turn lane, bike lanes, and six foot sidewalks.
2. Design and construct a six foot sidewalk, bike lane, and turn lanes into the project on the adjacent half of Kahekili Highway.
3. We object to the request for an exemption from providing sidewalks along the Kahekili Highway frontage.

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**EXHIBIT** 15a

June 1, 2022

County of Maui  
Department of Public Works  
Engineering Division  
200 South High Street, Room 410  
Wailuku, HI 96793

**SUBJECT:** Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i

Dear Engineering Division:

Thank you for your comment letters dated October 19, 2021 and November 5, 2021, regarding the Draft Environmental Assessment (EA) (Draft) Chapter 2.97, Maui County Code (MCC) Application for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Engineering Services**

**Comment No. 1:**

*Provide a roadway widening lot along frontage to accommodate an ultimate section consisting of 11' travel lanes, turn lane, bike lanes, and six foot sidewalks.*

**Response:** Due to the configuration, site constraints and geometry of the parcel, the requirement to provide a road widening lot along Kahekili Highway will significantly impact the feasibility for development of the parcel. The approximately 21 feet needed to accommodate the turn lanes, bike lanes and sidewalks would change the character of the proposed development, which will lead to a substantial reduction in affordable housing units, taller buildings, and a reduction in available parking for residents. The Applicant believes these impacts would substantially reduce the project's competitiveness for a financing award from the Hawaii Housing Finance & Development Corporation.

**Comment No. 2:**

*Design and construct a six foot sidewalk, bike lane, and turn lanes into the project on the adjacent half of Kahekili Highway.*

**Response:** Northbound right-turn lanes into the Project are planned to be provided at the North and South Access points, and a southbound left-turn lane into the Project is planned to be provided at the Central Access. At the Central Access, a northbound right-turn lane, six-foot sidewalk, and bike lanes cannot all be accommodated without a redesign of the Project site plan. As mentioned above, these additions would change the

character of the proposed development and lead to a substantial reduction in affordable housing units, taller buildings, and a reduction in available parking for residents. The Applicant believes these impacts would render the project uncompetitive in its financing applications

**Comment No. 3:**

*We object to the request for an exemption from providing sidewalks along the Kahekili Highway frontage.*

**Response:** The Applicant acknowledges the Department's comment. As the Department is aware, this affordable housing project is utilizing the Maui County Code (MCC), Chapter 2.97 "Fast track permitting" process, which allows for the exemption from constructing sidewalks. Due to the narrow constraints of the project site, this exemption allows the Applicant to avoid reducing the number of available affordable housing units and parking stalls for future residents. The exemption also ensures that the project remains financially feasible. It should be noted that there are no adjacent developments for sidewalk connection.

**Design Section Review**

**Comment No. 1:**

*Upon submittal of the drainage report, please ensure compliance with the following:*

- *Title MC-15, Chapter 4, "Rules for the Design of Storm Drainage Facilities in the County of Maui"*
- *Title MC-15, Chapter 111, "Rules for the Design of Storm Water Treatment Best Management Practices"*
- *Title 20, Chapter 20.08, "Soil Erosion and Sedimentation Control"*

**Response:** The Applicant acknowledges the comment and will comply with the aforementioned County rules and regulations.

**Comment No. 2:**

*The project drainage report should demonstrate that post-development discharge will not adversely affect downstream properties and conveyances. Provide analysis of pre-developed and post-developed conditions for discharge locations along the property line, and describe in terms of quantity, quality, and form.*

**Response:** The Applicant acknowledges the comment and notes that the proposed project's post-development discharge will not adversely affect downstream properties and conveyances. The Applicant will further address this comment as part of the building permit process.

**Comment No. 3:**

*The project drainage report should discuss how offsite runoff enters the site. Please note that the recurrence interval is based on the drainage area and not the developed area. Review the drainage area contributing to the project site and select the criteria and design methodology accordingly.*

**Response:** The Applicant acknowledges the comment and has provided a revised Preliminary Engineering Report, which addresses drainage, in the proposed project's Final Environmental Assessment. The Applicant will further address this comment as part of the building permit process.

**Comment No. 4:**

*Please provide the following information with the project drainage report:*

- *Hydraulic grade lines on drainline profiles*
- *Backwater calculations, if applicable*
- *Calculations for sizing of drainlines and drainage structures*
- *Post development hydrology and hydraulic calculations to show adequate capacity of the existing drainageway along the eastern boundary in relation to the proposed development*

**Response:** The Applicant and its engineer acknowledges the comment and will further address it as part of the building permit process.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Tyler Fujiwara, Austin, Tsutsumi & Associates, Inc.  
Kelcee Fujimoto, Austin, Tsutsumi & Associates, Inc.  
Ashley Otomo, Otomo Engineering, Inc.  
Lena Tamashiro, Design Partners, Inc.  
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**MICHAEL P. VICTORINO**  
Mayor

**MARC I. TAKAMORI**  
Director

**MICHAEL B. DU PONT**  
Deputy Director



**DEPARTMENT OF TRANSPORTATION  
COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793**

**TELEPHONE: (808) 270-7511  
FAX: (808) 270-7505**

**October 28, 2021**

Mr. Buddy Almeida, Housing Administrator  
County of Maui, Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Maui, HI 96793  
Email: [Buddy.Almeida@co.maui.hi.us](mailto:Buddy.Almeida@co.maui.hi.us)

Mr. Chris Sugidono  
Munekiyo Hiraga  
305 High Street, Suite 104  
Wailuku, HI 96793  
Email: [planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com)

**SUBJECT: Draft Environmental Assessment and Maui County Code 2.97 Application for the Hale Mahaolu Ke Kahua Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawaii**

Dear Mr. Almeida,

Thank you for the opportunity to review and 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,

A handwritten signature in black ink, appearing to be "Marc Takamori".

**Marc Takamori**  
Director

cc: Chris Sugidono, Munekiyo Hiraga

**EXHIBIT 14**

Karlynn K. Fukuda  
PRESIDENT

Mark Alexander Roy AICP, LEED AP  
VICE PRESIDENT

Tessa Munekiyo Ng AICP  
VICE PRESIDENT

Michael T. Munekiyo AICP  
SENIOR ADVISOR

June 1, 2022

Marc I. Takamori, Director  
County of Maui  
Department of Transportation  
200 South High Street  
Wailuku, Hawai'i 96793

SUBJECT: Draft Environmental Assessment and Maui County Code Chapter 2.97  
Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i

Dear Mr. Takamori:

Thank you for your comment letter dated October 28, 2021, regarding the Draft Environmental Assessment (EA) and Maui County Code Chapter 2.97 Fast-Track Residential Workforce Housing Application for the subject project. On behalf of the Applicant, we acknowledge that the County of Maui Department of Transportation has no comments to offer at this time.

We appreciate your input and a copy of your comment letter and this response will be incorporated into the Final EA, as well as the Chapter 2.97 application that will go to the Maui County Council for approval. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

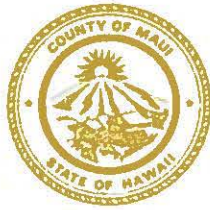
cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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MICHAEL P. VICTORINO  
Mayor

JEFFREY T. PEARSON, P.E.  
Director

HELENE KAU  
Deputy Director



DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793

[www.mauicounty.gov/water](http://www.mauicounty.gov/water)

October 25, 2021

Mr. Chris Sugidono, Senior Associate  
Munekiyo Hiraga  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

Re: Hale Mahaolu Ke Kahua Affordable Housing Community Draft Environmental  
Assessment (DEA)  
TMK: (2)-3-3-001:106

Dear Mr. Sugidono:

The County of Maui Department of Water Supply's (MDWS) Water Resources and Planning Division appreciates the opportunity to comment on the proposed Hale Mahaolu Ke Kahua Affordable Housing Community Draft Environmental Assessment DEA. The MDWS Engineering Division submitted a letter on December 31, 2020 (please see attachment).

#### Water Source

According to the Commission on Water Resource Management, the project overlies the 'Īao Aquifer, which has a sustainable yield of 20 million gallons per day (gpd).

#### Draft Maui Island Water Use and Development Plan (WUDP)

The table below describes how the Hale Mahaolu Ke Kahua Affordable Housing Community Project may align with various Strategies of the Draft Maui Island WUDP.

#### Potential Project Alignment with the Draft Maui Island WUDP

WUDP Strategy	WUDP Planning Objective	WUDP Strategy Type, Strategy #
Reduce <i>non-potable</i> use of Wailuku Aquifer Sector basal and high level water to the extent feasible.	1. Maximize water quality 2. Manage water equitably	Wailuku ASEA Conventional Water

EXHIBIT 15

WUDP Strategy	WUDP Planning Objective	WUDP Strategy Type, Strategy #
	3. Maintain consistency with General and Community Plans	Resource Strategy, #6
The Maui Island WUDP focuses on specific projects with a strategy to explore <i>stormwater drainage</i> to <i>supplement irrigation sources</i> in Central Maui.	1. Minimize adverse environmental impacts 2. Maximize efficiency of water use 3. Maintain sustainable resources	WUDP Addendum, Wailuku ASEA, Alternative Water Source Strategy #10
Consider <i>alternative sources</i> of irrigation water including <i>wastewater reuse, recycled stormwater runoff, and brackish well water</i> in land use permitting to mitigate low-flow stream conditions. Require <i>alternative sources for irrigation</i> when reasonably available in county discretionary land use permitting.	1. Maintain sustainable resources 2. Protect and restore streams 3. Minimize adverse environmental impacts 4. Maximize efficiency of water use 5. Maintain consistency with General and Community Plans	Central ASEA Conventional Water Resource Strategy, #8

### Construction Best Management Practices (BMPs) for Pollution Prevention

To protect ground and surface water resources, we recommend that in addition to required BMPs the following measures designed to minimize infiltration and runoff be implemented during construction:

- Dust Control: reclaimed water for dust control is available from the Kahului Wastewater Treatment Plant at a reasonable cost. If feasible, it should be considered as an alternative source of water for dust control during construction.
- Replanting of denuded areas should include soil amendments and temporary irrigation. Use high seeding rates to ensure rapid establishment of stands of plants.
- Maintain vehicles and equipment to prevent oil or other fluids from leaking. Concrete trucks and tools used for construction should be rinsed off-site.
- Properly install and maintain erosion control barriers such as silt fencing or straw bales.
- Keep runoff on-site.

### Conservation BMPs

#### Indoor

- Use EPA WaterSense labeled plumbing fixtures.
- Install dual flush toilets with high-efficiency models that use 1.28 gallons per flush, or less.
- Install bathroom sink faucets with fixtures that do not exceed 1 gallon per minute at 60 psi.

#### Outdoor

- Use Smart Approved WaterMark irrigation products. Examples include evapotranspiration irrigation controllers, drip irrigation, and water saving spray heads.
- After plants are established, in order to avoid stimulating excessive growth, avoid fertilizing and pruning. Time watering to occur in the early morning or evening to limit evaporation. Limit the use of turf.
- Use native Hawaiian climate-adapted plants for landscaping. Native Hawaiian plants adapted to the area conserve water and protect the watershed from degradation due to



Mr. Chris Sugidono

3 | Page

invasive species.

- We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawai'i.

We hope you find this information useful. Should you have any questions, please contact staff planner Alex Buttaro at (808) 463-3103 or alex.buttaro@mauicounty.gov.

Sincerely,



Jeffrey T Pearson, P.E.

Director

BAB

Cc: MDWS Engineering

Attachment: December 31, 2020 MDWS Engineering Letter

File located at: S:\PLANNING\Permit\_Review\Projects Review\planning review\EA-EIS\233001106 Hale Mahaolu Ke Kahua Affordable DEA

June 1, 2022

Jeffrey T. Pearson, P.E., Director  
County of Maui  
Department of Water Supply  
200 South High Street  
Wailuku, Hawai'i 96793

**SUBJECT:** Draft Environmental Assessment and Maui County Code Chapter 2.97 Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i

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Dear Mr. Pearson:

Thank you for your comment letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) and Maui County Code Chapter 2.97 Fast-Tracked Residential Workforce Housing Application for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as your letter:


1. The Applicant acknowledges that the project site overlies the 'Āao Aquifer and has a sustainable yield of 20 million gallons per day, according to the Commission on Water Resource Management.
2. The Applicant appreciates receiving the Draft Maui Island Water Use and Development Plan (WUDP) strategies that have the potential to be implemented in the project. These strategies have been shared with the engineering and design team for consideration and incorporation into the proposed project as applicable.
3. The Applicant acknowledges receipt of the Construction Best Management Practices (BMPs) for Pollution prevention. These BMPs have been forwarded to

the project team for review and incorporation into the project as feasible.

4. The Applicant acknowledges receipt of the indoor and outdoor Water Conservation BMPs, which have been forwarded to the project team for review and incorporation into the project as feasible.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA, as well as the Chapter 2.97 application that will go to the Maui County Council for approval. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

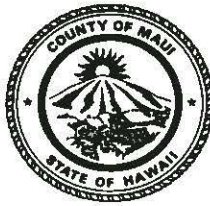
cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Lena Tamashiro, Design Partners Inc.  
Ashley Otomo, Otomo Engineering Inc.

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MICHAEL P. VICTORINO  
Mayor

JEFFREY T. PEARSON, P.E.  
Director

HELENE KAU  
Deputy Director



DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793

October 21, 2021

Mr. Buddy Almeida, Housing Administrator  
DEPARTMENT OF HOUSING AND HUMAN CONCERNS  
via email: [buddy.almeida@co.maui.hi.us](mailto:buddy.almeida@co.maui.hi.us)

Dear Mr. Almeida:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (EA) AND MAUI COUNTY CODE 2.97  
APPLICATION FOR THE HALE MAHAOLU KE KAHUA AFFORDABLE  
HOUSING COMMUNITY  
TMK: (2) 3-3-001:106, Waiehu, Maui, Hawaii

Thank you for the opportunity to review and comment on the subject project, which includes the construction of 120 multi-family residential affordable housing units, 3,477 square foot non-profit building, a 3,231 square foot club house, landscaping, and related improvements.

As defined in Maui County Code (MCC) 14.01.040, subdivisions are also defined as "the construction of a building or group of buildings, other than a hotel, on a single lot, parcel, or site which will contain, result, or be divided into four or more dwelling units." Since the project is proposing 120 multi-family residential affordable housing units, the project is defined as a subdivision and shall be subject to subdivision requirements as indicated in MCC 14.05 and the Department's standards to provide an adequate water system for fire protection, domestic and irrigation service. Requirements include, but are not limited to the following:

- The project shall meet the criteria for water service outlined in the Administrative Rules (Title 16, Chapter 201). The Administrative Rules clarify large quantity of water usage and the tiers for an applicant's request for new or additional water service from the Department. The 2021 Central Maui water system currently allows an applicant to request up to 5,400 gpd of new or additional water service for a parcel. Since the project is proposing a residential development project comprised of 100% residential workforce housing units, as defined in MCC 2.96.020, the project shall meet the exception to the Administrative Rules, as long as, a copy of an executed, recorded, and valid residential workforce housing agreement between the developer and the County is provided to the Department.
  - Please be advised that the proposed non-profit building and club house may not qualify for this exemption.
  - Throughout the Draft EA and Application, the water demand for the project was estimated at 67,200 gallons per day (gpd). However, this calculation only accounted for the multi-family units and did not account for the non-profit building, club house,

*"By Water All Things Find Life"*

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EXHIBIT 15b



and landscaping, which means the required water demand is greater than stated. The Draft EA and Application also mentioned an irrigation well for landscaping within the project. If this is the case, the gpd required for the proposed project would be reduced. The demand and meter size shall be reviewed during the building permit application process.

The closest well pump to the project is the Waiehu Heights Well 2 that fills the Waiehu Kou and Waiehu Heights Tanks. Waiehu Heights Well 1 has been offline since October 2012; therefore, an increase in pumping at this location is not ideal. Source for the project shall instead originate from the North Waihee system.

- The Draft EA and Application is requesting the development and use of the property in accordance with "A-1" district zoning standards. Therefore, adequate storage tank, appurtenances, and pipelines from the tank site to the project, in accordance with MCC 14.05.020 – Reservoirs/storage tanks and Fire Protection Schedule within MCC 14.05.090 – Fire protection, as may be amended for "A-1" zoning shall be required.
  - MCC 14.05.020 – Reservoirs/storage tanks: For "A-1" districts, storage capacity shall be determined on the basis of fire flow duration, maximum daily flow, or one thousand gallons per lot, whichever basis is greater. The fire flow duration of 1,500 gallons per minute (gpm) for 2 hours governs, requiring a 200,000-gallon tank, which the existing 1,000,000-gallon North Waihee Tank is able to provide.
  - MCC 14.05.090 – Fire protection: Install approximately 2,000-feet of new 8-inch waterline along Kahekili Highway with fire hydrants spaced at 250 feet. Since the proposed main extension would result in a dead-end, install a water line interconnection between the new 8-inch waterline along Kahekili Highway and the existing 8-inch waterline within Kaena Place.
- There is no existing water meter assigned to the subject property. Therefore, provide a service lateral and box from the new water main to the project in accordance with MCC 14.05.060 – Laterals, as may be amended. Install a Department approved backflow prevention device on the consumer side of the water meter. A standard detail showing the typical installation and general information may be found at <https://www.mauicounty.gov/DocumentCenter/View/122949/20200805-Backflow-Preventer>.
- No water service shall be approved or provided by the Department until the water system improvements have been completed and accepted by the Department, in accordance with MCC 14.05.140 – Installation of water service. Payment shall be made in accordance with MCC 14.07 – Water System Development Fees and the applicable fees set forth in the Department's annual budget, in effect at the time of approval of water service.
  - The project is requesting an exemption from MCC 14.07 – Water System Development Fees. However, there is no process for exemption from water system development fees. Therefore, these fees will be charged upon application for water meter(s). Please be aware that approval of water service will be subject to rules, regulations, and code of the department at the time water service is applied for

Mr. Buddy Almeida  
Draft EA and MCC 2.97 Application  
Hale Mahaolu Ke Kahua Affordable Housing Community  
TMK (2) 3-3-001:106  
October 21, 2021  
Page 3

- The project is requesting an exemption from MCC 14.12 – Water Availability based on MCC 14.12.030 – Exemptions, Paragraph E, which states that the chapter shall not apply to “residential workforce housing units developed by a qualified housing provider pursuant to chapter 2.96 of this code, and are within the service area of the department’s central or west Maui water system.” This shall only apply if the project submits a subdivision application with Public Works.
- Prior to commencement of construction, all water system improvements require submittal of construction plans (24"x36") stamped and signed by a licensed engineer for the Department’s review and approval, in accordance with MCC 14.05.120 – Construction plans and Section 112 – Construction Plans of the Water System Standards 2002, as may be amended. Construction work shown on the approved plans shall be completed by a licensed contractor at the property owner’s expense.
- Deliver to our Department perpetual easements for all portions of the water system improvements installed in other than publicly owned right-of-ways, in accordance with MCC 14.05.170 – Ownership of installed water system improvements.
- Water system improvements may be necessary based upon the Department of Fire and Public Safety’s review of the building permit application.
- Please be aware that we will be unable to approve any building permit applications until all water system improvements have been completed, tested, and accepted.

If you have any questions, please contact Tammy Yeh of our Engineering Division at (808) 270-7835 or at [tammy.yeh@co.maui.hi.us](mailto:tammy.yeh@co.maui.hi.us). Engineering Division’s main number is (808) 270-7835.

Sincerely,

WENDY TAOMOTO, P.E.  
Engineering Program Manager

TY

cc: Chris Sugidono, MUNEKIYO HIRAGA ([planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com))  
DWS Water Resources Division, ([water.resources@mauicounty.gov](mailto:water.resources@mauicounty.gov))



June 1, 2022

Wendy Taomoto  
Engineering Program Manager  
County of Maui  
Department of Water Supply  
200 South High Street, 5th Floor  
Wailuku, HI 96793

**SUBJECT:** Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Ms. Taomoto:

Thank you for your comment letter dated October 21, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Comment No. 1:**

*As defined in Maui County Code (MCC) 14.01.040, subdivisions are also defined as "the construction of a building or group of buildings, other than a hotel, on a single lot, parcel, or site which will contain, result, or be divided into four or more dwelling units." Since the project is proposing 120 multi-family residential affordable housing units, the project is defined as a subdivision and shall be subject to subdivision requirements as indicated in MCC 14.05 and the Department's standards to provide an adequate water system for fire protection, domestic and irrigation service. Requirements include, but are not limited to the following:*

**Response:** The Applicant acknowledges the comment and will comply with the applicable subdivision requirements as indicated in MCC 14.05 and with the Department's standards.

**Comment No. 2:**

*The project shall meet the criteria for water service outlined in the Administrative Rules (Title 16, Chapter 201). The Administrative Rules clarify large quantity of water usage and the tiers for an applicant's request for new or additional water service from the Department. The 2021 Central Maui water system currently allows an applicant to request up to 5,400 gpd of new or additional water service for a*

*parcel. Since the project is proposing a residential development project comprised of 100% residential workforce housing units, as defined in MCC 2.96.020, the project shall meet the exception to the Administrative Rules, as long as, a copy of an executed, recorded, and valid residential workforce housing agreement between the developer and the County is provided to the Department.*

*The closest well pump to the project is the Waiehu Heights Well 2 that fills the Waiehu Kou and Waiehu Heights Tanks. Waiehu Heights Well 1 has been offline since October 2012; therefore, an increase in pumping at this location is not ideal. Source for the project shall instead originate from the North Waihee system.*

**Response:** The Applicant acknowledges the comment and will work with the County to establish a valid residential workforce housing agreement, which will be provided to the Department. The Applicant also acknowledges the comment regarding the water source for the project.

**Comment No. 3:**

*Please be advised that the proposed non-profit building and club house may not qualify for this exemption.*

**Response:** The Applicant acknowledges the comment regarding the proposed nonprofit building and clubhouse.

**Comment No. 4:**

*Throughout the Draft EA and Application, the water demand for the project was estimated at 67,200 gallons per day (gpd). However, this calculation only accounted for the multi-family units and did not account for the non-profit building, club house, and landscaping, which means the required water demand is greater than stated. The Draft EA and Application also mentioned an irrigation well for landscaping within the project. If this is the case, the gpd required for the proposed project would be reduced. The demand and meter size shall be reviewed during the building permit application process.*

**Response:** Thank you for your comment. The Preliminary Engineering Report will be revised to address this additional information. The Applicant acknowledges that both demand and water meter sizing will be reviewed during the building permit application process.

**Comment No. 5:**

*The closest well pump to the project is the Waiehu Heights Well 2 that fills the Waiehu Kou and Waiehu Heights Tanks. Waiehu Heights Well 1 has been offline since October 2012; therefore, an increase in pumping at this location is not ideal. Source for the project shall instead originate from the North Waihee system.*

**Response:** The Applicant acknowledges the comment regarding the water source for the project.



**Comment No. 6:**

*The Draft EA and Application is requesting the development and use of the property in accordance with "A-1" district zoning standards. Therefore, adequate storage tank, appurtenances, and pipelines from the tank site to the project, in accordance with MCC 14.05.020 – Reservoirs/storage tanks and Fire Protection Schedule within MCC 14.05.090 – Fire protection, as may be amended for "A-1" zoning shall be required.*

- o MCC 14.05.020 – Reservoirs/storage tanks: For "A-1" districts, storage capacity shall be determined on the basis of fire flow duration, maximum daily flow, or one thousand gallons per lot, whichever basis is greater. The fire flow duration of 1,500 gallons per minute (gpm) for 2 hours governs, requiring a 200,000-gallon tank, which the existing 1,000,000-gallon North Waihee Tank is able to provide.*
- o MCC 14.05.090 – Fire protection: Install approximately 2,000-feet of new 8-inch waterline along Kahekili Highway with fire hydrants spaced at 250 feet. Since the proposed main extension would result in a dead-end, install a water line interconnection between the new 8-inch waterline along Kahekili Highway and the existing 8-inch waterline within Kaena Place.*

**Response:** The Applicant acknowledges the comments regarding the district zoning standards and has passed the information to the design team for the project.

**Comment No. 7:**

*There is no existing water meter assigned to the subject property. Therefore, provide a service lateral and box from the new water main to the project in accordance with MCC 14.05.060 – Laterals, as may be amended. Install a Department approved backflow prevention device on the consumer side of the water meter. A standard detail showing the typical installation and general information may be found at <https://www.mauicounty.gov/DocumentCenter/View/122949/20200805-Backflow-Preventer>.*

**Response:** The Applicant acknowledges the comment regarding the water meter and will install a Department-approved backflow prevention device on the consumer side of the water meter.

**Comment No. 8:**

*No water service shall be approved or provided by the Department until the water system improvements have been completed and accepted by the Department, in accordance with MCC 14.05.140 – Installation of water service. Payment shall be made in accordance with MCC 14.07 – Water System Development Fees and the applicable fees set forth in the Department's annual budget, in effect at the time of approval of water service.*

*The project is requesting an exemption from MCC 14.07 – Water System Development Fees. However, there is no process for exemption from water system development fees. Therefore, these fees will be charged upon application for water meter(s).*

*Please be aware that approval of water service will be subject to rules, regulations, and code of the department at the time water service is applied for*

**Response:** The Applicant notes the comment regarding the Water System Development Fees.

**Comment No. 9:**

*The project is requesting an exemption from MCC 14.12 – Water Availability based on MCC 14.12.030 – Exemptions, Paragraph E, which states that the chapter shall not apply to “residential workforce housing units developed by a qualified housing provider pursuant to chapter 2.96 of this code, and are within the service area of the department’s central or west Maui water system.” This shall only apply if the project submits a subdivision application with Public Works.*

**Response:** The Applicant acknowledges the comment and confirms its pursuit of an exemption from the requirement of Chapter 14.12, MCC.

**Comment No. 10:**

*Prior to commencement of construction, all water system improvements require submittal of construction plans (24"x36") stamped and signed by a licensed engineer for the Department’s review and approval, in accordance with MCC 14.05.120 – Construction plans and Section 112 – Construction Plans of the Water System Standards 2002, as may be amended. Construction work shown on the approved plans shall be completed by a licensed contractor at the property owner’s expense.*

**Response:** The Applicant acknowledges the comment and will prepare its construction plans in accordance with applicable requirements.

**Comment No. 11:**

*Deliver to our Department perpetual easements for all portions of the water system improvements installed in other than publicly owned right-of-ways, in accordance with MCC 14.05.170 – Ownership of installed water system improvements.*

**Response:** The Applicant acknowledges the comment and will comply with MCC 14.05170, as applicable.

Wendy Taomoto  
Engineering Program Manager  
June 1, 2022  
Page 5

**Comment No. 12:**

*Water system improvements may be necessary based upon the Department of Fire and Public Safety's review of the building permit application.*

**Response:** The Applicant acknowledges the comment and will coordinate with the Department of Fire and Public Safety during the building permit application review process.

**Comment No. 13:**

*Please be aware that we will be unable to approve any building permit applications until all water system improvements have been completed, tested, and accepted.*

**Response:** The Applicant acknowledges the comment regarding the Department's approval of building permit applications.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Ashley Otomo, Otomo Engineering, Inc.

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**MICHAEL P. VICTORINO**  
Mayor

**HERMAN ANDAYA**  
Administrator



County of Maui  
**MAUI EMERGENCY MANAGEMENT AGENCY**  
200 SOUTH HIGH STREET  
WAILUKU, MAUI, HAWAII 96793  
PH: (808) 270-7285  
[emergency.management@mauicounty.gov](mailto:emergency.management@mauicounty.gov)

October 25, 2021

Buddy Almeida  
County of Maui Housing Administrator  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, HI 96793

Mr Almeida,

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT AND MAUI COUNTY CODE 2.97  
APPLICATION FOR THE HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING  
COMMUNITY AT TMK (2)3-3-001:106, WAIIEHU, MAUI, HAWAII**

Thank you for your proposal and the opportunity for us to submit suggestions and comments on the proposed Hale Mahaolu Ke Kahua Affordable Housing Community. We have read the Draft Environmental Assessment request and have offered some comments and considerations for your convenience below.

- 1.) Currently Maui County Emergency Management Agency (MEMA) is recommending that an assessment be completed as a separate document or included with the draft environmental assessment to Exhibit D (Infrastructure Description). The description states that there will be (3) driveway entrances, all egress/ingress off of the Kahekili Highway. The area is known to be very prone to wildfires. The attached map, shows the area of the proposed project and the approximate numbers of fires and locations that were active in the past. Although, the fires seem to be small in regards to the acreages burnt, any fire can do damage and put life and property to risk. The map information that is included can be found at the following web address (<http://gis.ctahr.hawaii.edu/WildfireHistory>).



*Utilizing Emergency Management Principles, We Protect All Persons Within  
The County of Maui to Achieve Whole Community Resilience*



290

**EXHIBIT 16**



- 2.) The recommendation would be to construct another alternative driveway or road easement, to allow for evacuation of the Hale Mahaolu Kahua community in case of an emergency, such as a fire. The road system from Happy Valley going north on Kahekili Hwy to and including the intersection of Waiehu Beach Road and then driving south will not be able to handle the additional traffic from the complex. This is concerning because it would make evacuation due to an emergency very difficult, resulting in risk to the individuals/residents that already live in the area

Thank you for allowing us to make our suggestions to your project. Should you have any questions please feel free to contact Gina Albanese (808) 270-7276, or via email at [Herman.Andaya@co.maui.hi.us](mailto:Herman.Andaya@co.maui.hi.us)

Sincerely,

  
Herman Andaya  
MEMA Administrator







June 1, 2022

Herman Andaya, Administrator  
County of Maui  
Maui Emergency Management Agency  
200 South High Street  
Wailuku, HI 96793

**SUBJECT:** Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Mr. Andaya:

Thank you for your comment letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

1. The Applicant acknowledges the comment regarding wildfires. The development team has been in coordination with the Hawai'i Department of Transportation (HDOT) and Department of Public Works (DPW), which deemed the three (3) proposed access points as acceptable. However, consultation with the two (2) agencies as well as the Department of Fire and Public Safety's Fire Prevention Bureau will continue to ensure adequate ingress/egress to the project site and that appropriate fire protection measures, including fire hydrants, shall be installed onsite. An updated Preliminary Engineering Report will be included in the Final EA.
2. We note your comment. The proposed project incorporates three (3) driveways onto Kahekili Highway that would provide access to routes for evacuation in the event of an emergency. Depending on the location of the emergency, residents could utilize the southbound or northbound stretches of Kahekili Highway or Waiehu Beach Road to gain access to other areas on Maui.

The long-term regional improvement for the area identified by the County is the Imi Kala Street Extension, which would provide another route from Kahekili Highway to Eha Street and is anticipated to relieve some traffic along the Kahekili Highway/Market Street corridor through Happy Valley. The timeline for completion of this improvement is currently unknown, but would likely be tied to future development and availability of County funding.

Herman Andaya, Administrator  
June 1, 2022  
Page 2

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Tyler Fujiwara, Austin, Tsutsumi & Associates, Inc.  
Kelcee Fujimoto, Austin, Tsutsumi & Associates, Inc.  
Ashley Otomo, Otomo Engineering, Inc.  
Lena Tamashiro, Design Partners, Inc.  
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OCT 4 2021



**MICHAEL P. VICTORINO**  
MAYOR

OUR REFERENCE

YOUR REFERENCE

**POLICE DEPARTMENT**  
COUNTY OF MAUI

55 MAHALANI STREET  
WAILUKU, HAWAII 96793  
(808) 244-6400  
FAX (808) 244-6411



CHIEF OF POLICE

**DEAN M. RICKARD**  
DEPUTY CHIEF OF POLICE

September 28, 2021

Mr. Chris Sugidono  
Senior Associate  
Munekiyo Hiraga  
305 High Street, Suite 104  
Wailuku, Hawaii 96793

**Re: Draft Environmental Assessment and Maui County Code 2.97  
Application for the Hale Mahaolu Ke Kahua Affordable Housing  
Community at TMK: (2) 3-3-01:106, Waiehu, Maui, Hawaii**


Dear Mr. Sugidono:

This is in response to your letter dated September 21, 2021 requesting comments on the Draft Environmental Assessment (EA) and Maui County Code Chapter 2.97 Fast-Track Residential Workforce Housing Application for the Hale Mahaolu Ke Kahua Affordable Housing Community.

In review of the submitted documents, we have no objections to the upcoming construction project if it meets the minimal standards set forth by county codes and state laws. If the roads will be temporarily closed for alternating traffic, we ask the project manager utilizes flag men to conduct traffic control and have proper signage posted along the routes during construction.

Thank you for giving us the opportunity to comment on this project.

Sincerely,

  
Assistant John Jakubczak  
for: **DEAN M. RICKARD**  
Acting Chief of Police

c: Buddy Almeida, DHHC

**EXHIBIT 17**

June 1, 2022

John Jakubczak, Assistant Chief  
County of Maui  
Police Department  
55 Mahalani Street  
Wailuku, Hawai'i 96793

**SUBJECT: Draft Environmental Assessment and Maui County Code Chapter 2.97 Application for the Proposed Hale Mahaolu Ke Kahua Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i**

Dear Assistant Chief Jakubczak:

Thank you for your comment letter dated September 28, 2021, regarding the Draft Environmental Assessment (EA) and Maui County Code Chapter 2.97 Fast-Track Residential Workforce Housing Application for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as your letter:

1. The proposed project will meet all minimum standards established by the Maui County Code and State laws.
2. Flag men and appropriate signage along construction routes will be utilized to conduct traffic control should the project result in road closures.

With the implementation of the aforementioned precautionary measures, we acknowledge that the Maui County Police Department has no objections to the proposed project. We appreciate your input and will include a copy of your comment letter and

John Jakubczak, Assistant Chief  
June 1, 2022  
Page 2

this response in the Final EA, as well as the Chapter 2.97 application that will go to the Maui County Council for approval. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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**Standard Comments for Land Use Reviews  
Clean Air Branch  
Hawaii State Department of Health**

If your proposed project:

Requires an Air Pollution Control Permit

You must obtain an air pollution control permit from the Clean Air Branch and comply with all applicable conditions and requirements. If you do not know if you need an air pollution control permit, please contact the Permitting Section of the Clean Air Branch.

Includes construction or demolition activities that involve asbestos

You must contact the Asbestos Abatement Office in the Indoor and Radiological Health Branch.

Has the potential to generate fugitive dust

You must control the generation of all airborne, visible fugitive dust. Note that construction activities that occur near to existing residences, business, public areas and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. The plan, which does *not* require Department of Health approval, should help you recognize and minimize potential airborne, visible fugitive dust problems.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, we strongly recommend that buffer zones be established, wherever possible, in order to alleviate potential nuisance complaints.

You should provide reasonable measures to control airborne, visible fugitive dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

- a) Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
- b) Providing an adequate water source at the site prior to start-up of construction activities;
- c) Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;
- d) Minimizing airborne, visible fugitive dust from shoulders and access roads;
- e) Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
- f) Controlling airborne, visible fugitive dust from debris being hauled away from the project site.

If you have questions about fugitive dust, please contact the Enforcement Section of the Clean Air Branch

Clean Air Branch (808) 586-4200 <a href="mailto:cab@doh.hawaii.gov">cab@doh.hawaii.gov</a>	Indoor Radiological Health Branch (808) 586-4700
--	---

April 1, 2019



June 1, 2022

**EMAIL: [cab@doh.hawaii.gov](mailto:cab@doh.hawaii.gov)**

State of Hawai'i  
Clean Air Branch  
2827 Waimano Home Road, #130  
Pearl City, Hawai'i 96782

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i**

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Dear Sir or Madame:

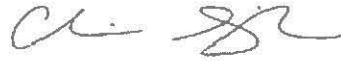
Thank you for your correspondence dated April 1, 2019, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us with input for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as your letter:

1. The Applicant will coordinate with the Permitting Section of the Clean Air Branch as to whether the project needs an Air Pollution Control Permit.
2. The proposed project will not involve construction or demolition activities that involve asbestos.
3. Best Management Practices (BMPs) such such as frequent watering of exposed surfaces and regular maintenance of construction equipment, will be utilized to minimize air quality impacts associated with project construction.

Sir or Madame  
June 1, 2022  
Page 2

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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OCT 26 2021

KEITH T. HAYASHI  
INTERIM SUPERINTENDENT

STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

OFFICE OF FACILITIES AND OPERATIONS

October 21, 2021

Buddy Almeida, Housing Administrator  
County of Maui  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Hawaii 96793

Re: Draft Environmental Assessment for the Hale Mahaolu Ke Kahua  
Affordable Housing Community, Waiehu, Maui, Hawaii, TMK (2)3-3-001:106

Dear Mr. Almeida:

Thank you for your letter dated September 21, 2021. The Hawaii State Department of Education (Department) has the following comments on the Draft Environmental Assessment (DEA) for the proposed Hale Mahaolu Ke Kahua Affordable Housing Community Project (Project). According to the DEA, the Project will utilize the County of Maui affordable housing review process to develop 120 rental apartment units targeting residents earning 60 percent or less of the Area Median Income on approximately 11.486 acres of land located at Waiehu, Island of Maui, TMK (2)3-3-001:106.

The Department previously provided comments on the Project by letter dated December 17, 2020, and has no additional comments.

Thank you for the opportunity to comment. Should you have questions, please contact Robyn Loudermilk, School Lands and Facilities Specialist with the Facilities Development Branch, Planning Section, at (808) 784-5093 or via email at [robyn.loudermilk@k12.hi.us](mailto:robyn.loudermilk@k12.hi.us).

Sincerely,

A handwritten signature in black ink, appearing to read "Roy Ikeda".

Roy Ikeda  
Interim Public Works Manager  
Planning Section

RI:rl

c: Kathleen Dimino, Complex Area Superintendent, Baldwin-Kekaulike-Maui Complexes  
Chris Sugidono, Munekiyo Hiraga  
Facilities Development Branch

June 1, 2022

Roy Ikeda, Interim Public Works Manager  
State of Hawai'i  
Department of Education  
P.O. Box 2360  
Honolulu, Hawai'i 96804

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i**

---

Dear Mr. Ikeda:

Thank you for your comment letter dated October 21, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. On behalf of the Applicant, we acknowledge that the Hawai'i State Department of Education has no additional comments to offer at this time.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
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OCT 18 2021

DAVID Y. IGE  
GOVERNOR OF HAWAII



ELIZABETH A. CHAR, M.D.  
DIRECTOR OF HEALTH

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
Maui District Health Office  
54 South High St. Rm. #301  
Wailuku, HI 96793

Lorin W. Pang, M.D., M.P.H.  
District Health Officer

October 6, 2021

Mr. Buddy Almeida  
Housing Administrator  
County of Maui  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Hawaii 96793

Dear Mr. Almeida:

**Subject: Draft Environmental Assessment for the Hale Mahaolu Ke Kahua  
Affordable Housing Community, Waiehu, Maui, Hawaii  
TMK: (2) 3-3-001:106**

Thank you for the opportunity to review this project. We have no further comments to offer. It is strongly recommended that you review the department's website at <https://health.hawaii.gov/epo/landuse/> and contact the appropriate program that concerns your project.

Should you have any questions, please contact me at 808 984-8230 or email me at [patricia.kitkowski@doh.hawaii.gov](mailto:patricia.kitkowski@doh.hawaii.gov).

Sincerely,

A handwritten signature in black ink that reads "Patti Kitkowski".

Patti Kitkowski  
District Environmental Health Program Chief

c Chris Sugidono  
Joanna L. Seto, EMD Chief

EXHIBIT 20

June 1, 2022

Patti Kitkowski, District Environmental Health Program Chief  
State of Hawai'i Department of Health  
Maui District Health Office  
54 South High Street, Room #301  
Wailuku, Hawai'i 96793

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i**

---

Dear Ms. Kitkowski:

Thank you for your comment letter, dated October 6, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. On behalf of the Applicant, we acknowledge that the Maui District Health Office has no comments to offer at this time.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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DAVID Y. IGE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

SUZANNE D. CASE  
CHAIRPERSON

MICHAEL G. BUCK  
ELIZABETH A. CHAR, M.D.  
NEIL J. HANNAHS  
AURORA KAGAWA-VIVIANI, PH.D.  
WAYNE K. KATAYAMA  
PAUL J. MEYER

M. KALEO MANUEL  
DEPUTY DIRECTOR

October 19, 2021

REF: RFD.5781.6

TO: Chris Sugidono, Senior Associate  
Munekio Hiraga

FROM: M. Kaleo Manuel, Deputy Director *[Signature]*  
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment for the Hale Mahaolu Ke Kahua Affordable Housing Community

FILE NO.: RFD.5781.6  
TMK NO.: (2) 3-3-001:106

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://dlnr.hawaii.gov/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. 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 EAP as having high water efficiency can be found at <http://www.epa.gov/watersense>.
- ☒ 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://planning.hawaii.gov/czm/initiatives/low-impact-development/>
- ☒ 6. We recommend the use of alternative water sources, wherever practicable.
- ☐ 7. We recommend participating in the Hawaii Green Business Program, that assists and recognizes businesses that strive to operate in an environmentally and socially responsible manner. The program description can be found online at <http://energy.hawaii.gov/green-business-program>.
- ☒ 8. We recommend adopting landscape irrigation conservation best management practices endorsed by the Landscape Industry Council of Hawaii. These practices can be found online at [http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH\\_Irrigation\\_Conservation\\_BMPs.pdf](http://www.hawaiiscape.com/wp-content/uploads/2013/04/LICH_Irrigation_Conservation_BMPs.pdf).

- ☐ 9. 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.
- ☐ 10. 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. The Water Use Permit may be conditioned on the requirement to use dual line water supply systems for new industrial and commercial developments.
- ☐ 11. A Well Construction Permit(s) is (are) are required before the commencement of any well construction work.
- ☐ 12. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.
- ☐ 13. 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.
- ☐ 14. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- ☐ 15. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a steam channel.
- ☐ 16. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- ☐ 17. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- ☐ 18. 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: The Hawaii Water Plan is directed toward the achievement of the utilization of reclaimed water for uses other than drinking and for potable water needs in one hundred per cent of State and County facilities by December 31, 2045 (§174C-31(g)(6), Hawai'i Revised Statutes). We strongly recommend that this project consider using reclaimed water for its non-potable water needs, such as irrigation. Reclaimed water may include, but is not limited to, recycled wastewater, gray water, and captured rainwater/stormwater. Please contact the Hawai'i Department of Health, Wastewater Branch, for more information on their reuse guidelines and the availability of reclaimed water in the project area.

If you have any questions, please contact Neal Fujii of the Commission staff at 587-0216.



June 1, 2022

M. Kaleo Manuel, Deputy Director  
State of Hawai'i Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawai'i 96809

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui, Hawai'i (REF: RFD.5781.6)**

Dear Mr. Manuel:

Thank you for your comment letter, dated October 19, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as your letter:

1. The County of Maui Department of Water Supply has provided comments on this project and has shared the Draft Maui Island Water Use and Development Plan (WUDP) strategies that have the potential to be implemented in the project. These strategies have been forwarded to the engineering and design team for consideration and incorporation into the project as applicable.
2. The Applicant appreciates the recommendation to install water efficient fixtures and to implement water efficient practices and will incorporate these practices into the project, as feasible.
3. Best Management Practices (BMPs) such as temporary drainage swales and detention basins will be implemented during construction to ensure stormwater runoff is channeled to appropriate drainage facilities onsite and will not impact downstream or adjacent properties. In addition, project related drainage improvements will be carried out to retain the increase in stormwater runoff from

the project onsite. Further information on stormwater management BMPs for the proposed project will be discussed in the Final EA.

4. The Applicant appreciates the recommendation and will consider the use of alternative water sources, wherever practicable.
5. The Applicant appreciates the recommendation and will consider adopting landscape irrigation conservation BMPs endorsed by the Landscape Industry Council of Hawai'i, wherever practicable.
6. The Applicant appreciates the recommendation. The use of non-potable water features such as rainwater harvesting systems for irrigation will be evaluated and incorporated as practicable and feasible.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Lena Tamashiro, Design Partners Inc.  
David Sereda, Chris Hart & Partners  
Ashley Otomo, Otomo Engineering Inc.

K:\DATA\Highridge\Waiehu AH PERMITTING\Applications\Draft EA\Response Letters\CWRM.res.doc

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

September 24, 2021

**MEMORANDUM**

TO: **DLNR Agencies:**  
\_\_\_ Div. of Aquatic Resources  
\_\_\_ Div. of Boating & Ocean Recreation  
X Engineering Division ([DLNR.ENGR@hawaii.gov](mailto:DLNR.ENGR@hawaii.gov))  
X Div. of Forestry & Wildlife ([rubyrosa.t.terrago@hawaii.gov](mailto:rubyrosa.t.terrago@hawaii.gov))  
\_\_\_ Div. of State Parks  
X Commission on Water Resource Management ([DLNR.CWRM@hawaii.gov](mailto:DLNR.CWRM@hawaii.gov))  
\_\_\_ Office of Conservation & Coastal Lands  
X Land Division – Maui District ([daniel.l.ornellas@hawaii.gov](mailto:daniel.l.ornellas@hawaii.gov))

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT: Draft Environmental Assessment for the Proposed **Hale Mahaolu Ke Kahua Affordable Housing Community**

LOCATION: Waiehu, Island of Maui; TMK: (2) 3-3-o001:106

APPLICANT: Munekiyo Hiraga on behalf of Waiehu Housing, LP

Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on September 23, 2021 by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

[http://oeqc2.doh.hawaii.gov/The\\_Environmental\\_Notice/2021-09-23-TEN.pdf](http://oeqc2.doh.hawaii.gov/The_Environmental_Notice/2021-09-23-TEN.pdf)

Please submit any comments by October 22, 2021. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

**BRIEF COMMENTS:**

- ( ) We have no objections.  
( ) We have no comments.  
( ) We have no additional comments.  
☒ Comments are included/attached.

Signed: 

Print Name: DAVID G. SMITH, Administrator

Division: Division of Forestry and Wildlife

Date: Oct 22, 2021

Attachments  
cc: Central Files

EXHIBIT 22



DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**DIVISION OF FORESTRY AND WILDLIFE**  
1151 PUNCHBOWL STREET, ROOM 325  
HONOLULU, HAWAII 96813

**SUZANNE D. CASE**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

**ROBERT K. MASUDA**  
FIRST DEPUTY

**M. KALEO MANUEL**  
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  
KAIHOLAWA ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

October 22, 2021

**MEMORANDUM**

*Log no. 3353*

**TO:** Russell Y. Tsuji, Land Administrator  
Land Division

**FROM:** DAVID G. SMITH, Administrator  
Division of Forestry and Wildlife

**SUBJECT:** **Division of Forestry and Wildlife Comments for the Draft Environmental Assessment (DEA) for the Proposed Hale Mahaolu Ke Kahua Affordable Housing Community**

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding review of the DEA for the proposed Hale Mahaolu Ke Kahua Affordable housing Community in Waiehu on Maui, Hawai'i, TMK: (2) 3-3-001:106. The project consists of constructing a 120 multi-family residential units, housed in 13 2-story buildings, a non-profit building, clubhouse, landscaping and related improvements, 264 parking stalls, and two loading stalls on a total of 11.476 acres.

The State listed Blackburn's Sphinx Moth (BSM; *Manduca blackburni*) has a historic range that encompasses the project area. Larvae of BSM feed on many nonnative hostplants that include tree tobacco (*Nicotiana glauca*) which grows in disturbed soil. We recommend contacting our Maui DOFAW office at (808) 984-8100 for further information about where BSM may be present and whether a vegetation survey should be conducted to determine the presence of plants preferred by BSM. To avoid harm to BSM, DOFAW recommends removing plants less than one meter in height or during the dry time of the year. If you remove tree tobacco over one meter in height or disturb the ground around or within several meters of these plants they must be checked thoroughly for the presence of eggs and larvae.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawai'i please visit: <https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf>.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. If any site clearing is required this should be timed to avoid disturbance during the bat birthing and pup rearing season



(June 1 through September 15). If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting DOFAW.

DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive fungal pathogens (e.g. Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g. Little Fire Ants), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Maui Invasive Species Committee at (808) 573-6472 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

DOFAW recommends using native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (<https://sites.google.com/site/weedriskassessment/home>). We recommend that you refer to [www.plantpono.org](http://www.plantpono.org) for guidance on selection and evaluation for landscaping plants.

We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Paul Radley, Protected Species Habitat Conservation Planning Coordinator at (808) 295-1123 or [paul.m.radley@hawaii.gov](mailto:paul.m.radley@hawaii.gov).

Sincerely,



DAVID G. SMITH  
Administrator

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

September 24, 2021

**MEMORANDUM**

FROM:

~~TO:~~

**DLNR Agencies:**

- ☐ Div. of Aquatic Resources
- ☐ Div. of Boating & Ocean Recreation
- ☒ Engineering Division ([DLNR.ENG@hawaii.gov](mailto:DLNR.ENG@hawaii.gov))
- ☒ Div. of Forestry & Wildlife ([rubyrosa.t.terrago@hawaii.gov](mailto:rubyrosa.t.terrago@hawaii.gov))
- ☐ Div. of State Parks
- ☒ Commission on Water Resource Management ([DLNR.CWRM@hawaii.gov](mailto:DLNR.CWRM@hawaii.gov))
- ☐ Office of Conservation & Coastal Lands
- ☒ Land Division – Maui District ([daniel.l.ornellas@hawaii.gov](mailto:daniel.l.ornellas@hawaii.gov))

TO:

**FROM:** Russell Y. Tsuji, Land Administrator *Russell Tsuji*  
**SUBJECT:** Draft Environmental Assessment for the Proposed **Hale Mahaolu Ke Kahua Affordable Housing Community**  
**LOCATION:** Waiehu, Island of Maui; TMK: (2) 3-3-o001:106  
**APPLICANT:** Munekiyo Hiraga on behalf of Waiehu Housing, LP

Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on September 23, 2021 by the State Environmental Review Program (formerly the Office of Environmental Quality Contr l) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

[http://oegc2.doh.hawaii.gov/The\\_Environmental\\_Notice/2021-09-23-TEN.pdf](http://oegc2.doh.hawaii.gov/The_Environmental_Notice/2021-09-23-TEN.pdf)

Please submit any comments by October 22, 2021. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

**BRIEF COMMENTS:**

- ( ) We have no objections.
- ( ) We have no comments.
- (✓) We have no additional comments.
- ( ) Comments are included/attached.

Signed: *CS Chang*  
Print Name: Carty S. Chang, Chief Engineer  
Division: Engineering Division  
Date: Oct 11, 2021

Attachments  
cc: Central Files

EXHIBIT 229

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE  
MANAGEMENT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

September 24, 2021

**MEMORANDUM**

TO: **DLNR Agencies:**  
\_\_\_ Div. of Aquatic Resources  
\_\_\_ Div. of Boating & Ocean Recreation  
X Engineering Division (DLNR.ENGR@hawaii.gov)  
X Div. of Forestry & Wildlife (rubyrosa.f.terrago@hawaii.gov)  
\_\_\_ Div. of State Parks  
X Commission on Water Resource Management (DLNR.CWRM@hawaii.gov)  
\_\_\_ Office of Conservation & Coastal Lands  
X Land Division – Maui District (daniel.l.ornellas@hawaii.gov)

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT: Draft Environmental Assessment for the Proposed **Hale Mahaolu Ke Kahua Affordable Housing Community**

LOCATION: Waiehu, Island of Maui; TMK: (2) 3-3-o001:106

APPLICANT: Munekiyo Hiraga on behalf of Waiehu Housing, LP

Transmitted for your review and comment is information on the above-referenced subject matter. The DEA was published on September 23, 2021 by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, The Environmental Notice, available at the following link:

[http://oegc2.doh.hawaii.gov/The\\_Environmental\\_Notice/2021-09-23-TEN.pdf](http://oegc2.doh.hawaii.gov/The_Environmental_Notice/2021-09-23-TEN.pdf)

Please submit any comments by October 22, 2021. If no response is received by this date, we will assume your agency has no comments. Should you have any questions, please contact Darlene Nakamura directly via email at [darlene.k.nakamura@hawaii.gov](mailto:darlene.k.nakamura@hawaii.gov). Thank you.

**BRIEF COMMENTS:**

- ☒ We have no objections.  
☒ We have no comments.  
☐ We have no additional comments.  
☐ Comments are included/attached.

Signed: *Daniel Ornellas*

Print Name: Daniel Ornellas

Division: Land Div MDLO

Date: 10/24/21

Attachments

cc: Central Files

EXHIBIT 22b



June 1, 2022

Russell Y. Tsuji, Land Administrator  
State of Hawai'i  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawai'i 96809

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i

Dear Mr. Tsuji:

Thank you for your letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses:

**ENGINEERING DIVISION**

1. We acknowledge that the Engineering Division has no further comments to provide at this time.

**DIVISION OF FORESTRY AND WILDLIFE**

1. The Applicant appreciates the recommendations regarding the State listed Blackburn's Sphinx Moth. We note that a Flora and Fauna Survey was conducted to address biological resources in the project area. The survey did not identify Blackburn's sphinx moths or their habitats in the area, however, these recommendations have been shared with the project team for consideration and incorporation into the project as feasible.
2. Should any night work occur requiring artificial lighting for the project, such work will be avoided during the seabird fledging season from September 15 through December 15. In addition, outdoor lighting will be shielded and downward-facing to minimize impacts to seabirds.



3. Construction plans for this project will include that woody plants greater than 15 feet tall will not be removed or trimmed during the Hawaiian Hoary Bat or 'Ōpe'ape'a birthing and pup rearing season from June 1 to September 15.
4. The Applicant appreciates the recommendation regarding the invasive pathogens, pests, and plant parts that may harm native species and ecosystems. Practices such as the cleaning of excess soil and debris from equipment, materials, and personnel will be implemented, as applicable, to minimize the risk of spreading invasive species.
5. The Applicant appreciates the recommendation to use native plant species for landscaping and recommendations for avoiding the use of invasive species. The use of invasive species will be avoided and native plants will be considered for use in landscaping, as feasible.

**LAND DIVISION – MAUI DISTRICT**

1. We acknowledge that the Land Division has no comments to provide at this time.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



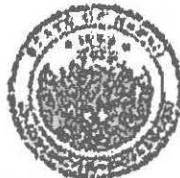
Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Lena Tamashiro, Design Partners Inc.  
David Sereda, Chris Hart & Partners

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LINDA LARSEN  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA HOU IYARD, ROOM 535  
KAPOLEI, HAWAII 96707

LAURENCE M. TUBBEN  
OFFICE OF THE  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
PO BOX 20090, HONOLULU, HAWAII 96820-0900

RENEE J. J. TUBBEN  
STATE HISTORIC PRESERVATION DIVISION

RENEE J. J. TUBBEN  
STATE HISTORIC PRESERVATION DIVISION

ARCHAEOLOGY  
HAWAIIAN AND OTHER CULTURAL  
PRACTICES  
UNIVERSITY OF HAWAII, MANOA, HONOLULU, HAWAII 96822-2100  
TELEPHONE: (808) 957-2100  
FAX: (808) 957-2100

ARCHAEOLOGY  
HAWAIIAN AND OTHER CULTURAL  
PRACTICES  
UNIVERSITY OF HAWAII, MANOA, HONOLULU, HAWAII 96822-2100  
TELEPHONE: (808) 957-2100  
FAX: (808) 957-2100

June 13, 2008

Michael F. Dega, Ph.D.  
Scientific Consultant Services, Inc.  
711 Kapiolani Boulevard, Suite 975  
Honolulu, Hawaii 96813

LOG NO: 2008.2334  
DOC NO: 0806PC23  
Archaeology

Dear Dr. Dega:

**SUBJECT: Chapter 6E-42 Historic Preservation Review of a Revised Archaeological Assessment for Approximately 11.75 Acres Located in Waiehu Waiehu Ahupua'a, Wailuku District, Island of Maui, Hawaii TMK: (2) 3-3-001: por. 016**

Thank you for the opportunity to review this revised report, which our staff received on June 12, 2008 (Shefcheck and Dega 2008): *An Archaeological Assessment of Approximately 11.75 Acres in Waiehu*, Scientific Consultant Services, Inc.

The report was first reviewed by SHPD staff on May 20 of 2008, resulting in two requested revisions (SHPD LOG NO: 2007.4178; DOC NO: 0805PC32). The most recent version of the report was reviewed in hardcopy format to confirm completion of previously requested revisions and suggestions.

The report now contains the required information as specified in HAR §13-276-5 regarding the contents of inventory survey level work conducted in general, and is acceptable.

Should you have any questions or comments regarding this review, please contact Patty Conte (Patty.J.Conte@hawaii.gov).

Aloha,

  
Nancy McMahon, Archaeologist and Acting Archaeology Branch Chief  
State Historic Preservation Division

c: Jeff Hunt, Director, Dept. of Planning, 250 S. High Street, Wailuku, Hawaii 96793

EXHIBIT 23

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

STATE HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING  
601 KAMOKILA BLVD., STE 555  
KAPOLEI, HI 96707

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

M. KALEO MANUEL  
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

November 10, 2021

Lori Tshako, Director  
County of Maui  
Department of Housing and Human Concerns (DHHC)  
2200 Main Street, Suite 546  
Wailuku, HI 96793  
Email: [director.hhc@mauicounty.gov](mailto:director.hhc@mauicounty.gov)

IN REPLY REFER TO:  
Project No.: 2020PR34681  
Doc. No.: 2111AM04  
Archaeology

Dear Lori Tshako:

**SUBJECT: Chapter 6E-8 Historic Preservation Review –  
County of Maui DHHC Request for Determination  
Waiehu Affordable Housing Development Project  
Archaeological Monitoring Plan  
Wailuku Ahupua'a, Pū'ali Komohana District, Island of Maui  
TMK: (2) 3-3-001:106**

This letter provides the State Historic Preservation Division's (SHPD's) review of the draft archaeological monitoring plan (AMP) titled *Archaeological Monitoring Plan for the Affordable Housing Project in Waiehu, Waiehu Ahupua'a, Wailuku District, Maui Island, TMK: (2) 3-3-001:106* (Yates and Hammatt, October 2020) prepared in support of the County of Maui DHHC Waiehu Affordable Housing Development project. SHPD received the current submission via email on October 23, 2020 (Log No. 2020.02574). In addition to the draft AMP, the submission also included a SHPD HRS 6E Submittal Form, a TMK map, a conceptual plan, a copy of a SHPD-accepted archaeological inventory survey (Shefcheck and Dega 2008) conducted in 2007 by Scientific Consultant Services, Inc. (SCS) for a 11.75-acre project area [TMK: (2) 3-3-001:016 por.] a copy of SHPD's acceptance letter (June 13, 2008; Log No. 2008.2334, Doc. No. 0806PC23), and a letter submitted by the County of Maui Department of Housing & Human Concerns (DHHC) dated October 15, 2020 initiating HRS 6E review of the proposed affordable housing project.

The County of Maui DHHC, in cooperation with Maui Economic Opportunity, Inc. (MECO) and Hale Mahaolu, proposes the subject affordable housing project within a 11.48-acre project area on the subject property. The project will involve the construction of 120 residential units as well as a 6,262-sq.-ft. a 3,600-sq.-ft. community center, 240 parking stalls, and 12 additional stalls for the community center. Aerial photographs show the property is a former agricultural field.

The Shefcheck and Dega (2008) archaeological inventory survey included the current project area and involved a 100% coverage pedestrian survey and excavation of 17 trenches. No historic properties were identified. However, a Puuone sand deposit was identified within the southern portion of the project area and a Chinese grave (SIHP # 50-50-04-02986) has been previously identified outside of the southeast boundary of the project area. Additionally, SHPD records show SIHP # 50-50-04-02977 (Historic Burials) was identified during Phase II development of the neighboring subdivision. The negative findings were presented in an archaeological assessment (AA) report (Shefcheck and Dega 2008) which included a recommendation that archaeological monitoring be conducted during project-related ground disturbing activities due to nearby of significant historic properties and the potential for buried cultural deposits and/or burials to be encountered. SHPD accepted the Shefcheck and Dega (2008) AA report in a letter dated June 13, 2008 (Log No. 20082334, Doc. No. 0806PC23).

EXHIBIT 239

Based on the recommendation of archaeological monitoring made by Shefcheck and Dega (2008), the DHHC stipulated that archaeological monitoring would be conducted for mitigation purposes and submitted a draft AMP (Yates and Hammatt, October 2020) for SHPD review and acceptance.

**SHPD concurs** with archaeological monitoring for identification purposes, not as a mitigation measure. No significant historic properties have been identified within the project area. Archaeological monitoring will be conducted in order to adequately identify if any historic properties are present and, if so, to determine potential impacts to them and, if necessary, to ensure that appropriate mitigation is implemented.

Cultural Surveys Hawai'i, Inc. (CSH) produced the subject AMP (Yates and Hammatt, October 2020) in support of the current project. The plan includes summaries of historic land use and previous archaeological investigations in the area, and stipulates the following:

- A coordination meeting will be conducted between the construction team and monitoring archaeologist prior to construction activities so the construction team is aware of the archaeological monitoring requirements and the archaeological monitoring provisions detailed in the plan;
- On-site monitoring will be conducted for all ground disturbing activities. One monitor is required for each piece of ground altering machinery during this project;
- The archaeological monitor has the authority to temporarily halt all activity in the area in the event of a potential historic property being identified, or to record archaeological information for cultural deposits or features;
- If non-burial historic properties are identified, documentation shall include, as appropriate, recording stratigraphy using USDA soil descriptions, GPS point collection with a receiver capable of sub-meter accuracy, recordation of feature contents through excavation or sampling of features, screening of features, representative scaled profile drawings, photo documentation using a scale and north arrow, and appropriate laboratory analysis of collected samples and artifacts. Additionally, photographs and profiles of excavations will be collected from across the project area even if no significant historic properties are encountered. Representative soil profile shall be at least 2-meter sections and their locations shall be recorded on a USGS topographic map;
- If human remains are identified, work will cease in the vicinity and the find shall be secured, and provisions outlined within the Hawaii Revised Statutes (HRS) §6E-43 and HAR §13-300-40, and any SHPD directives, shall be followed;
- Collected materials not associated with burials will be temporarily stored at the archaeological firm's office/laboratory until an appropriate curation facility is selected, in consultation with the landowner and the SHPD; and
- Any changes in these provisions shall occur only with written approval from the SHPD.

Based on the information provided, SHPD has insufficient information for determining the potential for the project to adversely impact archaeological historic properties. SHPD agrees with archaeological monitoring conducted for identification purposes

The plan meets the minimum requirements of HAR §13-279-4. **It is accepted.** Please send two hard copies of the document, clearly marked FINAL, along a copy of this letter and a text-searchable PDF version of the Final AMP to the Kapolei SHPD office, attention SHPD Library. Additionally, submit a text-searchable PDF copy of the Final AMP and a copy of this letter to SHPD HICRIS Project No. 2020PR34681 using the Project Supplement option, and a PDF copy of the Final AMP to [lehua.k.soares@hawaii.gov](mailto:lehua.k.soares@hawaii.gov).

**SHPD hereby notifies the County** that the AMP (Yates and Hammatt, October 2020) is accepted, and the project initiation process may proceed.

**SHPD requests** written notification via email and HICRIS at the start of archaeological monitoring for the proposed project. Within 30 days of completion of archaeological monitoring fieldwork, SHPD looks forward to receiving for review and acceptance a brief archaeological monitoring letter report of findings as specified in HAR §13-282-3(f)(1). Subsequently, SHPD looks forward to receipt of an archaeological monitoring report (AMR) meeting the requirements of HAR §13-279-5 for review and acceptance. Please submit the AMR and submittal review fee, and



Lori Tuhako  
11/10/2021  
Page 3

all other project documents and correspondence to HICRIS Project No. 2020PR34681 using the Project Supplement option.

Please contact Andrew McCallister, Maui Archaeologist IV, at [andrew.mccallister@hawaii.gov](mailto:andrew.mccallister@hawaii.gov) for matters regarding archaeological resources in this letter.

Aloha,  
*Alan Downer*

Alan S. Downer, PhD  
Administrator, State Historic Preservation Division  
Deputy State Historic Preservation Officer

cc: Trevor Yucha, CSH, [tyucha@culturalsurveys.com](mailto:tyucha@culturalsurveys.com)

OCT 27 2021

DAVID Y IGE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

JADE T. BUTAY  
DIRECTOR

Deputy Directors  
DEREK J. CHOW  
ROSS M. HIGASHI  
EDWIN H. SNIFFEN

IN REPLY REFER TO  
DIR 0918  
STP 8.3276

October 19, 2021

Ms. Lori Tsuhako  
Director  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Hawaii 96793

Attention: Mr. Buddy Almeida, Housing Administrator

Dear Ms. Tsuhako:

Subject: Draft Environmental Assessment (EA)  
Hale Mahaolu Ke Kahua Affordable Housing Community Project  
Waiehu, Maui, Hawaii  
Tax Map Key: (2) 3-3-001:106

The State of Hawaii, Department of Transportation (HDOT) has reviewed the subject Draft EA and understands Waiehu Housing, LP is proposing to develop a 120-unit affordable rental housing community, including a community center, non-profit building, and 285 parking stalls in Waiehu, Maui. The project will be constructed on an approximately 11.476-acre site south of the intersection of Kahekili Highway (State Route 340, County Route 330) and Waiehu Beach Road (State Route 3400).

Access to the site will be via three new driveways along Kahekili Highway. The northernmost and southernmost entrances will be right-in and right-out driveways. The central entrance will be constructed as a non-signalized full intersection.

HDOT has the following comments:

Airports Division (HDOT-A)

The Draft EA sufficiently addresses HDOT-A's prior concerns with the project and has no additional comments.

Highways Division (HDOT-HWY)

1. In accordance with the HDOT guidelines, the applicant shall mitigate all transportation impacts due to the project to maintain the operating Level of Service (LOS) and delay level conditions at the "without project condition" for all horizon years. In addition, should the LOS without the project be lower than the desirable HDOT threshold of LOS

EXHIBIT 24

D, the applicant may be required to provide mitigation improvements to improve the State facilities to LOS D or better with the project condition. If the roadway element is already operating at LOS E or F, and the delay for that location increases by 5 percent or more with the project, the applicant may also be required to provide mitigation improvements. The following elements of intersection had an increase in delay of over 5 percent:

- a. Waiehu Beach Road and Wailupe Drive/Lower Waiehu Beach road westbound left turn/through lane at A.M. and P.M. Peak. Eastbound left turn/through lane at P.M. Peak.
  - b. Waiehu Beach Road and Makaala Drive eastbound right turn at A.M. Peak.
  - c. Waiehu Beach Road and Eha Street southbound through at A.M. Peak.
  - d. Market Street/Kahekili Highway and Mokuahau Road/Pilihana Road westbound left turn/through lane/right turn at A.M. Peak.
  - e. Market Street and Vineyard Street northbound/through lane/right turn at P.M. Peak.
2. There are two intersections that are not included in the Future Year 2023 Analysis. The westbound leg of the intersection of Market Street/Kahekili Highway and Mokuahau Road/Pilihana Road will worsen due to the project in the A.M. peak from LOS E to LOS F. The westbound leg of the intersection of Market Street and Mill Street while already a LOS F will worsen due to the project both in the A.M. and P.M. peak. Recommend mitigation for both these intersections.
3. Coordination with HDOT-HWY on traffic mitigation is required.

If there are any questions, please contact Mr. Blayne Nikaido of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at [blayne.h.nikaido@hawaii.gov](mailto:blayne.h.nikaido@hawaii.gov).

Sincerely,



JADE T. BUTAY  
Director of Transportation

c: Mr. Chris Sugidono, Munekiyo Hiraga

DAVID Y. IGE  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

JADE T. BUTAY  
DIRECTOR

Deputy Directors  
ROSS M. HIGASHI  
EDUARDO P. MANGLALLAN  
PATRICK H. MCCAIN  
EDWIN H. SNIFFEN

IN REPLY REFER TO:  
HWY-PS 2.7153

February 7, 2022

**VIA EMAIL:** moe.mohanna@housingpartners.com

Mr. Mohannad H. Mohanna  
President  
Highridge Costa Development Company  
330 West Victoria Street  
Gardena, California 90248

Dear Mr. Mohanna:

Subject: Draft Environmental Assessment (EA)  
Hale Mahaolu Ke Kahua Affordable Housing Community Project  
Waiehu, Maui, Hawaii  
Tax Map Key No. (2) 3-3-001:106

The State of Hawaii Department of Transportation (HDOT) understands that Waiehu Housing, LP (Applicant) proposes developing a 120-unit affordable rental housing community, including a clubhouse and non-profit building in Waiehu, Maui.

The HDOT reviewed and provided comments on the Draft EA and Traffic Impact Analysis Report (TIAR) via a comment letter dated October 19, 2021 (STP 8.3276). Austin, Tsutsumi & Associates, Inc. (ATA) responded to these comments via email dated November 19, 2021. Based on ATA's responses, we find the conclusions and recommendations of the TIAR acceptable, provided that the Applicant perform the following task:

1. The Applicant shall provide a one-time subsidy of \$104.00 toward the first month's rent to the first tenant occupying each of the 120 units. The one-time \$104.00 subsidy shall not apply to subsequent rental payments beyond the first month of occupancy or to future tenants who may occupy the units thereafter.

The one-time subsidy, as described above, is proposed by the HDOT as an appropriate means to promote housing affordability, which is a high state priority, in lieu of the Applicant's de minimis fair share of traffic improvements requirements for the Project. This one-time subsidy requirement shall be included in the Applicant's Workforce Housing Agreement with the County of Maui, a copy of which shall be provided to the HDOT upon execution.

EXHIBIT 24a



Mr. Mohannad H. Mohanna  
February 7, 2022  
Page 2

HWY-PS 2.7153

If you have any questions, please contact Jeyan Thirugnanam, Systems Planning Engineer, Highways Division, Planning Branch at (808) 587-6336 or by email at [jeyan.thirugnanam@hawaii.gov](mailto:jeyan.thirugnanam@hawaii.gov). Please reference file review number PS 2021-167.

Sincerely,

A handwritten signature in black ink, appearing to read "Jade T. Butay", written over a horizontal line.

JADE T. BUTAY  
Director of Transportation

Attachment: ATA Response to HDOT Comment Matrix

June 1, 2022

Jade Butay, Director  
State of Hawai'i  
Department of Transportation  
869 Punchbowl Street  
Honolulu, HI 96813

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Mr. Butay:

Thank you for your comment letter dated October 19, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Airports Division (HDOT-A)**

The Applicant acknowledges that HDOT-A has no comments at this time.

**Highways Division (HOOT-HWY)**

1. As described in the Traffic Impact Analysis Report (TIAR), congestion at various study intersections is existing and regional in nature. Some of the LOS E/F movements are calculated to have higher delays through HCM calculations than actual delays documented through video observations. See below for detailed discussion at the HDOT-identified intersections:
  - a. Waiehu Beach Road/Wailupe Dr/Lower Waiehu Beach Road
    1. AM & PM - Existing 2021 observations indicated westbound queues of only 1-3 left-turn vehicles and averaged little to no delays (5-20s). Only issue would be queue spillback from Eha which occasionally blocks LTs during heavy AM congestion periods.
    2. Project only adds 10-23 vehicles per direction on Waiehu Beach Road with little impacts to LOS E/F movements.
  - b. Waiehu Beach Road/Makaala Drive
    1. AM – Existing regional AM eastbound congestion along Waiehu Beach Road can spill back beyond Makaala Drive. Therefore, eastbound right-turn

EXHIBIT 246

delays are more heavily impacted by this queue spillback stemming from the Eha Street intersection. Any widening or intersection modifications at this intersection is unlikely to change operations since delays are a product of queue spillback.

- c. Waiehu Beach Road/Eha Street
  - 1. AM – The TIAR states that the heavy AM southbound congestion is impacted greatly from the short southbound right-turn lane. Lengthening of this right-turn lane is constrained by the limits to the nearby bridge over Wailuku River and would require major bridge improvements.
  - 2. The Project adds 10-30 vehicles per direction along Waiehu Beach Road through this intersection, resulting in an increase on average of 1 vehicle every signal cycle.
- d. Market Street/Kahekili Highway/Mokuahau Road/Piihaha Road
  - 1. AM – The westbound left-turn/through/right-turn movement only increases by 4.7 seconds in the AM peak hour, resulting in a 6.5% increase. Existing regional AM southbound congestion along Market Street/Kahekili Highway can spill back beyond this intersection. Queued vehicles along Market Street typically stop to allow left-turn vehicles from Piihaha Road to turn onto Market Street, reducing delays and queues. Observed existing westbound queues were typically 0-2 vehicles long.
- e. Market Street/Vineyard Street
  - 1. PM – The northbound approach only increases by 3.2 seconds in the PM peak hour, resulting in a 6.2 percent increase.

The project itself only adds 1-3 vehicles per approach at this 4-legged intersection, therefore project impacts are minimal.
- 2. See response in d.1 above for discussion at the Market Street/Kahekili Highway/Mokuahau Road/Piihaha Road intersection.

**Market Street/Mill Street**

AM & PM – The westbound left-turn movements are low volume 30-35 vehicles per peak and delays only increases by 4.4%. For the most part, westbound right-turners proceeded relatively freely without lengthy delays. Based on existing observations, average AM queues were 0-2 vehicles long and PM queues were 2-6 vehicles long. Average actual observed delays ranged from 5-30 seconds on average. On a couple occasions during the peak, westbound left-turns blocked right-turners and created a maximum queue of 10 vehicles, but quickly dissipated. The project only adds 5-10 peak hour vehicles per direction on Market Street, which will result in minimal impacts to the LOS E/F movements.

- 3. The Applicant acknowledges the comment and the development team has been in coordination with HDOT-HWY to determine its fair share of traffic mitigation.

Jade Butay, Director  
June 1, 2022  
Page 3

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



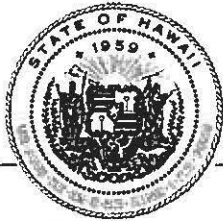
Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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**STATE OF HAWAII  
OFFICE OF PLANNING  
& SUSTAINABLE DEVELOPMENT**

DAVID Y. IGE  
GOVERNOR

MARY ALICE EVANS  
DIRECTOR

235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846  
Fax: (808) 587-2824  
Web: <https://planning.hawaii.gov/>

Coastal Zone  
Management  
Program

DTS202110221123SE

Environmental Review  
Program

October 25, 2021

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented  
Development

Statewide Geographic  
Information System

Statewide  
Sustainability Program

Buddy Almeida, Housing Administrator  
County of Maui  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Hawaii 96793  
Buddy.Almeida@co.maui.hi.us

**SUBJECT: Draft Environmental Assessment for the Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawaii**

Dear Mr. Almeida,

Thank you for the opportunity to review the subject Draft Environmental Assessment (DEA).

The Waiehu Housing, LP proposes to develop a 120-unit 100% affordable rental housing community in Waiehu, Maui. The units will be offered at rental prices affordable to households with 60% or less of the area median income. The project will consist of 13 two-story multi-family buildings, a 3,477-sq. ft. non-profit building, a 3,231-sq. ft. clubhouse, 264 parking stalls and two loading stalls.

The project is situated on approximately 11.476 acres of land south of the intersection of Kahekili Highway and Waiehu Beach Road and is bordered to the west by Kahekili Highway, a State roadway, and by the Waiehu Heights residential subdivision to the east. The Applicant proposes to provide access to the site through three new driveways off Kahekili Highway. A portion of the site immediately adjacent to the Waiehu Heights subdivision is within the State Land Use Urban District, but the remaining 9.798 acres are in the Agricultural District, and a State Land Use Reclassification from the Agricultural to the Urban District is required. The land in the Agricultural District is classified as "Prime" under the Agricultural Lands of Importance to the State of Hawaii system and rated "B" by the Land Study Bureau. The entire site is within the Urban Growth Boundary on the Maui Island Plan.

EXHIBIT 25

The Applicant proposes an expedited affordable housing project approval from the Maui County Council under Chapter 2.97 of the Maui County Code (MCC), including an expedited a State Land Use District Boundary Amendment for land less than 15 acres by the Maui County Council.

The Office of Planning and Sustainable Development (OPSD) offers the following specific comments:

District Boundary Amendment

OPSD provided comments on the Early Consultation Request for the DEA and our concerns have been addressed in the DEA, including the fact that the County Council will act on the DBA concurrently during its review of the Chapter 2.97, MCC affordable housing application.

Sustainability

- The proposed project aligns with the Hawaii 2050 Sustainability Plan: Charting a Course for a Decade of Action (2020-2030) Focus Areas for 2030. Specifically, the Focus Area to “Advance Equity” through “Strategy 25: Continue to improve economic and social sustainability of individuals through access to affordable housing.” The Hawaii 2050 Sustainability Plan serves as the State of Hawaii’s climate and sustainability strategic action plan, in accordance with Part II of the Hawaii State Planning Act, Hawaii Revised Statutes §226-65. The proposed project will be 100% affordable, providing rental housing for residents earning 60% or less of the Area Median Income, is considered by the Statewide Sustainability Program to be in alignment with UN Sustainable Development Goal 11: Sustainable Cities and Communities, to make cities and human settlements inclusive, safe, resilient, and sustainable.
- The proposed project aligns with Part III of the Hawaii State Planning Act, Hawaii Revised Statutes §226-108, the Sustainability Priority Guidelines paragraph 5 by “promoting decisions based on meeting the needs of the present without compromising the needs of future generations.” Additionally, the proposed project aligns with the Land Use Commission’s Hawaii Administrative Rules §15-15-50 (c) (25) (a) and (b) by including a statement and analysis pursuant to Part III of the Hawaii State Planning Act, Hawaii Revised Statutes §226-108 the Sustainability Priority Guidelines. Specifically, the proposed project notes that the project site is centrally located and promotes an interconnected, walkable, bikeable, multimodal and alternative transportation access using existing bikeways to local recreational parks and natural resource areas in the Waiehu region.
- The proposed project aligns with Part III of the Hawaii State Planning Act, Hawaii Revised Statutes §226-109, the Climate Change Adaptation Priority Guidelines paragraphs 5 and 10 by “encourag(ing) the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change,” and “encourag(ing) planning and management of the natural and built environments that effectively integrate climate

change policy,” respectively. Additionally, the proposed project aligns with the Land Use Commission’s Hawaii Administrative Rules §15-15-50 (c) (24) (a), (c), and (d) by including a statement and analysis pursuant to Part III of the Hawaii State Planning Act, Hawaii Revised Statutes §226-109, the Climate Change Adaptation Priority Guidelines. Specifically, the proposed project notes that the project site will be located outside of the projected 3.2-ft. sea level rise hazard area as identified in the 2017 Hawaii Sea Level Rise Vulnerability and Adaptation Report, and the relative effects GHG emissions (CO2 EQ) during construction from earthmoving equipment and transportation of materials to and from the project site, will be short term and are not considered significant.

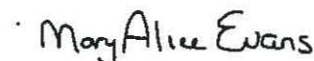
- The State of Hawaii has committed to a Statewide Energy Efficiency Portfolio Standard through the enactment of Hawaii Revised Statutes §269-96, requiring that 4,300 gigawatt hours (GWh) of electricity use be reduced by 2030. The Statewide Sustainability Program notes that the proposed project intends to utilize energy efficient fixtures and appliances, thereby assisting the state meet its statutory sustainability target.

- The State of Hawaii has committed to a Statewide Renewable Portfolio Standard through the enactment of Hawaii Revised Statutes §269-92, requiring a renewable portfolio standard of 40% of each electric utility’s new electricity sales by December 31, 2030 and 100% by December 31, 2045. Additionally, the State of Hawaii has committed to a Zero Emissions Clean Economy Target through the enactment of Hawaii Revised Statutes §225P-5, to sequester more atmospheric carbon and greenhouse gases than emitted within the state as quickly as practicable, but not later than 2045. The Statewide Sustainability Program notes that this proposed project “may” install photovoltaic solar panels should funding be available. The Statewide Sustainability Program strongly encourages the installation of photovoltaic solar panels to assist the state meet its clean energy statutory sustainability targets and reduce the state’s overall dependence of fossil-fuel based energy.

OPSD commends this effort to provide higher density, affordable housing consistent with sustainability principles to an underserved segment of the community with incomes at less than 60% AMI and in an area adjacent to an existing Urban area with access to available infrastructure.

If you have any questions regarding this comment letter, please contact Aaron Setogawa of our Land Use Division at [aaron.h.setogawa@hawaii.gov](mailto:aaron.h.setogawa@hawaii.gov) or Danielle Bass, State Sustainability Program Manager at [daniell.m.bass@hawaii.gov](mailto:daniell.m.bass@hawaii.gov).

Sincerely,



Mary Alice Evans  
Director



Karlynn K. Fukuda  
PRESIDENT

Mark Alexander Roy AICP, LEED AP  
VICE PRESIDENT

Tessa Munekiyo Ng AICP  
VICE PRESIDENT

Michael T. Munekiyo AICP  
SENIOR ADVISOR

June 1, 2022

Mary Alice Evans, Director  
State of Hawai'i  
Office of Planning and Sustainable Development  
P.O Box 2359  
Honolulu, Hawai'i 96804

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Ms. Evans:

Thank you for your comment letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. On behalf of the Applicant, we thank you for confirming that the Draft EA has addressed the Office of Planning and Sustainable Development's (OPSD) concerns regarding the District Boundary Amendment and we acknowledge comments regarding the project's applicability to the State's goals related to sustainability and climate change adaptation.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
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DEPARTMENT OF THE ARMY  
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT  
FORT SHAFTER, HAWAII 96860-6440

REPLY TO  
ATTENTION OF:

September 2, 2009

Regulatory Branch

File Number: POH-2008-00317

Matthew Slepín, Senior Associate  
Chris Hart & Partners, Inc.  
115 North Market Street  
Wailuku, Maui, Hawaii 96793

Dear Mr. Slepín:

This letter is in response to your request, dated August 10, 2009, for our review and comments of the Draft Environmental Assessment (DEA) for the proposed MEO Best "Ke Kahua" Farm Project located at Waiehu, Maui, Hawaii (TMK 233001016).

An approved jurisdictional determination was issued by the Honolulu District Corps of Engineers on December 23, 2008, indicating the proposed project site consisted entirely of uplands and contained no waters of the United States. The DEA does not provide any new information regarding water resources in the project site nor has the site location changed. Thus the December 23, 2008 approved jurisdictional determination stands, and has an expiration date of December 23, 2013. Please note that under Section 404 of the Clean Water Act of 1972 (33 U.S.C. 1344), Department of Army (DA) authorization is required for any activities that result in the discharge (placement) of dredge and/or fill material into waters of the U.S. and Section 10 of the Rivers and Harbors Act of 1899 requires that a Department of Army (DA) permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403).

Thank you for the opportunity to comment. If you have any questions, please contact Ms. Meris Bantilan-Smith, of my Regulatory staff at 808-438-7023 (FAX: 808-438-4060) or by electronic mail at [Meris.Bantilan-Smith@usace.army.mil](mailto:Meris.Bantilan-Smith@usace.army.mil). Please include File No. POH-2008-317 in any future correspondence regarding this project. Please be advised you can provide comments on your experience with the Corps' Honolulu District Regulatory Branch by accessing our web-based customer survey form at <http://per2.nwp.usace.army.mil/survey.html>.

Sincerely,

George F. Young, P.E.  
Chief, Regulatory Branch

Copy Furnished:  
Dept. of Housing and Human Concerns, Attn. Ms. Jo-Ann Riado, 220 Main Street, Suite 546,  
Wailuku, Hawaii 96739



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, HONOLULU  
FORT SHAFTER, HAWAII 96860-6440

December 23, 2008

Regulatory Branch

File Number POH-2008-317

Mr. Mathew M. Slepín  
Chris Hart & Partners, Inc.  
115 North Market Street  
Wailuku, Hawaii 96793

Dear Mr. Slepín:

We have received your December 5, 2008, request for early consultation comments for the proposed Maui Economic Opportunity "Ke Kahua" Agricultural Farm. The site is 11.476 acres located within a portion of TMK (2) 3-3-001:016, at Latitude 20.915° N. and Longitude -156.499° W. in Waiehu, Maui Island, Hawaii. Based on the information you submitted, it appears the subject parcel consists entirely of uplands, and the proposed project will not involve the placement and/or discharge of dredged and/or fill material into waters of the U.S., including adjacent wetlands, subject to our jurisdiction; therefore, a DA permit will not be required. This determination does not relieve you of the responsibility to obtain any other permits, licenses, or approvals that may be required under County, State, or Federal law for your proposed work.

Section 404 of the Clean Water Act requires that a Department of the Army (DA) permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including jurisdictional wetlands (33 U.S.C. 1344). The Corps defines wetlands as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Section 10 of the Rivers and Harbors Act of 1899 requires that a DA permit be obtained for structures or work in or affecting navigable waters of the U.S. (33 U.S.C. 403). Section 10 waters are those waters subject to the ebb and flow of the tide extending shoreward to the mean high water mark.

This approved jurisdictional determination is valid for a period of five (5) years from the date of this letter, unless new information supporting a revision is provided to us before the expiration date.

Should you have any questions regarding this approved jurisdictional determination, please contact Ms. Joy Anamizu of my staff at (808) 438-7023 or at [joy.anamizu@usace.army.mil](mailto:joy.anamizu@usace.army.mil). For additional information about our Regulatory Program, visit our web site at <http://www.poh.usace.army.mil/EC-R/EC-R.htm>. The file number assigned POH-2008-317 should be referred to in future correspondence with us.

Sincerely,

for George F. Young, P.E.  
Chief, Regulatory Branch

EXHIBIT 26

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
U.S. Army Corps of Engineers

**SECTION I: BACKGROUND INFORMATION**

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 23-Dec-2008

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Honolulu District POH-2006-00317-JNA-JD1

## C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: HI - Hawaii  
 County/parish/borough: Maui  
 City: Waihehu  
 Lat: 20 9'45"  
 Long: -156 49'55"  
 Universal Transverse Mercator: Folder UTM List  
 UTM list determined by folder location  
 NAD83 / UTM zone 34S  
 Waters UTM List  
 UTM list determined by waters location  
 NAD83 / UTM zone 34S  
 Name of nearest waterbody: Waihehu Stream  
 Name of nearest Traditional Navigable Water (TNW): Pacific Ocean  
 Name of watershed or Hydrologic Unit Code (HUC): Waihehu (2020000)

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g. offsite mitigation sites, disposal sites, etc.) are associated with the action and are recorded on a different JD form.

## D. REVIEW PERFORMED FOR SITE EVALUATION:

Office Determination Date: 23-Dec-2008

Field Determination Date(s):

**SECTION II: SUMMARY OF FINDINGS**

## A. RHA SECTION 10 DETERMINATION OF JURISDICTION

There ☐ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area.

Waters subject to the ebb and flow of the tide

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce

Explain:

## B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There ☐ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area.

## 1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area:<sup>1</sup>

Water Name	Water Type(s) Present

Ke Kahua Ag Farm TMK233001016 (por. of) (Uplands)

Uplands

b. Identify (estimate) size of waters of the U.S. in the review area:

Area (m<sup>2</sup>)

Linear (m)

c. Limits (boundaries) of jurisdiction:

based on: ☐

OHWM Elevation (if known)

2. Non-regulated waters/wetlands:<sup>2</sup>

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain:

**SECTION III: CWA ANALYSIS**

## A. TNWs AND WETLANDS ADJACENT TO TNWs

1. TNW

Not Applicable

2. Wetland Adjacent to TNW

Not Applicable

## B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: ☐Drainage area: ☐

Average annual rainfall: inches

Average annual snowfall: inches

(ii) Physical Characteristics

(a) Relationship with TNW:

Tributary flows directly into TNW

Tributary flows through ☐ tributaries before entering TNW

Number of tributaries:

Project waters are ☐ river miles from TNWProject waters are ☐ river miles from RPWProject Waters are ☐ aerial (straight) miles from TNWProject waters are ☐ aerial (straight) miles from RPW

Project waters cross or serve as state boundaries.

Explain:

Identify flow route to TNW:<sup>3</sup>

Tributary Streams Order, if known:

Not Applicable

(b) General Tributary Characteristics:

Tributary is:

Not Applicable

Tributary properties with respect to top of bank (estimate):  
Not Applicable

Primary tributary substrate composition:  
Not Applicable

Tributary (conditions, stability, presence, geometry, gradient):  
Not Applicable

(c) Flow:  
Not Applicable

Surface Flow is:  
Not Applicable

Subsurface Flow:  
Not Applicable

Tributary has:  
Not Applicable

If factors other than the OHWM were used to determine lateral extent of CWA Jurisdiction:

High Tide Line indicated by:  
Not Applicable

Mean High Water Mark indicated by:  
Not Applicable

(H) Chemical Characteristics:  
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).  
Not Applicable

(H) Biological Characteristics. Channel supports:  
Not Applicable

## 2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(b) Physical Characteristics:  
(a) General Wetland Characteristics:  
Properties:  
Not Applicable

(b) General Flow Relationship with Non-TNW:  
Flow is:  
Not Applicable

Surface flow is:  
Not Applicable

Subsurface flow:  
Not Applicable

(c) Wetland Adjacency Determination with Non-TNW:  
Not Applicable

(d) Proximity (Relationship) to TNW:  
Not Applicable

(H) Chemical Characteristics:  
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).  
Not Applicable

(H) Biological Characteristics. Wetland supports:  
Not Applicable

3. Characteristics of all wetlands adjacent to the tributary (if any):  
All wetlands being considered in the cumulative analysis:  
Not Applicable

Summarize overall biological, chemical and physical functions being performed:  
Not Applicable

## C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Significant Nexus: Not Applicable

## D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE:

1. TNWs and Adjacent Wetlands:  
Not Applicable

2. RPWs that flow directly or indirectly into TNWs:  
Not Applicable

Provide estimates for jurisdictional waters in the review area:  
Not Applicable

3. Non-RPWs that flow directly or indirectly into TNWs:<sup>A</sup>  
Not Applicable

Provide estimates for jurisdictional waters in the review area:  
Not Applicable

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs:  
Not Applicable

Provide acreage estimates for jurisdictional wetlands in the review area:  
Not Applicable

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs:  
Not Applicable

Provide acreage estimates for jurisdictional wetlands in the review area:  
Not Applicable

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs:  
Not Applicable

Provide estimates for jurisdictional wetlands in the review area:  
Not Applicable

7. Impoundments of jurisdictional waters:<sup>2</sup>  
Not Applicable

E. ISOLATED (INTERSTATE OR INTRA-STATE) WATERS INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS:<sup>10</sup>  
Not Applicable

Identify water body and summarize rationale supporting determination:  
Not Applicable

Provide estimates for jurisdictional waters in the review area:  
Not Applicable

#### F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS

If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce

Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (Explain):

Other (Explain):

The review area, portion of TMK 233001016, consist entirely of uplands and is absent of waters of the U S

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment:  
Not Applicable

Provide acreage estimates for non-jurisdictional waters in the review area, that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction.  
Not Applicable

#### SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD  
(Listed items shall be included in case file and, where checked and requested, appropriately reference below)

Data Reviewed	Source Label	Source Description
--Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant	Figure 1 Location Map; Figure 2 Concept Site Plan	Figures submitted with letter: a) Figure 1, Location Map; and b) Figure 2, Conceptual Site Plan
--U.S. Geological Survey map(s)	POH-2008-317 USGS - TMK + NWI Layer	TIG eGIS maps
--National wetlands inventory map(s)	POH-2008-317 - TMK NWI wetlands	TIG eGIS maps
--Photographs	-	-
--Aerial	POH-2008-317 - Satellite Imagery 04-08	TIG eGIS maps

B. ADDITIONAL COMMENTS TO SUPPORT JD:  
Not Applicable

<sup>1</sup>Boxes checked below shall be supported by completing the appropriate sections in Section III below.

<sup>2</sup>For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup>Supporting documentation is presented in Section III F.

<sup>4</sup>Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the Arid West.

<sup>5</sup>Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

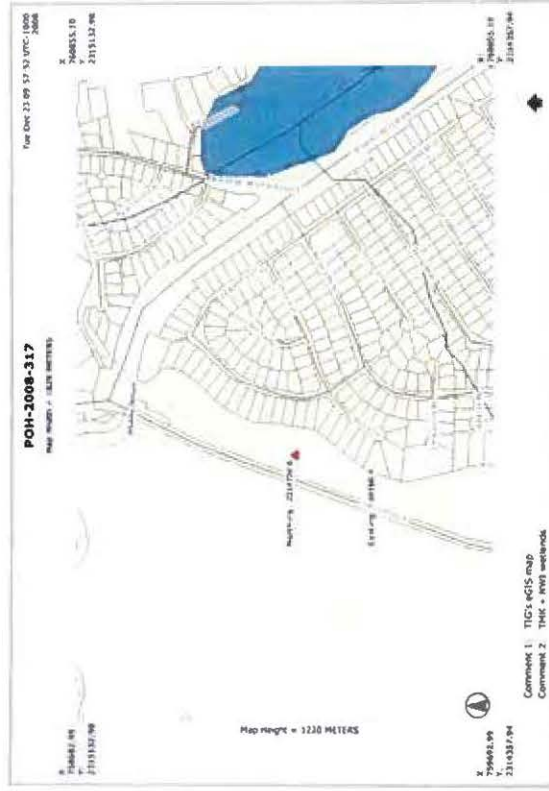
<sup>7</sup>Topd.

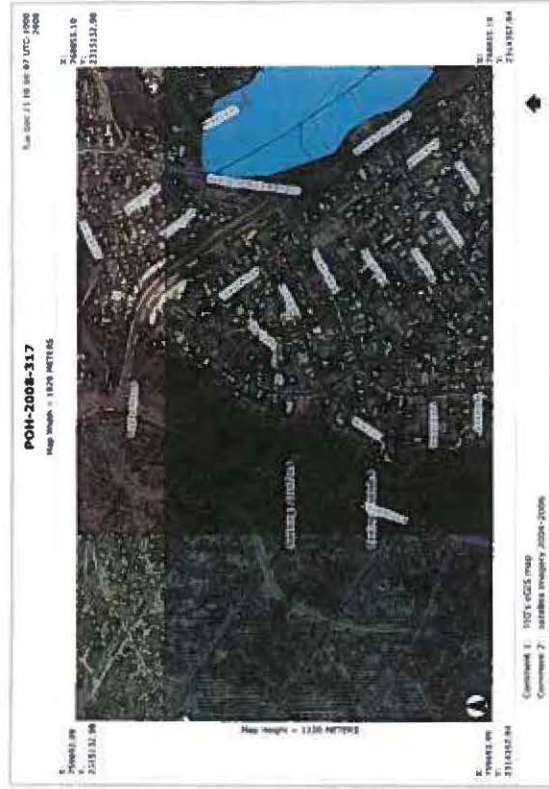
<sup>8</sup>See Footnote #3.

<sup>9</sup>To complete the analysis refer to the key in Section III D 6 of the Instructional Guidebook.

<sup>10</sup>Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.









## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawai'i 96850



In Reply Refer To  
01EPIF00-2022-TA-0002

October 12, 2021

Buddy Almeida, Housing Administrator  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, Hawai'i 96793

Subject: Technical Assistance for the Draft Environmental Assessment for the Proposed  
Hale Mahaolu Ke Kahua Affordable Housing Community, Waiehu, Maui

Dear Buddy Almeida:

The U.S. Fish and Wildlife Service (Service) received your request for comment on the Draft Environmental Assessment (EA) for the proposed Hale Mahaolu Ke Kahua Affordable Housing Project on September 23, 2021. This project proposes to construct a new 120 unit affordable rental housing community in Waiehu on the island of Maui. The property is identified as TMK (2)3-3-001:106 and is approximately 11.476 acres.

Thank you for your efforts to address listed species and recommended avoidance and minimization methods referenced in our December 22, 2020 letter and for conducting a biological survey. We provide the following comments for incorporation in your final Environmental Assessment and further consultation as necessary. This letter has been prepared under the authority of, and in accordance with, provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA).

Thank you for including the recommended mitigation measures into the project plans to protect the 'ōpe'ape'a or Hawaiian hoary bat (*Lasiurus cinereus semotus*) (Page 21).

Thank you for conducting an extensive plant survey (Appendix B, pages 6–8). The list you provided indicated that there are no endangered plants within the project area and no host plants for yellow-faced bees (*Hylaeus assimulans*, *Hylaeus facilis*, and *Hylaeus longiceps*) or Blackburn's sphinx moth (*Manduca blackburni*). We recommend project proponents take action to avoid attraction of Blackburn's sphinx moth to the project location and prohibit *Nicotiana glauca* (tree tobacco) from entering the site. Tree tobacco can grow greater than 3 feet tall in approximately 6 weeks. If it grows over 3 feet, the plants may become a host plant for

INTERIOR REGION 9  
COLUMBIA-PACIFIC NORTHWEST  
IDAHO, MONTANA\*, OREGON\*, WASHINGTON  
\*PARTIAL

INTERIOR REGION 12  
PACIFIC ISLANDS  
AMERICAN SAMOA, GUAM, HAWAII, NORTHERN  
MARIANA ISLANDS

EXHIBIT 27

Blackburn's sphinx moth. We therefore recommend that you incorporate the following measures into your project plan:

- Remove any tree tobacco less than 3 feet tall.
- Monitor the site every 4-to-6 weeks for new tree tobacco growth before, during, and after the proposed ground-disturbing activity.
  - Monitoring for tree tobacco can be completed by any staff, such as groundskeeper or regular maintenance crew, provided with picture placards of tree tobacco at different life stages.

Thank you for incorporating lighting shielded from view above for both construction and permanent lighting and committing to avoiding night work during the seabird fledgling season (September 15 to December 15) (Page 21). We appreciate your commitment to minimizing impacts to endangered seabirds including the 'ua'u or Hawaiian petrel (*Pterodroma sandwicensis*), the 'ake'ake or Hawai'i distinct population segment of the band-rumped storm-petrel (*Oceanodroma castro*), and the 'a'o or Newell's shearwater (*Puffinus auricularis newelli*).

Thank you for your commitment to verify that no nēnē or Hawaiian Goose (*Branta* (= *Nesochen*) *sandwicensis*) are present prior to commencement of project activities (Appendix B). To avoid and minimize potential project impacts to Hawaiian geese we recommend you incorporate the following applicable measures into your project plans:

- Do not approach, feed, or disturb Hawaiian geese.
- If Hawaiian geese are observed loafing or foraging within the project area during the breeding season (September through April), have a biologist familiar with Hawaiian geese nesting behavior survey for nests in and around the project area prior to the resumption of any work. Repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- Cease all work immediately and contact the Service for further guidance if a nest is discovered within a radius of 150 feet of proposed project, or a previously undiscovered nest is found within the 150-foot radius after work begins.
  - In areas where Hawaiian geese are known to be present, post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on-site.

Additional measures for housing developments common to all listed animal species that will reduce mortality or predation include the following:

- Post and enforce low speed limits to reduce vehicle collisions with wildlife.
- Require all pets, including cats and dogs, to be on leash at all times outside.
- Require garbage cans with lids to reduce populations of rats and mongoose, which are invasive species and prey upon native and endangered species.
- Provide signage instructing residents and visitors to avoid approaching, feeding, or disturbing wildlife.

The Service recommends incorporating all applicable avoidance and minimization measures into your project design to avoid and minimize effects on protected species. If you determine the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with ESA compliance.



Thank you for the opportunity to comment and for participating with us in the protection of our endangered species. If you have any questions, please contact Christina Richards at christina\_richards@fws.gov or by telephone at 808-792-9450. When referring to this project, please include this reference number: 01EPIF00-2022-TA-0002.

Sincerely,

CHELSIE  
JAVAR-SALAS

Digitally signed by  
CHELSIE JAVAR-SALAS  
Date: 2021.10.12  
16:45:48 -10'00'

Acting Island Team Manager  
Maui Nui and Hawai'i Island Team

cc: Chris Sugidono, Munekiyo Hiraga

June 1, 2022

Chelsie Javar-Salas, Acting Island Team Manager  
U.S. Fish and Wildlife Service  
Pacific Islands Fish and Wildlife Office  
Maui Nui and Hawai'i Island Team  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawai'i 96850

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i (01EPIF00-2022-TA-0002)**

---

Dear Ms. Javar-Salas:

Thank you for your comment letter dated October 12, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as your letter:

1. The Applicant appreciates the recommendation for project plans to include the removal of tree tobacco less than three (3) feet tall and the monitoring of the project site for tree tobacco in order to avoid attraction of the Blackburn's sphinx moth to the site. The Flora and Fauna survey conducted for the project did not identify signs of the Blackburn's sphinx moth or their habitats, however, the recommended avoidance measures will be incorporated into project plans, as applicable.
2. The Applicant appreciates the recommendation for project plans to include avoidance measures to minimize potential impacts to nēnē or Hawaiian Geese. These measures include avoidance of approaching, feeding or disturbing nēnē. The Flora and Fauna survey did not identify nēnē in the project area, however, the Service will be contacted and avoidance measures implemented should nēnē be observed in or near the project site.

3. We acknowledge receipt of the additional measures for housing developments that reduce mortality or predation for all listed species. These avoidance and mitigation measures will be incorporated into the project, as applicable and as feasible.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Lena Tamashiro, Design Partners Inc.

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**From:** Kaniloa Kamaunu <bkofmor@gmail.com>  
**Sent:** Saturday, September 25, 2021 3:22 AM  
**To:** Lynne Hiromoto  
**Subject:** Re: Draft EA for the Hale Mahaolu Ke Kahua Affordable Housing Community

Aloha e Lynne Hiromoto,

Thank you for your email update of the County's plan to pursue the development in Ke Kahua. We as the Aha Moku cannot support this development at this time due to a legal claim by descendants of Pehuino who has title to said property. The heirs of Pehuino have filed their claim in the Bureau of Conveyance and are occupying said area at this time. We as the Aha Moku 'O Wailuku have written a letter in support of these heirs claim to their ancestral lands. Aha Moku 'O Wailuku is oppose to any development in this area due to this issue and other issues that were previously submitted in an earlier discussion .

Mahalo Nui  
Kaniloa L Kamaunu  
Aha Moku 'O Wailuku  
On Thu, Sep 23, 2021 at 19:57 Lynne Hiromoto <[lynne@munekiyohiraga.com](mailto:lynne@munekiyohiraga.com)> wrote:

To: Kaniloa Kamaumu  
Aha Moku o Maui

From: Chris Sugidono, Senior Associate

Attachment:

Quantity	Date	Description
1	9/21/21	Letter re: review and comment of the Draft EA

Message:

The Draft EA for the Hale Mahaolu Ke Kahua Affordable Housing Community has been uploaded to the Environmental Review Program website for your review and comment. We request that you please provide any comments on the project prior to the 30-day comment period deadline of October 25. Please see attached.

Please click on the link below to view the Draft EA submittal:

[http://oeqc2.doh.hawaii.gov/Doc\\_Library/2021-09-23-MA-DEA-Hale-Mahaolu-Ke-Kahua-Affordable-Housing-Community.pdf](http://oeqc2.doh.hawaii.gov/Doc_Library/2021-09-23-MA-DEA-Hale-Mahaolu-Ke-Kahua-Affordable-Housing-Community.pdf)



Should you have any questions or are not able to open the link, please contact me at (808) 244-2015. Thank you.

**Lynne Hiromoto**, Administrative Assistant

Email: [lynne@munekiyohiraga.com](mailto:lynne@munekiyohiraga.com)



**Maui:** [305 High Street, Suite 104, Wailuku, Hawaii 96793](#) **T:** 808.244.2015 **F:** 808.244.8729

**Oahu:** [735 Bishop Street, Suite 412, Honolulu, Hawaii 96813](#) **T:** 808.983.1233

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“Due to the COVID-19 pandemic, if you have a document or package for delivery to our office via FedEx, UPS, or other courier service, please reach out to a MH team member to coordinate prior to sending. We are committed to providing our clients excellent service to further project goals and objectives during these challenging times. Please take care and stay safe. Mahalo.

June 1, 2022

**Via email: [bkofmor@gmail.com](mailto:bkofmor@gmail.com)**

Kaniloa L Kamaunu  
Aha Moku 'O Wailuku

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawaii**

---

Dear Mr. Kamaunu:

Thank you for your comment letter dated September 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments:

We note that your organization is opposed to the proposed affordable housing project. According to MEO, the nonprofit has clear title to the land and the deeds, which is confirmed by the County of Maui's previous subdivision of the property. The persons identifying themselves as the Heirs of Pehuino have made clear that they claim interests in only Land Commission Award (LCA) No. 3386. LCA No. 3386, Apanas 1, 2, and 3 are located nearly a mile away and were never part of the MEO property. This too is confirmed by historic deeds, LCA awards, and County records.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Debbie Cabebe, Maui Economic Opportunity, Inc.

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**Maui:** 305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Tel: 808.244.2015 • Fax: 808.244.8729

**Oahu:** 735 Bishop Street, Suite 412 • Honolulu, Hawaii 96813 • Tel: 808.983.1233

[www.munekiyo-hiraga.com](http://www.munekiyo-hiraga.com)

**EXHIBIT 28a**



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1162 Lower Main Street  
Wailuku, HI 96793  
(808) 242-1140  
FAX (808) 242-1141

[www.habitat-maui.org](http://www.habitat-maui.org)

September 29, 2021

County of Maui  
Department of Housing and Human Concerns  
2200 Main Street, Suite 546  
Wailuku, HI 96793

Re: Proposed Hale Mahaolu Ke Kahua Affordable Housing

To Whom It May Concern,

I am writing in support of the proposed Hale Mahaolu Ke Kahua Affordable Housing project. We are in a housing crisis right now and any housing project will help alleviate that crisis.

This particular project serves the population that fall below 60% median income. This is the same clientele that Habitat serves. We see so many families who are desperate to get into homeownership but do not have the ability to save because they are paying exorbitant prices for their current housing situation. If more families had affordable rentals, then they could save for homeownership.

The project is centrally located so it would be ideal for working families. The inclusion of a nonprofit building would allow surround services to the tenants. It appears that much thought has gone into this project to assure success for the future tenants.

Please consider swift approval to this project so that we can make a dent in the housing crisis.

If you have any questions or comments, please feel free to contact me.

Sincerely,

Sherri K. Dodson  
Executive Director

EXHIBIT 29



June 1, 2022

Sherri K. Dodson, Executive Director  
Habitat for Humanity Maui  
1162 Lower Main Street  
Wailuku, Hawai'i 96793

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i

Dear Ms. Dodson:

Thank you for your comment letter, dated September 29, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate your comments in support of this 100 percent affordable housing community in Waiehu.

We will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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**Jud R. Cunningham**

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FAX (808) 579-8426

[www.mbhr.org](http://www.mbhr.org)



V.FY22

October 4, 2021

County of Maui  
Department of Housing and Human Concerns  
Attention: Buddy Almeida  
2200 Main Street, Suite 546  
Wailuku, HI 96793

Aloha,

It has come to our attention that a hui comprised of Maui Economic Opportunity, Hale Mahaolu and Highridge Costa are seeking to develop a proposed "Hale Mahaolu Ke Kahua Affordable Housing Community" on 11.5 acres owned by MEO in Waiehu. We understand that the project will consist of 120 multi-family residential units that are 100 percent affordable for residents earning 60 percent or less of the area median income.

This project would appear to be a golden opportunity for Maui County to address one of our most critical needs-the lack of affordable housing options for low income families.

It is our hope, speaking on behalf of populations served by our three partner agencies, that Maui County will assist Maui Economic Opportunity and Hale Mahaolu in the process of obtaining approvals at the earliest possible time to see this project come to fruition. Maui Economic Opportunity and Hale Mahaolu are to be commended for their roles in making this resource available to the Maui community.

Sincerely,

Jud R. Cunningham, CEO

EXHIBIT 30

Karlynn K. Fukuda  
PRESIDENT

Mark Alexander Roy AICP, LEED AP  
VICE PRESIDENT

Tessa Munekiyo Ng AICP  
VICE PRESIDENT

Michael T. Munekiyo AICP  
SENIOR ADVISOR

June 1, 2022

Jud R. Cunningham, CEO  
Maui Behavioral Health Resources  
P.O. Box 791749  
Pā'ia, Hawai'i 96779

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i

Dear Mr. Cunningham:

Thank you for your comment letter dated October 4, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate your comments in support of this 100 percent affordable housing community in Waiehu.

We will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



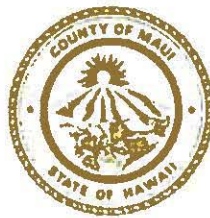
Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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MICHAEL P. VICTORINO  
Mayor  
MICHELE CHOUTEAU MCLEAN, AICP  
Director  
JORDAN E. HART  
Deputy Director



**DEPARTMENT OF PLANNING  
COUNTY OF MAUI  
ONE MAIN PLAZA  
2200 MAIN STREET, SUITE 315  
WAILUKU, MAUI, HAWAII 96793**

November 9, 2021

Mr. Monte Heaton  
Waiehu Housing, LP  
330 West Victoria Street  
Gardena, California 90248

Dear Mr. Heaton:

**SUBJECT: MAUI PLANNING COMMISSION (MPC) COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT (EA) PREPARED FOR THE PROPOSED HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY, LOCATED IN WAILUKU, ISLAND OF MAUI, HAWAII; TMK: (2) 3-3-001:106 (EAC 2021/0006)**

At the October 26, 2021 meeting of the Maui Planning Commission (Commission), the Commission reviewed the above-referenced project. They voted unanimously in favor of the project. After due consideration and discussion, the Commission had the following recommendations for the Final EA:

- 1) The project looked great and we are supportive, assuming the title issues are resolved.
- 2) Find a way to call out information on maps so that it is easier to understand without having to look them up in other places.
- 3) Discuss drainage mitigation in more detail. There is flooding in the northernmost part of the parcel, so better evaluate it because we would not want to see homes flooded.
- 4) Disclose perimeter fence locations, particularly around the swale.
- 5) We appreciated the lists of people consulted with for cultural impacts.
- 6) There is a bus route nearby and please address how people will travel to the bus stop.
- 7) Incorporate more native species into your landscape plan. Look at native plants documented as having grown in that area and incorporate that into your plants and replace the non-natives. There is good dirt back there and Hawaiian plants will have the water and the nutrients they are meant to have.
- 8) Research the history of the Pihihana Project District and explain it in more detail.

Mr. Monte Heaton  
November 9, 2021  
Page 2

- 9) Coordinate better with the project on the other side of the highway on ingress/egress.
- 10) For the clubhouse, keep in mind that more parking is needed for events for Hawaiian style celebrations.
- 11) We like the community-driven activities for residents, such as the community gardening concept.
- 12) We are concerned with the speed of traffic along Kahekili Highway and think you should consider adding a landscape buffer along the property frontage.
- 13) We are also concerned about how busy traffic is during the work/school drop off/pick up times, so that needs to be evaluated. Even if there will be traffic impacts, we are supportive of working class people obtaining houses.
- 14) It rains in the afternoons, so extend the awnings or eaves so that the rain does not affect homes/residents.
- 15) Research and address ongoing cultural practices occurring onsite.

If you have any questions, please contact Staff Planner Tara Furukawa by email at [tara.furukawa@mauicounty.gov](mailto:tara.furukawa@mauicounty.gov) or by phone at (808) 270-8205.

Sincerely,



MICHELE MCLEAN, AICP  
Planning Director

xc: Clayton I. Yoshida, Planning Program Administrator (PDF)  
Jacky Takakura, Acting Planning Program Administrator (PDF)  
Tara K. Furukawa, Staff Planner (PDF)  
Lori Tsuhako, Director, Department of Housing and Human Concerns (PDF)  
Chris Sugidono, Senior Associate, Munekiyo Hiraga (PDF)  
Mark Roy, Vice President, Munekiyo Hiraga (PDF)  
Members of the Maui Planning Commission (PDF)  
Carolyn Takayama-Corden, Secretary, Maui Planning Commission (PDF)  
Project File

MCM:TKF:lp

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June 1, 2022

Michele Chouteau McLean, Director  
County of Maui  
Department of Planning  
Maui Planning Commission  
2200 Main Street, Suite 315  
Wailuku, HI 96793

**SUBJECT:** Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Ms. McLean:

Thank you for your comment letter dated November 9, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Comment No. 1:**

*In At the October 26, 2021 meeting of the Maui Planning Commission (Commission), the Commission reviewed the above-referenced project. They voted unanimously in favor of the project. After due consideration and discussion, the Commission had the following recommendations for the Final EA:*

**Response:** The Applicant acknowledges the comment and appreciates the Maui Planning Commission's unanimous vote in favor of this project.

**Comment No. 2:**

*The project looked great and we are supportive, assuming the title issues are resolved.*

**Response:** According to Maui Economic Opportunity, Inc. (MEO), the nonprofit has clear title to the land and the deeds, which is confirmed by the County of Maui's previous subdivision of the property. The persons identifying themselves as the Heirs of Pehuino have made clear that they claim interests in only Land Commission Award (LCA) No. 3386. LCA No. 3386, Apanas 1, 2, and 3 are located nearly a mile away and were never part of the MEO property. This too is confirmed by historic deeds, LCA awards, and County records.

**Comment No. 3:**

*Find a way to call out information on maps so that it is easier to understand without having to look them up in other places.*

**Response:** The Applicant acknowledges the comment and will update specific maps, as appropriate.

**Comment No. 4:**

*Discuss drainage mitigation in more detail. There is flooding in the northernmost part of the parcel, so better evaluate it because we would not want to see homes flooded.*

**Response:** The Applicant acknowledges the comment. It is our understanding that trash and debris blocking the culvert has previously caused drainage issues at Kahekili Highway and Waiehu Beach Road. The Hawai'i Department of Transportation (HDOT) subsequently cleared the trash and debris from the culvert, which mitigated the issue. This project will be designed to meet the County's drainage rules and storm water quality rules. An updated Preliminary Engineering Report is being prepared and will be included in the Final EA for the project.

**Comment No. 5:**

*Disclose perimeter fence locations, particularly around the swale.*

**Response:** The Applicant acknowledges the comment and will label the fence locations on the conceptual site plan.

**Comment No. 6:**

*We appreciated the lists of people consulted with for cultural impacts.*

**Response:** The Applicant acknowledges and appreciates the comment.

**Comment No. 7:**

*There is a bus route nearby and please address how people will travel to the bus stop.*

**Response:** The Applicant and development team is coordinating with the County Department of Transportation to determine the feasibility of providing a bus stop within or near the project vicinity. The Applicant will also maintain shoulder space along the project's frontage on Kahekili Highway.

**Comment No. 8:**

*Incorporate more native species into your landscape plan. Look at native plants documented as having grown in that area and incorporate that into your plants and replace the non-natives. There is good dirt back there and Hawaiian plants will have the water and the nutrients they are meant to have.*

**Response:** A Conceptual Landscape Plan will be included in the Final EA. The plant palette will include drought-tolerant native plants. Native Hawaiian plant species will include those indigenous to the habitat within the vicinity of the project.

**Comment No. 9:**

*Research the history of the Piihaha Project District and explain it in more detail.*

**Response:** The Applicant acknowledges the comment and will provide more information on the history of the Piihaha Project District in the Final EA.

**Comment No. 10:**

*Coordinate better with the project on the other side of the highway on ingress/egress.*

**Response:** Thank you for this comment. The development mauka of Kahekili Highway is aware that their accesses will need to be coordinated with the accesses for the Hale Mahaolu Ke Kahua Affordable Housing Community.

**Comment No. 11:**

*For the clubhouse, keep in mind that more parking is needed for events for Hawaiian style celebrations.*

**Response:** The Applicant will work with the development team and make every effort to provide as much parking as possible and as appropriate for the project. As the property managers for the eventual housing community, Hale Mahaolu will also manage onsite parking needs between residents, the nonprofit building and clubhouse.

**Comment No. 12:**

*We like the community-driven activities for residents, such as the community gardening concept.*

**Response:** The Applicant acknowledges the comment and will consider implementing community-driven activities for residents, as feasible.

**Comment No. 13:**

*We are concerned with the speed of traffic along Kahekili Highway and think you should consider adding a landscape buffer along the property frontage.*

**Response:** A landscape buffer planting will be installed along the frontage of the property with Kahekili Highway to help visually screen the property and to help with noise attenuation.

**Comment No. 14:**

*We are also concerned about how busy traffic is during the work/school drop off/pick up times, so that needs to be evaluated. Even if there will be traffic impacts, we are supportive of working class people obtaining houses.*

**Response:** The Applicant proposes to provide 120 units of multi-family affordable housing units and a small nonprofit building, which is anticipated to generate 64(79) trips during the AM(PM) peak hour, and will account for only approximately 3-5 percent of traffic on Kahekili Highway and Waiehu Beach Road.

The long-term regional improvement for the area identified by the County is the Imi Kala Street Extension. The timeline for completion of this improvement is currently unknown, but would likely be tied to future development and availability of County funding.

The Hale Mahaolu Ke Kahua Affordable Housing Community development team is in coordination with HDOT and the Department of Public Works (DPW) to determine its fair share of roadway infrastructure improvements in the area based on the potential impacts that are expected to be generated by the project.

**Comment No. 15:**

*It rains in the afternoons, so extend the awnings or eaves so that the rain does not affect homes/residents.*

**Response:** Roof eaves and awnings will be provided as appropriate and determined by the development team.

**Comment No. 16:**

*Research and address ongoing cultural practices occurring onsite.*

**Response:** The EA process included the preparation of a Cultural Impact Assessment (CIA) that was prepared to assess the proposed project's potential effect on cultural beliefs, practices, and resources. The CIA included outreach to 73 Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Respondents included: Kumu Hōkūlani Holt-Padilla, kama'āina of Waiehu, Kumu Hula of Pā'ū o Hī'iaka, and Director of Ka Hikina O Ka Lā; Kaniloa Kamaunu, kama'āina of Waiehu; Daniel Ornellas, kama'āina of Waiehu, representing Kwong Fook Tong Chinese Cemetery; and a confidential informant. No impacts to on-going cultural practices were identified within the project area during community consultation for this CIA. The project site, which is owned by Maui Economic Opportunity, Inc. (MEO), is unoccupied and there are no documented on-going cultural activities occurring on the project site.



Michele Chouteau McLean, Director  
June 1, 2022  
Page 5

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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## Parents And Children Together

BUILDING THE RELATIONSHIPS THAT MATTER MOST

October 15, 2021

Mr. Buddy Almeida  
County of Maui  
Department of Housing and Human Concerns  
2200 Main Street, suite 546  
Wailuku, Hawaii 96793

Dear Mr. Almeida

As a social service agency, Parents And Children Together (PACT), take serving underserved populations especially those who are impoverished as an integral part of our mission. We are very happy to see that the 11.5 acres called "Ke Kahua" in Waiehu is going to be used for an affordable rental project for residents earning 60% or less of the area median income.

With housing shortages and rental prices soaring, local families often are left living in multi-family situations, homeless or in shelters, if and when they are available. With COVID-19 causing so much unemployment and instability, and with the limited financial support that is available, the outcome for our families is dismal.

We appreciate this project and hope it will come to fruition. It will give hope of having a home for some of our families. MEO has had plans and dreams for this property since 2008 and now it seems with this lease to Hale Mahaolu the "Ke Akua" project will finally be built and shared with the community, similar to the way it was initially intended.

Founded in 1968, Parents And Children Together (PACT) is one of Hawaii's not-for-profit organizations providing a wide array of innovative and educational social services to families in need. We help families identify, address and successfully resolve challenges through our various statewide programs. Among our services are: early education programs, domestic violence prevention and intervention programs, child abuse prevention and intervention programs, child and adolescent behavioral health programs, sex trafficking intervention, and community building programs.

Mahalo,

Ryan Kusumoto  
President and CEO  
Parents And Children Together

June 1, 2022

**EMAIL: rkusumoto@pacthawaii.org**

Ryan Kusumoto, President and CEO  
Parents And Children Together  
1485 Linapuni Street, Suite 105  
Honolulu, Hawai'i 96819

**SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i**

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Dear Mr. Kusumoto:

Thank you for your comment letter dated October 15, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate your comments in support of this 100 percent affordable housing community in Waiehu.

We will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa

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UNIVERSITY  
of HAWAII  
MĀNOA

October 25, 2021

Via email:

County of Maui, Department of Housing & Human Concerns  
2200 Main Street, Suite 546  
Wailuku, HI 96793

Attention: Ms. Lori Tsuhako, Director ([planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com))

Re: Draft Environmental Assessment  
Proposed Hale Mahaolu Ke Kahua Affordable Housing Community, Wailuku, Maui, Hawai'i  
Tax Map Key No. (2) 3-3-001:106

Dear Ms. Tsuhako:

Thank you for the opportunity to comment on the draft EA for the proposed Hale Mahaolu Ke Kahua Affordable Housing Community project referenced above (published September 23, 2021), specifically with respect to issues and concerns regarding light pollution.

The University of Hawai'i Institute for Astronomy (IfA) conducts research in astronomy using telescopes located on Haleakalā and Maunakea and operated by IfA and our partner institutions. Both Haleakalā and Maunakea are among the best sites in the world for astronomical facilities because of their elevation, clear skies, favorable atmospheric conditions, and low levels of light pollution. Hawai'i-based observatories have played major roles in the advancement of astronomy and astrophysics for over 50 years and are well positioned to remain at the forefront of astronomical research for decades to come.

Because of the outstanding quality and productivity of these facilities, IfA is acutely concerned about negative impacts on astronomy from increased light pollution. Our work to combat light pollution has also brought us into contact with others concerned about light pollution for other reasons, including impacts on wildlife (particularly seabirds) and on human health. While IfA's comments focus on the impacts of light pollution on astronomy, appropriate mitigation measures also help to reduce non-astronomy impacts.

With that background, we offer the following comments:

Any new or additional artificial light at night has an adverse effect on astronomical observations by increasing the night sky brightness. All observations performed by the Pan-STARRS observatories, the ATLAS telescope, and the Faulkes telescope on Haleakalā are sky-background

2680 Woodlawn Drive  
Honolulu, Hawai'i 96822

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EXHIBIT 33



limited. This means that there is a natural sky brightness coming from airflow and zodiacal light. Artificial light increases the sky brightness, thereby decreasing the sensitivity of the telescopes. Some of the observations performed by the Air Force telescopes atop Haleakala are also sky-background limited, so those observations, performed for national defense purposes, will also be adversely affected.

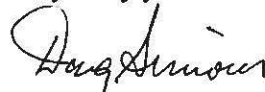
Appropriate general steps to reduce the impact on the observatories would include:

1. The minimum possible amount of outdoor lighting should be used. Motion sensor activated lighting is strongly preferred.
2. Any outdoor lighting must follow the Maui County lighting ordinance. All lighting must be fully shielded. This means that all lighting fixtures must emit zero light above the horizontal plane.
3. Blue light is most harmful to the observatories, so blue-deficient lighting should be exclusively selected. The best choices are filtered LED lights, or amber LED lights. Under no circumstances should high-intensity discharge lamps such as metal halide be used; fluorescent lights also must be avoided. Both of these types of lamps use mercury and emit light at wavelengths that is very damaging to astronomy.
4. White light should be avoided because the blue component of white light is very damaging to astronomy. White light should always have a Correlated Color Temperature of 2700 K or below.

We appreciate the DEA's comments about minimizing lighting impacts on seabirds, which generally also tend to reduce impacts on astronomy, and would encourage similar attention to light pollution issues more generally. Finally, we note that there is a strong need for further dialog with the University regarding light pollution on Maui, and a strong need for revision of the present lighting ordinance to properly address the impacts of changes in lighting technology including LED lighting.

Thank you for your consideration of these comments and attention to IfA's concerns. If you have questions or need further detail regarding these comments, please do not hesitate to contact the undersigned or Richard Wainscoat ([rjw@hawaii.edu](mailto:rjw@hawaii.edu)).

Very truly yours,



Doug Simons  
• Director

c: Mr. Monte Heaton, Waiehu Housing, LP ([monte.heaton@housingpartners.com](mailto:monte.heaton@housingpartners.com))  
Mr. Chris Sugidono, Munekiyo Hiraga ([planning@munekiyohiraga.com](mailto:planning@munekiyohiraga.com))



## MUNEKIYO HIRAGA

Planning. Project Management Sustainable Solutions.

Karlynn K. Fukuda  
PRESIDENT

Mark Alexander Roy AICP, LEED AP  
VICE PRESIDENT

Tessa Munekiyo Ng AICP  
VICE PRESIDENT

Michael T. Munekiyo AICP  
SENIOR ADVISOR

June 1, 2022

Doug Simons, Director  
University of Hawai'i at Mānoa  
Institute for Astronomy  
2680 Woodlawn Drive  
Honolulu, Hawai'i 96822

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke  
Kahua Affordable Housing Community at TMK (2)3-3-001:106,  
Waiehu, Maui, Hawai'i

Dear Mr. Simons:

Thank you for your letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us with comments for this 100 percent affordable housing community in Waiehu and offer the following responses, which are presented in the same order as they appear in your letters:

1. The Applicant appreciates the recommendation to minimize outdoor lighting and will consider using motion-activated lighting.
2. The Applicant confirms that all outdoor lighting will be fully shielded and will follow applicable requirements set forth by Chapter 20.35 of the Maui County Code.
3. The Applicant appreciates the recommendation to use blue-deficient lighting and/or filtered or amber LED lights and will consider doing so, as feasible.
4. The Applicant appreciates the recommendation and information regarding white light and will avoid using white lights, as feasible.
5. The Applicant acknowledges the encouragement to place attention on general light pollution issues and has forwarded this comment to the design team for

---

Maui: 305 High Street, Suite 104 • Wailuku, Hawaii 96793 • Tel: 808.244.2015 • Fax: 808.244.8729

Oahu: 735 Bishop Street, Suite 412 • Honolulu, Hawaii 96813 • Tel: 808.983.1233

[www.munekiyo-hiraga.com](http://www.munekiyo-hiraga.com)

EXHIBIT 33a

consideration and incorporation into the project as applicable.

6. The Applicant acknowledges the general need for further dialog with the University regarding overall light pollution on Maui, and encourages the University to coordinate with the County of Maui on appropriate revisions to the County's present lighting ordinance.

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:lh

cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Lena Tamashiro, Design Partners Inc.

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MICHAEL P. VICTORINO  
Mayor

MICHELE CHOUTEAU MCLEAN, AICP  
Director

JORDAN E. HART  
Deputy Director



**DEPARTMENT OF PLANNING**  
COUNTY OF MAUI  
ONE MAIN PLAZA  
2200 MAIN STREET, SUITE 315  
WAILUKU, MAUI, HAWAII 96793

October 13, 2021

Mr. Monte Heaton  
Waiehu Housing, LP  
330 West Victoria Street  
Gardena, California 90248

Dear Mr. Heaton:

**SUBJECT: COMMENTS ON DRAFT ENVIRONMENTAL  
ASSESSMENT FOR THE PROPOSED HALE MAHAOLU  
KE KAHUA AFFORDABLE HOUSING COMMUNITY,  
WAIEHU, MAUI, HAWAII; TMK: (2) 3-3-001:106  
(EAC 2021/0006)**

At its regular meeting held on **October 5, 2021**, the Urban Design Review Board (UDRB) reviewed the plans for the document referenced above. Based upon those discussions and questions to the Applicant and its consultants, the UDRB voted to recommend approval of the project, as presented.

Overall, the UDRB agrees that this is a good project and they were unanimous in their support of the project, the scope and amenities that it will offer to the community. It supports the need of the Maui community for affordable housing, and the applicant is commended for offering it at the rates proposed, which are impressive. The project is not only aesthetically pleasing; but, there is a sensitivity to both affordability and consideration of quality of life, and they appreciated the opportunity to review the project.

The UDRB also issued design-related comments and recommendations, as stated below:

- 1) Enlarge the lanai on the two bedroom units so that it has just as large a space as the one and three-bedroom units.
- 2) Consider the use of cool roof technology, specifically the Solaris product, so that it is cooler for the residents and there is a reduction in electric costs.
- 3) Ensure that there is bicycle storage within the complex.



Mr. Monte Heaton  
October 13, 2021  
Page 2

- 4) Landscape buffer along the highway frontage to soften the edge of the project because people are accustomed to seeing that area as farm. Also, it will help visually screen the area from residents so that they are not seeing vehicles passing by, and to help attenuate noise to the ground floor units.
- 5) Factor in offsite runoff into drainage improvements. Currently, there is a lot of storm water runoff from the south, on the other side of the highway that flows across the highway through the project site.
- 7) Consider the proximity of the driveway nearest the intersection of Kahekili Highway and Waiehu Beach Road and whether there is an adequate distance from that egress point to Waiehu Beach Road for project design. Add in the left turn storage lane into the middle driveway, where left and right turns are allowed.
- 8) Add windows to front elevations, particularly above sinks, for increased ventilation, where possible.
- 9) Work to install a bus stop for connectivity because the site is remote.
- 10) Vehicles travel along Kahekili Highway at high speeds, so increase safety along the highway by adding speed tables.
- 11) Erosion control in the back is of concern because there is sand, and we recommend that you work with your geotechnical engineers to ensure that it is addressed to prevent the undercutting of the buildings and stabilize the project site.
- 12) We like the color palette, as it blends into the natural beauty of the surrounding environs.

Thank you for your cooperation. Should you require further clarification, please contact Staff Planner Tara Furukawa by email at [tara.furukawa@mauicounty.gov](mailto:tara.furukawa@mauicounty.gov) or by phone at (808) 270-7520.

Sincerely,

  
CARYL HITCHCOCK-SPRINZEL, Chair  
Maui Urban Design Review Board

Mr. Monte Heaton  
October 13, 2021  
Page 3

Copy to: Clayton I. Yoshida, Planning Program Administrator (PDF)  
Tara K. Furukawa, Staff Planner (PDF)  
Lori Tsubako, Department of Housing and Human Concerns (PDF)  
Monte Heaton, Waiehu Housing, LP (PDF)  
Moe Mohanna, Highridge Costa (PDF)  
Harrison Herzberg, Highridge Costa (PDF)  
Mark Roy, Munekiyo Hiraga (PDF)  
Chris Sugidono, Munekiyo Hiraga (PDF)  
Leilani Ramoran-Quemado, Secretary to Boards and Commissions (PDF)  
Maui Planning Commission (PDF)  
Carolyn Takayama-Corden, Secretary to Boards and Commissions (PDF)  
Project File

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June 1, 2022

Caryl Hitchcock-Sprinzel, Chair  
County of Maui  
Department of Planning  
Maui Urban Design Review Board  
2200 Main Street, Suite 315  
Wailuku, Maui, HI 96793

**SUBJECT:** Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

---

Dear Ms. Hitchcock-Sprinzel:

Thank you for your comment letter dated October 13, 2021, regarding the Draft Environmental Assessment (EA) for the subject project. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Comment No. 1:**

*Overall, the UDRB agrees that this is a good project and they were unanimous in their support of the project, the scope and amenities that it will offer to the community. It supports the need of the Maui community for affordable housing, and the applicant is commended for offering it at the rates proposed, which are impressive. The project is not only aesthetically pleasing; but, there is a sensitivity to both affordability and consideration of quality of life, and they appreciated the opportunity to review the project.*

**Response:** The Applicant appreciates the UDRB's comment and unanimous support for the project.

**Comment No. 2:**

- 1) *Enlarge the lanai on the two bedroom units so that it has just as large a space as the one and three-bedroom units.*

**Response:** The Applicant acknowledges the comment and will do its best to provide equally sized lanais for each unit, as feasible.

**Comment No. 3:**

- 2) *Consider the use of cool roof technology, specifically the Solaris product, so that it is cooler for the residents and there is a reduction in electric costs.*

**Response:** The Applicant acknowledges the comment and will work with the development team to determine what energy efficient and sustainable features will be included in the project.

**Comment No. 4:**

- 3) *Ensure that there is bicycle storage within the complex.*

**Response:** The Applicant acknowledges the comment and will work with the development team to provide bicycle storage within the project.

**Comment No. 5:**

- 4) *Landscape buffer along the highway frontage to soften the edge of the project because people are accustomed to seeing that area as farm. Also, it will help visually screen the area from residents so that they are not seeing vehicles passing by, and to help attenuate noise to the ground floor units.*

**Response:** The Applicant will provide a greenway buffer along Kahekili Highway to help visually screen the property and to help with noise attenuation.

**Comment No. 6:**

- 5) *Factor in offsite runoff into drainage improvements. Currently, there is a lot of storm water runoff from the south, on the other side of the highway that flows across the highway through the project site.*

**Response:** The Applicant acknowledges the comment and will comply with the County's drainage rules. Offsite flows to the property will be further analyzed as construction-level plans are developed.

**Comment No. 7:**

- 7) *Consider the proximity of the driveway nearest the intersection of Kahekili Highway and Waiehu Beach Road and whether there is an adequate distance from that egress point to Waiehu Beach Road for project design. Add in the left turn storage lane into the middle driveway, where left and right turns are allowed.*

**Response:** The Applicant proposes to restrict the northernmost and southernmost accesses to right-in, right-out (RIRO) only, and maintain full access at the middle intersection to allow both left and right turns entering and exiting the project. All intersections will be designed to County standards. The County Department of Public Works (DPW) was acceptable to this access plan based on previous meetings.

**Comment No. 8:**

- 8) *Add windows to front elevations, particularly above sinks, for increased ventilation, where possible.*



**Response:** The Applicant will add windows as appropriate to maximize ventilation within the units.

**Comment No. 9:**

- 9) *Work to install a bus stop for connectivity because the site is remote.*

**Response:** The Applicant and development team is coordinating with County Department of Transportation to determine the feasibility of providing a bus stop within or near the project vicinity.

**Comment No. 10:**

- 10) *Vehicles travel along Kahekili Highway at high speeds, so increase safety along the highway by adding speed tables.*

**Response:** The Applicant and development team has been in coordination with the State of Hawai'i Department of Transportation (HDOT) and DPW to determine if traffic calming measures are appropriate in this area. In lieu of any traffic calming measures, enforcement of speeds along Kahekili Highway will encourage adherence to posted speed limit signs.

**Comment No. 11:**

- 11) *Erosion control in the back is of concern because there is sand, and we recommend that you work with your geotechnical engineers to ensure that it is addressed to prevent the undercutting of the buildings and stabilize the project site.*

**Response:** The Applicant has prepared a geotechnical report for the project site, which will be included in the Final EA. The Applicant also intends to utilize slope stabilization materials to the greatest extent practicable.

**Comment No. 12:**

- 12) *We like the color palette, as it blends into the natural beauty of the surrounding environs*

**Response:** The Applicant acknowledges and appreciates the comment.

Caryl Hitchcock-Sprinzel, Chair  
June 1, 2022  
Page 4

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

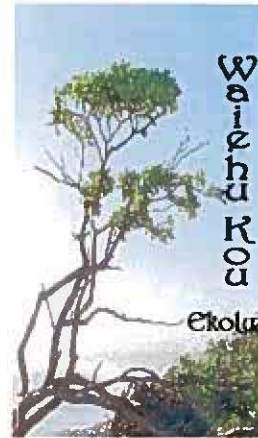
Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Tyler Fujiwara, Austin, Tsutsumi & Associates, Inc.  
Kelcee Fujimoto, Austin, Tsutsumi & Associates, Inc.  
Ashley Otomo, Otomo Engineering, Inc.  
Lena Tamashiro, Design Partners, Inc.

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**TO:** Chris Sugidono, Senior Associate  
Lynne Hiromoto, Administrative Assistant  
305 High Street, Suite 104,  
Wailuku, Hawaii 96793  
T: 808.244.2015  
[chris@munekiyohiraga.com](mailto:chris@munekiyohiraga.com)  
[lynne@munekiyohiraga.com](mailto:lynne@munekiyohiraga.com)

**FROM:** Roy Oliveira, President  
Waiehu Kou Phase 3 Association  
Hawaiian Homelands, Maui  
Federally Registered NHO (Native Hawaiian Organization)  
49 Kaulana Na Pua Circle  
Wailuku, Hi. 96793  
[waiehukouphase3association@hotmail.com](mailto:waiehukouphase3association@hotmail.com)

<http://www.waiehukouphase3.org/>



**Re:** Hale Mahaolu Ke Kahua Affordable Housing Community and some of the perceived concerns anticipated by our Hawaiian Homestead Community here in Waiehu, Maui.

Aloha mai ka kou,

Mahalo for the opportunity to comment on the Hale Mahaolu Ke Kahua Affordable Housing Community Environmental Assessment (EA) Draft document we received from your office. The concerns suggested by survey of our community were strong and are twofold:

1. **Traffic congestion**, by the mere location of said community at a choke point of access to Kahului and Wailuku, the commercial and political hubs servicing our community.
2. The **environmental hazard of flooding** near the site has been already established in recent years and continues to be a risk at the culvert going under Kahikili Highway where the North and South Waiehu Streams converge, across from Waiehu Beach Road.

There is little to no mitigation referenced in your EA report to alleviate any of the anxieties expressed by our community. We would appreciate a comprehensive review of these matters and a reply with your remedies to ease these potential risks.

These concerns were the ones most expressively conveyed to our Board Directors and therefore brought to your attention mindful of the comment deadline your letter imposed. Homestead members comment may still trickle into you as your email and address were included in our community comment outreach effort.

Mahalo for your consideration,

Roy K. Oliveira

EXHIBIT 35

March 25, 2022

Via email: [waiehukouphase3association@hotmail.com](mailto:waiehukouphase3association@hotmail.com)

Roy Oliveira, President  
Waiehu Kou Phase 3 Association  
49 Kaulana Na Pua Circle  
Wailuku, Hi. 96793

SUBJECT: Draft Environmental Assessment for Proposed Hale Mahaolu Ke Kahua  
Affordable Housing Community at TMK (2)3-3-001:106, Waiehu, Maui,  
Hawai'i

Dear Mr. Oliveira:

Thank you for your comment letter dated October 25, 2021, regarding the Draft Environmental Assessment (EA) for the subject project, which involves the development of 120 affordable multi-family housing units. We appreciate you taking the time to provide us comments for this 100 percent affordable housing community in Waiehu.

On behalf of the Applicant, we offer the following responses to your comments which are presented in the same order as they appear in your letter:

**Comment No. 1:**

*Traffic congestion, by the mere location of said community at a choke point of access to Kahului and Wailuku, the commercial and political hubs servicing our community.*

**Response:** Thank you for your comment. The project site for the proposed project is considered to be a suitable location for residential housing as it is supported by the County's general planning framework and is located adjacent to existing residential areas and situated within the Urban Growth Boundary for the region. It is also located within easy reach of existing school facilities, recreational amenities and retail services currently available within the Wailuku-Kahului community.

A Traffic Impact Analysis Report (TAIR) was prepared for this project and included in the Draft EA. Section 3.3 of the TIAR discusses this existing traffic congestion along the major corridors and study intersections. The project is expected to generate a minimal increase in traffic beyond existing conditions.

The long-term regional improvement for the area identified by the County is the Imi Kala Street Extension. The timeline for completion of this improvement is currently unknown, but would likely be tied to future development and availability of County funding.



The Hale Mahaolu Ke Kahua Affordable Housing Community development team is in coordination with the Hawai'i Department of Transportation (HDOT) and Department of Public Works (DPW) to determine its share of roadway infrastructure improvements in the area based on the potential impacts that are expected to be generated by the project.

**Comment No. 2:**

*The environmental hazard of flooding near the site has been already established in recent years and continues to be a risk at the culvert going under Kahikili Highway where the North and South Waiehu Streams converge, across from Waiehu Beach Road.*

**Response:** It is our understanding that trash and debris blocking the culvert has previously caused drainage issues at Kahekili Highway and Waiehu Beach Road. The HDOT subsequently cleared the trash and debris from the culvert, which mitigated the issue. This project will be designed to meet the County's drainage rules and storm water quality rules.

**Comment No. 3:**

*There is little to no mitigation referenced in your EA report to alleviate any of the anxieties expressed by our community. We would appreciate a comprehensive review of these matters and a reply with your remedies to ease these potential risks. These concerns were the ones most expressively conveyed to our Board Directors and therefore brought to your attention mindful of the comment deadline your letter imposed. Homestead members comment may still trickle into you as your email and address were included in our community comment outreach effort.*

**Response:** The Applicant acknowledges and appreciates your comments. Additional information regarding the mitigation of traffic and flooding, as needed based on the outcome of continued agency coordination, will be included in the Final EA. Consultation with various community groups and stakeholders will also continue as the project progresses.

Roy Oliveira, President  
March 25, 2022  
Page 3

We appreciate your input and will include a copy of your comment letter and this response in the Final EA. Should you have any questions or require further information regarding the proposed project, please contact me at (808) 244-2015, extension 221.

Very truly yours,



Chris Sugidono  
Senior Associate

CEJS:ab

Cc: Grant Chun, Hale Mahaolu  
Moe Mohanna, Highridge Costa  
Monte Heaton, Highridge Costa  
Harrison Herzberg, Highridge Costa  
Tyler Fujiwara, Austin, Tsutsumi & Associates, Inc.  
Kelcee Fujimoto, Austin, Tsutsumi & Associates, Inc.  
Ashley Otomo, Otomo Engineering, Inc.  
Lena Tamashiro, Design Partners, Inc.  
Debbie Cabebe, Maui Economic Opportunity, Inc.  
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**COUNTY OF MAUI Hawaii**


Layers Map Search Sales Search Sales List Results Sales Results Report Home Pictometry Imagery

Layer List Legend

☐ Parcels

State Land Use Districts

A  
C  
R  
U



Parcel ID 330011060000  
Acreage 11.476  
Class AGRICULTURAL

Situs/Physical Address KAHEKILI HWY  
Mailing Address MAUI ECONOMIC OPPORTUNITY INC  
99 MAHALAN ST  
WAILUKU HI 96793

Brief Tax Description LOT 1-C PAUKUKALO LARGE-LOT SUBDIVISION POR GR 3343 11.476 AC DES

<https://qpublic.schneidercorp.com/Application.aspx?AppID=1029&LayerID=21689&PageTypeID=1&PageID=9248&KeyValue=330011060000#>

EXHIBIT 36

0006 PC 23

SCS Project Number 889-2

**AN ARCHAEOLOGICAL ASSESSMENT OF  
APPROXIMATELY 11.75 ACRES  
LOCATED IN WAIehu AHUPUA'A,  
WAILUKU DISTRICT, ISLAND OF MAUI, HAWAII  
[TMK: (2) 3-3-001: por. 016]**

Prepared by:  
Donna M. Shefcheck, B.A.  
and  
Michael F. Dega, Ph.D.  
Revised June 2008

Prepared for,  
Mani Economic Opportunity, Inc.  
99 Mahalani Street  
Wailuku, HI 96793

SCIENTIFIC CONSULTANT SERVICES, Inc.

711 Kapiolani Blvd. Suite 975 Honolulu, Hawaii 96813

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**ABSTRACT**

An Archaeological Inventory Survey, inclusive of pedestrian survey and representative testing, was conducted on approximately 11.5 acres of undeveloped land in Waiehu Heights, Waiehu Ahupua'a, Wailuku District, Island of Maui, Hawaii [TMK: (2) 3-3-001: 016 (por.)]. This property is located at the border of the Waiehu Heights Subdivision and is known as Lot 1C of the Paukukalo Large-Lot Subdivision. The lot is currently vacant, but may have been used in the past for sand mining (Hawaiian Cement) and stockpiling of excess materials during the construction of the Waiehu Heights Subdivision itself. Modern disturbance to the project area ground surface includes extensive grubbing and grading, and the presence of macadamia nut trees indicates that it was at one time part of a larger macadamia nut farm. The proposed undertaking is to develop the subject property into an affordable housing residential subdivision.

No archaeological sites were identified during the Inventory survey. As such, the current report is being written as an Archaeological Assessment. While the current project yielded only negative results, sandy substrate was documented in the southern half of the project parcel. It remains possible that subsurface archaeological sites such as burials and/or habitation deposits do occur within the project area. Given the high number of burials and other culturally significant subsurface deposits in the surrounding area, a program of Archaeological Monitoring is recommended as a precautionary measure during all construction related ground altering activities. As such, Archaeological Monitoring was recommended for all construction related ground altering activities on the subject property.



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## INTRODUCTION

Scientific Consultant Services, Inc. (SCS) conducted Archaeological Inventory Survey on approximately 11.5 acres of land in the Paukukalo Large Lot Subdivision (Lot 1-C), Waiehu Ahupua'a, Wailuku District, Island of Maui, Hawai'i [TMK: (2) 3-3-001: 016 (por.)] (Figures 1, 2 and 3). This property is located in between the existing Waiehu Heights Subdivision and Kahekili Highway. The general area was previously mined for sand by Hawaiian Cement and used as a stockpiling area for excess materials during the construction of the Waiehu Heights Subdivision (Dagher and Dega 2006). The parcel is currently vacant and undeveloped.

The current Inventory Survey yielded only negative results after both full pedestrian survey and representative testing. This document (an Archaeological Assessment Report follows an Archaeological Inventory Survey during which no historic sites or cultural materials are identified) includes historic background research and settlement pattern analysis prior to fieldwork and the results of systematic pedestrian survey and representative mechanical testing. Fieldwork was conducted October 29 through November 2, 2007 by SCS archaeologist David Perzinski, B.A. under the overall direction of Michael Dega, Ph.D. (Principal Investigator).

The Archaeological Assessment Survey was conducted in accordance with the State of Hawaii Department of Land and Natural Resources Historic Preservation Division (SHPD), as outlined in Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, and State Historic Preservation Rules in order to determine the presence/absence of archaeological sites and features in surface and subsurface contexts through complete systematic survey and representative subsurface testing. The ultimate goals were to determine the presence/absence of historical sites, to provide adequate recordation and documentation of all historic sites present, to determine the significance of these sites, and to provide recommendations to the SHPD concerning site significance and mitigation in lieu of future land use in the project area.

## ENVIRONMENTAL SETTING

### LOCATION

The current project area is an approximately 11.5 acre property located in Waiehu Ahupua'a, Wailuku District, Island of Maui [TMK (2) 3-3-01: 016 (por.)] (see Figures 1 and 2). The project area is roughly rectangular in shape, with its long axis oriented approximately North-South. Kahekili Highway bounds the area to the east, to the west are existing residential homes, to the south open, undeveloped land, and to the north lies Waiehu

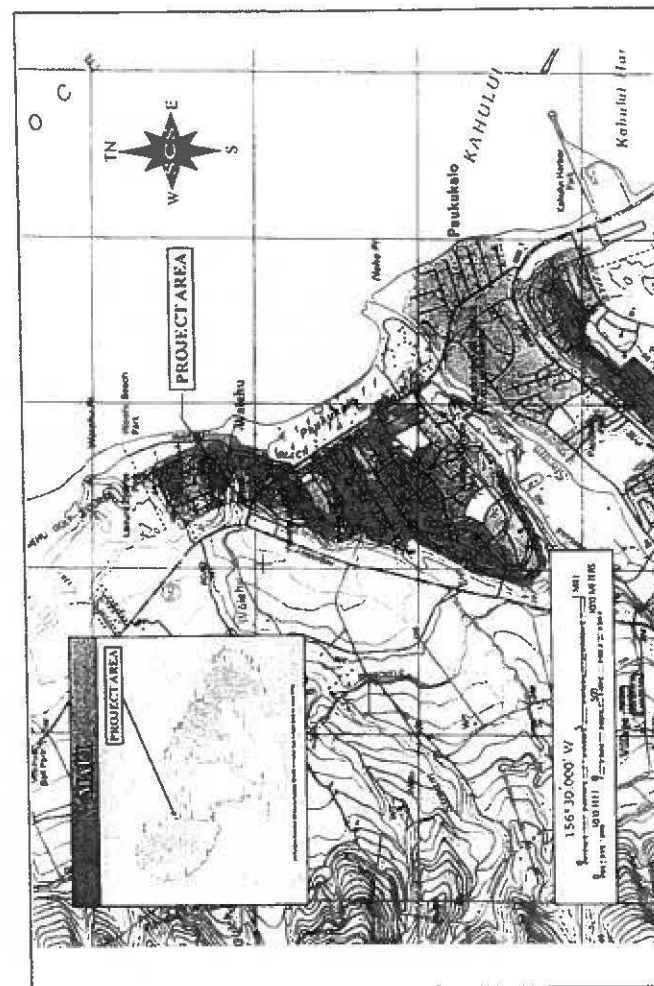


Figure 1: USGS Wailuku Quadrangle Showing the Project Area.

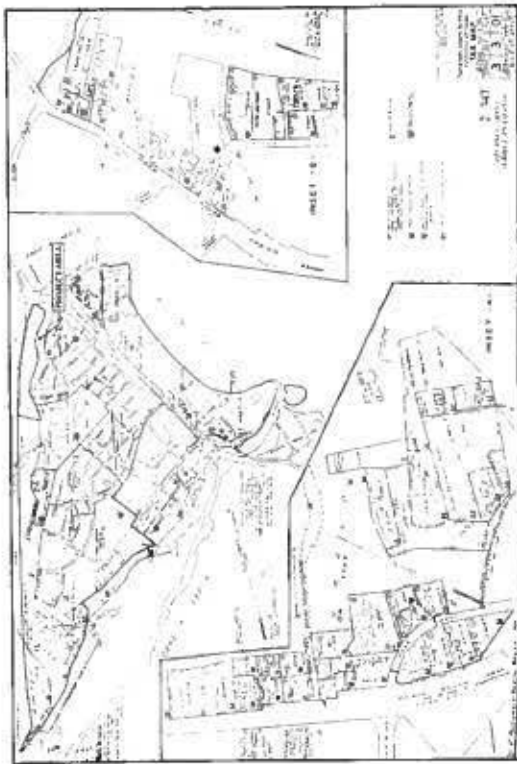


Figure 2: Tax Map Key (TMK) Showing the Project Area.



Figure 3: Development Plan View Map Showing the Project Area.

Beach Road. The lot is located approximately 140 feet amsl (above mean sea level) and approximately 2 kilometers from the shore of Paukukalo Beach. Several geographic landmarks dot the surrounding area. As there is a lot of rainfall in Waiehu, it goes without saying that there are many streams, ditches and drainages in the general vicinity of the project area. The most notable of these are Iao Stream, to the south of the project parcel, and Waiehu Stream and Spreckels Ditch to the west. A large coral reef fringes the coastline creating shallow fishing waters and protected inshore pools ideal for marine collecting. Traditional occupation of the area, believed to have been dense and continuous throughout Hawaiian history, is denoted geographically by Haleki'i and Pihana Heiau, which lie south of the project area on the banks of Iao Stream.

Historic grubbing and grading has nearly leveled the study parcel and an old access road runs through center, paralleling Kahakili Highway. The western portion of the site is within a pre-existing macadamia nut orchard and contains a grove of macadamia nut trees (*Macadamia integrifolia*), dense cane grass and sparse *koa haole* (*Leucaena leucocephala*). A large amount of modern trash (appliances, car parts, glass jars, etc.) is scattered throughout the project area.

According to Foote *et al.* (1972) the project area is located in the Puuone Sand (PZUE) deposit. In general, this soil series occurs in the lower uplands of the island of Maui with elevation ranging from 50 to 350 feet above mean sea level (amsl). These soils are comprised of somewhat over-drained soils, which have been formed from materials originating in coral and marine shell. The PZUE soil association is found in the south half of the project area. The north half consists of Iao clay (IcB), a soil type that is found on alluvial fans and valley bottoms.

#### TRADITIONAL AND HISTORIC SETTING

Archaeological settlement pattern data indicates that initial colonization and occupation of the Hawaiian Islands first occurred on the windward shoreline areas between the A.D. 4<sup>th</sup> and 11<sup>th</sup> centuries of the main islands, with populations eventually settling into drier leeward areas at later periods (Kirch 1985). Coastal settlement was still dominant, but populations began exploiting and living in the upland *kula* zones. Greater population expansion to inland areas did not occur until the c. A.D. 12<sup>th</sup> century but continued through the 16<sup>th</sup> century. Large scale or intensive agricultural endeavors were implemented in association with habitation. Coastal lands were used for settlement and taro was cultivated in near-coastal reaches and in the uplands.

#### **THE TRADITIONAL PERIOD**

According to W.D. Alexander (in Sterling 1998:91) the *ahupua'a* of Waiehu and Waihe'e were independent lands which did not belong to a particular district (*moku*). Thus, they were referred to as Na Poko. It was only during modern times that these lands were divided into a district. In reference to the origination and meaning of the name Waiehu, Sterling quotes Cheever (in Sterling 1998:63) who states that the name Waiehu translates as "...where the combatants smoked with dust and perspiration..." and refers to a battle or battles which occurred in the area. Pukui *et al.* (1974:221) offer another interpretation of Waiehu as meaning "water spray". This area is also known for having strong winds. The winds of Waiehu are said to be "Makani-hoo'eha-ili, the winds that hurt the skin" (Rebecca Nuuhiwa, Audio Collection in Sterling 1998:62). Although Pukui (*ibid*) interprets the meaning of Makani-hoo'eha-ili as "love disturbance" and the rains of Waiehu have been called "the fine mist" [Ka wai Kilioopu o Waihee] (Hyde in Sterling 1998:5).

Traditionally, the entire area from Wailuku Valley north to Waihe'e Valley was part of an old land division named Na Wai Eha ('The Four Streams'), referring to several great valleys draining the slopes of West Maui. This was said to be the most expansive area of continuous *kalo* (*taro*) pond-field agriculture in the Hawaiian Islands.

Waiehu is the second valley of the famous Na Wai Eha of western Maui, and it is watered by twin streams. The cane fields now extend throughout this region, continuously from Waihe'e on the lower slopes; but above Waiehu and Puakala from the upper roads following the irrigation ditches well toward the upper limits of the cane, a few old plantations still persisted in 1934. Some were used for raising wet taro, some for truck gardening. However, except for these few patches the old terraces of the upper slopes are entirely ploughed under (Handy and Handy 1972:496-7).

Before the historic era, it is highly likely that much of Waiehu Ahupua'a was extensively modified by terraces and irrigation ditches, from just mauka the near-coastal sand dunes to the high upper valleys. The present project area is situated *makai* of the probable lower limits of this extensive *lo'i* system. Later in time, much of these uplands were transformed into commercial sugar cane fields, which resulted in the destruction of innumerable terraces, irrigation ditches, and associated features.

We can infer from Walker's discussion in Sterling (1998:66) regarding the sandy ground in neighboring Waihe'e Ahupua'a being frequently used as a burial site that the same may be true for the sandy soils of Waiehu Ahupua'a:



The long sandy ridge near the shore at Waihee was another favorite burial ground. The erosion of the sand banks frequently exposes burials, but the bones are quickly disturbed and scattered so that their original position of burial cannot be determined. Modern graveyards occupy several sites along the crest of this ridge.

#### KNOWN HEIAU IN THE VICINITY

A large number of *heiau* were recorded by Thrum (in Sterling 1998) and Walker (1931) between Waihe'e and Wailuku which attest the importance of this area during traditional times. All of the documented *heiau* in Waiehu Ahupua'a, are located inland and *mauka* of the project area. The relatively large number and variety of named *heiau*, which included a *luakini heiau* (high chief-sacrificial shrine) in Paukukalo built by Kahekili, indicates a substantial settled population in the region. Most of these *heiau* were completely or almost completely destroyed by the early 20<sup>th</sup> century.

Documented *heiau* in Waiehu Ahupua'a include:

- Halelau Heiau (Walker Site 37), located well inland (*mauka*) of the coast—apparently destroyed by a more recent cemetery.
- Malumaluakua Heiau (Walker Site 39), located at the head of the Waiehu Gulch, well inland (*mauka*) of the coast—possibly a sacrificial shrine, although there was no stone construction (e.g., walls and/or platforms) present, which Walker suggested may have been a local variant: "In this region a *heiau* seems to mean merely a sacred spot not marked necessarily by either walls or platforms of stone" (Walker 1931:142).
- Kukuikomo Heiau (Walker Site 40), located on the ridge between North and South Waiehu Gulches, well inland (*mauka*) of the coast—another possible example of a shrine lacking observable rock architecture.
- Puukoa Heiau (Walker Site 41), located "[n]ear pond on ridge south of Waiehu Camp. Destroyed." (Walker 1931:144)

In addition, Poaiwa Pu'u honua (a place of refuge) was located in Waiehu Ahupua'a (Thrum in Sterling 1998:12). Walker also documented Pihani and Haleki'i Heiau within Wailuku Ahupua'a (southeast of the current project area), on the north side of 'Iao Valley near the mouth of 'Iao Stream (*ibid*: 31–144). In more recent decades, the archaeological significance of these important *heiau* has been determined through testing (Yent 1983), restoration, and preservation.

#### HISTORIC SETTING OF THE PROJECT AREA AND ENVIRONS

##### LAND TENURE

The land tenure system in prehistoric Hawai'i was rooted in a different epistemological framework than the subsequent colonially-imposed framework that is understood today as land ownership. The idea of holding land was not synonymous with owning it, but is described as closer to a trusteeship between the *ali'i nui* (ruling chiefs) of the island and the traditional Hawaiian *akua* (gods) Lono and Kane (Handy and Handy 1972:41). Each island was divided into *moku* (districts) that were solely geographical subdivisions. The number of these *moku* depended upon the size of each island. *Moku* were partitioned into smaller landholding units known as *ahupua'a* that were governed by *ali'i* or designated *konohiki*. The *ahupua'a* varied in size, but ideally encompassed land from the mountain to the sea, providing the chiefs and *maka'ainana* (people who cultivated the land) with the opportunity to recover both terrestrial and marine resources. All persons from chiefs to commoners were entitled to portions of these resources (Chinen 1961:5).

The prehistoric/traditional period in the Hawaiian Islands came to an end with the arrival of Captain Cook on Kaua'i in 1778. The years to follow would drastically change the political, agricultural, and social relationships and patterns of the Hawaiian Kingdom. Destabilization of Hawaiian society was further intensified by the profound reformation of traditional land systems. In 1848, the Māhele curtailed communal access to land. The Māhele system led to the introduction and implementation of privatization that required both chiefs and commoners to retain private land title (Kame'elehiwa 1992). If properly informed of the procedures, Hawaiians were permitted to claim lands on which they had worked or lived.

While LCA (Land Court Awards) establish historic land utilization in Hawai'i (during the Māhele), documented testimony from many land recipients have also demonstrated continuous generational occupation of the land. Settlement patterns illustrated in the LCA records highlight the multi-functional land use practices related to habitation and agriculture and perhaps the clear connection of these strategies. By mid-century, the fledgling [Hawaiian] Kingdom undertook the single most significant inducement to cultural change, the Great Māhele or division of lands between the king, chiefs, and government, establishing land ownership on a Western-style, fee-simple basis. From this single act, an entire restructuring of the ancient social, economic, and political order followed [Kirch 1985:309].

Under the Māhele and the first Land Commission of the Trust Territory of Hawai'i, lands were allocated in three ways. A third of all lands became Crown Lands belonging to the *ali'i*, a

third was distributed to the chiefs, and a third was awarded to the general populace, which were represented by a large portion of foreigners as well as Hawaiians during this time. The first Land Commission was formed in 1845, during which time all individuals holding land were now required by new Western notions of law to submit their claims or forfeit their land.

The subject parcel is part of a large land claim awarded to William Lunalilo (LCA 8559B\*M). This land claim included land parcels throughout Maui, Hawai'i Island, Oahu, Molokai and Kaua'i (Appendix A). Some of these lands were subsequently granted to the government.

#### **HISTORIC ERA**

According to Dorrance and Morgan (2000), the entire Na Wai Eha area from Wailuku Valley north to Waihe'e Valley, including Waiehu, was a major sugar cane cultivation zone from the lower slopes of the West Maui highlands to the near-coast area. The destruction of pre-Contact and early historic sites by commercial sugar cane operations was widespread and highly effective, as probably hundreds (if not thousands) of rock formations (e.g., habitations, agricultural features, *heiau*, burials, and other types of sites) were ploughed to create fields.

Commercial sugar cane cultivation in the neighboring Waihe'e Valley began in 1862 when Captain J. Hobron acquired land from T.H. Hobron to build the Waihe'e Sugar Mill (Donham 1989). By 1865, the Waihee Sugar Company was producing over 700 tons of sugar and 45,000 gallons of molasses per year. Production continued into the early 20<sup>th</sup> century. The Waihee Dairy and Farm, located along the coast, was established in 1919. The dairy closed in 1967. Sugar cane production was widespread throughout this region by the late 19<sup>th</sup> century to early 20<sup>th</sup> century. As a result of growth in the sugar cane industry, two irrigation ditches (Spreckels Ditch and the Waihe'e Ditch) were constructed in the late 19<sup>th</sup> century to early 20<sup>th</sup> century to channel water south from the Waihe'e Stream to nearby fields.

#### **PREVIOUS ARCHAEOLOGY**

As the project area is situated just *mauka* (west) of Paukukalo, south of Waihe'e Ahupua'a, and north of Wailuku Ahupua'a, these areas are broadly relevant to a review of previous archaeological research. The northern terminus of Wailuku Ahupua'a, which borders Waiehu Ahupua'a to the south, is relevant since a significant number of important sites have been identified. Cordy *et al.* (1978) have proposed a general settlement model for the area that includes temporary habitation and wetland agriculture in the upper valleys and elevations. Permanent habitation associated with *heiau* and burials are said to be found in the lower valleys

and at the coast. Cordy *et al.* (1978) suggest that the coast and lower valleys were first settled by A.D. 300 to 600, although thus far the earliest radiocarbon dates are significantly later than this. Bordner (1983) stated that the sand dunes of Waiehu and environs were a prime location for burials, and, in general, that extreme caution should be taken in developing these areas. As described above, Walker (1931) recorded many religious shrines within Waiehu Ahupua'a the vicinity of the project area, as well as villages and burial grounds in coastal settings just north of the project area.

The current study stands to gain more insight into the project area's historical and traditional land use via an examination of previous archaeology in the northeastern reaches of Wailuku District (Figure 4) (Table 1). Previous archaeological research in the eastern portion of Wailuku, Waiehu, and Waihe'e Ahupua'a is more relevant to the current study than research in areas to the south or west due to a shared topography, climate, land use, and settlement pattern.

Research at the State Historic Preservation Division (SHPD) indicated that the 1973 statewide inventory of known historic sites provided documentation on several burial sites in what is now the Waiehu Golf Course. The following descriptions are based on original site files available at the SHPD (in Kapolei). Site 50-50-04-1185 (designated the Waiehu Dune burials on original feature forms) was a burial site containing the remains of at least 33 human burials. The site is located at the top of the consolidated sand dune immediately west of the fairway of the fifth hole, at the Waiehu Municipal Golf Course, and the burials were exposed by natural, aeolian (wind) erosion. Some of the burials were associated traditional artifacts and midden. According to Donham (2003), this site has been preserved to prevent further erosion.

Site 50-50-04-1188 (designated the 'Golf Course Burials' on the original feature forms; designated Ma-D10-13 in B.P. Bishop Museum files) was a burial site consisting of "human skeletal remains eroding out of a sand bank along the northwest side of the service road in the Waiehu Municipal Golf Course. Human remains were found in three places along a 14-m stretch of the sand bank located about 65 m northwest of the maintenance building near the middle of the golf course" (SHPD 1973). The remains were reported as "fragmentary" (SHPD 1973).

The earliest archaeological endeavors in the Wailuku-Waiehu environs were undertaken by Thrum (1917), Stokes (1918), and Walker (1931). Although their archaeological finds do not directly pertain to the current project area, their data allows for a deeper understanding of the traditional use of the Wailuku-Waiehu area.

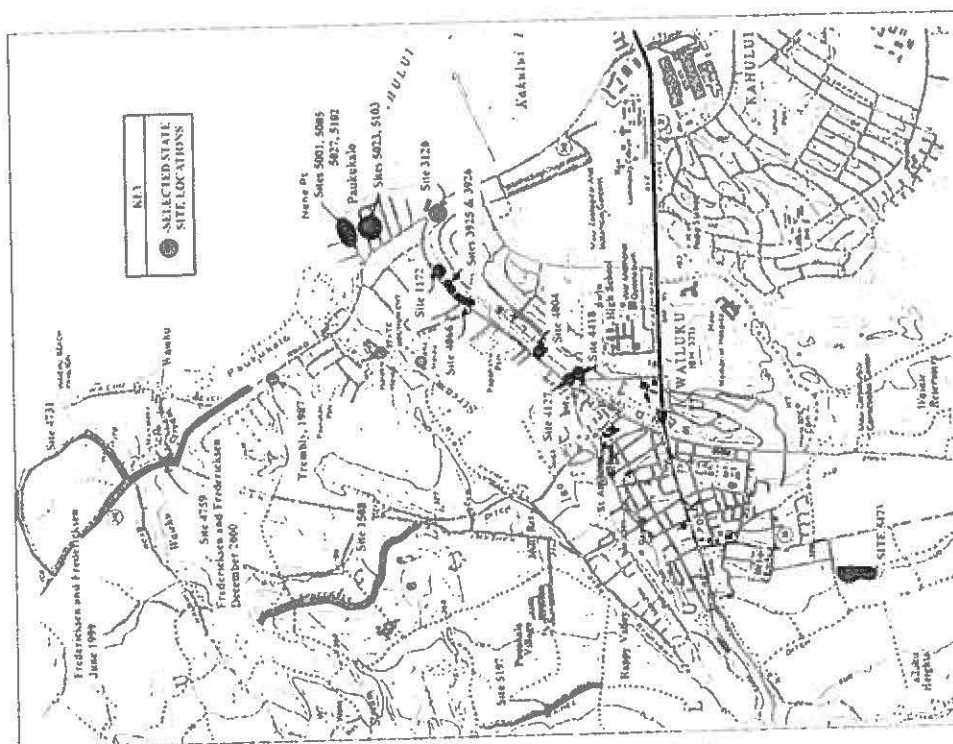


Figure 4: Selected State Site Locations in Vicinity of Project Area. Adapted from Fredericksen and Fredericksen 2002: Map 5.

[illegible]





### EXPECTED FINDINGS

Based on traditional Hawaiian settlement patterns, previous archaeological research, and historical activities in the project area, expected findings for this Inventory Survey were as follows:

1. There was a relatively high probability of finding pre-Contact (and possibly early Historic Period) Native Hawaiian burials due to the project area is being located in the Puuone Sand deposit which is known to be a traditional interment site for Native Hawaiian burials. There was also a relatively high probability of finding redeposited (i.e., previously disturbed) human skeletal remains, given that previous use of the project area involved ground disturbing activities including, sand mining by Hawaiian Cement and stockpiling of excess materials during the construction of the Waiehu Heights Subdivision.
2. There was a relatively high probability of finding subsurface evidence of traditional Native Hawaiian and/or early historic activities including: hearths, postholes, midden deposits, and other occupation debris (e.g., stone tool waste, discarded fishing gear).
3. There was essentially no expectation of finding any historically-significant sites or features on the present ground surface due to the fact that the ground surface has been extensively grubbed and graded.

## METHODOLOGY

## FIELD METHODOLOGY

Multiple tasks were completed during this project. First, systematic pedestrian survey of the entire project area was conducted by SCS archaeologist David Perzinski in order to identify and document any and all Historic and/or Traditional archaeological features, and assess the nature and extent of landscape modification. Survey also allowed for assessing areas amenable for testing. Following pedestrian survey, 17 stratigraphic trenches of various distances were mechanically excavated to basal strata throughout the project area (Figure 5). Written and photographic documentation of stratigraphy occurred during all trenching activities. None of the excavated sediments were screened as no artifacts or cultural deposits were encountered during excavation work. Representative stratigraphic profiles were completed following the termination of each trench.

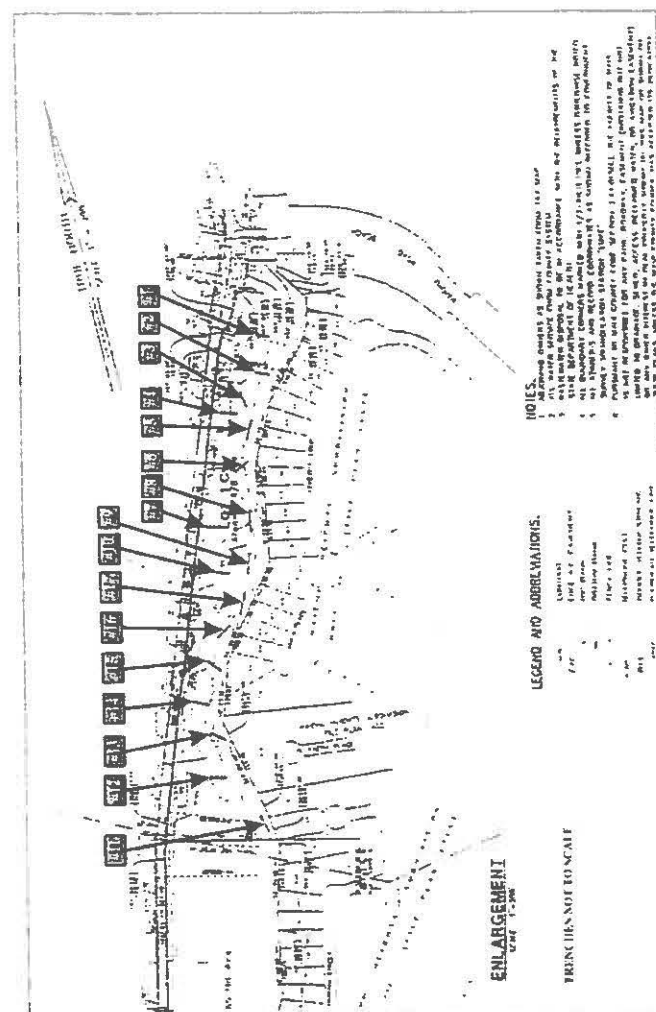


Figure 5: Tax Map Key Showing Location of Stratigraphic Trenches.

## LABORATORY METHODOLOGY

Due to the negative results of this project, laboratory work was primarily limited to stratigraphic profile and map drafting as well as report production. All field notes from this project are being curated at the SCS laboratory in Honolulu.

## RESULTS

No archaeological features or deposits were identified either on the ground surface or in subsurface contexts during the current project. The absence of sites on the surface may be attributed partly to previous grubbing of the landscape during sand mining (Dagher and Dega 2006) and the general lack of surface sites in this area. The excavation sample, while fairly intensive, also failed to yield cultural materials. It is possible that cultural deposits do occur in subsurface contexts as 100% of the parcel was not tested, as is the case with archaeological sampling.

Two stratigraphic profiles are representative of the project area as a whole (Figure 6). On the north side of the project area, subsurface deposits consisted of two layers. Layer I (0-40 cmbs) is a dry, very dark grayish brown (10 YR 3/2); silt loam. This deposit is weak, fine to medium granular structure with no plasticity, no cementation, and contains abundant roots and rootlets. The lower boundary is clear and smooth. Layer II (40-BOE) was a dry, brown (10 YR 4/3) slightly hard silt, with medium platy structure, no plasticity and no cementation.

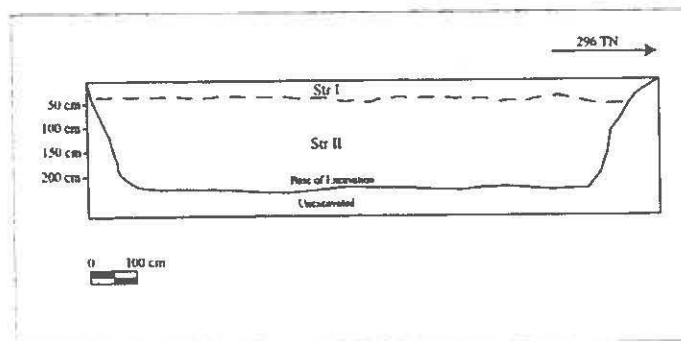


Figure 6: Representative Stratigraphic Profile for Northern Subsurface Deposits.

In the southern portion of the project area three strata were documented (Figure 7). Layer I (0-10 cmbs) consists of a dry, very dark grayish brown silt loam similar to that found in Layer I in the northern half of the project area. Also like its counterpart in the northern section, Layer II (10-120 cmbs) is a brown (10 YR 4/3), slightly hard silt, medium platy structure with no plasticity and no cementation. The lower boundary of this layer is abrupt and wavy. Layer III (120 cmbs to BOE) consists of pale brown (10 YR 6/3) loose silty sand with no structure, no plasticity, and contains few waterworn pebbles and cobbles.

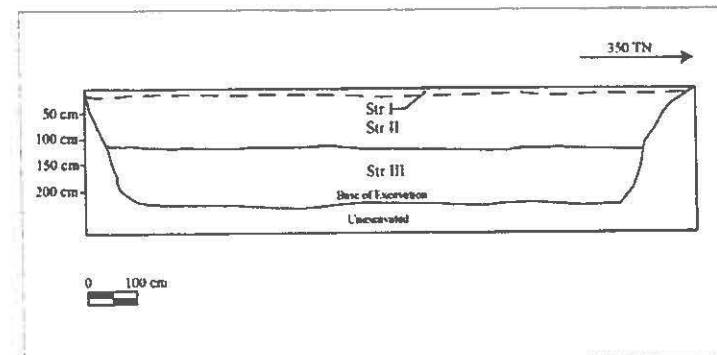


Figure 7: Representative Stratigraphic Profile for Southern Subsurface Deposits.

## RECOMMENDATIONS

Although no significant sites or cultural materials were identified during this project, trenching showed that original sand (Puuone Sand) deposits are present in the southern half of the project area, particularly below 120 cmbs, a finding that is consistent with the Foote *et al.* (1972) soil survey map. The presence of sandy matrix and the high number of burials and other culturally significant subsurface deposits in the surrounding area suggest the likelihood for the discovery of archaeological sites, such as burials and/or habitation sites, in the subsurface deposits of the project area. Thus, a program of Archaeological Monitoring is recommended as a precautionary measure during all construction related ground altering activities.

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## APPENDIX A





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MICHAEL P. VICTORINO  
Mayor

LORI TSHAKO  
Director

LINDA R. MUNSELL  
Deputy Director



DEPARTMENT OF HOUSING  
& HUMAN CONCERNS  
COUNTY OF MAUI  
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WAILUKU, MAUI, HAWAII 96793  
PHONE: (808) 270-7805

October 15, 2020

Dr. Alan S. Downer, Administrator  
Department of Land and Natural Resources  
State Historic Preservation Division  
Kakuhihewa Bldg., Suite 555  
601 Kamokila Boulevard  
Kapolei, Hawaii 96707

Dear Dr. Downer:

**SUBJECT:** Request for State Historic Preservation Division (SHPD) Letter of Determination (pursuant to Hawaii Administrative Rules [HAR] § 13-275-3) for the Waiehu Affordable Housing Development Project, Waiehu Ahupua'a, Wailuku District, Maui, TMK: [2] 3-3-001:106

The County of Maui Department of Housing and Human Concerns (DHHC) is submitting the subject project for review under Hawai'i Revised Statutes 6E-8.

Project Description

The 100% affordable housing project will involve the construction of 120 residential units including 30 1-bedroom units, 58 2-bedroom units, and 32 3-bedroom units as well as a 3,500 ft<sup>2</sup> non-profit building, a 3,000 ft<sup>2</sup> community center, two parking stalls per each residential unit (250 total stalls), and 35 additional stalls for the non-profit building. The project is being developed in cooperation with Maui Economic Opportunity, Inc. (MEO) and Hale Mahaolu. The project will focus on providing housing for Maui residents earning 60% or less of the area median income. Project-related ground disturbance will include excavation for structural footings, parking lots, pathways, entryways, and associated utility connections and infrastructure. This work will occur throughout the flat portion of the project area along Kahekili Highway. There are no plans for ground disturbance of the sand dune slope that defines the eastern boundary of the project area.

Identification of Historic Properties

No historic properties have been identified within the project area. The project area was the subject of an archaeological inventory survey including subsurface testing with negative findings (Shefcheck and Dega 2008). The archaeological inventory survey (termed an archaeological assessment due to negative findings) was reviewed and accepted by the SHPD on 13 June 2008 (Log No.: 2008.2334; Doc. No.: 0806PC23). The archaeological inventory survey recommended archaeological monitoring for ground altering activities on the subject property.

TO SUPPORT AND EMPOWER OUR COMMUNITY TO REACH ITS FULLEST  
POTENTIAL FOR PERSONAL WELL-BEING AND SELF-RELIANCE

Dr. Alan S. Downer  
October 15, 2020  
Page 2

Evaluation of Significance

No historic properties have been identified within the project area, therefore there has been no assessment of significance.

Determination of Effects to Significant Historic Properties

While no buried historic properties were identified within the project area during the subsurface testing sample conducted by Shefcheck and Dega (2008), previous archaeological studies in the vicinity have documented the potential for buried cultural deposits and human burials in this region. The DHHC proposes additional mitigation in order to provide the SHPD with sufficient information to make a project effect determination for this project.

Mitigation Commitments

The DHHC proposes on-site archaeological monitoring for all project-related ground disturbance related to the Waiehu Affordable Housing Development Project. Included in this submittal is a draft archaeological monitoring plan for review and acceptance by the SHPD.

A cultural impact assessment is also being prepared for the subject project to identify potential impacts to on-going cultural practices within the project area. The cultural impact assessment will be included in the project's environmental assessment.

Sincerely,

LORI TSHAKO, LSW, ACSW  
Director of Housing and Human Concerns

- Enclosures:
1. SHPD HRS 6E Form
  2. TMK Map
  3. Project Concept Plan
  4. Archaeological Assessment Report (Shefcheck and Dega 2008)
  5. SHPD Review Letter of Shefcheck and Dega (2008)
  6. SHPD Fee Form
  7. Draft Archaeological Monitoring Plan (Yates et al. 2020)

EXHIBIT 38

**Draft**  
**Archaeological Monitoring Plan for the**  
**Hale Mahaolu Ke Kahua Housing Community in Waiehu,**  
**Waiehu Ahupua'a, Wailuku District, Maui Island,**  
**TMK: [2] 3-3-001:106**

Prepared for  
 Waiehu Housing LP

Prepared by  
 Angela L. Yates, B.S.,  
 and  
 Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai'i, Inc.  
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**Management Summary**

<b>Reference</b>	Archaeological Monitoring Plan for the Hale Mahaolu Ke Kahua Housing Community in Waiehu, Waiehu Ahupua'a, Wailuku District, Maui Island, TMK: [2] 3-3-001:106 (Yates and Hammatt 2020)
<b>Date</b>	April 2021
<b>Project Number(s)</b>	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: WAIEHU 5
<b>Investigation Permit Number</b>	CSH will likely complete the archaeological monitoring fieldwork under archaeological fieldwork permit number 20-07, issued by the Hawai'i State Historic Preservation Division (SHPD) per Hawai'i Administrative Rules (HAR) §13-13-282.
<b>Agencies</b>	SHPD; County of Maui Department of Housing and Human Concerns (DHHC)
<b>Land Jurisdiction</b>	Maui Economic Opportunity, Inc. (MEO)
<b>Project Funding</b>	MEO; County of Maui
<b>Project Location</b>	The project area comprises TMK: [2] 3-3-001:106 in Waiehu Ahupua'a within Wailuku District on Maui Island. It is bounded west by Kahekili Highway, north by Waiehu Beach Road, and east by the Waiehu Heights Subdivision. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.
<b>Project Description</b>	The 100% affordable housing project will involve the construction of 120 residential units, including 28 1-bedroom units, 60 2-bedroom units, and 32 3-bedroom units as well as a 3,477 ft <sup>2</sup> non-profit building, a 3,231 ft <sup>2</sup> clubhouse, and 264 total parking stalls.
<b>Project Acreage</b>	The project area is 11.476 acres (4.644 hectares).
<b>Project-Related Disturbance</b>	Project-related ground disturbance will include excavation for structural footings, parking lots, pathways, entryways, and associated utility connections and infrastructure. This work will occur throughout the flat portion of the project area along Kahekili Highway. No ground disturbance is planned for the sand dune slope that defines the eastern boundary of the project area.
<b>Historic Preservation Regulatory Context</b>	This archaeological monitoring plan (AMP) is intended to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) §6E-8 and HAR §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups. In consultation with the SHPD, this document fulfills the requirements of HAR §13-13-279-4.

	<p>In 1983, Archaeological Consultants of Hawaii, Inc. (ACH) conducted an archaeological walk-through reconnaissance survey (Kennedy 1989) that included the southern portion of the current project area. No historic properties were identified within the current project area; however, SIHP # -50-50-04-2985, a small rock mound interpreted as a potential burial, was documented near the southeast corner of the project area on the top of the slope of the adjacent sand dune.</p> <p>In 2007, Scientific Consultant Services, Inc. (SCS) conducted an archaeological inventory survey (AIS) with subsurface testing of the entire current project area (Shefcheck and Dega 2008). No historic properties were identified; therefore, the results were presented as an archaeological assessment (AA). Due to the presence of pu'uone sand observed in the southern portion of the project area and previously identified burials and other subsurface cultural deposits in the vicinity, precautionary archaeological monitoring was recommended during all project-related ground disturbance. The AA report was reviewed and accepted by the SHPD in a letter dated 13 June 2008 (LOG NO.: 2008.2334, DOC. NO.: 0806PC23; Appendix A).</p>
<b>Historic Properties Potentially Affected</b>	<p>No historic properties have been identified within the project area.</p> <p>One historic property, SIHP # 50-50-04-2985, has been previously identified as a small rock mound possibly marking a human burial on a sandy ridge (Kennedy 1989) near the project area's southeastern corner.</p> <p>The project area was once part of a larger macadamia nut farm was also previously used for growing commercial sugarcane. Shefcheck and Dega (2008:ii) note that the project area may have been used in the past for sand mining by Hawaiian Cement and stockpiling of excess materials during the construction of Waiehu Heights Subdivision. The project area also appears to have supported a recent small-scale agricultural operation.</p> <p>Despite these prior ground disturbances, potential still exists for encountering subsurface pre-Contact and/or historic cultural deposits, including human burials, especially within the southern and eastern portions of the project area that have been documented to include sand deposits.</p>
<b>Monitoring Recommendations</b>	<p>On-site archaeological monitoring shall be conducted for all project-related ground disturbance. One archaeological monitor will be assigned to each piece of ground-disturbing equipment in operation at all times and in all locations throughout the project area. Any departure from this will occur only after consultation with and written concurrence from the SHPD.</p>

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## Section 1 Introduction

### 1.1 Project Background

At the request of Waiehu Housing, LP and on behalf of Maui Economic Opportunity, Inc. (MEO) and the Maui County Department of Housing and Human Concerns (DHHC), Cultural Surveys Hawai'i, Inc. (CSH) has prepared this archaeological monitoring plan (AMP) for the Hale Mahaolu Ke Kahua Housing Community, Waiehu Ahupua'a, Wailuku District, Maui Island, TMK: [2] 3-3-001.106. The project area is bounded west by Kahekili Highway, north by Waiehu Beach Road, and east by Waiehu Heights Subdivision. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2) and a 2017 aerial photograph (Figure 3).

The 100% affordable housing project will involve the construction of 120 residential units, including 28 1-bedroom units, 60 2-bedroom units, and 32 3-bedroom units as well as a 3,477 ft<sup>2</sup> non-profit building, a 3,231 ft<sup>2</sup> clubhouse, and 264 total parking stalls (Figure 4). Project-related ground disturbance will include excavation for structural footings, parking lots, pathways, entryways, and associated utility connections and infrastructure. This work will occur throughout the flat portion of the project area along Kahekili Highway. No ground disturbance is planned for the sand dune slope that defines the eastern boundary of the project area.

### 1.2 Historic Preservation Regulatory Context

In 1983, Archaeological Consultants of Hawaii, Inc. (ACH) conducted an archaeological walk-through reconnaissance survey (Kennedy 1989) that included a southern portion of the current project area. No historic properties were identified within the current project area, however, SIHP # 50-50-04-2985, a small rock mound interpreted as a potential burial site, was documented near the southeast corner of the project area on the top of the slope of the adjacent sand dune.

In 2007, Scientific Consultant Services, Inc. (SCS) conducted an archaeological inventory survey (AIS) for the current project, which included a pedestrian survey of the entire project area and subsurface testing of 17 mechanically-excavated trenches (Shefcheck and Dega 2008). No historic properties were identified. Due to the presence of pu'uone sand observed in the southern portion of the project area and "the high number of burials and other culturally significant subsurface deposits in the surrounding area," archaeological monitoring was recommended "as a precautionary measure during all construction related ground altering activities" (Shefcheck and Dega 2008:18). Since the AIS concluded with no significant findings, the report was submitted to the SHPD as an archaeological assessment, which the SHPD reviewed and accepted in a letter dated 13 June 2008 (LOG NO.: 2008.2334, DOC. NO.: 0806PC23, see Appendix A).

This AMP is intended to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) §6E-8 and Hawai'i Administrative Rules (HAR) §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups. In consultation with the SHPD, this document fulfills the requirements of HAR §13-13-279-4.



Figure 1. Portion of the 1997 Wailuku USGS 7.5-minute topographic quadrangle showing the location of the project area (U.S. Geological Survey 1997)



Figure 3. Aerial photograph of the project area (Esri 2018)

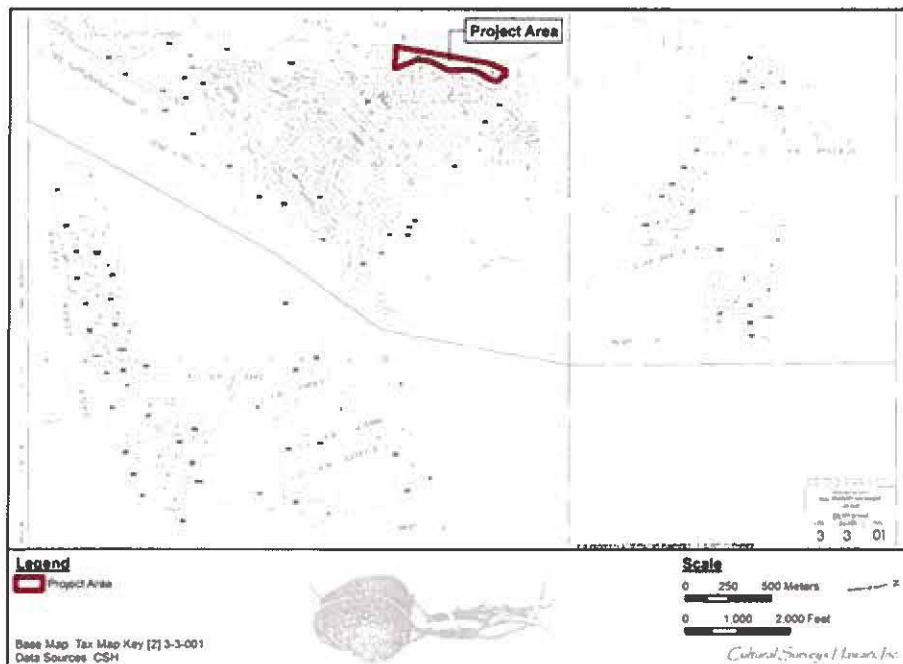


Figure 2. Tax Map Key (TMK) [2] 3-3-001 showing the project area (Hawaii TMK Service 2014)



### 1.3.1 Natural Environment

The majority of the project area overlies alluvium. Most alluvial deposits in Waiehu derive from igneous rocks of the Wailuku Volcanic Series, the oldest exposed lavas of West Maui Mountain. The Wailuku Volcanic Series consists primarily of thin *pahoehoe* and *a* lava flows of basaltic lavas that are considered to be of late Pliocene to early Pleistocene age, approximately 1.3 million years old. The Wailuku Volcanic Series was followed by the Honolua Volcanic Series during the Pleistocene epoch with little apparent break in time. A considerable number of vents along the north and northeast rift zones of West Maui produced lava flows during this latter series of volcanic activity, covering the older Wailuku Series lavas on the northeast flank just north and south of Waiehu Valley (Macdonald et al. 1983). The end of the Honolua Volcanic Series on West Maui was followed by a long period of erosion, during which the deep valleys formed and most of the older alluvium and colluvium that chokes the heads of these valleys was deposited

The northeastern boundary of the project area extends along the edge of a lithified sand dune. The lithified calicheous sand dune that borders the project area is part of an inland dune system that extends across the Maui isthmus, with some dunes reaching up to 60 meters in height (Macdonald 1983:388). These dunes were formed by windblown sand from large beaches exposed during a stand of the sea likely 12 m lower than the present sea level on the northern coast of Maui (Macdonald et al. 1983:388).

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the project area's soils consist of Iao silty clay, 0 to 3 percent slopes (1Aa), Iao cobbly silty clay, 3 to 7 percent slopes (1Bb), and Puuone sand, 7 to 30 percent slopes (PZUE) (Figure 6). Most soils across the project area are composed of Iao silty clay, 0 to 3 percent slopes, while some of the southern portion of the project area contains Iao Cobbly silty clay, 3 to 7 percent slopes. Puuone sand, 7 to 30 percent slopes comprises soils within a southern portion of the project area as well as soils extending along and *makai* from the project area's eastern boundary.

In general, the Iao Series is described as follows:

This series consists of well-drained soils on valley fill and alluvial fans. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping. Elevations range from 100 to 500 feet. The annual rainfall amounts to 25 to 40 inches. The mean annual soil temperature is 74° F. Lao soils are geographically associated with Paia, Pulehu, and Wailuku soils.

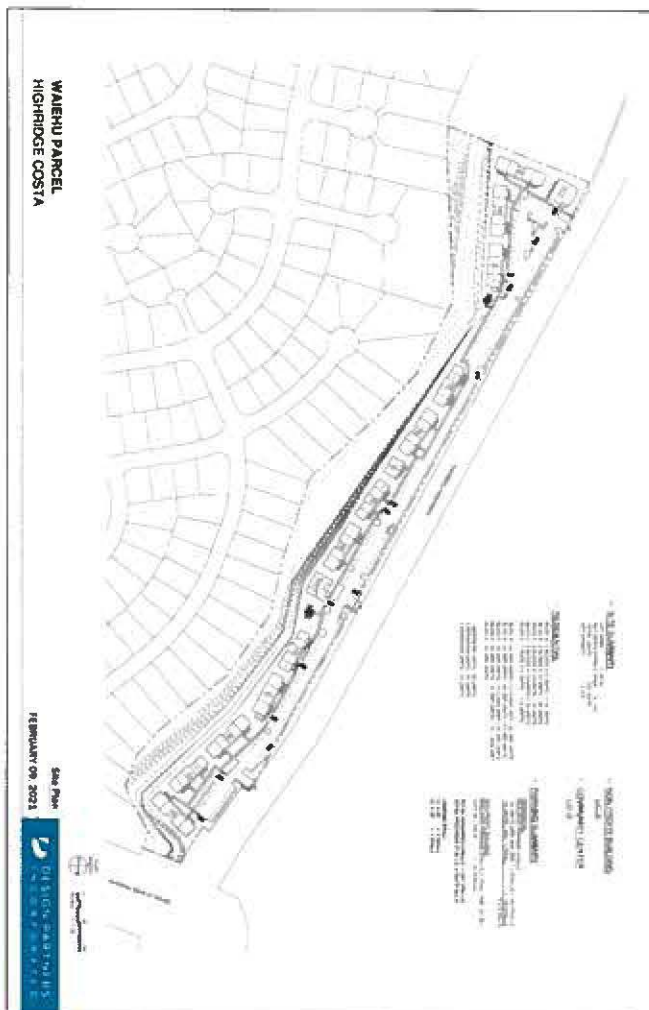


Figure 4. Concept site plan for current project (Design Partners Incorporated 2021)

These soils are used for sugarcane. Small acreages are used for pasture and homesites. The natural vegetation consists of bermudagrass, feather fingergrass, koa haole, lantana, and Natal redtop [Foot et al. 1972:46].

In addition, lao silty clay, 0 to 3 percent slopes is described as soil on which "runoff is slow and the erosion hazard is no more than slight" (Foot et al. 1972:46-47). "[E]xcept for the texture of the surface layer and the content of cobblesstones," lao Cobbly silty clay, 3 to 7 percent slopes is described as having "a profile like that of lao clay, 3 to 7 percent slopes" (i.e., dark-brown approximately 15-in thick surface layer; approximately 45-in thick very dark brown, dark-brown, and very dark grayish-brown subsoil; moderately slow permeability, medium runoff; and slight to moderate erosion hazard [Foot et al. 1972:46]).

The Puuone Series is generally described as follows:

This series consists of somewhat excessively drained soils on low uplands on the island of Maui. These soils developed in material derived from coral and seashells. They are moderately sloping to moderately steep. Elevations range from 50 to 350 feet. The annual rainfall amounts to 20 to 30 inches, most of which occurs in winter. The mean annual soil temperature is 75° F. Puuone soils are geographically associated with lao and Jaucas soils.

These soils are used for pasture and homesites. The natural vegetation consists of bermudagrass, kiawe, and lantana. [Foot et al. 1972:117]

Puuone sand, 7 to 30 percent slopes is more specifically described by the following:

This soil is on sandhills near the ocean. Included in mapping were small areas of lao and Jaucas soils. Also included were small areas where the cemented layer is less than 20 inches below the surface.

In a representative profile the surface layer is grayish-brown, calcareous sand about 20 inches thick. This is underlain by grayish-brown, cemented sand. The soil is moderately alkaline in the surface layer.

Permeability is rapid above the cemented layer. Runoff is slow, and the hazard or wind erosion is moderate to severe. The available water capacity is about 0.7 inches per foot in the surface layer and subsoil. In places roots penetrate to the cemented layer. [Foot et al. 1972:117]

In 2014, the average annual air temperature for the project area was between 21.36°C (70.45°F) in February and 25.39°C (77.70°F) in August with an average annual air temperature of 23.41°C (74.14°F) (Giambelluca et al. 2014). The vicinity of the project area received a mean annual rainfall of 617.1 mm (24.30 inches) between 1978 and 2007, according to the University of Hawaii's 2011 *Rainfall Atlas of Hawaii* (Giambelluca et al. 2013). The mean monthly rainfall varied between 9.4 mm (0.37 in) in June to 112.8 mm (4.44 in) in January.

The project area was once part of a larger macadamia nut farm. During the AIS conducted in 2007, vegetation at the project area included "a grove of macadamia nut trees (*Macadamia integrifolia*), dense cane grass, and sparse koa haole (*Leucaena leucocephala*)" (Sheffield and Dega 2008:5). The current vegetation is likely similar to that noted in 2007. The southern end and eastern edge of the parcel appear the most densely vegetated.

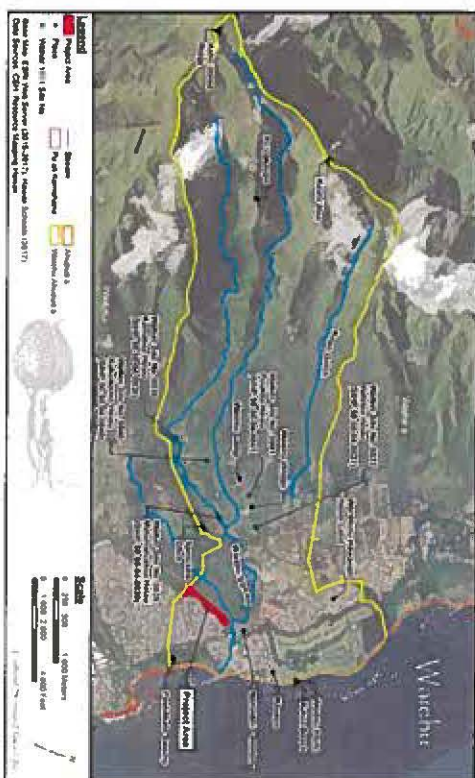


Figure 3. Aerial images showing the project area within Waiohale, Maui, and locations of streams and other wetland areas (i.e., notable places) within the Waiohale, including Waiohale previously identified by Walker (1931).



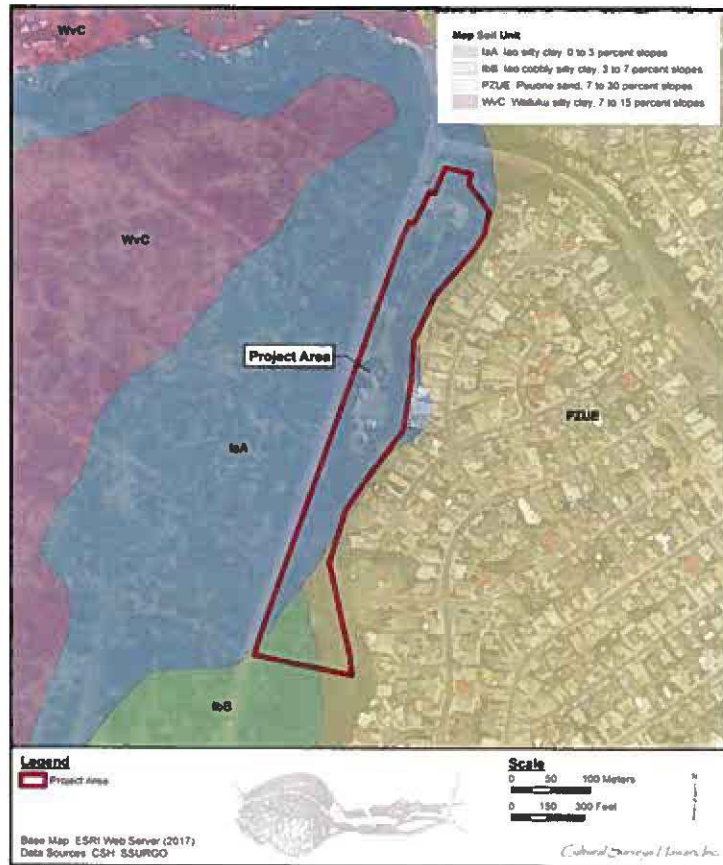


Figure 6. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001)

### 1.3.2 Built Environment

The current project area consists of mostly undeveloped lands stretching along a portion of the eastern side of Kahekili Highway. The project area appears to contain some remnant structures and ground modifications from a former small-scale agricultural operation. The northern portion of the project area is bounded by Waiehu Beach Road, Waiehu Heights Subdivision, consisting of over 200 housing structures and associated infrastructure (e.g., asphalt paved roads, sidewalks, and various utility features), borders the eastern boundary of the project area. Additional residential lots and subdivisions are developed in Waiehu within the vicinity of the project area, mostly concentrated *makai* of Kahekili Highway. Directly across Kahekili Highway, west of the project area, is a large expanse of land planted in macadamia nut trees.

## Section 2 Background Research

### 2.1 Traditional and Historical Background

The current project area is located within Waiehu Ahupua'a, one of four *ahupua'a* that traditionally comprised the 'okana or sub-district (Moffat and Fitzpatrick 1995:23) known as Nā Wai 'Ehā, or the Four Waters (Handy et al. 1991:496). Geographically and culturally, Nā Wai 'Ehā consisted of four deep valley streams that watered four distinct areas of taro land that spread out fanwise to the shoreline (Handy et al. 1995: 272). These areas included the *ahupua'a* of Waikapū, Wailuku, Waihe'e and Wai'ehu, which all share the corresponding name of the stream running through each region:

There are in this region four streams in succession from the different gorges of the mountain, significantly named, it is thought, from the events of battles which have transpired upon them. *Waikapu* The water where the conch was blown, and the engagement began. *Waiehu* The water where the combatants smoked with dust and perspiration. *Wailuku* The water of destruction, where the battle began to be fierce and fatal. *Waihe'e* The water of total rout and defeat, where the army melted away. [Cheever 1851:85-86]

The *ahupua'a* of Waiehu and Waihe'e shared many traditions. Because of this connection, the adjacent *ahupua'a* of Waihe'e is included in this review, as the richness of accounts for Waihe'e may offer insights into the less documented traditional background of Waiehu.

#### 2.1.1 Traditional Accounts

Waihe'e is rich in traditional accounts, some of which include mention of Waiehu. Examples of *mo'olelo* (traditional stories) recount activities of the gods Kāne and Kanaloa, the goddess Haumea, the demigod Maui, and Pele's sister, Hi'iaka.

In their early travels, the gods Kāne and Kanaloa visited Waihe'e and created a spring, as described in the 12 January 1867 account by *Ka Niipepa Kū'oko'a*, "Those two broke through the rock so that water flowed out, sweet, flowing water, at Waihe'e... They did such in this way throughout these islands (Kamakau 1991:112).

Two Hawaiian language accounts relate legends of the goddess Haumea at Waihe'e. According to Kamakau (1991), the goddess Haumea safely delivered a child to Mulei'ula, daughter of 'Olopana, ruling chief of Kahikū in return for a precious tree of exceedingly beautiful flowers. Haumea flew off with the tree to Waihe'e, where the tree was planted. Shortly thereafter, the tree was chopped down and washed out into the ocean. The wood of this tree eventually became three famous deities: a branch became Makālei, the wish fulfilling tree of Kailua, O'ahu; the trunk became Kāho'one'enu'u, the god of the chiefs of O'ahu; and a shelf made from another branch became Kūkeolo'ewa, a god for the chiefs of Maui. The coming of the parent tree to Waihe'e is recounted by *Ka Niipepa Kū'oko'a* on 22 June 1865 as follows:

Haumea grasped up the branches and the earth at the base of the tree and flew up into the sky past the pillars of Kahiki until she arrived at Hawai'i. She made a circuit around the island but found no place to set up the tree. She went up to Maui and made a circuit and set the tree down at Waihe'e. "Pu'ukuma" was the name of that place. She left the tree and went to drink water, the water of Kāne. When she came back, she went to lift the tree but the roots of the tree had crept down and held fast. She built a wall around the growing tree from Pihana to the Kaho'omano Cape. Secure within these walls until the present time [1865] protected from the winds without. "Kekili'o'opu" was the name of the wind within. Haumea took the two blossoms Kanikawī, and Kanikawā and returned to Nu'umehalani.

There was a certain man named 'A'a'alā'au from the sea of Nakohola who cut wood and came to where this tree was standing. "Ka! Here is a tree close by". He chopped at the tree until it fell down and then he returned home. That night a fierce storm began that blew for twenty days and nights. New rushing streams were created. The wall surrounding the tree was broken up; parts washed up into mounds and parts washed into the streams. The tree washed out into the ocean and after six months washed ashore at Niukākahi in Waiehu. [Kamakau 1991:7-8]

A narrative by Westervelt (1963) of "The God of Pākākā Temple" appears to be based on the Kamakau (1991) account. He offers different details, but whether these are traditional variants or his own details are unclear. The portion of his account pertaining to Waihe'e follows:

She [Haumea] crossed over to the island of Maui and came to the "four rivers." There she found the 'awa of the gods and prepared it for drinking, but needed fresh water to mix with it.

She laid her tree on the ground at Pu'u-kume by the Waihe'e Stream and went down after the water. When she returned the tree had rooted. While she looked it began to stand up and send forth branches. She built a stone wall around it, to protect it from the winds. When it blossomed, Haumea returned to her divine home in Nu'umehalani, the land of mists and shadows where the gods dwell.

By and by a man took his stone axe and went out to cut a tree, perhaps to make a god. He saw a new tree, short and beautiful, and after hours of labor cut it down. The night was coming on, so he left it as it fell and went home.

That night a fierce and mighty storm came down from the mountains. Blood-red were the streams of water pouring down into the valleys. During twenty nights and twenty days the angry rain punished the land above and around Waihe'e. The river was more than a rushing torrent. It built up hills and dug ravines. The branches were broken off and carried with the trunk of the tree far out into the ocean. [Westervelt 1963:49]

Sterling (1998:66) relates the 12 April 1911 *Ke Au Hou* account of the coming of this tree, named "Kalaoukehahuli," to Waihe'e and reports it as still seen in the twentieth century:

Regarding this flight of the aforementioned tree, it was planted at Pu'ukumu at Waihe'e Maui and grew there and grows to the present [1911] and if you ask the native sons and daughters they can point it out. [Sterling 1998:66]

In "A Legend of Maui" it was at Pe'eloko at Waihe'e that the demi-god Māui secured the coconut husk from which he made a snare to catch the sun to slow its traverse through the sky so that his mother could dry her tapa. Fornander (1919:538-539) translates this as follows:

So he came along to Pe'eloko at Waihe'e and threw down a lot of coconuts; he secured plenty of husk and with it he went off to snare the sun. [Fornander 1919: Volume V, Part III, 538-539]

Thrum (1907:31) relates a similar account of Māui's manufacturing a strong cord to snare the sun from the fiber of coconuts of "Paeloko, at Waihe'e" but notes this was after "he cut down all the cocoanut trees." This translation appears to be the most correct, emphasizing the *luku* (destruction) of the coconut trees while acquiring the sennit. Destruction of coconut trees was a quintessential declaration of war, and the act captures oedipal themes of the Māui saga.

In the story of Hi'iaka's traveling of the archipelago to fetch Lohiau for her sister Pele, she traverses the north side of West Maui. Hi'iaka caught the soul (*kino wailua*) of the inhospitable ruling chief Kaulahea (*aka* 'Olepau): "She went close up to the great stone Pahalele that still [c. 1915] lies in the road near Waihe'e and... dashed the captive soul against the rock" (Emerson 1993:80-81). Hi'iaka chanted a *kau* while capturing the soul of Kaulahea:

Waihe'e crouches in the cold blast  
Of the raging Kili'o'opu.  
This atom soul I plucked from the grave,  
From a fastness desolate now:  
The spirit flits from Olepau,  
Goes down the steep to destruction,  
To the somber caverns of Milu.  
[Emerson 1993:81]

Kamakau (1991) relates the landing of two groups of foreigners (the Ka-maunu-a-niho mā and the Kukanalao mā) at Waihe'e in the ancient past. These events are placed by Members of the Waihe'e Community (Nā pulapula kanu o ka 'āina o Waihe'e) and Kepā Maly (1994) as circa AD 1100-1200 and AD 1350 to 1530, respectively. Regarding the Ka-maunu-a-niho mā, Kamakau (1991) provides the following description:

Kalananu'unuikūamamao, Humu, and Kamaunuanoho are said to have come from Kahiki and to have landed at Kahāhāwai at Waihe'e, Maui, and to have lived inland of Wailua... They were all called by foreign names because they were all from foreign lands, not the foreign land of Borabora but the foreign lands called Keōlewa, Haenakulaina and Kauaniani. Where were these lands? The land of Ke'enuiakāne perhaps. [Kamakau 1991:111]

In "The Apotheosis of Pele," Kalākaua (1888) mentions the arrival of a party of immigrants or adventurers "from the southern islands" "a half century or more before the landing of the Pele family in Puna." A party including the chiefs Kalana and Huma and the beautiful Kamaunui, along with their relatives and followers "finally settled in Waihe'e, a spot noted for its beauty and natural advantages" (Kalākaua 1888:142). Hina, the daughter of Huma and Kamaunui, married the O'ahu chief 'Olopana.

Kamakau (1991) recounts the following from the 12 January 1867 account by Ka Nūpepa Kū'oko'a:

It is said that the Kukanalao mā landed in Waihe'e from Kealaikahiki; Kiwi was the spot where they came ashore, and Kahawai the place where they panted and stammered. There were many of them on the ship Konaliloha, but only two of them became famous - Kukanalao and Bete, who was known in Waihe'e as Pele'ie. The two became [the ruling chief] Kaka'alaneo's... some of the descendants are living to this day [1867]. [Kamakau 1991:114]

The chant "*Kupuna haole mai kahiki*" refers to Kukanalao as the foreign ancestor. An interesting aspect of the legend is that the *haole* were named *Kanikawī* and *Kanikawū* "for the beautiful flowers of Haumea - or perhaps for the birdlike sound of their speech, like that of the *lale* bird of the mountains" (Kamakau 1991:114). The tradition of these flowers of Haumea was particularly tied to Waihe'e.

Kamakau (1991:149) recounts that the ruling chief of Maui, Hua-a-Pohukaina (also known as Hua-a-Kapua'i-manakū) spent his last days in Waihe'e: "In his old age he got sick and returned landing at Kī'ikewe at Waihe'e and died at Niua, and his remains are at 'Iao."

Kamakau (1961:22) places the ruling chiefs Lono-a-Pi'ilani and Kiha-a-Pi'ilani farming and squabbling in Waihe'e Ahupua'a. Fornander (1969:99) relates that in a "final battle" between the two, Lono-a-Pi'i [lani] was killed at Waihe'e. In the "Legend of Kihapi'ilani," a fraternal quarrel leads to Kihapi'ilani abandoning his home at Waihe'e.

Kihapi'ilani lived with his brother, Lonoapi'i, in Waihe'e. One day two calabashes of salted *nehu* were brought to Lonoapi'i, which he gave out to everybody except Kihapi'ilani. That being the only fish to be had, Kihapi'ilani reached over and took some out of the calabash. This action displeased Lonoapi'i so much that he took up the calabash and threw the fish and brine into the face of Kihapi'ilani. At this Kihapi'ilani rose up and went away from the place, accompanied only by his immediate attendant, until they came to Kula, where they made their home. They took to farming... [Fornander 1919, Volume V, Part I, 176-177]

A battle that broke out at Waihe'e circa 1765 was also traced to the distribution of food in a translation provided by Kamakau (1961:83) of a 8 December 1866 *Ka Nūpepa Kū'oko'a* entry.

In the year AD 1765 strife arose within a royal family among the children of Kekaulike Kalaniku'ihonoikamoku. Kahekili was living at Pihana at Paukūkalo and Wailuku with his chiefs, his favorites, his friends and his warriors of Kani'u'ula and Kepo'ouahi. The chiefs of Wailuku enjoyed themselves in the surfs of Kehu and Ka'akau. The chiefs of Waiehu and Napoko enjoyed the surfs of Niukūkahī and 'A'awa. The chiefs of Waihe'e enjoyed the surfs of Pala'ie and Kahahawai. The source of the domestic strife was a certain man of the armed forces named Kahanana who was on Ke'eumoku's side and lived at Ka'apoko, an 'ili of land in the *ahupua'a* of Waihe'e.

This man went every day to farm and in the evening returned to his house. His wife broiled the taro leaves. The chiefs distributed fish to all the people but omitted him and his wife. In former times Waihe'e was a land of fish, of *maomao* fish, *a'ua'u* fish, octopus, and *'ohua* [the "fry" or young of various fish] as well as runs of *nehu* [an anchovy-like fish (*Stolephorus purpureus*)] and *pīhā* [a herring-like fish (*Sprattelloides delicatulus*)]. It was common for the chiefs to deny those two a portion. Kahanana said "The chiefs enjoy eating poi and *luulau*, baked food, and fish. Delicious is the food of those chiefs and their women because the *pōhuehue* vine had not been smitten to cause rough sea in the harbor where the waves crest so that the surfers could not be seen [anger rises in the heart and will be avenged]. Then Kahanana put on his feather cloak and his helmet and went to Niukūkahī and killed people, he killed a man and seized and killed two other men. That's how the strife started, the strife between the two sides lasted day and night. They attacked back and forth with dead on both sides. "Kalae" Ili 'ih'i'ili" was the name of that battle. [Kamakau 1961:83]

In "The Prophecies of Keaulumoku," Kalākaua (1888:356) presents the following account of the same event:

[Ke'eumoku] began to cast about for the means of raising himself again to the dignity of a landed chief. His eyes soon fell upon the comely Nāmāhana, widow of Kamehamehanui. To her belonged the fair and fertile lands of Waihe'e... Kahekili was naturally enraged at the union, and was about to manifest his displeasure in a manner dangerous to Ke'eumoku, when Nāmāhana retired with her new husband to her estates at Waihe'e. Kahekili's first impulse was to follow and slay them both; but as Nāmāhana was popular with the nobility... he discreetly concluded to leave to the future the punishment of the offending couple.

Taking up his residence at Waihe'e, Ke'eumoku enlarged and beautified his grounds and buildings and established a petty court of princely etiquette and appointments. He was fond of display, and soon attracted to Waihe'e many of the more accomplished young chiefs of the island... he had carefully trained bands of musicians and dancers, and his entertainments were frequent and bountiful...

Kahekili resorted to strategy. He induced Kahanana, a resolute warrior and subordinate land-holder of Waihe'e, to embroil Ke'eumoku in a difficulty with his own people. To this end Kahanana complained - probably without cause - that he had been frequently neglected by the servants of Ke'eumoku in the distribution of fish... many of his friends stood prepared to espouse his quarrel... he armed himself for battle and, the following night, killed three of Ke'eumoku's laborers... and a general fight resulted. ...Ke'eumoku and his party were overpowered and compelled to seek safety in flight. [Kalākaua 1888:356]

## 2.1.2 Settlement and Subsistence

The current project area is located adjacent to a lithified dune system, historically known as the Sand Hills (Figure 7). On-going traditional, historical, and archaeological research have documented knowledge and evidence of the use of the dune system for burial. Research and archaeological testing conducted for the current project area indicate that the project area is predominately located within alluvial sediment that has been deposited along the backside of the lithified dune.

Traditional accounts suggest that the project area, which is located in proximity to freshwater sources (see Figure 5) and on alluvial sediment (see Figure 6), was likely part of a large and very productive agricultural system. Handy and Handy (1972) describe that "From Waihe'e to Wailuku Valley, in ancient times was the largest continuous area of wet-taro cultivation in the islands..." (Handy and Handy 1972:496). This region includes Waiehu Ahupua'a, which is situated between the ahupua'a of Waihe'e and Wailuku. A high degree of wetland taro cultivation within Waihe'e, and likewise, Waiehu, provides evidence that a substantial population would have been established in the region during the pre-Contact period. According to Cordy (1981), the settlement of Waihe'e represented one of two population concentrations on Maui:

The Kaupo, Kipahulu, Hana, Koolau, and Hamakua districts of northeast Maui form a wet, fertile contiguous area that would have been a dominant population center early in Maui's settlement. On West Maui, the large valleys of Waihe'e and Wailuku would have been another fertile focus, and to the southwest, the permanent streams of Lahaina and Olowalu would have been conceivably another early population area. [Cordy 1981:198-199]

While traditions do not disclose the size of the Waiehu and Waihe'e populations or their disposition within these ahupua'a, they do associate Waiehu and Waihe'e Ahupua'a and the district of Wailuku (i.e., West Maui) with notable *ali'i*, suggesting that Waiehu and Waihe'e shared in the district's importance as a center of political power and substantial population in the pre-Contact and early contact periods. Several *heiau* (sacred temples) recorded in the Waihe'e region, including five previously identified by Walker (1931) in Waiehu (see Figure 5), strongly indicate the traditional importance of the ahupua'a (Cordy 1978:62). According to a native informant, "the heiaus near Waiehu were all built by Kahekili to Kane, and men and pigs were laid on the lele" (Walker 1931:142).

## 2.1.3 Early Historic Period

Kamakau (1961:313) presents a recording of events at Waihe'e ca. 1811 from a 19 September 1868 entry in *Ka Nūpepa Ku'oko'a*:

Any captive fit for death could be spared if Ka'ahumanu granted life. Ka'ahumanu's lands also became places of refuge. Namely, Pu'unau at Lahaina, Waipukua at Waihe'e, Kalua'aha at Molokai, and such. All of Ka'ahumanu's lands became places of refuge and places of pardon. If a man killed another, and was not caught by the deceased's friends out for his blood, he could go straight to a land of



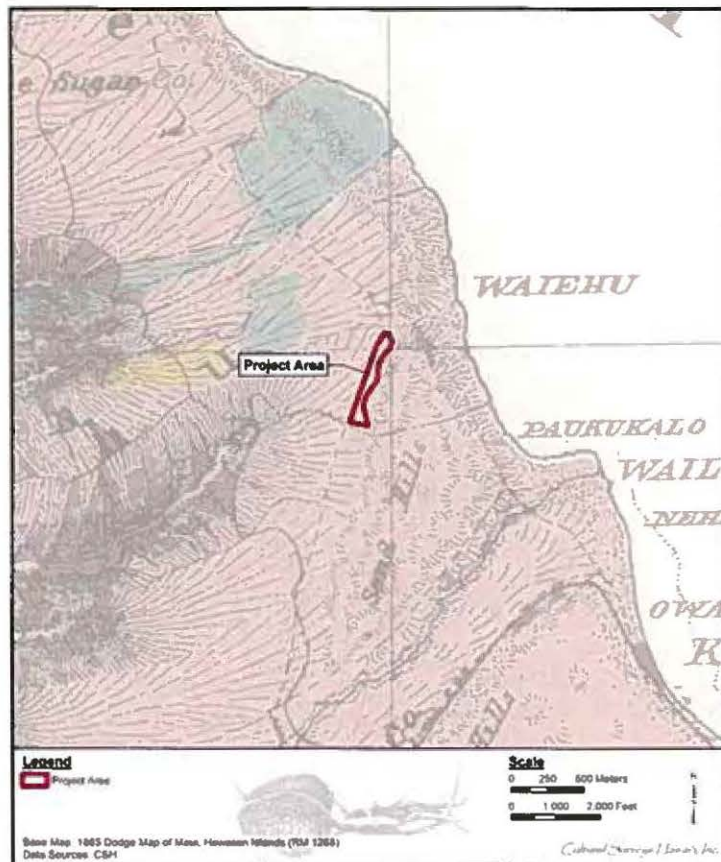


Figure 7. Portion of a Dodge (1885) map of Maui showing the project area extending along the edge of a portion of the northeastern extent of the Sand Hills

refuge and escape with his life. Thus it was with a certain blind man before the return to Hawai'i Island event known as the "Kani'aukani" (Lit. The sounding coconut midrib - a kind of "jew's harp") when Kamehameha was still living on O'ahu in the year 1811. Someone stole fish from a fishpond called Koiahi near Kiao at Waihe'e under the jurisdiction of Alapa'i Malo-iki who was also known as Alapa'i Kupalupalumano. The thief who stole fish from the fish pond was named Paki. He was brought before Alapa'i, tried, and was found to have committed the offense of stealing fish from the chiefs for which his eyes were scooped out in accordance with the law. The edict of Kamehameha was not to kill men for this crime but to scoop out the eyes. The blind man lived with a certain canoe carver of Paukākalo on the right side of Waihe'e. One evening, the blind man chewed 'awa for the canoe carving kahuna. The canoe carving kahuna drank but the treacherous blindman did not drink any 'awa. When the canoe carving kahuna was drunk on the 'awa, the blindman felt with his hands the adze on top of the canoe and took the sharp adze and groped his way to the head of the canoe carving kahuna who was fast asleep because the intoxication of the 'awa had become extraordinary. He groped and found his neck and cut off his head. He then crawled off about half a mile to the place of refuge named Kukuipuka, the land of Kūka'ilimoku, the god of Kamehameha. [Kamakau 1961:313]

The earliest census on Maui taken by Protestant missionaries in 1831 recorded a population of 827 in Waihe'e Valley (Schmitt 1973:18). That population was evidently substantial enough to warrant the establishment of a church at Waihe'e as.

...an outstation of the mother church in Wailuku. About 1830 Reverend Jonathan Green built a pole and thatch meeting house on the site. Rueben Tinker joined Jonathan Green in 1832 and together they made plans for the establishment of a permanent church in Waihe'e. Records indicate that between 100 and 300 Hawaiians attended these early meetings. [Gowans et al. 1993:127]

Waihe'e Church (Figure 8) was constructed from 1848 to 1858 and is still standing today (Figure 9). Waihe'e Church was assigned SIHP # 50-50-04-1619 and entered the National Register of Historic Places (NHRP) in 1994 as NRHP # 94000384 (Penkiunas 1992). Residents of Waiehu may have attended this church, which is located approximately 2.16 km (1.34 mi) north of Waiehu Village area. A resident would have traveled approximately 3.5 km (2.2 mi) on a trip to the church via government roads in the late 1800s.

In 1823, a Chinese merchant named Hungtai established the first sugar mill in Wailuku, where he sold white sugar and white sugar-based syrup (Dorrance and Morgan 2000). The sugar cane used was likely native cane growing in the neighborhood, which was carried by mule to the mill. Hungtai took his own life in 1841, and little is known about the fate of his business. By 1849, a number of simple mills were constructed on Maui and operated by the use of oxen to power small sets of wooden rollers. Large try-pots brought by whalers were used to boil the extracted molasses without regard to crystallization and sugar recovery. Profits from the sale of the resulting thick syrup were due primarily from sales to whalers as an essential ingredient in the manufacture of rum (Wadsworth 1936).

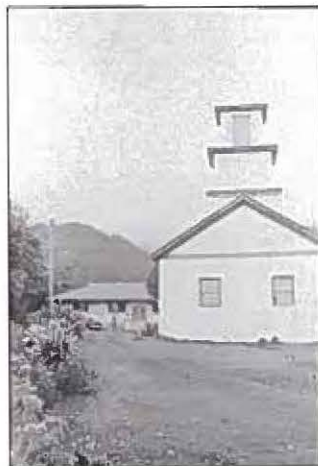


Figure 8 Historic Waihe'e Church (Hawaiian Mission Houses Digital Archive accessed 2018) prior to 1987, when the bell tower was removed due to water and termite damage (Penkruas 1992)



Figure 9 Waihe'e Church in 2010 (Bradshaw 2010)

#### 2.1.4 The Māhele and the Kuleana Act

The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawai'ian lands) which introduced private property into Hawaiian Society (Alexander 1899). By decree of the Māhele in 1848, land titles were awarded to the *ali'i* (royalty). In 1848 the crown and the *ali'i* (royalty) received their land titles. Large parcels at Waiehu, including Ahikuli, Waiehu, and Waiehu 2 were awarded to William C. Lunalilo, the future king. While the entire *ahupua'a* of Waihe'e was awarded to Victoria Kamāmalu, the sister of Alexander Liholiho (King Kamehameha IV) and Lot Kamehameha (King Kamehameha V).

In 1850, most of the chiefs ceded a third of their lands to the Government in order to obtain an allodial title for the remainder and thus greatly increasing the Government land base (Alexander 1890:114). The designation of lands to be set aside as Government lands paved the way for land sales to foreigners, in 1850, through the Alien Land Ownership Act, the legislature granted resident aliens the right to acquire fee simple land rights (Moffat and Fitzpatrick 1995:41-51).

*Kuleana* awards for individual parcels within the *ahupua'a* were subsequently granted with the passing of the Kuleana Act of 1850. These awards were presented to tenants who were Native Hawaiians, naturalized foreigners, non-Hawaiians born in the islands, or long-term resident foreigners who could prove occupancy on the parcels before 1845. Approximately 84 Land Commission Awards (LCAs) were awarded of the 116 claims in the Waiehu Ahupua'a. LCAs were granted by ministers representing the Kingdom of Hawaii Department of the Interior. Testimony to establish title to real property was recorded by both Native Register, in which claimants would provide traditional proof of ownership, and Foreign Register, where boundary survey evidence would support traditional claims.

In general, Waiehu Ahupua'a is notable for having many LCAs in the valley (Figure 10). Overall, the traditional cultivation of taro by directing stream water through a network of stone terraces, or *lo'i*, was the primary land use listed in LCAs in Waiehu Valley, and a very large number of *lo'i* in many of the claims appears commonplace. Other structures or infrastructure supporting both *lo'i* and *kula* (dryland) agriculture such as paths, roads, house lots, garden plots, and river segments were all listed as ancillary to the original claims made on behalf of taro cultivation.

Māhele records associated with LCAs in Waiehu indicate that the vicinity west of the project area is likely within a portion of the extensive system of *lo'i* that formerly characterized Wailuku and Waihe'e valleys (Waihona 'Aina 2000). Numerous *lo'i* are documented in these claims, which were undoubtedly irrigated by Waiehu Stream and its tributaries in that area (Table 1). According to the land use claims, house lots also were common on these parcels, and some lands were *kula* (pasture). The project area is located within *apana* 20 and/or 21 of LCA 8559B\*M granted to William C. Lunalilo (Figure 11). The LCA document does not specify definitive boundaries or land use for these *apana*, which together comprise approximately 2000 acres in Waiehu.

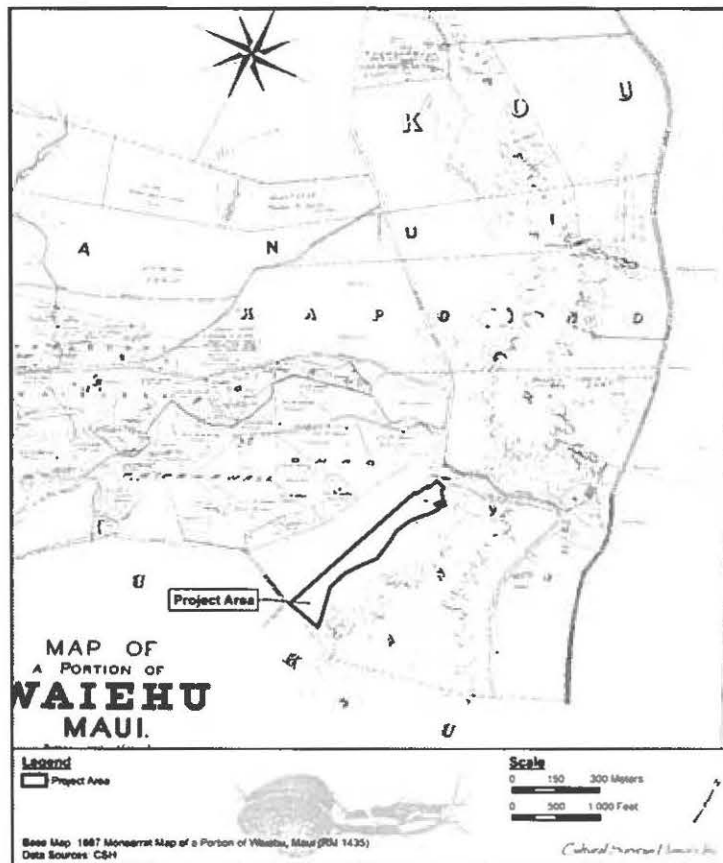


Figure 10. Portion of the Monsarrat (1887) Map of a Portion of Waiehu showing numerous LCAs west of the project area, many of which with houses (black quadrilaterals)

Table 1. LCAs within the current project area (in **bold**) and vicinity

LCA Number	Claimant	Acreage	Land Use
3275U	Kaiolani	7.53 acres	<i>Kalo</i> (taro), <i>kula</i> (pasture), three <i>lo'i</i> , and a house
3327:1	Naialaolao	2.36 acres	20 <i>lo'i</i> and a house lot
3432:1	Kula	3.53 acres	<i>Kalo</i> , <i>kula</i> and a house
3437	Kaliuula	6.7 acres	21 <i>lo'i</i> and a <i>kula</i>
3441:1	Kapoula	8.96 acres	As many as 42 <i>lo'i</i> , possible <i>kula</i> , and a house lot
3444	Kalopa, wahine	1.40 acres	28 <i>lo'i</i>
<b>8559B*M:20&amp;21</b>	<b>Lunalilo, William C.</b>	<b>Approximately 2,000</b>	<b>Not specified</b>





Figure 11. Esri (2017) aerial image showing the project area and LCAs within the project area and vicinity

### 2.1.5 Mid- to Late 1800s

With the introduction of Western enterprise to Wailuku District, and aided by the Māhele of 1848, the landscape and traditional economy of the area changed dramatically. Traditional cultivation of taro in the stream valleys of Nā Wai 'Ehā ultimately gave way to planting of sugarcane on Wailuku Sugar Company lands that expanded along the alluvial stream deltas formed by Waihe'e, Waiehu, Wailuku, and Waikapū Streams (Kelly et al. 1978).

The operation of a small-scale sugar mill at Waiehu is first reported by George Wilfong in 1849 (Wadsworth 1936). He describes the factory as consisting of a set of wooden rollers, "Perhaps 18 inches in diameter and two feet long, mounted vertically and driven usually by animal power, and a series of three open try pots bought from visiting whalers. Presumably, the cane was fed by hand, the juice being simply concentrated by successive boiling in the open kettles." While Wilfong makes no mention of the processes leading to crystallization and sugar recovery, he does stress the profits resulting from the sale of the thick syrup to whalers.

By 1857, many of the small-scale sugar mills on Maui, earlier accounted for by Wilfong, had been consolidated into three small plantations (Gilmore 1936). Wailuku Sugar Company was first organized in 1862 by James Robinson, Thomas Cummins, and J. Fuller. That same year, Thomas H. Hobron purchased land in the Waihe'e Valley for the cultivation of sugar cane. "Christopher Lewis became the first owner of the Waihee Plantation, and L.L. Tolbert was its first manager" (Kelly and Hee 1978:12). A sugar mill in Waihe'e was constructed in 1863, and the first production figures for the crop of 1865 (Figure 12) were promising to the industry: 757 tons of sugar and 45,000 gallons of molasses. An article published in the 3 December 1883 issue of *The Honolulu Advertiser* commenting on the sugar cane fields and their bright prospects mentions the opening of Waihe'e Mill:

The cane is green, fresh and growing vigorously. To look over the thousands [of] acres of flowering cane ripe for the mill is a beautiful sight. The Wailuku mill after a temporary suspension, is grinding and turning out a fine quality of sugar from cane which gives a highly satisfactory yield. The Waikapu Mill is also in full blast, and I understand the Waihee will commence to-day. The planters of Maui should be in high spirits. The prospect never looked brighter. [*The Honolulu Advertiser* 1883 2]

Waihe'e Mill was the largest of the three mills operating in Central Maui (HC&S Breeze 1958b). The mill manager was Samuel T. Alexander, and the mill's head foreman was Henry Perrine Baldwin, both of whom would resign in the late 1860s to establish a sugar enterprise in Sunnyside, Maui (lower Makawao) that would later grow to the giant Hawaiian Commercial & Sugar Company (Dorrance 2000). Remnants of Waihe'e Mill were still standing in 1958 (Figure 13).



**1865. 1865.**  
**Sugar and Molasses**  
 —FROM THE—  
**WAIHEE PLANTATION.**  
**CROP NOW COMING IN AND FOR SALE**  
 in quantities to suit purchasers by  
 452-Jun **ALDRICH, WALKER & CO.**

Figure 12. Advertisement for Sugar and Molasses from Waihee Plantation in 1865 (The Pacific Commercial Advertiser 1865)

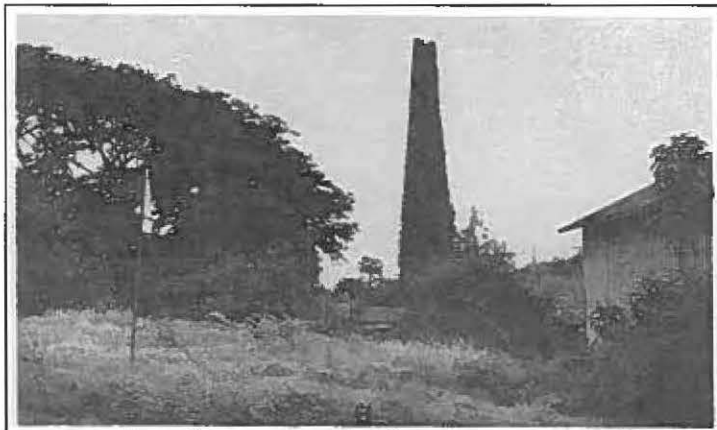


Figure 13. Smokestack and other remnants of Waihee Mill in 1958 (HC&S Breeze 1958a)

The lack of housing structures depicted within the project area on a 1887 map suggests that the project area may have been under commercial sugarcane cultivation as early as the mid to late 1800s (see Figure 10). By 1925, many of the LCAs in the vicinity had been acquired by C. Brewer & Company and Wailuku Sugar Company (Figure 14). Though not clearly indicated, the project area was likely also a part of these commercial sugarcane lands at this time.

In 1879, Claus Spreckels was flush with success from building the Haiku (Spreckels) Ditch linking East Maui water sources at Honomanū with his sugar fields in the central isthmus. By 1882, he had capitalized on that success to engineer the Waihee (Spreckels) Ditch in West Maui, an endeavor that was not without complications:

Rapid [p]rogress is being made with the Spreckels Waihee ditch, a large dam is being constructed high up in the Waihee gulch. Tunnelling through the sand hills was not a success, the men had finally to cut down through from the top of the hills until they got the level, then put in the pipes covered by an arched roof. The Spreckels mills now appear to be too far away from the cane, and the probabilities are that two more mills and works will be put up immediately, back of Kahului, distant about one and half miles. [The Honolulu Advertiser 1882:2]

Engineers working for the wealthy entrepreneur tunneled into geologic strata forming the walls of Waihee Stream. The 15-mile-long ditch started at the 435 foot elevation of the Waihee Stream, and carried 60 million gallons of water per 24-hour day (mgd) to the Wai'ale Reservoir at the 214 foot elevation. In 1882, millions of gallons of water were released for Waikapū sugar fields (Adler and Spreckels 1966). Spreckels became the first to irrigate his fields by water from both the East and West Maui mountains (Wilcox 1996).

A newspaper article published in 1883 mentions "rumors of a big water suit ahead, of the people Kuleana holders of Waiehu against Sir Claus Spreckels" (The Honolulu Advertiser 1883:2). Wailuku Sugar Company took over Waihee Plantation in 1895, at which time, Waihee (Spreckels) Ditch became a source of conflict and legal action. Wailuku Sugar Company maintained that the takeover ended Spreckels' rights to water from Waihee Ditch. The legality of the arrangement became moot when Spreckels' interest in the Hawaiian Commercial & Sugar Company (HC&S) was sold to the partnership of Henry P. Baldwin and Samuel T. Alexander in 1898 (Dean 1950).

#### 2.1.6 1900s

The Russo-Japanese War of 1904-1905 indirectly affected residents of Waiehu as indicated by the following excerpt from an article published in The Honolulu Advertiser on 11 April 1904:

Believing that there will be a great increase in the price of rice, many of the taro-planters of Wailuku, Waiehu, and Waihee as soon as their present crop of taro is harvested will plant their patches with rice instead of continuing the cultivation of the old staple. Some of them have done so already.... Of late the market price of taro on Maui has been a moderate one owing to the production of fine and abundant taro. Apropos of the war the Japanese of this island are sending away monthly large sums of money to aid their native country in its struggle.... In spite of the war, there is no difficulty in obtaining laborers on the different sugar estates. [The Honolulu Advertiser 1904:3]

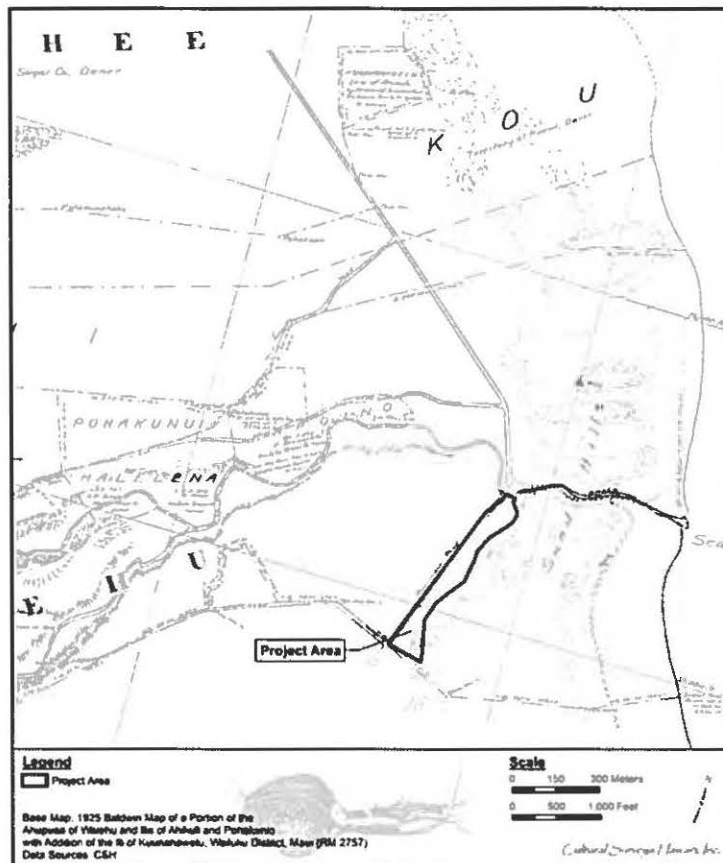


Figure 14. Portion of a Baldwin (1925) map of a portion of Waiehu Ahupua'a and Ili showing that many of the former LCAs in Waiehu had been acquired by sugar companies; the project area was likely also included as sugarcane lands during this time

Legal groundwork for a new Waihe'e Ditch began in 1904, which resulted in an interim exchange lease agreement. The terms stipulated that HC&S relinquish 9,693 acres of land in Waikapū, Mā'alaea, and Wailuku to the Wailuku Sugar Company, and that HC&S receive all of the water from the South Waiehu Ditch (Wilcox 1996).

By 1905, the stage was set for a novel cooperative venture in water development between the Wailuku Sugar Company and the Hawaiian Commercial & Sugar Company. The interests of these two companies in the Upper ("New") Waihe'e Ditch, completed in 1907, were seven-twelfths for the Wailuku Sugar Company, and five-twelfths for the HC&S Company. The construction project was largely undertaken by Japanese laborers. The original construction involved more than 10 miles of ditch, 22 tunnels, diversion dams, flumes, and a three-foot-diameter steel siphon crossing the entire width of 'Iao Valley. The cooperative agreement granted the use of day water to Wailuku Sugar Company, while night water went to the HC&S Company. As for the original Spreckels Ditch (SIHP # 50-50-07-1508), the 60 mgd yield was split 50/50 between the two plantations (Wadsworth 1936). The Upper Waihe'e Ditch tapped the Waihe'e Stream at the 650 foot elevation just below the Aliele Falls. The longest tunnel was especially challenging, as much of it went through hard, fine-grain basalt. Even using compressed air and percussion drills, the tunnel took eighteen months to cut. The yield of Upper Waihe'e Ditch was 50 mgd (Wilcox 1996).

The Territorial Government of Hawaii promoted the conservation of water as a vital natural resource of the territory and approved special taxes to be levied beginning in 1909. The U.S. Geological Survey published its first investigation of stream flow measurements in 1913, following the "Gaging of streams and the determination of the water supply of the Territory of Hawaii" beginning in 1910 (Larrison 1915). Figures given for the Waiehu Stream are separated as recordings given for the South Waiehu Stream and the North Waiehu Stream. The discharge at these measuring stations was large, and measurements were recorded in "acre-feet". An "acre-foot" is equivalent to 43,560 cubic feet. The monthly discharge for each intake of the Waiehu Stream for the month of April 1913 follow: 666 acre-feet for South Waiehu Stream (about 300 feet above South Waiehu ditch intake) and 322 acre-feet for North Waiehu Stream (50 feet above uppermost diversion) (Larrison 1915).

By 1913, Wailuku Sugar Company was irrigated entirely from mountain sources. In addition to the two major ditches described previously, ditches from two smaller streams diverted water from Waikapū Stream, two on the Waiehu Stream, and five from the Wailuku Stream in 'Iao Valley. These nine ditches have been either consolidated or abandoned over the years and are now maintained by Wailuku Agribusiness (Wilcox 1996). Modifications in 1935 diverted the full capacity of Waihe'e, Manaole, and Huluhulupueo streams through intake gates into the Waihe'e Ditch. The Aliele Falls intake was abandoned for a new one slightly downstream (Wilcox 1996).

As new ditches were constructed crossing the windward coast of West Maui, the lands of Waiehu were subjected to sugar cultivation by the Wailuku and Waihe'e plantations. In response to the growing field systems and need for labor housing, two new plantation camps were built at the confluence of the North and South Waiehu Streams. They were named Mango Tree Camp and Waiehu Camp. These camps are depicted on 1933 and 1942 USGS maps (Figure 15 and Figure 16). These maps also document a portion of the plantation railroad that once extended through the project area, but is no longer present.



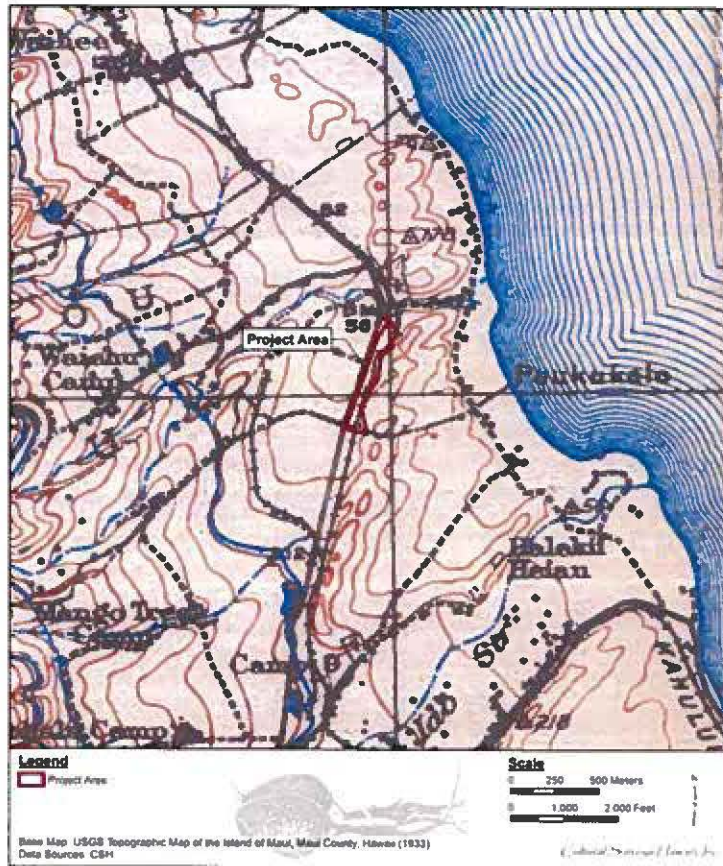


Figure 15. Portion of a 1933 USGS topographic map showing Waiehu Camp and Mango Tree Camp west and southwest of the current project area, respectively, and a railroad transecting the project area longitudinally (U.S. Geological Survey 1933)

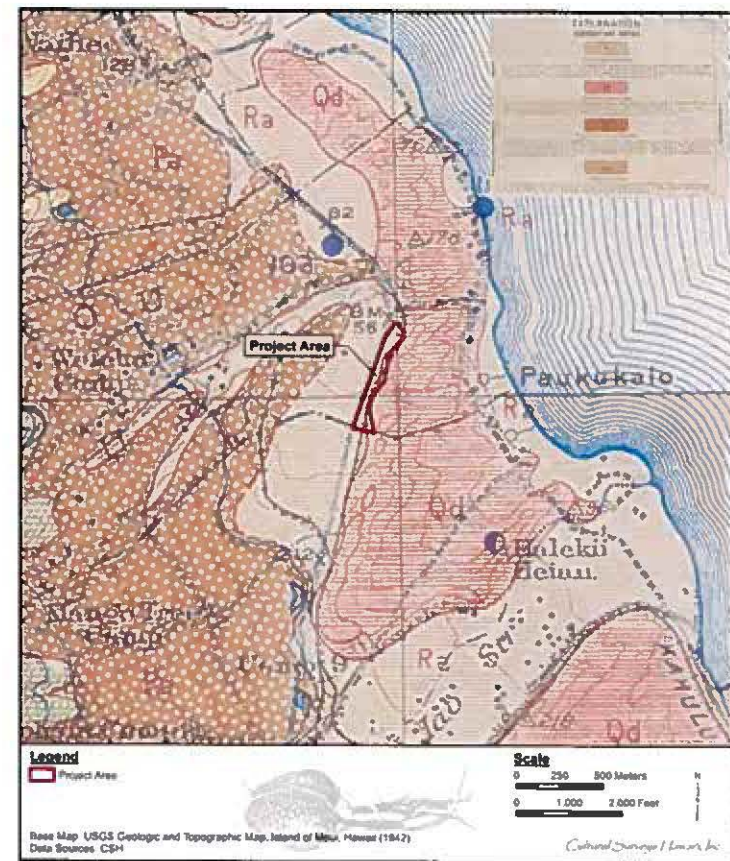


Figure 16. Portion of a 1942 USGS geologic and topographic map showing Waiehu Camp and Mango Tree Camp west and southwest of the current project area, respectively, and a railroad transecting the project area longitudinally (U.S. Geological Survey 1942)



All field labor for the Wailuku Plantation was housed in 11 villages at different field points. A 1955 USGS map shows Waiehu Village labeled west of the project area and Puuohala Village to the south (Figure 17). The Waihe'e Dairy provided milk to the plantation workers at cost, from their herd of purebred Holstein and Gurnsey dairy cattle. The plantation also grew taro, which was made into *poi* at the dairy, where 15 tons annually were available for sale to the workers, also at cost (Gilmore 1936).

Following the growth of the populated areas surrounding the Waihe'e, Waiehu, Wailuku, and Waikapū plantations, the combined lands required dedicated sources of drinking water and *kuleana* water. The County of Maui cooperated in water development tunnels in the Waikapū and Wailuku valleys. The Kama Ditch intake below the 'Iao-Waikapū Ditch intake, in Wailuku Stream, served mostly *kuleana* lands (Wilcox 1996). The continued growth of Waihe'e, Waiehu, Wailuku and Waikapū was directly related to the transportation services provided by the Wailuku and Kahului Railroad (Fredericksen and Fredericksen 2002).

From 1906 to 1947, Wailuku Agribusiness Company had a railroad system for transporting cut cane to the mill, a portion of the tracks extended between Kahekili Highway and sand dunes (Kennedy 1989). Historic maps show this railroad transecting the project area in 1933 (see Figure 15) and 1942 (see Figure 16), but it had been removed by 1955 (see Figure 17).

By the early 1940s, the main town of Wailuku was transformed from a large plantation village to an important seat of County government. With the onset of World War II, the rapid construction of military defensive structures demanded the immediate use of plantation heavy equipment and operators. Plantation employees from Wailuku and Kahului were pressed into emergency service following the Japanese attack on Pearl Harbor, until military construction personnel were able to take over. By 1942, the U.S. Navy had formed Construction Battalions for building the essential infrastructure required during wartime on Maui. Over the next three years, plantation labor had resumed its prewar agricultural work, and made new plans for expansion in the postwar years (Woodbury 1946).

Along with the change in the agricultural economy came a change in the density and makeup of the population as immigrant labor was hired by the plantation to work the growing sugar cane fields. Handy and others (1991:497) note that the upper section of the modern city of Wailuku is largely built on pre-Contact terrace sites, and by 1934, had been adapted to market gardening by Japanese and Portuguese gardeners. Adaptation of *lo'i* and *kula* fields to market gardening likely occurred in the other three valleys of Nā Wai 'Ehā as well.

Handy and Handy (1972:496-497) note the following about Waiehu

The cane fields now extend throughout this region, continuously from Waihe'e on the lower slopes; but above Waiehu and Puakala from the upper roads following the irrigation ditches well toward the upper limits of the cane, a few old plantations still persisted in 1933. Some were used for raising wet taro, some for truck gardening. However, except for these few patches the old terraces of the upper slopes are entirely ploughed under. [Handy and Handy 1972: 496-497]

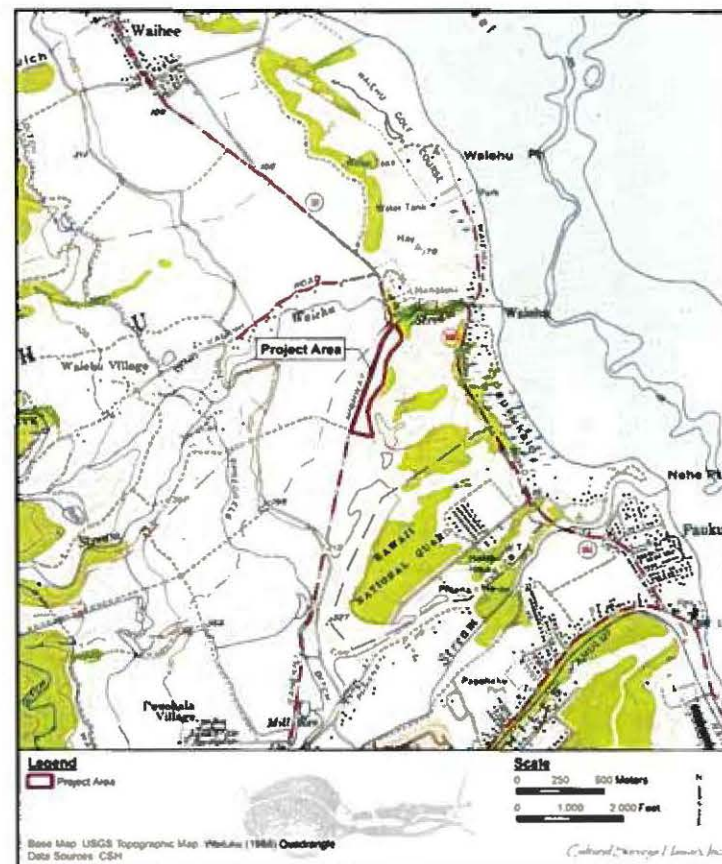


Figure 17. Portion of a 1955 USGS topographic map showing the current project area without a railroad transecting it; Waiehu Village and Puuohala Village are west and southwest of the project area, respectively, and Spreckels Ditch flows west, northwest, and south of the project area (U.S. Geological Survey 1955)



Postwar Maui saw the wholesale development of Kahului as a master-planned community providing fee-simple ownership of single-family homes. The majority of the homes located between Baldwin High School and Pu'unene Avenue were purchased by plantation employees. This trend continued throughout the 1950s, with plantation camp populations falling in the outlying communities, including Waihe'e and Waiehu, and rising in the central townsites of Kahului's new "Dream City" (Dean 1950).

The period of the Vietnam Conflict brought continued changes to the Waihe'e area. With the prosecution of hostilities in Southeast Asia, O'ahu military bases were operating at maximum capacity. A Rest & Recreation center was built in an abandoned school cafeteria in Waiehu by the "Camp Maui Detachment of the Marine Corps League." The center opened in 1967 for use by the U.S. Marine Corps and was staffed by local Mauians (Kester 1967).

## 2.1.7 Contemporary Land Use

### 2.1.7.1 Agriculture

Much of the land around and within the current project area was planted in commercial sugarcane until at least the late 1970s (Figure 18 through Figure 20). In March 1979, C. Brewer announced its plans to phase in macadamia nut crops in the Waihe'e-Waiehu area over a five-year period (Tanji 1979a). Nearly 2,000 acres would be planted with macadamia nut trees, starting with an initial 484 acres in 1979. This plan included the current project area, which is seen in 1988 as at least partially planted with macadamia trees (Figure 21). Full production was expected within seven to 10 years with a projected output of 7,000 pounds of macadamia nuts per acre, to be marketed under Brewer's Mauna Loa label. Wailuku Sugar Company, a subsidiary of C. Brewer, would retain 3,100 acres in sugarcane. However, by 1988, after 125 years of sugar operations and varied attempts at diversified agriculture, Wailuku Sugar Company mill closed.

Macadamia nuts were commercially farmed at the current project area until at least the end of the twentieth century. In a 1999 news article, the high costs of macadamia nut farming on Maui were recognized (The Honolulu Advertiser 1999). Not only were actual yields less than projected, but nuts had to be shipped to O'ahu for processing, and significant amounts of nuts ruined during shipping. Macadamia nut orchard lands in Waiehu, including the current project area, were up for sale in the first decade of the twenty-first century. Patches of macadamia nut trees are still grow within portions of the project area today.

The beginning of what resembles a small-scale agricultural operation, which included access roads and an above ground water tank/ reservoir, is visible within the project area on a Google Earth image from 2010 (Figure 22). This endeavor expanded by 2013 with additional land clearing, more access roads, agricultural plots, and paved areas, and structures, most notably within the northern and central portions of the project area (Figure 23). By 2016, the operation appears to have ceased with some of the previously cleared and paved areas covered with natural vegetation (Figure 24). The present-day landscape is similar to that seen in 2016 and 2018 (see Figure 3)

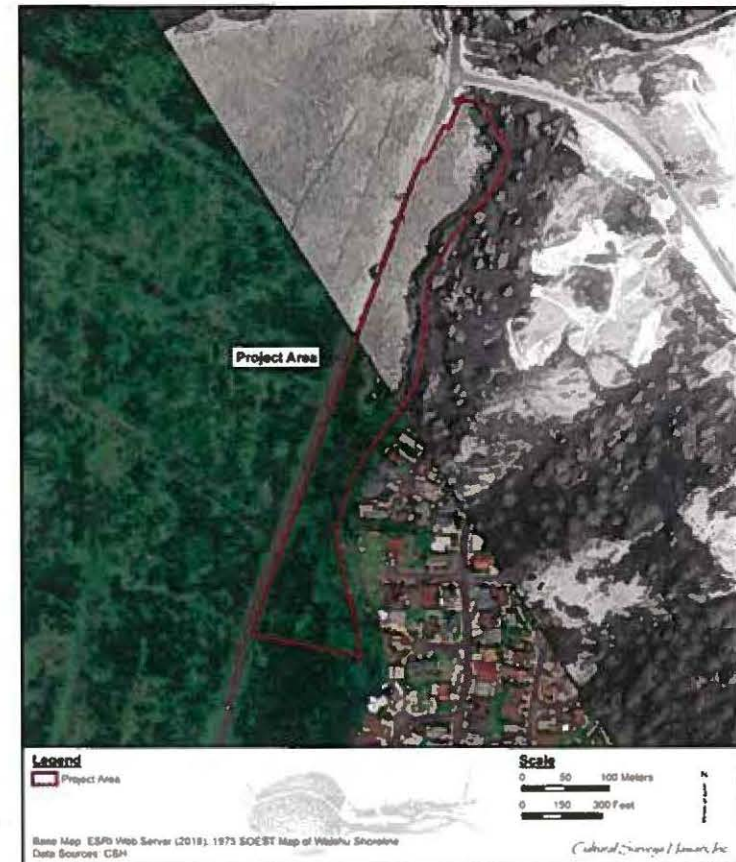


Figure 18. Esri (2018) aerial image of the project area with a partial overlay of a 1975 aerial photo (School of Ocean and Earth Science Technology [SOEST] 1975) showing the northern portion of the project area with sugarcane



Figure 19. Aerial image showing the cane fields and development around the project area in 1977, which is mostly covered in sugarcane (U.S. Geological Survey 1977)

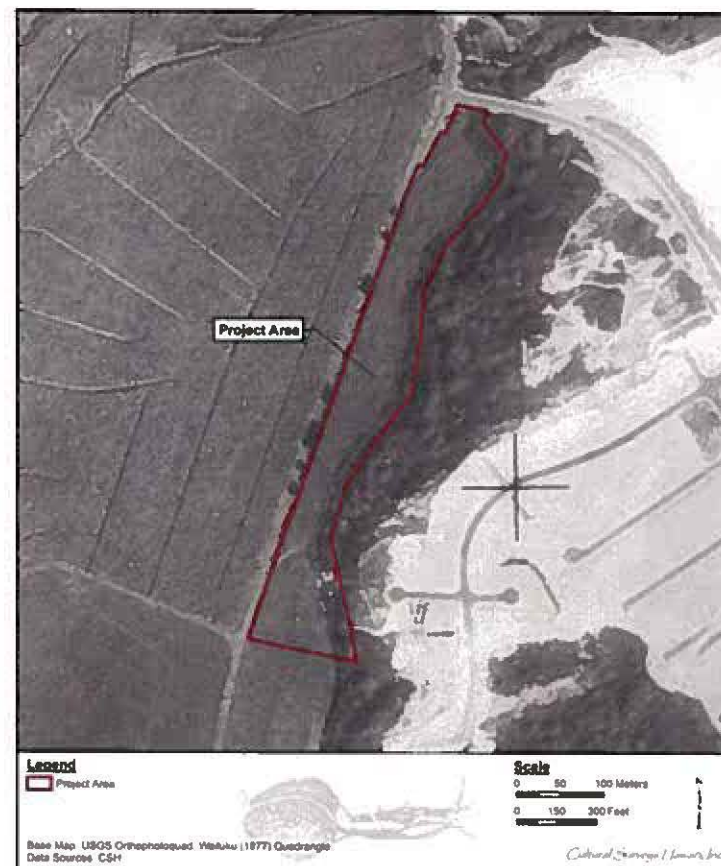


Figure 20. Zoomed in 1977 aerial image showing the project area mostly covered in sugarcane and with trees growing along the eastern boundary (U.S. Geological Survey 1977)





Figure 21. Esri (2018) aerial image of the project area with a partial overlay of a 1988 aerial photo (SOEST 1988) showing the northern portion of the project area with sugarcane



Figure 22. Aerial photo showing the project area in 2010 with groves of macadamia nut trees, and what appears to be the beginning of an agricultural endeavor with some clearing across the project area, an access road, and an above ground water tank/reservoir (Google Earth 2010)





Figure 23. Aerial photo of showing the project area in 2013 with access roads, paved areas, structures, and agricultural plots (Google Earth 2013)

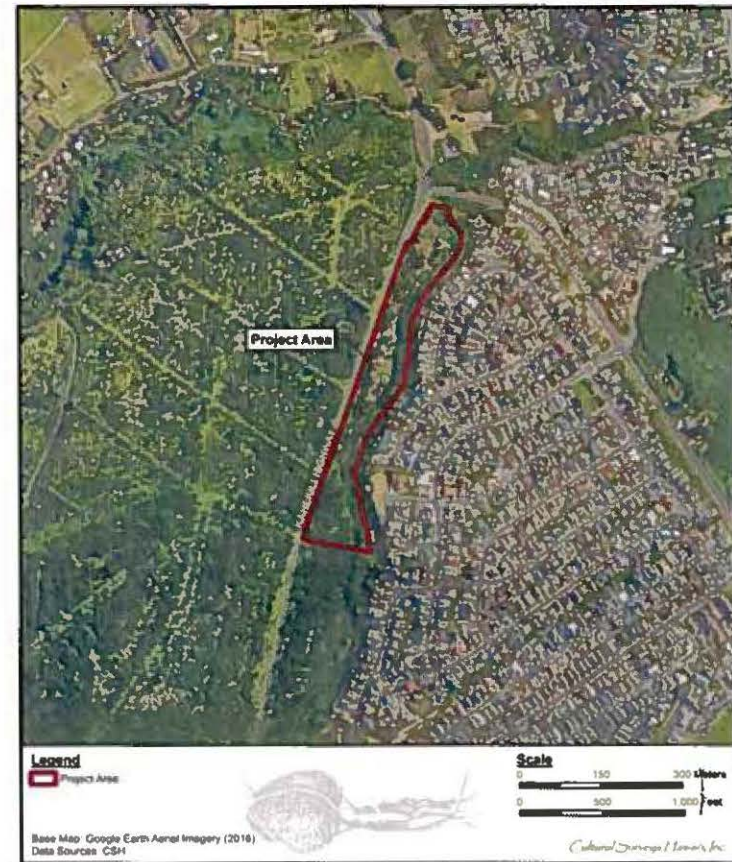


Figure 24. Aerial photo showing the project area in 2016 containing remnants of a previous agricultural operation: some areas remained cleared but with new overgrowth and a few structures and water tank/ reservoir are still on the property (Google Earth 2016)



### 2.1.7.2 Residential Development

While the current project area and much of the lands to its west remained under agricultural production, the resident population of the Waiehu area, especially *maka'i* from the current project area continued to grow. In September 1975, ground-breaking commenced for the Waiehu Heights Subdivision (Figure 25), a 720-unit residential development project on 144 acres purchased by Waiehu Heights Associates from Wailuku Sugar Company (The Honolulu Advertiser 1975). This subdivision borders the current project area to the east and is located on top of the lithified sand dune.

In May 1978, two coffin burials were revealed during grading for the development of Waiehu Heights (Tanji 1979b). Grading was halted for over two months while archaeologists from Bernice Pauahi Bishop Museum were consulted and conducted a survey of the area. No additional burials were identified, so grading proceeded. In 1979, after bulldozers cut deeper into the sand dunes, an additional 77 coffin burials were exposed. The presence of coffins indicates the burials occurred post-1778; however, "according to reports, the burials also were done 'Hawaiian style,' meaning that to prevent desecration, the graves were not marked. The coffins were placed in caves and the openings hidden under the sand" (Tanji 1979b:1).

All the burials were disinterred, and an announcement was made in an attempt to locate family members to identify the buried individuals before the remains were reinterred. The reinterment location is unknown by CSH. Neither CSH nor the SHPD have been able to locate original archaeological reports concerning these burials or surveys conducted at the Waiehu Heights Subdivision project area. A complaint was filed against the developer and contractor by resident, Charles K. Maxwell of Pukalani, who had warned the developer "that they would be building over an old burial ground" (Tanji 1979b:1; 1979c). Mr. Maxwell expressed hopes that remains would be relocated near their original burial location in Waiehu Heights (Tanji 1979c). Additional human burials have been previously identified during development of the Oceanview Estates subdivision on dune sand northeast of the current project area (Han 1982).

The current affordable housing project proposes additional residential development on the flat, former agricultural land that is located along Kahekili Highway. No ground disturbance is planned for the sand dune slope that defines the eastern boundary of the project area.

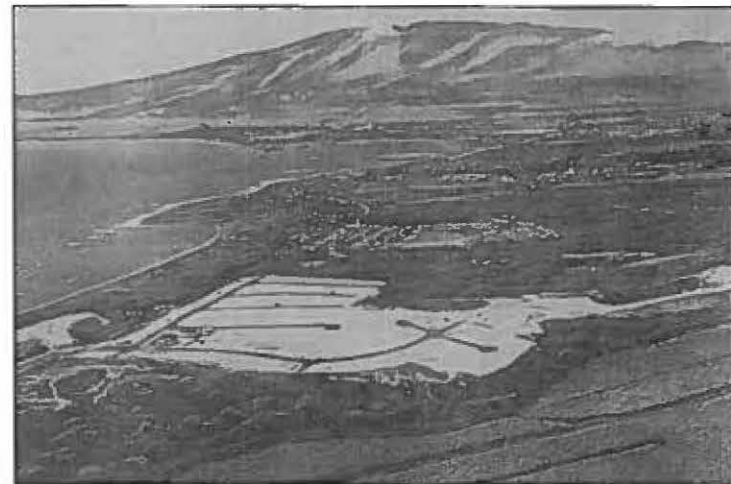


Figure 25. Progress of Waiehu Heights Subdivision development in August 1976; trees along the edge of the cleared sandy area separate the subdivision area from the current project area, which is seen in the foreground covered in sugarcane (Honolulu Star-Bulletin 1975:H-8)

## 2.2 Previous Archaeological Research

Winslow M. Walker (1931) conducted the earliest systematic archaeological study of the area, expanding upon earlier work for the Bernice Pauahi Bishop Museum by John F. G. Stokes (1916) and Thomas G. Thrum (1908, 1916, 1917, 1918) that focused on generating descriptive lists of traditional Hawaiian ceremonial structures (i.e., *heiau* and *ko'a*). These early studies documented burials on the long sandy ridge near the shore northeast of Waihe'e Village, an adze grinding stone at Wawaekanaka, eight *heiau* at Waihe'e, and a former fishpond at Kapoho, northeast of Waihe'e Village. Walker (1931:71) also observed active taro fields and terraces in Waihe'e.

In Waiehu, Walker (1931) identified five *heiau*: Halelau (Site 37), Kamakoa (Site 38), Malumaluakua (Site 39), Kukuikomo (Site 40), and Puukoa (Site 41). Sites 37 and 41 were both reported as destroyed. Site 38 was identified "in a grove of eucalyptus at about 600 ft. elevation" as "a group of curiously eroded stones which may have had sacred significance, but no trace of walls" was observed, this site was "[s]aid to be place of King Kamakokole where drums were heard on night of Kane" (Walker 1931:141). Walker (1931:142) describes Site 39 as "a level spot without evidences of walls or platforms" surrounded by a "grove of kukui trees" with a "large rock in the center [that] may have served for sacrificial purposes." Site 40 was identified as "[a]nother *heiau* without walls or platforms" located "on a ridge between North and South Waiehu Gulches" (Walker 1931:143). Kawailana, an 88-years-old native informant, related to Walker (1931:142) that "the *heiaus* near Waiehu were all built by Kahekili to Kane, and men and pigs were laid on the lele. In this region a *heiau* seems to mean merely a sacred spot not marked necessarily by either walls or platforms of stone." All *heiau* recorded by Walker (1931) in Waiehu were identified west and beyond the immediate vicinity of the current project area (see Figure 5).

Between 1931 and 1976, only sporadic archaeological studies were undertaken in the Waiehu area. The National Historic Preservation Act in 1966 and HRS Chapter 6E, which established the Historic Preservation Program in 1976, mandated the historic preservation review of potential effects of proposed state projects (HRS 6E-8) and any project involving a permit, license, certificate, land use change, subdivision, or other entitlement for use, which may affect historic property (HRS 6E-42). Following the passage of the Act, archaeological studies occurred as a condition of development on a more frequent basis. However, only a few studies have been conducted within the project area vicinity (Table 2 and Figure 26). No historic properties have been previously identified within the current project area. Historic properties documented in the vicinity include confirmed and potential human burials, traditional and historic agricultural, and habitation features (Figure 27).

### 2.2.1 Han (1982)

From 4 through 12 June 1981, Bernice Pauahi (B.P.) Bishop Museum conducted archaeological salvage excavations and mapped six sites in a portion of the Waiehu dune area (Han 1982), now known as Oceanview Estates Subdivision, which is northeast of the current project area. This study was a follow-up to a previous B.P. Bishop Museum archaeological reconnaissance conducted in 1978 to test traditional claims that the area contained ancient burials and a limestone quarry. Historic properties identified during both studies were initially designated Bishop Museum site numbers and were later designated SIHP #s. During the 1978 study, a human burial and a walled

Table 2. Previous archaeological studies within the project area (in **bold**) and vicinity

Reference	Type of Study	Location	Results (SIHP # 50-50-04-####)
Han (1982)	Archaeological salvage excavations	Oceanview Estates Subdivision	Identified four Bishop Museum sites: Ma-C10-17, limestone quarry, Ma-C10-18 and -19, human remains, and Ma-C10-20, scattered shell midden/possible materials work area; further investigated previously identified Bishop Museum Site Ma-C10-15, human burial, and Ma-C10-16, terraced wall/historic habitation area
Kennedy (1989)	Archaeological walk-through reconnaissance survey	Wailuku Project District #3 and Piihaha Project District #2 lands, which included the southern portion of the current project area	Identified SIHP # -2985, rock mound/ possible burial, just outside southeast corner of current project area (on top of the dune); also identified SIHP # -2986, likely Chinese grave with marker, SIHP # -2987, a small agricultural terrace complex, and Mahalani Cemetery (no SIHP #) further south (not seen on Figure 27)
Estioko-Griffin (1990)	Field Inspection	Waiehu Development Increment C	Examined SIHP # -2986 (likely grave marker) previously identified by Kennedy (1989) and inspected a burial exposed near a sand pit and other reported burials (all south of current project area vicinity/not depicted on Figure 27)
Folk and Hammatt (1992)	Archaeological survey and subsurface testing	Waiehu Beach Lots	Identified SIHP # -3115, two buried charcoal lenses radiocarbon dated from the 14th to 17th century
Fredericksen and Fredericksen (1999)	AIIS	Waiehu Kou 2 Residential Development	Identified SIHP # -4731, a pre-Contact habitation area with two associated human burials (north of current project area vicinity/not depicted on Figure 27)
Donham (2003)	Archaeological inspection/assessment	1376 Kakae Place, Oceanview Estates	No historic properties identified
Dega (2003)	Archaeological monitoring	921 Kualoa Place	No historic properties identified

Reference	Type of Study	Location	Results (SIHP # 50-50-04-####)
Wilson and Dega (2004)	AIS	Approximately 240 acres across Kahekili Highway from the current project area	Identified six historic properties, SIHP # -5522 -5527, and further documented previously identified SIHP # -1508, Spreckels Ditch, four were of these SIHPs were identified in the current project area vicinity SIHP # -5522, sugarcane agriculture modifications, SIHP # -5523, basalt debitage; SIHP # -5524, isolated <i>Conus</i> sp. shell, and SIHP # -5525, clearing terrace and mound
Madeus and Fredericksen (2005)	AIS	2-acre parcel on Malahi Road	Identified SIHP # -5739, a pre- and post-Contact agricultural and habitation complex; mentions SIHP # -4759, a habitation area remnant with three possible burials, which was identified by Xamanek Researches in a separate AIS conducted north of the project area (see Figure 27)
Dega (2006)	Archaeological monitoring	955 Puuloa Street	No historic properties identified
Lee-Greig et al (2006)			Identified SIHP # -6081, historic era agricultural/habitation complex; SIHP # -6082, traditional/ historic cultural material scatter; and SIHP # -6083 is an abandoned <i>auwai</i> ; further documented four features of SIHP # -5739 previously identified by Madeus and Fredericksen (2005)
Shelfcheck and Dega (2008)	AIS	Current project area	No historic properties identified.

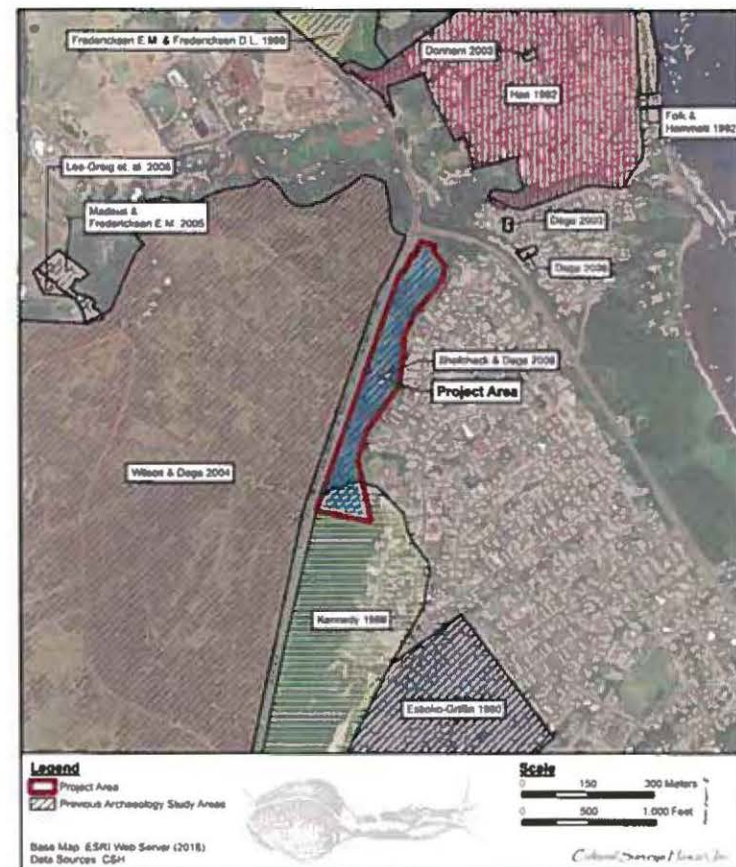


Figure 26. Esn (2018) aerial image showing previous archaeological studies conducted within the project area and vicinity





Figure 27. Esri (2018) aerial image showing the project area and locations of previously identified historic properties in the vicinity

terrace were identified and designated as Bishop Museum Sites 50-Ma-C10-15 (SIHP # 50-50-04-2970) and 50-Ma-C10-16 (SIHP # -2971), respectively; a limestone quarry was not identified with any certainty at that time. During the excavations conducted in 1981, four additional sites were identified: 50-Ma-C10-17 through -20/ SIHP #s -2972 -2975. Site 50-Ma-C10-17 (SIHP # -2972) is the locus of the reputed limestone quarry. Sites 50-Ma-C10-18 and -19 (SIHP #s -2973 and -2974) are both scatters of fragmented human remains, and Site 50-Ma-C10-20 (SIHP # -2975) is a scattered shell midden and possible materials work area. At Site 50-Ma-C10-15 (SIHP # -2970), a human burial in a flexed position was disinterred during the 1981 study. Further investigation at Site 50-Ma-C10-16 (SIHP # -2971), walled terrace, determined the site to be an early to mid-1900s historic habitation area. In addition, an approximately 11.5-acre possible ancient fishpond (SIHP # -2976) was documented at the northeast corner of the subdivision (not depicted on Figure 27).

#### 2.2.2 Kennedy (1989)

Between 1 and 7 January 1983, Archaeological Consultants of Hawaii, Inc. (ACH) conducted an archaeological walk-through reconnaissance survey (Kennedy 1989), which included the southern portion of the current project area. No historic properties were identified within the current project area, however, SIHP # -50-50-04-2985, a small rock mound interpreted as a potential burial site, was documented near the southeast corner of the project area on top of the adjacent lithified dune (see Figure 27). In addition, ACH identified SIHP # -2986, a likely Chinese grave with a 'typically Chinese' marker (Kennedy 1989:5), SIHP # -2987, a small agricultural terrace complex, and Mahalan Cemetery (no SIHP #) further south and away from the immediate vicinity of the current project area (i.e., not depicted on Figure 27).

#### 2.2.3 Estioko-Griffin (1990)

On 14 December 1990, the SHPD conducted a field inspection at Waiehu Development Increment C, a Housing Finance and Development Corporation (HFDC) construction site in Paukukalo (Estioko-Griffin 1990). The inspection included an examination of burials exposed at a sand mining pit and another area in which bone fragments were exposed during grubbing. In addition, a reported 'Japanese' grave previously identified by Kennedy (1989) as a likely Chinese grave (SIHP # -2986) was inspected. At least one individual within a burial pit was exposed "along the steep face of the sand mining pit" (Estioko-Griffin 1990:1). Due to safety concerns, mechanical excavation was recommended. An analysis of previously exposed fragments identified both animal and isolated human skeletal elements in an area also containing recent refuse. Subsurface testing was not recommended by the SHPD in this area, since it was slated to be filled with 20 to 30 ft of sand. Archaeological monitoring of grubbing with "small equipment" and "slow and controlled" grading was recommended for the area near where the burials were exposed (Estioko-Griffin 1990:2). The SHPD recommended that the marked Japanese or Chinese burial be relocated. No SIHP #s were identified in the immediate vicinity of the current project area (i.e., not depicted on Figure 27).

#### 2.2.4 Folk and Hammatt (1992)

CSH conducted an archaeological survey and subsurface testing of Waiehu beach lots along the coast northeast of the current project area (Folk and Hammatt 1992). The study included a pedestrian survey and subsurface testing of nine trenches excavated by backhoe. No cultural remains were identified during the surface survey. Two buried charcoal lenses were encountered



during subsurface testing and designated SIHP # 50-50-04-3115. Radiocarbon analysis dated the lenses from the 14th to the 17th century. No cultural materials were observed in association with SIHP # -3115 or elsewhere during the study. No further archaeological work was recommended.

#### 2.2.5 Fredericksen and Fredericksen (1999)

Between March and May 1999, Xamanak Researches conducted an archaeological inventory survey (AIS) of an approximately 1,110-m long by 18-m wide drainage and diversion easement corridor for the Waiehu Kou 2 Residential Development Project (Fredericksen and Fredericksen 1999). The AIS included a 100 percent pedestrian survey of the corridor and subsurface testing within the corridor and portions of two adjacent proposed retention basins. Seventy mechanically-excavated trenches and 18 manually-excavated units were tested. One historic property was identified during the study: SIHP # 50-50-04-4731.

SIHP # -4731 is interpreted as an extensive, pre-Contact habitation area, which is located along the *mauka* side of a large, coastal sand dune north of the current project area. During the AIS, two human burials, one child and one adult, were identified as associated with SIHP # -4731. A dog burial was also encountered within a test unit. Artifacts recovered during the study include lithics (flakes, cores, adze fragments, etc.), worked bone pieces and tools associated with fishhook manufacturing, shells and a drilled pig's tooth for adornment, over 300 pieces of volcanic glass, a fish bone awl and picks, and a "utilized shark tooth" (Fredericksen and Fredericksen 1999:53). Radiocarbon analyses of four charcoal samples indicate that SIHP # -4731 was inhabited from the 13th century through the 18th century. SIHP # -4731, deemed significant under Criteria A, D, and E, is located north, beyond the vicinity of the current project area (not depicted on Figure 27)

#### 2.2.6 Donham (2003)

On 24 June 2003, Akahale Archaeology conducted an archaeological inspection for modification of a dwelling at 1376 Kakae Place in Oceanview Estates (Donham 2003). No historic properties were identified. Per consultation with the SHPD, the negative findings were published in an archaeological assessment report.

#### 2.2.7 Dega (2003)

On 15 September 2003, Scientific Consultant Services, Inc. (SCS) conducted archaeological monitoring of residential construction on a parcel of private property 921 Kualoa Place (Dega 2003) within a neighborhood northeast of the present project area. SCS monitored the excavation of approximately 25 linear meters (80 linear ft) of trenches measuring approximately 60 cm (2 ft) wide with a maximum depth of 30 cm (approximately 12 in). No historic properties were encountered. Observed stratigraphy consisted of two stratigraphic layers: a silty clay fill overlying naturally deposited Jaucus sand. Full-time archaeological monitoring was recommended for any additional ground-disturbing projects within or near the parcel due to the known cultural sensitivity of the area, which includes nearby previously identified human burials.

#### 2.2.8 Wilson and Dega (2004)

In 2004, SCS completed an archaeological inventory survey (AIS) of approximately 240 acres in Waiehu (Wilson and Dega 2004). This study area is located west of the current project area, on the opposite, *mauka* side of Kahekili Hwy. The AIS included a 100 percent pedestrian survey and subsurface testing of mechanically-excavated trenches and manually-excavated test units. Six

historic properties were newly identified: SIHP #s 50-50-07-5522 through -5527. In addition, one previously identified historic property, SIHP # -1508 (Spreckels Ditch), was also documented during the study.

SIHP # -5522 is described as sugarcane agricultural modifications. SCS identified seven cane field features comprising SIHP # -5522: 1) drainage ditch; 2) erosion control agricultural berms; 3) drainage ditch/swale; 4) irrigation ditch with associated boulder mound; 5) motorized vehicle access dirt road; 6) piggery access dirt road; and 7) access graded dirt road. SIHP # -5523 represents an isolated lithics find of basalt debitage consisting of an interior flake, a polished flake, and a piece of volcanic glass. SIHP # -5524 marks the location of a worn, single, isolated *Comus* sp. shell interpreted as historic midden material; however, testing of the site was not conducted, and no other cultural materials were identified in association with the shell. SIHP # -5525 is a terrace and mound resulting from cane field clearing; SIHP # -5526 is the concrete and cinder block foundation remnants of a piggery; and SIHP # -5527 is a terrace complex consisting of five terraces likely associated with early historic agriculture.

No additional archaeological work was recommended for the historic properties identified during the study. SCS recommended archaeological monitoring for any land alterations occurring within 50 m (164 ft) of Kahekili Highway and noted a greater potential for encountering human burials within the northeastern portion of the study area, which is near cemeteries and sand dunes known to contain human burials.

#### 2.2.9 Madeus and Fredericksen (2005)

In August 2005, Xamanek Researches, LLC conducted an AIS of approximately 2 acres fronting Malaiki Road and Waiehu Stream (Madeus and Fredericksen 2005). The study included a 100 percent pedestrian survey and the manual excavation of two 50 cm by 50 cm test units. One historic property was identified: SIHP # -50-50-04-5739, an agricultural and habitation complex consisting of 43 features. Thirty-five of these features are considered pre-Contact agricultural features used subsequently post-Contact, while the remaining eight features are interpreted as post-Contact features. Function determinations include 38 features used for agriculture and animal husbandry (35 agricultural terraces, one *auwai* (irrigation ditch), a concrete water trough, and a concrete animal pen or horse stable), four habitation features (historic house, two historic garages, and a sewer tank depression), and one feature of indeterminate function. The latter feature was a scatter of beach materials consisting of coral, cobbles, pebbles, and shell, which appeared to be imported during historic habitation, possibly for yard beautification purposes. No further archaeological work was recommended for the house, terraces, husbandry features, and scatter; the landowner agreed to preserve these features. Precautionary archaeological monitoring was recommended for ground disturbance associated with proposed construction on the parcel.

Within the previous archaeological discussion section of the AIS report, Madeus and Fredericksen (2005) discuss an AIS of the Waiehu Kou off-site sewer line previously conducted by Xamanek Researches in the year 2000. Neither CSH nor the SHPD has been able to locate the original report for this study. It is mentioned here since SIHP # -4759, "interpreted as a low-density habitation area remnant, which has at least 3 probable precontact burials associated with it," was identified approximately 150 m (492 ft) north of the current project area (Madeus and Fredericksen 2005:12). (See Figure 27).

### 2.2.10 Lee-Greig et al. (2006)

In 2006, CSH conducted an AIS of an approximately 0.50-acre private property on Malaihi Road (Lee-Greig et al. 2006) in a residential area west of the current project area. The study consisted of a surface survey and subsurface testing. Three historic properties were newly identified: SIHP #s -6081 through -6083. SIHP # -6081 is a historic era agricultural and habitation complex consisting of seven features, which include a lotus pond, a planting circle, habitation remnants represented by low terraces and a surface scatter of cultural materials, a water control feature, and a paved area of indeterminate function. SIHP # -6082 is a cultural material (traditional and historic) scatter of indeterminate function. SIHP # -6083 is an abandoned *auwai*. In addition to identifying the aforementioned historic properties, CSH further documented four features (three earthen terraces and one *auwai*) of SIHP # -5739 previously identified by Madeus and Fredericksen (2005). CSH determined that information available from the historic properties identified during the AIS were adequately recorded; as such, the project specific effect determination was "no historic properties affected," and no additional archaeological work was recommended (Lee-Greig et al. 2006:62).

### 2.2.11 Dega (2006)

On 9 May 2006, SCS conducted archaeological monitoring for a private residential construction project on a parcel at 955 Puuloa Street (Dega 2006) located northeast of the current project area. Excavations for the project consisted of three manually-excavated foundation trenches. These approximately 30-cm (12-in) wide trenches were excavated to a maximum depth of 50 cmbs (approximately 20 in). Two trenches were approximately 10 m (33 ft) long, while the third trench measured approximately 8 m (26 ft) in length. No historic properties were identified. Two stratigraphic layers were observed: top soil fill overlying naturally deposited Pu'uone sand. Due to the cultural sensitivity of the general area, including the nearby previous identification of human burials, SCS recommended full-time archaeological monitoring for any future ground-disturbing activities within or near the parcel.

### 2.2.12 Shefcheck and Dega (2008)

From 29 October through 2 November 2007, SCS conducted an AIS of the current 11.5-acre project area (Shefcheck and Dega 2008). The study included a pedestrian survey of the entire project area and representative subsurface testing of 17 mechanically-excavated trenches. At the time of the AIS, the parcel was vacant and scattered throughout with modern trash; the western portion of the project area contained "a grove of macadamia nut trees (*Macadamia integrifolia*)" within a "pre-existing macadamia nut orchard" (Shefcheck and Dega 2008:5). SCS noted that the area had previously been mined for sand by Hawaiian Cement and that the project area was used to stockpile materials during the construction of Waiehu Heights Subdivision. No historic properties were identified at or below the surface.

Two general patterns of stratigraphy were observed across the project area. Stratigraphy observed in the north portion of the project area consisted of a very dark grayish brown silt loam at 0 to 40 cmbs overlying a brown silt from 40 cmbs to base of excavation (BOE). Observed stratigraphy in the southern portion of the project area consisted of three strata: a very dark grayish brown silt loam at 0 to 10 cmbs atop a brown silt extending from 10 to 120 cmbs overlying pale brown silty sand, identified as an original deposit of pu'uone sand, at 120 cmbs to BOE.

SCS recommended the following for the current project area:

The presence of sandy matrix and the high number of burials and other culturally significant subsurface deposits in the surrounding area suggest the likelihood for the discovery of archaeological sites, such as burials and/or habitation sites, in the subsurface deposits of the project area. Thus, a program of Archaeological Monitoring is recommended as a precautionary measure during all construction related ground altering activities (Shefcheck and Dega 2008:18)

## 2.3 Background Summary and Predictive Model

Waiehu Ahupua'a is notable for its extensive *lo'i* agriculture, which appears to have been concentrated west of the project area but may have extended within the project area. Expansive and productive wetland taro cultivation within Waiehu provides evidence that a substantial population would have been established in the region during the pre-Contact period. The project area may have once included pre-Contact archaeological sites related to traditional agricultural use, water control, or habitation. Subsequent commercial sugarcane and macadamia nut farming likely impacted and destroyed pre-Contact surface structures or deposits that may have existed within the project area. An archaeological inventory survey of the parcel (Shefcheck and Dega 2008) found no evidence of pre-Contact agricultural land use or habitation. Nonetheless, there remains a potential for remnants of pre-Contact land use within the project area such as buried structural remnants or soil deposits.

The project area is located on the edge of, but outside of, a lithified dune system that extends throughout the isthmus of Maui. On-going traditional, historical, and archaeological research have documented knowledge and evidence of the use of the dune system for burial. Research and archaeological testing conducted for the current project area indicate that the project area is predominately located within alluvial sediment that has been deposited along the backside of the lithified dune. However, sandy soils were documented in the southern portion of the project area during the project's AIS (Shefcheck and Dega 2008). No burials or cultural deposits were observed during archaeological testing within the project area. Furthermore, Shefcheck and Dega (2008) suggest that the project area had previously been mined for sand by Hawaiian Cement and that the project area was used to stockpile materials during the construction of Waiehu Heights Subdivision. Given the results of archaeological testing and a review of previous land use, the project area appears to be located near, but outside of the lithified dune and associated burial cluster. No project-related ground disturbance is planned for the sand dune slope that defines the eastern boundary of the project area. Nonetheless, there remains a potential for the identification of fragmentary human skeletal remains within the project area given the documentation of historic commercial agriculture and sand mining that could have displaced and scattered material from the adjacent dune.

As Wailuku District underwent a dramatic change from traditional agriculture to commercial sugarcane cultivation beginning in the mid-1800s, Waiehu Ahupua'a not only experienced a shift in agriculture focus but a shift in settlement as well. Many LCAs along Waiehu Stream were acquired by commercial sugarcane companies. The lack of house lots depicted within the current project area on historic maps indicates that the project area has been uninhabited from at least as early as the late 1800s, during which sugarcane cultivation may have begun on the current project area lands. No historic properties related to commercial agriculture were identified during an AIS

of the project area (Shefcheck and Dega 2008), however there remains the potential to identify buried structural remnants or soils related to commercial agriculture during project-related ground disturbance.

From 1906 to 1947, Wailuku Agribusiness Company had a railroad system for transporting cut cane to the mill, with a portion of the tracks extending between Kahekili Highway and sand dunes in Waiehu (Kennedy 1989). Historic maps show that this railroad transected the project area in 1933 (see Figure 15) and 1942 (see Figure 16) and had been removed by 1955 (see Figure 17). No historic properties related to the railroad were identified during an AIS of the project area (Shefcheck and Dega 2008), however, there remains a potential to identify buried structural remnants, layers, or artifacts related to the railroad during project-related ground disturbance.

Sugarcane likely continued to grow at the current project area until at least 1979, prior to being converted into a portion of a commercial macadamia nut orchard. Macadamia nuts were farmed at the current project area until at least the end of the twentieth century. Small groves of macadamia nut trees still grow within portions of the project area today. The AIS of the project area (Shefcheck and Dega 2008) documented modern trash and evidence of macadamia nut farming within the project area. Trash deposits or remnants of late twentieth century agriculture have the potential to be older than 50 years (pre-1970 at the time of this AMP) and therefore considered to be historic properties. If trash deposits are identified during project-related ground disturbance, the age of these deposits will be analyzed and the deposits will be assessed as historic properties if determined to be more than 50 years old.

### Section 3 Archaeological Monitoring Provisions

An AIS of the current project area, which included subsurface testing, was previously conducted by SCS in 2007 (Shefcheck and Dega 2008). No historic properties were identified. However, precautionary archaeological monitoring of all project-related ground disturbance was recommended for the project area due to the presence of sand deposits in the southern portion of the project area and the numerous burials and other significant subsurface cultural deposits previously identified in the vicinity.

Under Hawai'i State historic preservation legislation, "Archaeological monitoring may be an identification, mitigation, or post-mitigation contingency measure. Monitoring shall entail the archaeological observation of, and possible intervention with, on-going activities, which may adversely affect historic properties" (HAR §13-13-279-3). Hawai'i State historic preservation legislation governing archaeological monitoring programs requires that each monitoring plan discuss eight specific items (HAR §13-13-279-4). The monitoring provisions below address these eight requirements in terms of archaeological monitoring for the excavations within the current project area.

#### 1) Anticipated Historic Properties:

Traditional and historic background research conducted for this AMP has identified the types of historic properties that could be present within the project area based on former land use. This research, as summarized in Section 2.3, indicates a potential for buried structural remnants or soil deposits related to pre-Contact agriculture, water control, or habitation, fragmentary skeletal remains that were displaced from commercial agricultural operations and sand mining operations in the project area, buried remnants related to the former railroad that extended through the project area, and trash deposits related to late-Twentieth Century macadamia nut farming within the project area.

No historic properties have been previously identified within the project area. A 100 percent-coverage pedestrian inspection has confirmed that no historic properties are present on the surface of the project area (Shefcheck and Dega 2008). Representative subsurface test excavations found no evidence of buried historic properties or human burials within the project area (Shefcheck and Dega 2008). The sampling strategy completed for the project area suggests that the potential for identifying burial historic properties is low.

#### 2) Locations of Historic Properties:

No historic properties have been previously identified within the project area.

SIHP # -2985, a possible human burial, was previously identified on top a sandy ridge (lithified dune) near the southeast corner of the current project area. The current project will not include project-related ground disturbance into the dune slope.

#### 3) Fieldwork:

The SHPD shall be notified prior to the start of ground disturbing work. On-site archaeological monitoring shall be conducted for all project-related ground disturbance occurring throughout the project area. One archaeological monitor will be assigned to each piece of ground-disturbing equipment in operation at all times and in all locations

throughout the project area. Any departure from this will occur only after consultation with and written concurrence from the SHPD.

The monitoring fieldwork will likely encompass the documentation of subsurface archaeological deposits (e.g., trash pits, structural remnants) and will employ current standard archaeological recording techniques. This will include drawing and recording the stratigraphy of excavation profiles where cultural features or artifacts are exposed as well as representative profiles. These exposures will be photographed, located on project area maps, and sampled. Photographs and representative profiles of excavations will be taken even if no historically significant sites are documented. As appropriate, sampling will include the collection of representative artifacts, bulk sediment samples, and/or the on-site screening of measured volumes of feature fill to determine feature contents.

Documentation in the field may also include plotting GPS points with a Trimble Geo XH mapping grade GPS unit with a TSCI Datalogger and real-time differential correction. This unit provides sub-meter horizontal accuracy in the field. GPS field data will be postprocessed, yielding horizontal accuracy between 0.5 and 0.3 m. Any plotted GPS points will be recorded in a table along with their location.

In the event of significant finds, the SHPD will be notified. If human remains are identified, construction activity in the vicinity will be stopped and no exploratory work of any kind will be conducted unless specifically requested by the SHPD. All human skeletal remains that are encountered during excavation will be handled in compliance with HAR §13-13-300 and HRS §6E-43.

#### 4) Archaeologist's Role:

The on-site archaeologist has the authority to stop work immediately in the area of any findings so that documentation can proceed, and appropriate treatment can be determined. In addition, the archaeologist has the authority to slow and/or suspend construction activities in order to ensure that the necessary archaeological sampling and recording can take place.

#### 5) Coordination Meeting:

Before work commences on the project, the on-site archaeologist shall hold a coordination meeting to orient the construction crew to the requirements of the archaeological monitoring program. At this meeting, the monitor will emphasize his or her authority to temporarily halt construction and state that all finds (including objects such as bottles) are the property of the landowner and may not be removed from the construction site. At this time, it will be made clear that the archaeologist must be on site during all subsurface excavations.

#### 6) Laboratory Work:

Laboratory work will be conducted in accordance with HAR §13-13-279-5(6). Laboratory analysis of non-burial related finds will be tabulated, and standard artifact and midden recording will be conducted as follows. Artifacts will be documented as to provenience, measurements, weight, type of material, and presumed function. Photographs of representative artifacts will be taken for inclusion in the archaeological monitoring report. Bone and shell midden materials will be sorted down to species, when possible, and then tabulated by provenience.

As appropriate, collected charcoal material obtained within intact cultural deposits will be analyzed for species identification. Charcoal samples ideal for dating analyses will be sent to Beta Analytic, Inc. for radiocarbon dating. If appropriate, artifacts may be sent to the University of Hawai'i-Hilo Geoarchaeology Lab for Energy-Dispersive X-ray Fluorescence (EDXRF) analysis in order to identify and possibly geographically locate the source material. All analyzed samples, provenience information, and results will be presented in table form within the archaeological monitoring report.

#### 7) Report Preparation:

The report will contain sections on monitoring methods, archaeological results, stratigraphy, and results of laboratory analyses, and it will present a synthesis of these results. The report will address the requirements of a monitoring report (pursuant to HAR §13-13-279-5). Photographs of excavations will be included in the monitoring report even if no historically significant sites are documented. Should burial treatment be completed as part of the monitoring effort, a summary of this treatment will be included in the monitoring report. Should burials and/or human remains be identified, CSH will provide all appropriate additional written documentation (e.g., letters, memos, reports) that may be requested by the SHPD.

#### 8) Archiving Materials:

All burial materials will be addressed in accordance with SHPD directives. Materials not associated with burials will be temporarily stored at the CSH Wailuku office until an appropriate curation facility is selected, in consultation with the landowner and the SHPD. All data generated will be stored at CSH offices.



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## Appendix A SHPD Correspondence



STATE OF HAWAII  
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STATE HISTORIC PRESERVATION DIVISION  
400 KAMOLELA PARKWAY, BEACH 595  
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11. 11. 1997

Michael F. Dege, Ph.D.  
Schemmle Criminal Services, Inc.  
717 Kappeler Boulevard, Suite 975  
Hendricks, Illinois 62521

Archaeology  
DOI: 10.1017/S000368010000214

Dear Mr. [Name]:

Chapter 6E-J2 Historic Preservation Review of a Revised Archaeological Assessment for a Approximately 11.75 Acres Located in Waialea Waialea Alipana in Waialea District, Island of Maui, Hawaii<sup>1</sup>  
TMR: (2) 3-4-00; best: 016

Thank you for the opportunity to review this revised report, which our staff received on June 12, 2018 (Sheetsack and Daga 2018). An Archaeological Assessment of Appropriateness of 1175 Acres in Winnebago, Wisconsin Consulting Services, Inc.

The report was first reviewed by SIAIR staff on May 20 of 2008, resulting in two suggested revisions (SIAIR 11362 MO: 2007-4176; OXK 146). The next action version of the report was reviewed in December 2008 to confirm completion of previously requested revisions and suggestions.

The report may contain the required information as specified in IAR 413.276-5 regarding the contents of interview survey level work conducted in general, and is acceptable.

Should you have any questions or comments regarding this review, please contact Party Coord  
 416-221-0888 or 416-221-0889.

**Alktho.**

Ng Mān

\* Jeff Hume, Director, Dept. of Planning, 250 S. High Street, Waltham, MA 01903

**FINAL**  
**Cultural Impact Assessment for the**  
**Hale Mahaolu Ke Kahua Housing Community,**  
**Waiehu Ahupua'a, Wailuku District, Maui Island,**  
**TMK: [2] 3-3-001:106**

Prepared for  
Waiehu Housing, LP

Prepared by  
Kamuela Kaapana, M.Ed  
and  
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai'i, Inc.  
Kailua, Hawai'i  
(Job Code: WAIEHU 4)

April 2021

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Management Summary

**Management Summary**

<b>Reference</b>	Cultural Impact Assessment for the Hale Mahaolu Ke Kahua Housing Community, Waiehu Ahupua'a, Wailuku District, Maui. TMK: [2] 3-3-001:106 (Kaapana and Hammatt 2020)
<b>Date</b>	April 2021
<b>Project Number(s)</b>	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: WAIEHU 4
<b>Agencies</b>	SHPD: County of Maui Department of Housing and Human Concerns (DHHC)
<b>Land Jurisdiction</b>	Maui Economic Opportunity, Inc. (MEO)
<b>Project Location</b>	The project area comprises TMK: [2] 3-3-001:106 in Waiehu Ahupua'a. It is bounded west by Kahekili Highway, north by Waiehu Beach Road, and east by the Waiehu Heights Subdivision. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.
<b>Project Description</b>	The 100% affordable housing project will involve the construction of 120 residential units, including 28 1-bedroom units, 60 2-bedroom units, and 32 3-bedroom units as well as a 3,477 ft <sup>2</sup> non-profit building, a 3,231 ft <sup>2</sup> community center, and 264 total parking stalls. The project will focus on providing housing for Maui residents earning 60% or less of the area median income.
<b>Project Acreage</b>	The project area is 11.476 acres (4.64 hectares).
<b>Document Purpose</b>	This cultural impact assessment (CIA) was prepared to comply with the State of Hawai'i's environmental review process under Hawai'i Revised Statutes (HRS) §343, which requires consideration of the proposed project's potential effect on cultural beliefs, practices, and resources. Through document research and cultural consultation efforts, this report provides information compiled to date pertinent to the assessment of the proposed project's potential impacts to cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control's <i>Guidelines for Assessing Cultural Impacts</i> ) which may include traditional cultural properties (TCPs). These TCPs may be significant historic properties under State of Hawai'i significance Criterion e, pursuant to Hawai'i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance Criterion e refers to historic properties that "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 group's history and cultural identity" (HAR §13-275-6 and §13-284-6). The document will likely also support the project's historic preservation review.

CIA for the Hale Mahaolu Ke Kahua Housing Community in Waiehu, Wailuku, Maui

TMK: [2] 3-3-001:106

i

EXHIBIT 40

<b>Results of Background Research</b>	<p>Background for this project yielded the following results presented in approximately chronological order:</p> <ol style="list-style-type: none"> <li>1. Waiehu Ahupua'a was once an independent land district and did not reside in any other <i>moku</i>. Along with Waihe'e Ahupua'a, the <i>moku</i> was referred to as Nā Poko (Sterling 1998:91).</li> <li>2. Waiehu Ahupua'a is a part of what is more commonly known as Nā Wai 'Ehā (The Four Waters) which consists of Waikapū, Wailuku, Waiehu, and Waihe'e. These areas were made famous for their freshwater streams.</li> <li>3. Niukūkahī and 'A'awa were famous surfing spots in Waiehu Ahupua'a that we frequently visited by many Maui <i>ali'i</i>. Other famous surfing spots include Kēhu and Ka'ākau of Wailuku and Pala'ie and Kahahawai of Waihe'e.</li> <li>4. Traditional history describes Waiehu as a place of abundance; from the mountain to the sea. Residents of Waiehu had bountiful access to freshwater to help feed their <i>lo'i kalo</i> and their <i>kula</i>. The waters of Waiehu provided opportunity for various fishing practices and ocean recreational activity.</li> <li>5. Waiehu is known to have many Land Claim Awards referencing many <i>'ili 'āina</i>, <i>lo'i kalo</i>, and <i>kula</i>. The project area resides within LCA 8559B*M which was granted to William C. Lunalilo. This LCA document includes approximately 2,000 acres of land in Waiehu, however, it does not specify definitive boundaries or land use for this <i>'āpana</i>.</li> <li>6. In the mid-1800s, Waiehu was known to have a small-scale sugar mill. In Waihe'e, there was the Waihe'e Sugar Company. These two sugar plantations once produced sugar on their own until eventually being absorbed under the Wailuku Sugar Company.</li> <li>7. Since the start of the sugar plantation, water diversion has been an issue amongst the residents of Maui, including Waiehu and the other ahupua'a of Nā Wai 'Ehā. Water was being diverted from the streams of Nā Wai 'Ehā in order to irrigate the sugar fields, leaving many Native Hawaiian and other residents with little to no access of water. The diversion of water affected many Native Hawaiians and other residents' ability to farm <i>kalo</i> and other produce.</li> </ol>
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<b>Results of Community Consultation</b>	<p>CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Community outreach letters were sent to 73 individuals or groups; five responded, two provided written testimony, and two of these <i>kama'āina</i> (native-born) and/or <i>kūpuna</i> (elder/of the grandparent's generation) met with CSH for more in-depth interview. Consultation was received from community members as follows:</p> <ol style="list-style-type: none"> <li>1. Kumu Hōkūlani Holt-Padilla, <i>kama'āina</i> of Waiehu, Kumu Hula of Pā'ū o Hi'iaka, and Director of Ka Hikina O Ka Lā</li> <li>2. Kaniloa Kamaunu, <i>kama'āina</i> of Waiehu</li> <li>3. Confidential Informant</li> <li>4. Daniel Ornellas, <i>kama'āina</i> of Waiehu, representing Kwong Fook Tong Chinese Cemetery.</li> </ol>
<b>Identification of Cultural Practices</b>	<p>Community consultation conducted as part of this CIA has identified the following cultural, historical, and natural resources where cultural practices (including traditional and customary native Hawaiian rights) are being exercised in Waiehu Ahupua'a:</p> <ol style="list-style-type: none"> <li>1. All interviewees shared various cultural practices that are still practiced both <i>mauka</i> and <i>makai</i>. There are many <i>kama'āina</i> who continue to farm <i>kalo</i> as well as <i>kama'āina</i> who still fish.</li> <li>2. A confidential informant shared about gathering <i>limu</i> along the edges of Waihe'e as there were a vast variety of <i>limu</i> that grew within the area.</li> <li>3. All participants mentioned the sand dunes that are both <i>makai</i> and <i>mauka</i> of the project area. The sand dunes were vast and were predominantly recognized as a place where <i>kūpuna</i> would bury those who have passed.</li> </ol> <p>Based on the results of community consultation and background research conducted as part of this CIA, CSH has identified the following cultural practices within Waiehu Ahupua'a:</p> <ol style="list-style-type: none"> <li>1. <i>Kalo</i> farming</li> <li>2. Fishing</li> <li>3. <i>Limu</i> gathering</li> <li>4. Burial practices</li> </ol> <p>No on-going cultural practices were identified within the project area during community consultation for this CIA. However, the project area is located adjacent to an inland sand dune complex where numerous human burials have been documented. The project area is also located in the general vicinity of on-going subsistence-based <i>kalo</i> farms.</p>



<b>Identification of Impacts to Cultural Practices</b>	<p>No impacts to on-going cultural practices were identified within the project area during community consultation for this CIA. Consultation has identified a number of concerns related to the environment and the broader community:</p> <ol style="list-style-type: none"> <li>1. Kumu Hōkūlani Holt-Padilla suggested that the project developers should be cognizant of the weather patterns that occur throughout the area, such as wind, rain, and sun. The wind Ho'ēha 'ili refers to the wind blowing up the sand around and if you should walk by, your skin would be hurt by the sand being blown in the wind. She shared that this wind blows typically blows from makai to mauka.</li> <li>2. Kumu Hōkūlani Holt-Padilla also shared about past weather conditions that have devastated the area. Tidal waves have hit Waichu on several occasions. To her recollection, the last one being in 1959 or 1960. Even though there have been no recent tidal waves, the possibility and awareness should be taken into consideration.</li> <li>3. Mr. Kamaunu shared that an increase of development and population has the potential to increase noise and traffic pollution which will affect air quality, community living, and lifestyle.</li> <li>4. All interviewees shared their thoughts, memories, and opinions about the water diversion issue that has been going on for over a century. Many of them shared that this issue has left many Native Hawaiian families with limited access to water which presented a very difficult challenge in sustaining their <i>lo'i kalo</i> and other agricultural practices.</li> <li>5. Mr. Kamaunu as well as the other interviewees shared that the water that is being diverted is used to sustain other areas of Maui. It is important to note that water, as Mr. Kamaunu shared, is a limited source. With an increase in population and housing in Waichu, water usage will increase and the source of water will be stretched thin.</li> <li>6. Mr. Kamaunu mentioned that an increase of concrete and asphalt affects the water cycle and the healthiness of the water. By an increase of concrete and asphalt (such as the parking lot of the project) has the potential of generating more run-off and debris which will flow into the stream and ocean.</li> <li>7. Mr. Kamaunu also expressed concern on the "who" this affordable housing is for as well as how is "affordable housing" defined. Mr. Kamaunu shared that the community is made up of multiple generations of local residents. Many of these <i>kama'āina</i> are living in multigenerational homes due to the high cost of living. Will these "affordable housings" go to local residents or are for outsiders to come in?</li> </ol>
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<b>Mitigation Recommendations</b>	<p>Based on the results of community consultation and CSH's expertise in conducting cultural impact assessments, the following actions are recommended to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups:</p> <ol style="list-style-type: none"> <li>1. A number of concerns expressed by the community during consultation do not relate specifically to on-going cultural practices within the project area, but nonetheless should be considered during project planning and development. These concerns include:             <ol style="list-style-type: none"> <li>a. Awareness of weather patterns</li> <li>b. Awareness of potential for impacts from tidal events</li> <li>c. Community impacts from an increase in noise and traffic</li> <li>d. Community impacts from an increase in water usage</li> <li>e. Community impacts from runoff as a result of an increase in asphalt/concrete surfaces</li> <li>f. Understanding the need for truly affordable housing for local Maui residents</li> </ol> </li> <li>2. Project construction workers and all other personnel involved in the construction and related activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. In the event that any potential historic properties are identified during construction activities, all activities will cease and the SHPD will be notified pursuant to HAR §13-280-3. In the event that <i>iwi kūpuna</i> (ancestral remains) are identified, all earth moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40. In addition, in the event of an inadvertent discovery of human remains, the completion of a burial treatment plan, in compliance with HAR §13-300 and HRS §6E-43, is recommended.</li> <li>3. In the event that <i>iwi kūpuna</i> and/or cultural finds are encountered during construction, project proponents should consult with cultural and lineal descendants of the area to develop a reinterment plan and cultural preservation plan for proper cultural protocol, curation, and long-term maintenance.</li> </ol>
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## Section 1 Introduction

### 1.1 Project Background

At the request of Waiehu Housing, LP, Cultural Surveys Hawai'i, Inc. (CSH) conducted a cultural impact assessment (CIA) for the Hale Mahaolu Ke Kahua Housing Community, Waiehu Ahupua'a, Wailuku Moku, Maui, TMK: [2] 3-3-001:106. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2017 aerial photograph (Figure 3). The project is bounded west by Kahekili Highway, north by Waiehu Beach Road, and east by Waiehu Heights Subdivision.

The 100% affordable housing project will involve the construction of 120 residential units, including 28 1-bedroom units, 60 2-bedroom units, and 32 3-bedroom units as well as a 3,477 ft<sup>2</sup> non-profit building, a 3,231 ft<sup>2</sup> community center, and 264 total parking stalls (Figure 4).

### 1.2 Document Purpose

The purpose of this CIA is to comply with the State of Hawai'i's environmental review process under Hawai'i Revised Statutes (HRS) §343, which requires consideration of the proposed project's potential effect on cultural beliefs, practices, and resources. Through document research, this report provides information compiled to date pertinent to the assessment of the proposed project's potential impacts to cultural beliefs, practices, and resources (pursuant to the Office of Environmental Quality Control's *Guidelines for Assessing Cultural Impacts*) which may include traditional cultural properties (TCPs). These TCPs may be significant historic properties under State of Hawai'i significance Criterion e, pursuant to Hawai'i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance Criterion e refers to historic properties that "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 group's history and cultural identity" (HAR §13-275-6 and §13-284-6). The document will also support the project's historic preservation review.

### 1.3 Scope of Work

The scope of work for this cultural component includes the following:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, 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. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.





Figure 1. Portion of the 1997 Wailuku USGS 7.5-minute topographic quadrangle showing the location of the project area (U.S. Geological Survey 1997)

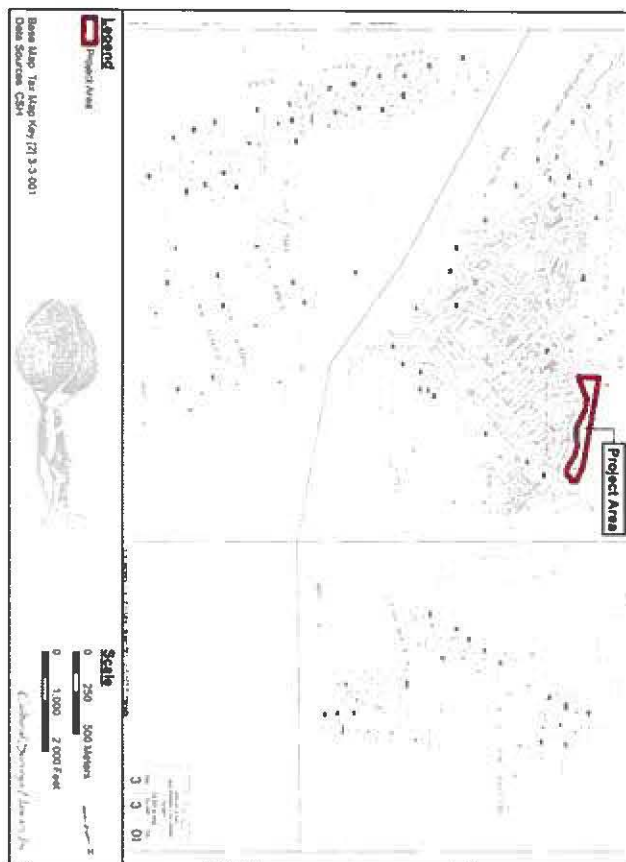


Figure 2. Tax Map Key (TMK) [2] 3-3-001 showing the project area (Hawaii TMK Service 2014)

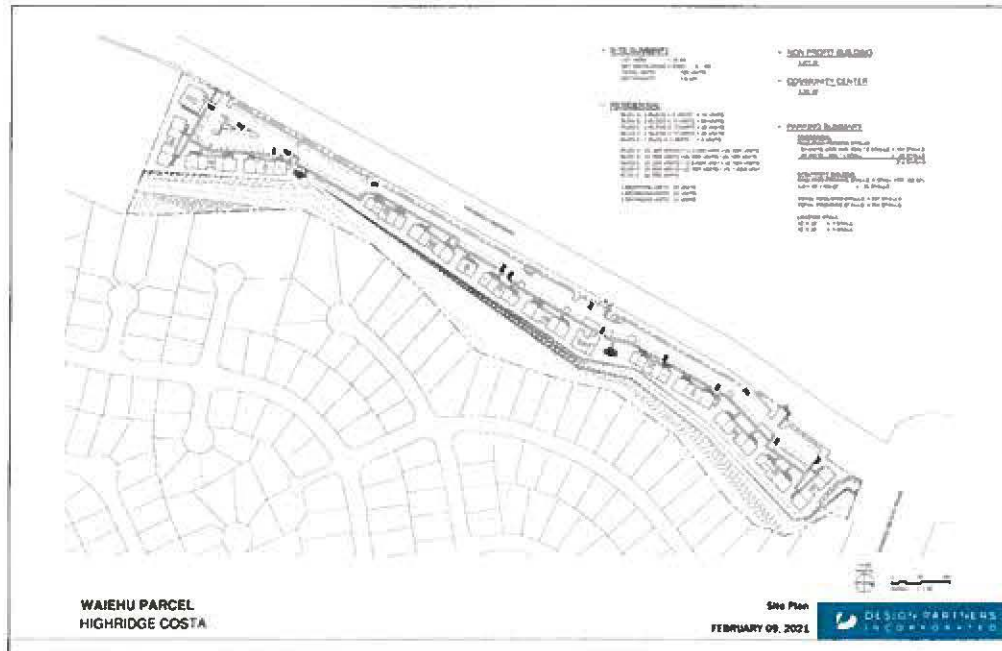


Figure 4. Concept site plan for proposed project (Design Partners Incorporated 2021)

CIA for the Hale Mahaolu Ke Kahua Housing Community in Waiehu, Wailuku, Maui  
 TMK [2] 3-3-001 106

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Figure 3. Aerial photograph of the project area (ESRI 2018)

CIA for the Hale Mahaolu Ke Kahua Housing Community in Waiehu, Wailuku, Maui  
 TMK [2] 3-3-001 106

4



3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel, present and past uses of the parcel, and/or other practices, uses, or traditions associated with the parcel and environs.
4. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings.

#### 1.4 Natural Environment

The *ahupua'a* of Waiehu (as well as Waihe'e) was once independent land areas that did not reside within any *moku* (Sterling 1998:91) and was therefore referred to as *Nā Poko* (Shefcheck and Dega 2008:6).

The current project area is situated approximately 0.6 kilometer (km) to 0.8 km (approximately 0.4 mile to 0.5 mile) west of the nearest coastline at about 20 meters (m) to 38 m (approximately 65 feet [ft] to 125 ft) above mean sea level (AMSL). The terrain of the project area gently slopes upward from north to south. Waiehu Stream flows eastward/ *makai* (seaward) approximately 60 m (197 ft) north of the project area, while a tributary across Kahekili Highway runs roughly parallel to the project area's western border before merging with Waiehu Stream northwest of the project area (Figure 5).

The project area is located adjacent to a lithified dune system, historically known as the Sand Hills (*Pu'u one*). Traditional, historical, and archaeological research contain documented knowledge of evidence of the use of sand dunes for burial practices.

##### 1.4.1 Ka Lepo (Soil)

The majority of the project area overlies alluvium. Most alluvial deposits in Waiehu derive from igneous rocks of the Wailuku Volcanic Series, the oldest exposed lavas of West Maui Mountain. The Wailuku Volcanic Series consists primarily of thin *pāhoehoe* (unbroken type) and 'a'a (stony, rough type) basaltic lavas that are considered to be of late Pliocene to early Pleistocene age, approximately 1.3 million years old. The Wailuku Volcanic Series was followed by the Honolulu Volcanic Series during the Pleistocene epoch with little apparent break in time. A considerable number of vents along the north and northeast rift zones of West Maui produced lava flows during this latter series of volcanic activity, covering the older Wailuku Series lavas on the northeast flank just north and south of Waiehu Valley (Macdonald et al. 1983). The end of the Honolulu Volcanic Series on West Maui was followed by a long period of erosion, during which the deep valleys formed and most of the older alluvium and colluvium that chokes the heads of these valleys was deposited.

The northeastern boundary of the project area extends along the edge of a lithified sand dune. The lithified calcareous sand dune that borders the project area is part of an inland dune system that extends across the Maui isthmus (Figure 6), with some dunes reaching up to 60 meters in height (Macdonald 1983:388). These dunes were formed by windblown sand from large beaches exposed during a stand of the sea likely 12 m lower than the present sea level on the northern coast of Maui (Macdonald et al. 1983:388).

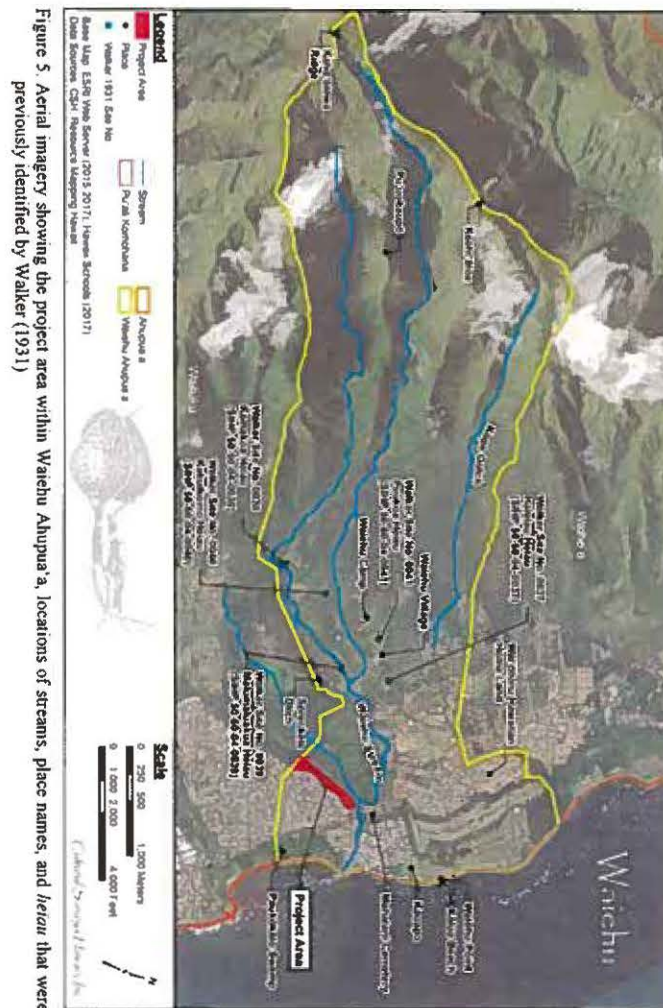


Figure 5. Aerial imagery showing the project area within Waiehu Ahupua'a, locations of streams, place names, and heiau that were previously identified by Walker (1931)

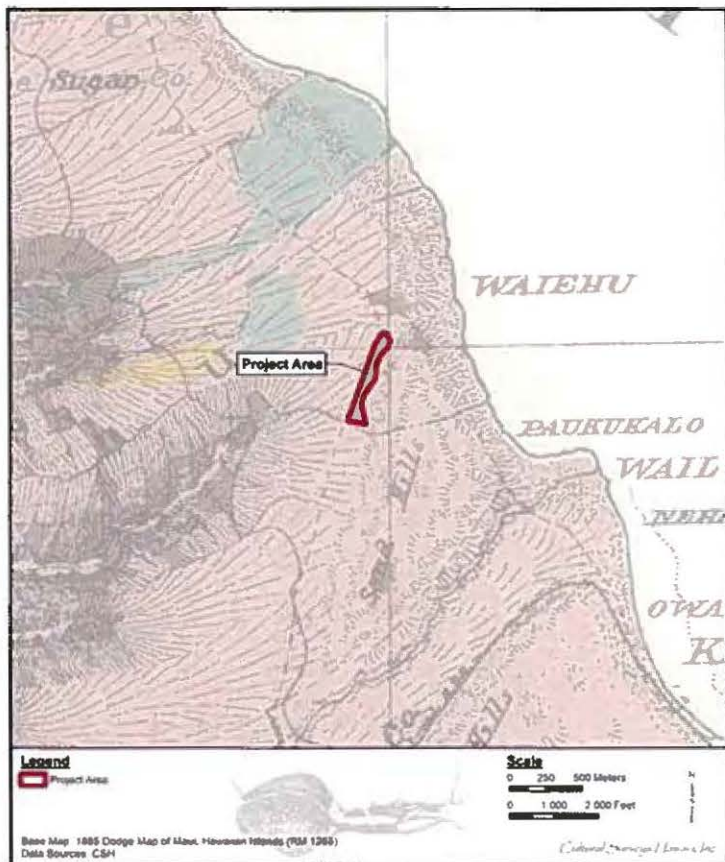


Figure 6. Portion of a Dodge (1885) map of Maui showing the project area extending along the edge of a portion of the northeastern extent of Sand Hills.

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the project area's soils consist of lāo silty clay, 0 to 3 percent slopes (1aA), lāo cobbly silty clay, 3 to 7 percent slopes (1bB), and Puuone sand, 7 to 30 percent slopes (PZUE) (Figure 7). Most soils across the project area are composed of lāo silty clay, 0 to 3 percent slopes, while some of the southern portion of the project area contains lāo Cobbly silty clay, 3 to 7 percent slopes. Puuone sand, 7 to 30 percent slopes comprises soils within a southern portion of the project area as well as soils extending along and makai from the project area's eastern boundary.

In general, the lāo Series is described as follows:

This series consists of well-drained soils on valley fill and alluvial fans. These soils developed in alluvium derived from basic igneous rock. They are nearly level to moderately sloping. Elevations range from 100 to 500 feet. The annual rainfall amounts to 25 to 40 inches. The mean annual soil temperature is 74° F. lāo soils are geographically associated with Paia, Pulehu, and Wailuku soils.

These soils are used for sugarcane. Small acreages are used for pasture and homesites. The natural vegetation consists of bermudagrass, feather fingergrass, koa haole, lantana, and Natal redtop. [Foote et al. 1972:46]

In addition, lāo silty clay, 0 to 3 percent slopes is described as soil on which "runoff is slow and the erosion hazard is no more than slight" (Foote et al. 1972:46-47). "[E]xcept for the texture of the surface layer and the content of cobblestones," lāo Cobbly silty clay, 3 to 7 percent slopes is described as having "a profile like that of lāo clay, 3 to 7 percent slopes" (i.e., dark-brown approximately 15-in thick surface layer; approximately 45-in thick very dark brown, dark-brown, and very dark grayish-brown subsoil; moderately slow permeability; medium runoff; and slight to moderate erosion hazard [Foot et al. 1972:46])

The Puuone Series is generally described as follows:

This series consists of somewhat excessively drained soils on low uplands on the island of Maui. These soils developed in material derived from coral and seashells. They are moderately sloping to moderately steep. Elevations range from 50 to 350 feet. The annual rainfall amounts to 20 to 30 inches, most of which occurs in winter. The mean annual soil temperature is 75° F. Puuone soils are geographically associated with lāo and Jaucas soils.

These soils are used for pasture and homesites. The natural vegetation consists of bermudagrass, kiawe, and lantana. [Foote et al. 1972:117]

Puuone sand, 7 to 30 percent slopes is more specifically described by the following:

This soil is on sandhills near the ocean. Included in mapping were small areas of lāo and Jaucas soils. Also included were small areas where the cemented layer is less than 20 inches below the surface.

In a representative profile the surface layer is grayish-brown, calcareous sand about 20 inches thick. This is underlain by grayish-brown, cemented sand. The soil is moderately alkaline in the surface layer.



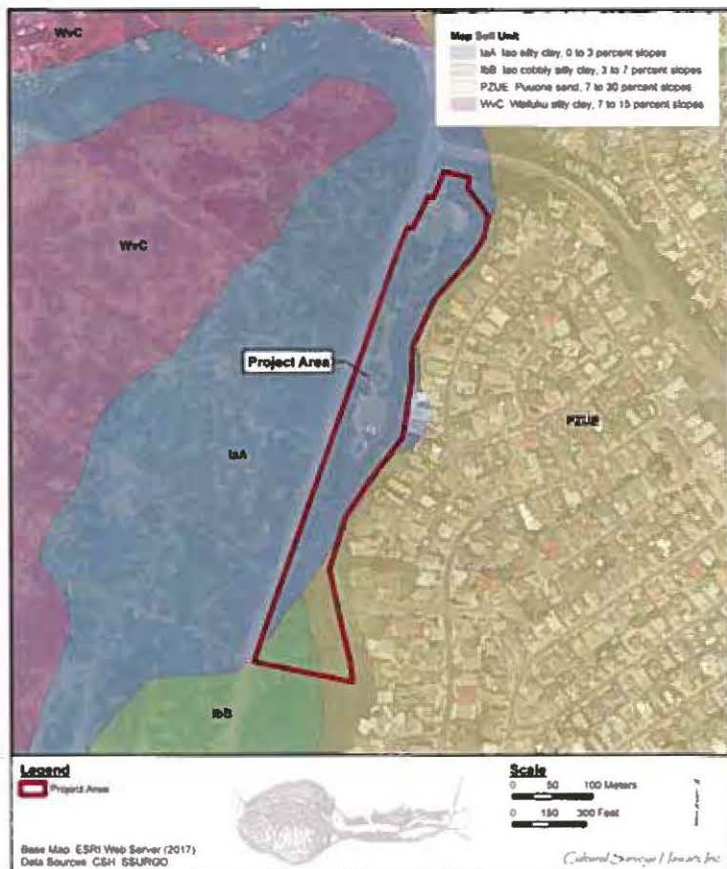


Figure 7. Overlay of Soil Survey of the State of Hawaii (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database 2001)

Permeability is rapid above the cemented layer. Runoff is slow, and the hazard or wind erosion is moderate to severe. The available water capacity is about 0.7 inches per foot in the surface layer and subsoil. In places roots penetrate to the cemented layer. [Foote et al. 1972:117]

In 2014, the average annual air temperature for the project area was between 21.36°C (70.45°F) in February and 25.39°C (77.70°F) in August with an average annual air temperature of 23.41°C (74.14°F) (Giambelluca et al. 2014). The vicinity of the project area received a mean annual rainfall of 617.1 mm (24.30 inches) between 1978 and 2007, according to the University of Hawai'i 2011 *Rainfall Atlas of Hawaii* (Giambelluca et al. 2013). The mean monthly rainfall varied between 9.4 mm (0.37 in) in June to 112.8 mm (4.44 in) in January.

The project area was once part of a larger macadamia nut farm. During the AIS conducted in 2007, vegetation at the project area included "a grove of macadamia nut trees (*Macadamia integrifolia*), dense cane grass, and sparse *koa haole* (*Leucaena leucocephala*)" (Shefcheck and Dega 2008:5). The current vegetation is likely similar to that noted in 2007. The southern end and eastern edge of the parcel appear the most densely vegetated.

#### 1.4.2 Ka Makani (Winds)

For Native Hawaiians, *makani* (wind) were named for various reasons such as describing the intensity or direction of the wind, relating the wind to a story, or even relating the wind to the landscape. David Malo, a Native Hawaiian historian, explains some general terms related to wind:

[...] There was the *kona*, a wind from the south, of great violence and of wide extent. It affected all sides of an island, east, west, north, and south, and continued for many days [...] The *kona* wind often brings rain, though sometimes it is rainless [...] The *hoolua*, a wind that blows from the north, sometimes brings rain and sometimes is rainless [...] The *hau* is a wind from the mountains, and they are thought to be the cause of it, because this wind invariably blows from the mountains outwards towards the circumference of the island. [Malo 1951:14]

##### 1.4.2.1 Nā Makani o Nā Wai 'Ehā (The Winds of Nā Wai 'Ehā)

The *Wind Gourd of La'amaomao* tells the story of Pāka'a and his son Kuapāka'a who are descendants of the wind goddess La'amaomao. With their possession of her special wind gourd, they could control and call forth the winds of Hawai'i. Pāka'a's chant traces the winds of and surrounding Maui Island. Pāka'a's chant is listed below and recounts the various winds associated with Nā Wai 'Ehā:

[...]	[...]
<i>Kololio mai o Waikapu.</i>	Kololio is of Waikapū,
<i>Ka laiki ko Wailuku.</i>	I'aiki is of Wailuku
<i>Ka Oopu ko Waihee.</i>	O'opu is of Waihee
[...]	[...]
[Ke Au Okoa 1867]	[Nakuina 2005:55]

The chant called by Pāka'a reference three winds of Nā Wai 'Ehā, of Waikapū, Wailuku, and Waihe'e. Within this particular chant, the wind of Waiehu is not called upon or mentioned. In *Sites of Maui* (Sterling, 1998) however, there is mention of all four winds of Nā Wai 'Ehā. These winds are referenced below:

Wailuku's wind is the Makani-lawe-maile, the wind that takes it easy.

Waiehu's wind is the Makani-hoo'eha-ili, the wind that hurts the skin.

Waikapu's wind is the Makani-ko-koloio, the gusty wind,

Waihe'e's wind is the Makani-kili-'o'opu, the

[Sterling 1998:62]

There are a few differences in Sterling's compilation compared to the ones mentioned in the newspaper *Ke Au Okoa* (1867) and Nakuina's *The Wind Gourd of La'amaomao* (2005).

Makani-hoo'eha-ili, the wind of Waiehu, is described as a wind "that hurts the skin" (Sterling 1998:62). Sterling mentions that Mary Kawena Pukui, defined the term "hoo'eha-ili" to figuratively represent a love disturbance (Sterling 1998:52).

The wind name for Wailuku is different than the one mentioned in both *Ke Au Okoa* (1867) and Nakuina's work (2005). Sterling (1998) gives the meaning, "the winds that takes it easy" for "Makani-lawe-maile". However, *Ke Au Okoa* (1867) and Nakuina (2005) record the wind as I'aiki or, loosely translated, small fish. It is not uncommon for places to have more than one wind and wind name.

A *mele* (song) entitled "I Waikapū Ke Aloha" (see Section 3.4.2) also references Nā Wai 'Ehā by these four wind names mentioned by Sterling.

#### 1.4.2.2 Ka Makani Maahaaha

In the *ka'ao* (folktale) of Konole and His Wife (see Section 3.1.1.2), the Maahaaha (*Ma'aha'aha*) wind, said to be of Waiehu, is also mentioned:

[...] is a wind that distorts the features of the land's growing things when looking at it, thus giving a strange appearance to the things God created. [Sterling 1998:71-72]

#### 1.4.2.3 Ka Makani Lililehua

Pukui and Elbert (1986) referenced the wind name Lililehua as the "name of wind and rain, famous at Pālolo, O'ahu, and Wai-ehu, Maui" (Pukui and Elbert 1986:206) defining the wind name to mean a "lehua chill."

#### 1.4.3 Ka Ua (Rains)

Precipitation is a major component of the water cycle and is responsible for depositing *wai* (fresh water) on local flora. Pre-Contact *kānaka* (Native Hawaiians) recognized two distinct annual seasons. The first, known as *kau* (period of time, especially summer), lasts typically from May to October and is a season marked by a high-sun period corresponding to warmer temperatures and steady trade winds. The second season, *ho'ailo* (winter, rainy season) continues through the end of the year from November to April and is a much cooler period when trade winds are less frequent, and widespread storms and rainfall become more common (Giambelluca et al. 1986:17).

Each small geographic area on Maui had a Hawaiian name for its own rain. According to Akana and Gonzalez:

Rain names are a precious legacy from our kūpuna who were keen observers of the world around them and who had a nuanced understanding of the forces of nature. They knew that one place could have several types of rain, each distinct from the other. They knew when a particular rain would fall, its color, its duration, its intensity, its path, its sound, its scent, and its effect on the land and their lives [...] Rain names are a treasure of cultural, historical, and environmental information. [Akana and Gonzalez 2015:xx]

It was a customary and necessary tradition to grant a name for each type of rain. Rains were named to show their action toward plants or the supposed effects on people or their possessions (Pukui and Elbert 1986:361). Many rains are identified in the broader region of Waiehu which will include Waihe'e, Waikapū, and Wailuku. The following section presents various literary work that mention these rains.

#### 1.4.3.1 Ka Ua Hō'eha'ili

This rain is associated with Waiehu, Maui and Akana and Gonzalez (2015) define its name to mean "to hurt the skin" (Akana and Gonzalez 2015:36). Below is a reference to this rain that was found in a message about the passing of Joseph Nāwahioakalani'ōpu'u:

<i>He aloha, he lihalaha, he kīmākena</i>	Loving, heartsick, grief-stricken
<i>He 'ū iā 'oe</i>	Mourning for you
<i>E Hon. Iosepa Kaho'oluhi Nāwahioakalani'ōpu'u</i>	O Hon. Joseph Kaho'oluhi Nāwahioakalani'ōpu'u
<i>A ha'o ē!</i>	We shall truly miss you!
<i>Iuē 'ia mai nei 'oe e Nā Wai 'Ehā</i>	You have been mourned by the lands of the four waters
<i>E ka makani Kili'o'opu o Waihe'e</i>	By the Kili'o'opu wind of Waihe'e
<i>Ka ua Hō'eha'ili o Waiehu</i>	And the Hō'eha'ili rain of Waiehu
[Akana and Gonzalez 2015: 36-37]	

#### 1.4.3.2 Ka Ua Kili'o'opu

Ka Ua Kili'o'opu is a rain associated with Wailuku, however, through various *kanikau* (lamentation) and *mele*, this rain has been associated with other parts of Nā Wai 'Ehā. According to Akana and Gonzalez (2015), Ka Ua Kili'o'opu was listed as a rain for Waikapū as well as Wailuku (Akana and Gonzalez 2015:83-84).

This rain appears in a *kanikau* for Kamakaokalani, who is said to be from Waihe'e by referring to the name of the rain, Ka Ua Kili'o'opu.

*Ku'u kāne mai ka ua  
Kili'o'opu o Waihe'e  
'Au'au ka 'uhane I ka wai o  
Ni'aūkawa*

[Akana and Gonzalez  
2015:83]

My dear husband from the  
Kili'o'opu rain of Waihe'e  
The spirit bathes in the water  
of Ni'aūkawa

Akana and Gonzalez (2015) also referenced a mele in which the lyrics mention "ka ua Kili'o'opu o Waihe'e" (Akana and Gonzalez 2015:83). However, the authors noted that in their research of this mele, it has been known that the sources of this mele "place the Kili'o'opu at Waiehu not a Waihe'e".

*He loa Pu'ukoa'e  
He pāpā'ōlelo na ka makan  
Makani lū 'inoi nā lehua o  
Kaukini  
Polipoli Pūlehu i ka ua  
Kili'o'opu o Waihe'e  
Me ka ua nā māmala 'ino a ka  
wai*

[Akana and Gonzalez  
2015:83]

Expansive is Pu'ukoa'e  
A conversation held by the wind  
Wind that violently scatters the  
lehua blossoms of Kaukini  
Pūlehu is polished by the  
Kili'o'opu rain  
With the rain come hard strokes  
of the water

#### 1.4.3.3 Ka Ua Lilīlehua

Ka Ua Lilīlehua is a rain that is found throughout various areas of Maui, including Waiehu. It is described to a gentle mist that resembled "tiny drops on the lehua blossom" (Akana and Gonzalez 2015:155). In a mele inoa (name chant) for Princess Ka'iulani, Prince Leleiōhoku composed this mele and referenced the rain and Waiehu as such:

*E aloha a'e ana ho'i  
I ka ua Lilīlehua  
I ka lawe mālie i ka pili  
Ko'iawe i ka wai o Waiehu*

[Akana and Gonzalez  
2015:157-158]

Greetings to  
The Lilīlehua rain  
Softly moving in  
Lightly showering the waters of  
Waiehu

#### 1.4.4 Nā Kahawai (Streams)

As previously mentioned, Waiehu is part of a greater land division named Nā Wai 'Ehā or The Four Waters, valleys that were rich in land with taro and the streams would spread fanwise towards the sea (Handy and Handy 1972:272).

Nā Wai 'Ehā are:

[...] four great valleys which cut far back into the slopes of West Maui and drain the eastward watershed of Pu'u Kukui and the ridges radiating northeastward, eastward, and southeastward. [Handy and Handy 1972:496]

Waiehu Stream and neighboring Waihe'e stream both "open toward the ocean and their streams empty into it" (Handy and Handy 1972:496).

Waiehu is the second valley of the famous Nā Wai Eha of western Maui, and it is waters by twin streams [...] [Handy and Handy 1972:496]

#### 1.4.5 Ka Lihikai a me Ka Moana (Seashore, Ocean)

Traditionally, the seashore and ocean areas were vitally important for resource extraction in the early days of settlement, and fishermen along the coast maintained a respected status within traditional Hawaiian society. Kanahale (1995:17) asserts that "early Hawaiians regarded fishing as the oldest, and hence the most prestigious of professions."

The shoreline, beaches, and to the deep oceans of Waiehu were a popular spot for all, from the *ali'i* (chiefs) to the *maka'ānana* (commoners). Places, like Kehu or Nuikuikahi, were once known to be favorite spots for *ali'i* to surf (Sterling 1998:72). Other fishing activities and practices such as raising fish in a *loko i'a* (fishpond), shoreline to deep ocean fishing, and *limu* (seaweed) gathering were also practiced in Waiehu.

#### 1.4.6 Built Environment

The current project area consists of mostly undeveloped lands stretching along a portion of the eastern side of Kahekili Highway. The project area appears to contain some remnant structures and ground modifications from a former small-scale agricultural operation. The northern portion of the project area is bounded by Waiehu Beach Road. Waiehu Heights Subdivision, consisting of over 200 housing structures and associated infrastructure (e.g., asphalt paved roads, sidewalks, and various utility features), borders the eastern boundary of the project area. Additional residential lots and subdivisions are developed in Waiehu within the vicinity of the project area, mostly concentrated *makai* of Kahekili Highway. Directly across Kahekili Highway, west of the project area, is a large expanse of land planted in macadamia nut trees.



## Section 2 Methods

### 2.1 Archival Research

Research centers on Hawaiian activities including *ka'ao* (legends), *wahi pana* (storied places), *'ōlelo no'eau* (proverbs), *oli* (chants), *mele*, traditional *mo'olelo* (stories), traditional subsistence and gathering methods, ritual and ceremonial practices, and more. Background research focuses on land transformation, development, and population changes beginning with the early post-Contact era to the present day.

Cultural documents, primary and secondary cultural and historical sources, historic maps, and photographs were reviewed for information pertaining to the study area. Research was primarily conducted at the CSH library. Other archives and libraries including the Hawai'i State Archives, the Bishop Museum Archives, the University of Hawai'i at Mānoa's Hamilton Library, Ulukau, The Hawaiian Electronic Library (Ulukau 2014), the State Historic Preservation Division (SHPD) Library, the State of Hawai'i Land Survey Division, the Hawaiian Historical Society, and the Hawaiian Mission Houses Historic Site and Archives are also repositories where CSH cultural researchers gather information. Information on Land Commission Awards (LCAs) were accessed via Waihona 'Aina Corporation's Māhele database (Waihona 'Aina 2020), the Office of Hawaiian Affairs (OHA) Papakilo Database (Office of Hawaiian Affairs 2015), and the Ava Konohiki Ancestral Visions of 'Aina website (Ava Konohiki 2015).

### 2.2 Community Consultation

#### 2.2.1 Scoping for Participants

We begin our consultation efforts with utilizing our previous contact list to facilitate the interview process. We then review an in-house database of *kūpuna*, *kama'āina*, cultural practitioners, lineal and cultural descendants, Native Hawaiian Organizations (NHOs; includes Hawaiian Civic Clubs and those listed on the Department of Interior's NHO list), and community groups. We also contact agencies such as SHPD, OHA, and the appropriate Island Burial Council where the proposed project is located for their response to the project and to identify lineal and cultural descendants, individuals and/or NHO with cultural expertise and/or knowledge of the study area. CSH is also open to referrals and new contacts.

#### 2.2.2 "Talk Story" Sessions

Prior to the interview, CSH cultural researchers explain the role of a CIA, how the consent process works, the project purpose, the intent of the study, and how their *'ike* (insight) and *mana'o* (opinion) will be used in the report. The interviewee is given an Authorization and Release Form to read and sign.

"Talk Story" sessions range from the formal (e.g., sit down and *kūkākūkā* [consultation, discussion] in participant's choice of place over set interview questions) to the informal (e.g., hiking to cultural sites near the study area and asking questions based on findings during the field outing). In some cases, interviews are recorded and transcribed later.

CSH also conducts group interviews, which range in size. Group interviews usually begin with set, formal questions.

As the group interview progresses, questions are based on interviewee's answers. Group interviews are always transcribed and notes are taken. Recorded interviews assist the cultural researcher in 1) conveying accurate information for interview summaries, 2) reducing misinterpretation, and 3) providing missing details for *mo'olelo*.

CSH seeks *kōkua* (assistance) and guidance in identifying past and current traditional cultural practices of the study area. Those aspects include general history of the *ahupua'a*; past and present land use of the study area; knowledge of cultural sites (for example, *wahi pana*, archaeological sites, and burials); knowledge of traditional gathering practices (past and present) within the study area; cultural associations (*ka'ao* and *mo'olelo*); referrals; and any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the study area.

In order to ensure the safety of participants and comply with State and County COVID-19 mandates, no in-person interviews were conducted as part of this CIA. While it is always a preference to meet with participants in person, CSH cultural researchers were able to effectively communicate with participants via telephone, email, and video conference call interviews.

#### 2.2.3 Interview Completion

After an interview, CSH cultural researchers transcribe and create an interview summary based on information provided by the interviewee. Cultural researchers give a copy of the transcription and interview summary to the interviewee for review and ask to make any necessary edits. Once the interviewee has made those edits, we incorporate their *'ike* and *mana'o* into the report. When the draft report is submitted to the client, cultural researchers then prepare a finalized packet of the participant's transcription, interview summary, and any photos that were taken during the interview. We also include a thank you card and honoraria. This is for the interviewee's records.

It is important to CSH cultural researchers to cultivate and maintain community relationships. The CIA report may be completed, but CSH researchers continuously keep in touch with the community and interviewees throughout the year—such as checking in to say hello via email or by phone, volunteering with past interviewees on community service projects, and sending holiday cards to them and their *'ohana* (family). CSH researchers feel this is an important component to building relationships and being part of an *'ohana* and community.

"*I ulu no ka lālā i ke kumu*—the branches grow because of the trunk," an *'ōlelo no'eau* (#1261) shared by Mary Kawena Pukui with the simple explanation: "Without our ancestors we would not be here" (Pukui 1983:137). As cultural researchers, we often lose our *kūpuna* but we do not lose their wisdom and words. We routinely check obituaries and gather information from other informants if we have lost our *kūpuna*. CSH makes it a point to reach out to the *'ohana* of our fallen *kūpuna* and pay our respects including sending all past transcriptions, interview summaries, and photos for families to have on file for genealogical and historical reference.



## Section 3 Traditional Accounts

### 3.1 Nā Ka'ao a me Nā Mo'olelo

Hawaiian storytellers of old were greatly honored; they were a major source of entertainment and their stories contained teachings while interweaving elements of Hawaiian lifestyles, genealogy, history, relationships, arts, and the natural environment (Pukui and Green 1995 IX). According to Pukui and Green, storytelling is better heard rather than read for much becomes lost in the transfer from the spoken to the written word and *ka'ao* are often full of *kaona* or double meanings.

*Ka'ao* are defined by Pukui and Elbert as a "legend, tale [...], romance, [and/or], fiction" (Pukui and Elbert 1986:108). *Ka'ao* may be thought of as oral literature or legends, often fictional or mythic in origin, and have been "consciously composed to tickle the fancy rather than to inform the mind as to supposed events" (Beckwith 1970:1). Conversely, Pukui and Elbert define *mo'olelo* as a "story, tale, myth, history, [and/or] tradition" (Pukui and Elbert 1986:254). The *mo'olelo* are generally traditional stories about the gods, historic figures or stories that cover historic events and locate the events with known places. *Mo'olelo* are often intimately connected to a tangible place or space.

In differentiating *ka'ao* and *mo'olelo* it may be useful to think of *ka'ao* as expressly delving into the *wao akua* (realm of the gods), discussing the exploits of *akua* (gods) in a primordial time. However, it is also necessary to note there are exceptions, and not all *ka'ao* discuss gods of an ancient past. *Mo'olelo* on the other hand, reference a host of characters from *ali'i*, to *akua* and *kupua* (supernatural beings), to finally *maka'ānana*, and discuss their varied and complex interactions within the *wao kūnaka* (realm of man). Beckwith elaborates, "In reality, the distinction between *ka'ao* as fiction and *mo'olelo* as fact cannot be pressed too closely. It is rather in the intention than in the fact" (Beckwith 1970:1). Thus, a so-called *mo'olelo*, which may be enlivened by fantastic adventures of *kupua*, "nevertheless corresponds with the Hawaiian view of the relation between nature and man" (Beckwith 1970:1).

Both *ka'ao* and *mo'olelo* provide important insight into a specific geographical area, adding to a rich fabric of traditional knowledge. The preservation and passing on of these stories through oration remains a highly valued tradition. Additionally, oral traditions associated with the study area communicate the intrinsic value and meaning of a place, specifically its meaning to both *kama'āina* as well as others who also value that place.

The following section presents traditional accounts of ancient Hawaiians living in the vicinity of the project area. Many relate an age of mythical characters whose epic adventures inadvertently lead to the Hawaiian race of *ali'i* and *maka'ānana*. The *ka'ao* in and around the project area shared below are some of the oldest Hawaiian stories that have survived; they still speak to the characteristics and environment of the area and its people.

#### 3.1.1 Nā Ka'ao

##### 3.1.1.1 Ka Mo'olelo O Hi'iakaikapoliopole

*Ka Mo'olelo o Hi'iakaikapoliopole* is an epic tale that follows Hi'iaka as she travels from her home on Hawai'i island to Kaua'i to fetch Lohi'au for her sister, the goddess Pele.

In this section of the story, Hi'iaka, Lohi'au and Wahine'ōma'o, arrive on Maui, they learned that the ruler of Maui, 'Olepu, was having a house-warming feast. As they approached this feast, Hi'iaka began to alter her appearance from a beautiful woman to an "old hag" (Ho'ouluāhiehie 2006b:296). With her appearance changed, Hi'iaka offered her chant to 'Olepu. He soon recognized that the person who was chanting was indeed Hi'iaka. However, 'Olepu's wives, Waihinālo and Kawelokaiehuehu were not convinced that the old woman was Hi'iaka, saying to 'Olepu:

*Kā! 'O Hi'iakaikapoliopole kā auane'i kēlā wahi wahine a pupuka a 'ino nui wale e kū maila. 'A'ole kēlā 'o Hi'iakaikapoliopole. He wahine u'i maopopo 'o Hi'iaka, akā, 'o kēlā 'mo e kū maila lā, he wahi kā'ou'ou maka ma'i kēlā, a he 'mo ha'alele loa nō ho'i. [Hoouluāhiehie 2006a:319]*

Hah! As though that ugly, horrible woman standing there could be Hi'iakaikapoliopole. That is not Hi'iakaikapoliopole. Hi'iaka is a renowned beauty but that nasty thing standing there is a sickly wretch, and loathsome as well. [Hoouluāhiehie 2006b:297]

Hi'iaka knew that these two women would not allow her and her companions into the feast. By luck, Hi'iaka's sister, Kapokūlani, also arrived to the feast. Unfortunately, Kapokūlani could not allow her sister and her companions into the feast as it was not her place, however, this gave the courage for Hi'iaka to chant again, asking permission to enter.

After several attempts, Kawelokaiehuehu and Waihinālo continued to refuse Hi'iaka's request. To this, Kapokūlani pleaded with the wives to let the old woman in, not revealing the true identity of her sister. After much dialogue and mistreatment of her sister, Kapokūlani, Hi'iaka sought vengeance on the wives for their callousness towards Kapokūlani and herself. Hi'iaka began to chant a prayer that brought sickness and death to 'Olepu for the carelessness of his wives. When the wives heard this chant, they began to counter the chant with a prayer of life. As the battle of chants between Hi'iaka and the wives continued, it was clear the wives were no match for Hi'iaka and soon, 'Olepu was dead.

Upon his death, his wives sent messengers, Kaiehu and Paukūalo, to fetch the younger brothers of 'Olepu and to spread the word of his death. However, on their return, Waihinālo and Kawelokaiehuehu learned that the rulers of Moloka'i and Lāna'i, the younger brothers, are also dead. The wives send Kaiehu and Paukūalo on another errand; to fetch Kauakahimaikūlani, 'Olepu's most powerful priest who can bring 'Olepu back to life.

As Kaiehu and Paukūalo make their way to the priest, they capture a pig to present to the priest as an offering to the *akua*. Hi'iaka and her companions continued on their journey when they were stopped by the sound of a pig squealing. Hi'iaka noticed the two messengers and understood their intentions of offering the pig to the *akua* to restore 'Olepu back to life. Hi'iaka then chanted:

*E Kaiehu e!*

*O Kaiehu*

*E Paukūalo e!*

*O Paukūalo*

*He ala pi'i na ka ma'i kāne*

*It is an uphill climb brought on by the male ailment*

*Hala iho nō ka ma'i wahine*

*The female ailment is now done*

*Akua lamalama kai o Niua lā*

The sea of Niua is radiant as a deity

*Mai Waihe'e nō a Kapulehu*

From Waihe'e to Kapulehu

[Ho'ouluamahie 2006a:337]

[Ho'ouluamahie 2006b:313]

After Hi'iaka finished chanting, a tornado-like storm gathered and blew past Kaiehu and Paukūalo, blasting dirt into their eyes. Paukūalo's eyes became swollen like *kukui* (candlenut, *Aleurites moluccana*) nuts while Kaiehu became red like an *'āweoweo* (*Priacanthus*) fish (Ho'ouluamahie 2006b:313). As the two approached the priest, Kauakahimaikūlani, he questioned their arrival and the offering of the pig. Kaiehu and Paukūalo explained to the priest of the death of 'Olepau and their wishes to bring him back to life. Kauakahimaikūlani, sadden by the news, revealed that 'Olepau's death is final and he cannot be restored. The messengers plead with the priest until he finally agrees to help. The priest, however, noticed the eyes of Kaiehu and Paukūalo and inquired. Kaiehu, not wanting to share about the storm, said they were both born that way, however, Kauakahimaikūlani saw through the lies and said,

*I 'ula nā maka o 'olua i ka leo o ka honua. No laila, 'alua auane' i 'āina o Maui nei e kapa 'ia ana ma kēia mau inoa, 'o Kalepolepo i pua ai na mūka o 'olua, a 'o Honua'ula ho'i kahi i 'ula ai nā ōnōhi maka o 'olua.*

*Ua loa'a 'olua i ke ehu lepo wāwae o ke akua, 'o ia 'o Hi'iakaikapoliopole. No laila, no ko 'olua hō'ike 'ole mai ia'u i ka mea 'oia'i'o, e ho'i 'oe, e Kaiehu, a Waihehu, noho mālie, a 'o 'oe, e Paukūalo, e ho'i 'oe a Wailuku, i ka 'āina i kapa 'ia 'o Hala'ula. E ho'i 'olua a ha'i aku i nā ali'i wahine a 'Olepau, a me nā ali'i me nā maka 'ānana, na'u nō au e hele aku. [Ho'ouluamahie 2006a:339]*

Your eyes are red from the dirt of the earth. So two lands here on Maui will come to be called these names, Kalepolepo, "The dirt," where your faces were filled with dust, and Honua'ula, "Red earth," where your eyes became red.

You two were caught in the dust from the feet of the goddess, Hi'iakaikapoliopole. Now, because you have not told me the truth, you, Kaiehu, return to Waihehu, where you are to stay, and you, Paukūalo, return to Wailuku, to the land of Hala'ula. Now go back and report to the royal wives of 'Olepau, the chiefs, and the people; I shall go on my own [Ho'ouluamahie 2006b:315]

### 3.1.1.2 Konole and His Wife

The story below is of Konole who, by account of the ancients (Sterling 1988:71), are considered the gods of the torch fishermen.

On the nights suitable for torch fishing, this man went fishing and this is what happened. On returning with the fish he would finish with the offering of fish to the god Pehu. His wife was angered and mistreated the children. When the husband returned from his customary occupation, the children were dead and because of the god like nature, of this man, he turned them all into stones and they were all scattered hither and yon at Waihehu. The distance between the husband and wife was not far. Between the parents and the children the distance was a little greater.

It is said, if these evil ideas had not grown in the woman they would all have remained together in one place.

The place where the parents lay was not a good place. The place where the children lay was a place of good appearance. Therefore, from one of the names a wind was called the Maahaaha. This is a wind that distorts the features of the land's growing things when looking at it, thus giving a strange appearance to the things God created.

There are famous supernatural stones which remain at Waihehu, Island of Maui at this time and the writer has seen these stones.

It is told in the story of these wondrous persons that they had human bodies originally. [Sterling 1998:71-72]

### 3.1.1.3 The Story of Kū-ho'one'e-nu'u

While Haumea was traveling in Kahikikū and Kahikimoe, she came across the daughter of 'Olopana, who was the ruler; her name being Mulei'ula. Mulei'ula was having difficulty giving birth and those around her lamented. It was evident that either Mulei'ula survives or the baby survives; not both. 'Olopana being desperate to save both his daughter and grandchild begged Haumea to help his daughter deliver the baby, in return, he will give Haumea anything she desires. Haumea agreed to help and in return requested the tree called Kalauokekähuli as well as the flowers, Kanikawī and Kanikawā. Mulei'ula and 'Olopana agreed to this request and Haumea began to assist.

Not long before Haumea started to help with the birth, the child began to emerge. As Mulei'ula could feel that both her and the baby will live, she withdrew her agreement to give Haumea the tree and flowers. Upon hearing Mulei'ula's denial of the tree and flowers, "Haumea clasped her [Mulei'ula] thighs together, holding the shoulder of the child; it stuck and did not come out" (Kamakau 1991:7). Once again, Mulei'ula agreed to giving the tree and flowers to Haumea. However, once she felt her and her baby will be okay and the baby was almost delivered, she once again rescinded her agreement to give the tree and flowers to Haumea. And again, Haumea stopped helping Mulei'ula. This happened several more times until 'Olopana screamed at his daughter "Why do you withhold your tree? Give it up! Choose between death and the tree!" (Kamakau 1991:7). Eventually, Mulei'ula gave in. Her and her baby survived; Haumea received her tree and flowers.

Haumea left Kahiki and traveled to Hawai'i in search of a place to plant this tree. She circled Hawai'i and could not find a suitable place and left for Maui.

*A luna keia o Maui, kaapuni ia Maui; a hiki i Waihehu, ku keia ilalo: O Puukuma ka inoa o kahi i ku ai. Haalele keia i ka laau, hele keia e inu wai a Kane. Hoi mai keia, hapai i ka laau; ua kolo ke aa o ka laau ilalo, ua pua loa.*

*E pa ae ana keia i ka pa no ka laau e ulu ai, mai Pihana a ka lae o Kahoomano. "Paa i ka pa a hiki i keia manawa," hookaawale keia i ka makaki mawaho; o Kekilioopu ka makani maloko. Kii keia i na pua ako, a lawe keia i na pua, ia Kanikawī, ia Kanikawa. Hoi o Haumea i Nuumehalani. [Ka Nupepa Kuokoa 1865]*

She jumped over to Maui and circled it until she came to Waihe'e where she set the tree down. Pu'ukuma is the spot where she set it down. She left the tree and went for a drink of water – the water of Kāne. When she returned, she went to left the tree and found that its roots had crept below and that it was held fast. Haumea erected a wall around the growing tree, a wall that reached from Pihana to Kaho'omano Point. Secure with the wall until this time (*P'a'a i ka pā a hiki i keia manawa*), it was kept from the winds without; the Kili'o'opu was the wind within. Haumea took the two blossoms Kanikawī and Kanikawā and returned to Nu'umehalani. [Kamakau 1991:7]

One day, a man named 'A'a'alā'au of Nakolo was traveling through the mountain side to chop some wood. While traversing, he came across the tree nearby. 'A'a'alā'au chopped the tree down and then returned home, unbeknownst to him, that the tree he chopped down was Kalauokekākūhuli, the one that Haumea brought to Maui from Kahiki. Later that evening, a storm began and lasted for "twenty nights and twenty days" (Kamakau 1991:7).

*la po no, hoomaka iho ana ka ua nui loa, he iwakalua po, he iwakalua ao ka ua ana; o na wahi kahawai ole, lilo i kahawai, o ka pa o ua laau nei, mokumoku i ka wai, a lilo i mau puu, a i mau kahawai.*

*O ua laau nei, lilo i ka wai, a hele i ka moana. Eono malama pae i Niukukahi. [...]* [Ka Nupepa Kuokoa 1865]

There were rushing streams where no streams had before. The wall surrounding the tree was broken up; parts of it washed up into mounds and parts of it washed into the streams. The tree itself was washed away, out into the ocean. After six months it washed ashore at Niukukahi in Waiehu, Maui. [Kamakau 1991:7]

Kamakau (1991) continues this story by sharing where different branches of the tree went to and what they were eventually used for. For the purpose of this *mo'olelo*, we follow the trunk of the tree to Kailua, O'ahu where it has landed. "The trunk of the tree was used as a dung heap and as a place for throwing wastes. This was Kū-ho'one'e-nu'u" (Kamakau 1991:8)

*O Wailaahia ke kane, o Halelau ka wahine, he mau mea Akua ole. Hele mai ua Akua nei i ka po ma ka moehane, e kii aku i Akua no laua, e kolu po e kolu'ao ka hoolale ana e kii aku e kalai i Akua no laua.*

*I kea o ana o ka hoolale ekolu, hoomakaukau iho la o Wailaahia i na mea i kauohaia. He puu, he niu, he ia ula, he aahu, he kohekohe. Hele aku la ua kanaka nei, hahau iho la, a noa ae la, lawe ia'ku la iuka o Polipoli i Napoko, aia ma Waiehu.*

*(Ia kukulu o Wailaahia i ka Waihou a kapu iho la, a noa ae la [...])* [Ka Nupepa Kuokoa 1865]

Wai-la'ahia the husband and Halelau the wife were people without gods. The god Kū-ho'one'e-nu'u came at night in a dream to have them go and get it [the tree trunk] for a god for themselves. For three nights and three days they were urged to go and carve a god [from the tree] for themselves. On the third day of urging, Wai-la'ahia prepared the things that had been ordered – a pig, coconuts, red fish, garments, and kohekohe grass.

Then he went and laid down his offering and freed the *kapu*. Then he took the tree trunk inland to Polipoli iat Nāpoko there in Waiehu. Wai-la'ahia erected a *waihou* [a heiau for Kū-ho'one'e-nu'u], dedicated it, and freed it. [Kamakau 1991:8]

### 3.1.2 Nā Mo'olelo

#### 3.1.2.1 The Battle of Kalae'ilili

Kahekili was the reigning chief of Maui around the year 1765. Kahahana was a soldier guard who lived in Ka'apoko, Waihe'e. One day, the chiefs distributed *i'a* (fish) to the people and left out Kahahana and his wife. This led to a quarrel amongst Kahahana and the chiefs.

*'O ke kumu o ke kawa kūloko, 'o kekahi pū'ali koa, 'o Kahahana ka inoa. No ka 'ao'ao o Ke'eaumoku mā ia koa, 'o kona wahi 'āina 'o Ka'apoko, he wahi 'ili 'āina i loko o ke ahupua'a 'o Waihe'e.*

*Ua hele mau kēia kanaka i ka mahi 'ai, a i ke ahiahi ho'i i ka hale, ua pūlehu kahi wahine i ka lū'au, ua hā'awi nā ali'i i ka i'a i nā kānaka pau, a koe lāua nei me kāna wahine.* [Kamakau 1996:19]

The quarrel arose through a certain soldier of the guard named Ka-hahana [Kahanana] who belonged to Ke'e-au-moku and lived at Ka'apoko within the district of Waihe'e. This man went every day to his plantation and when he returned at night his wife cooked the taro tops. The chiefs distributed fish to the people and left out this man and his wife. [Kamakau 1992:83]

This action made Kahahana furious as all the chiefs and their wives would enjoy fish, meat, and *poi* (made from cooked taro corm, or rarely breadfruit, pounded and thinned with water), while he and his wife received nothing. Kahahana wanted revenge and killed several men, starting a war between warriors and chiefs of Kahekili with the warriors and chiefs of Ke'eaumoku.

*No laila, 'a'ahu ihola 'o Kahahana i ka 'ahu'ula, 'o ka mahiole i ke po'o. 'O ka hele nō ia a Niukukahi, a make ke kanaka, a hopu hou 'o Kahahana, 'alua kanaka i makai ā Kahahana. 'O ka ho'omaka nō ia o ke kawa, 'o ke kawa nō ia o nā 'ao'ao 'elua o pō ka lā. I ka lua o ka lā kawa, ua ho'ouka aku, ua ho'ouka mai ke kawa me ka make o nā 'ao'ao 'elua. 'O Kalaw-'ili'ili ka inoa o kēia kawa [...]* [Kamakau 1996:19]

Then he put on his feather cloak and helmet and went to Niukukahi and slew a man, and he seized and slew two others. Thus the battle began and lasted all that day and the next with lost on both sides, neither side having the advantage. Ka-lae-'ili'ili was the name of this battle. [Kamakau 1992:83]

### 3.2 Nā Wahi Pana (Storied Places)

*Wahi pana* are legendary or storied places of an area. These legendary or storied places may include a variety of natural or human-made structures. Oftentimes dating to the pre-Contact period, most *wahi pana* are in some way connected to a particular *mo'olelo*, however, a *wahi pana* may exist without a connection to any particular story. Davianna McGregor outlines the types of natural and human-made structures that may constitute *wahi pana*:

Natural places have mana, and are sacred because of the presence of the gods, the akua, and the ancestral guardian spirits, the 'aumakua. Human-made structures for the Hawaiian religion and family religious practices are also sacred. These structures and places include temples, and shrines, or heiau, for war, peace, agriculture, fishing, healing, and the like; pu'uhonua, places of refuge and sanctuaries for healing and rebirth; agricultural sites and sites of food production such as the lo'i pond fields and terraces slopes, 'auwai irrigation ditches, and the fishponds; and special function sites such as trails, salt pans, holua slides, quarries, petroglyphs, gaming sites, and canoe landings. [McGregor 1996:22]

As McGregor makes clear, *wahi pana* can refer to natural geographic locations such as streams, peaks, rock formations, ridges, offshore islands and reefs, or they can refer to Hawaiian land divisions such as *ahupua'a* or 'ili, and man-made structures such as fishponds. In this way, the *wahi pana* of Kailua tangibly link the *kama'āina* of Kailua to their past. It is common for places and landscape features to have multiple names, some of which may only be known to certain 'ohana or even certain individuals within an 'ohana, and many have been lost, forgotten or kept secret through time. Place names also convey *kaona* and *huna* (secret) information that may even have political or subversive undertones. Before the introduction of writing to the Hawaiian Islands, cultural information was exclusively preserved and perpetuated orally. Hawaiians gave names to literally everything in their environment, including individual garden plots and 'auwai (waterway or ditch), house sites, intangible phenomena such as meteorological and atmospheric effects, *pōhaku* (rock, stone), *pūnāwai* (freshwater springs), and many others. According to Landgraf (1994), Hawaiian *wahi pana* "physically and poetically describes an area while revealing its historical or legendary significance" (Landgraf 1994:v).

### 3.2.1 Nā Inoa 'Āina a me Nā Wahi Pana (Place Names and Storied Places)

An analysis of place name meanings for the region surrounding the project area may yield some insight into the patterns of life in that area. Features of this area include *heiau*, 'ili (land section, subdivision), streams, surf, *palena* (boundaries), and *pu'u* (hills). Literal translations of several of the place names for land areas and divisions near the project area are listed below. Unless otherwise noted, the translations are taken from Pukui et al. (1974).

Table 1. Nā Inoa 'Āina a me Nā Wahi Pana o Waiehu

Name	Translation
'A'awa	Lit. "wrasse fish"; an ancient surfing area near Waiehu, West Maui.
Ahikuli ( <i>ahupua'a</i> )	
Alakaha ('ili 'āina)	Found in LCA 2468 to Keau, approximately .25 acre.
Alapaka ('ili 'āina)	Lit. "alpaca" or "alabaster" (Pukui and Elbert 1986:19) Found in LCA 3275 to Kaia; approximately 1 acre.
Halawa [Hālawa] ('ili 'āina)	Lit. "curve" (Pukui and Elbert 1986:52,122) Found in LCA 3219 to Apapau and LCA 3275-F to Kane.

Name	Translation
Halelau ('ili 'āina; <i>heiau</i> )	Lit. "House thatched with leaves rather than pili grass" (Pukui and Elbert 1986:53); Found in LCA 3213 to Ehu, LCA 499 to Auwae, LCA 3273 to Waiwaiiole, LCA 3447 to Kaili, and LCA 5945 to Kepaa  Heiau located mauka to the Waiehu Camp in the cane fields. Obliterated by a modern cemetery (Walker 1931)
Halelena ('ili kū or 'ili kūpono – a nearly independent 'ili land division within an ahupua'a, paying tribute to the ruling chief and not the chief of the ahupua'a)	Lit. yellow house.; Retained by Lunalilo but surrendered in commutation. Found in LCA 3274 to Wanaoa, LCA 204 to Edwin Miner, LCA 781 to Alex M. Birch, LCA 3275-M to Wahinekahiki, LCA 3440 to Kaiakahi, and LCA 5454 to Pauanihi
Hananui ('ili 'āina)	Lit. "big bay"; Found in LCA 781 to Alex M. Birch
Hanohano ('ili 'āina)	Lit. "majestic"; Found in LCA 2554 to Wawae, and LCA 3275 -W to Kaaea (Hanohanoiki)
Holoikauai ('ili 'āina)	Lit. "sail to Kaua'i"; Found in LCA 2426 to Kaiwi, and LCA 2447 to Ka'awa
Honohono ('ili 'āina)	Lit. "honohono kukui or basket grass; wandering Jew or dayflower, a creeping weed; rare native mint; an orchid; variation of hohono – bad smelling; a child game"; Found in LCA 1806 to Makalawelawe, and LCA 3459 to Keawe.
Ka'akukui ('ili 'āina)	Lit. "rolling candlenut"; From LCA 3528 to Naoopu
Kaalaino ('ili 'āina)	Found in LCA 4149 to Kapohuli, LCA 3275-C to Mokupanei, LCA 3275-Y to Kaneiki, and LCA 3443 to Kamai
Kahakapiele ('ili 'āina)	Found in LCA 3219 to Apapau
Kahimana ('ili 'āina)	Found in LCA 5454 to Pauanihi
Kailili ('ili 'āina)	Lit. "the pebble"; Found in LCA 1806 to Makalawelawe
Kalahape ('ili 'āina)	Found in LCA 3275-H to Pulehupo and LCA 3275-R to Kamaka
Kaluaolena ('ili 'āina)	Lit. "the olena pit"; Found in LCA 3439 to Kamahaaloa, LCA 2475 to Kahalehuki, and LCA 3275-P to Waiwaiiole
Kamakoia ( <i>heiau</i> )	Located at head of Waiehu Road; grove of eucalyptus. (Walker 1931:141)



Name	Translation
Kaohē ('ili 'āina)	Lit. "the bamboo or several other plants"; LCA 2461 to Kanehailua, LCA 2474 to Kuhi, LCA 3456 to Keliinui, and LCA 5622 to Kaneiakala
Kaohia ('ili 'āina)	Lit. "the 'ōhi'a [ <i>metrosideros polymorpha</i> ] tree"; Found in LCA 4149 to Kapohuli
Kapaka ('ili 'āina)	Lit. "the raindrop"; Found in LCA 3275-E to Kaleo
Kapalaoa ('ili 'āina)	Lit. "the whale or the whale tooth"; Found in LCA 3435 to Keaohula, LCA 3429 to Kaupe, LCA 3431 to Kalamaia, LCA 3438 to Kumahana, LCA 3547 to Kamaka, and 5495 to Kepaa. In the ahupua'a of Polipoli.
Kapoino (ahupua'a)	Lit. "the misfortune, disaster, calamity, etc."; Kapoino a me na Poko o Waiehu were retained by Lunalilo at the Māhele but surrendered in lieu of commutation. Found in LCA 3437 to Kailiula. Poino found in LCA 2419 to Kamahiai, LCA 3373 to Pu, LCA 3396 to Pilipowahine & Lani, LCA 3434 to Kaapowale, LCA 3443 to Kamai, and LCA 3446 to Kaahu.
Kapuoho ('ili 'āina)	Lit. "startled; to cry out in alarm" (Pukui and Elber 1986:356)
Kauhiloa ('ili 'āina)	Lit. "the long yam". Found in LCA 3450 to Kapulu.
Kaulu/Kaula ('ili 'āina)	Lit. "the breadfruit". Found in LCA 3275-L to Kanfanele and LCA 3275-D to Kaholomoana
Kauwila ('ili 'āina)	Lit. "the uila tree" Found in LA 2466 to Kahula, LCA 2474 to Kuhi, LCA 2482 to Kane, LCA 3275-S to Kawahaale, LCA 3439 to Kamahaloa, and LCA 3460:2 to Kaia
Kehoni	point
Keokanui ('ili kūpono)	Retained by Liholiho
Kiha ('ili 'āina)	Found in LCA 3379 to Puna
Kipapa ('ili 'āina)	Lit. "place prone, pavement"; found in LCA 8814 to Kamai and LCA 3377 to Puulau
Kope (kahawai)	Lit. "to rake";
Kou ('ili kūpono)	Retained by Liholiho
Kuhimana ('ili 'āina)	Found in LCA 2433 to Kahikapa and LCA 6935 to A. Moku
Kukutafaimaka ('ili 'āina)	Found in LCA 3436 to Kapi and LCA 3374 to Paele.
Kukuikomo (heiau)	Located near the ridge between North and South Waiehu Gulches; heiau with no platforms
Kukuokomo ('ili 'āina)	Located in Ahikuli, found in LCA 3439 to Kamahaloa

Name	Translation
Kumukahi ('ili 'āina)	Lit. "first beginning"; Found in LCA 3451 to Kapahi and LCA 11222 to Kapahu
Kumuwiwili ('ili 'āina)	Lit. "wiliwili [ <i>Erythrina sandwicensis</i> ] tree"; found in LCA 3275-E to Kaleo, LCA 2489 to Kuheleaukea, and LCA 2526 to Makanui
Kuunahawelu ('ili 'āina)	Found in LCA 3275-G and 8819 to Kamai, LCA 3275-O to Kawao, and LCA 9974 to Lupe. Also written as Kunuhawelu
Lualailua ('ili 'āina)	Lit. "twofold tranquility"; found in LCA 3275-E to Kaleo, LCA 2489 :4 to Kuheleaukea, LCA 2625 to Pa, and LCA 3459:3 to Keawe.
Mahalani (pā 'ilina)	Lit. "heavenly rest", cemetery
Malama	Ridge
Malunualukua (heiau)	Located at Head of South Waiehu Gulch; groove of kukui trees surrounding a level spot with evidence of walls or platforms. A large rock in the center possibly for sacrificial purposes. (Walter 1931:142)
Mookahi ('ili 'āina)	Found in LCA 3448 to Kaalapali
Napoko (poko)	"the shorts, small lands; sometimes the personal lands of a chief";
Niukahi (nalu)	Lit. "coconut standing alone"; an ancient surfing area.
Nukukahi (heiau)	"of this heiau nothing now remains but a heap of stones"
Ohia ('ili 'āina)	Lit. "'ōhi'a tree"; Found in LCA 3219 to Apapau, LCA 2461 to Kanehailua, LCA 2625 to Pa, and LCA 3275-V to Keaole
Ohiaiki ('ili 'āina)	Lit. "small 'ōhi'a"; found in LCA 4149 to Kapohuli, LCA 2613 to Pepeiao, LCA 3259 to Luachū, LCA 3275-O to Kaowao, and LCA 3459 to Keawe
Ohianui ('ili 'āina)	Lit. "large 'ōhi'a"; found in LCA 3275-E to Kaleo, LCA 2468 to Keau, LCA 3259 to Luachū, LCA 3275-K to Mahi, LCA 3275-P to Waiwaiole, LCA 3459 to Keawe, LCA 3462 to Kalomi, and LCA 4049 to Kaniolo
Omao ('ili 'āina)	Lit. "green"; found in LCA 3275-C to Kaiolani, LCA 3327 to Naialaolao, LCA 3433 to Kula, LCA 3437 to Kailiula, LCA 3441 to Kapaula, LCA 3444 to Kalopa
Palaeale ('ili 'āina)	Lit. "bright, as the sun"; found in LCA 9974:2 to Lupe

Name	Translation
Panene ('ili 'āina)	Lit. "goose enclosure"; found in LCA 3275-E to Kaleo; LCA 2461:1 to Kanehailua, LCA 2625 to Pa, LCA 3275-F to Kane, LCA 3275-Y to Kaneiki; LCA 11259 to Keoole.
Papahawale ('ili 'āina)	Found in LCA 2447 to Kaawa; LCA 1806 to Makalawelawe, LCA 2572 to Naheana, 3275-T to Kahookano, 3275-X to Puula, LCA 3441 to Kapaula, LCA 3528 to Naopu
Papalaloe ('ili 'āina)	Lit. "tall pāpala tree"; LCA 2466 to Kahula
Piilani ('ili 'āina)	A famous Maui chief; found in LCA 3237 to Kailiula
Pihipili ('ili 'āina)	Lit. "sticky, adhesive, tenacious; an herb [ <i>Drymaria cordata</i> ]; found in LCA 2572 to Naheana
Poaiwa ('ili 'āina)	Lit. "ninth-day"; found in LCA 2482 to Kane, LCA 2489 to Kuheleaukea, LCA 3275-R to Kamaka, LCA 3378 to Pepehi
Pohakulua ('ili 'āina)	Lit. "double stone"; found in LCA 5263 to Kualii
Pohakunui ('ili 'āina)	Lit. "large stone"; Retained by Lunalilo at the Māhele, LCA 8995-B, LCA 3428 to Kekai, LCA 2475 to Kahalehuki, LCA 3375 to Pohakupa, LCA 3433 to Kuaana, LCA 3458 to Kikaho, LCA 11256 to Lonoaea
Polipoli ( <i>ahupua'a</i> , <i>pu'uhonua</i> )	Lit. "a soft porous stone used for polishing or for octopus lure sinkers"; Retained by Lunalilo at the Māhele, "Polipoli was Kūka'ilimoku's land made a pu'uhonua land by Kamehameha I.
Poohuea ('ili 'āina)	Found in LCA 3528 to Naopu, LCA 2475 to Kahalehuki, LCA 3525 to Hanae, LCA 3275-L to Kamanele, LCA 10631 to Pahanui.
Puu Kāne ( <i>pu'u</i> )	Lit. "Kāne's Hill"
Puu o Kaupo ( <i>pu'u</i> )	Lit. "Kaupo Hill"
Puukoa ( <i>heiau</i> )	Destroyed. Located near pond on ridge south of Waiehu Camp (Walker 1931:144)
Puuopaili ( <i>pu'u</i> )	Lit. "Palili's hill"; found in LCA 3327 to Naialaolao, LCA 3432 to Kula
Ukui ('ili 'āina)	Lit. "cold sores, name of a bird"; found in LCA 2487 to Kahue, LCA 3459 to Keawe, LCA 3275-E to Kaleo
Waiale ('ili 'āina)	Lit. "rippling water"; found in LCA 3375 to Pohakupa
Waiehu ( <i>ahupua'a</i> )	Lit. "water spray"
Waiehu ( <i>kahawai</i> )	Lit. "water spray"

Name	Translation
Wailaahia ('ili 'āina)	Lit. "consecrated water"; found in LCA 3258 to Laka

### 3.2.2 Surf at Waihe'e and Waiehu

The surf on Maui were famous as these were the favorite spots for many *ali'i* throughout the area. Kamakau (1992) writes:

*'O ka nalu o Kahu ame Ka'ākau, 'o ia kahi luana o nā ali'i o Wailuku. 'O ka nalu o Niukukahi me 'A'awa kahi kua kähela o nā ali'i o Waiehu me Nāpoko. 'O Pala'ie ame Kahāhāwai nā nalu luakaha o nā ali'i o Waihe'e. [Kamakau 1996:18-19]*

The chiefs of Wailuku passed their time in the surf of Kahu and Ka'ākau, those of Waiehu and Nāpoko in the surfs of Niukukahi and 'A'awa, while those of Waihe'e were accustomed to amuse themselves in the surfs of Pala'ie and Kahāhāwai. [Kamakau 1992:83]

### 3.2.3 Ka Lae o Kehoni

During the reign of Kahekili as chief of Maui, he and his son would have wrestling matches at Ka Lae o Kehoni. However, it is said that this place got its name as the birthplace of chiefess Namahana. According to Sterling (1992):

At the point of Kehoni was a site for wrestling matches for Kahekili and his son. The name of the ridge above this place is Malania and the level land below is now the golf links ...

There was a large flat shiny rock there that people sought but could never find. Here the chiefess Namahana was born. And that is perhaps why the place was called Kehoni. [Sterling 1992:73]

### 3.3 Nā 'Ōlelo No'eau (Proverbs)

Hawaiian knowledge was shared by way of oral histories. Indeed, one's *leo* (voice) is oftentimes presented as *ho'okupu* ("to cause growth," a gift given to convey appreciation, to strengthen bonds); the high valuation of the spoken word underscores the importance of the oral tradition (in this case, Hawaiian sayings or expressions), and its ability to impart traditional Hawaiian "aesthetic, historic, and educational values" (Pukui 1983:vii). Thus, in many ways these expressions may be understood as inspiring growth within reader or between speaker and listener.

They reveal with each new reading ever deeper layers of meaning, giving understanding not only of Hawai'i and its people but of all humanity. Since the sayings carry the immediacy of the spoken word, considered to be the highest form of cultural expression in old Hawai'i, they bring us closer to the everyday thoughts and lives of the Hawaiians who created them. Taken together, the sayings offer a basis for an understanding of the essence and origins of traditional Hawaiian values. The sayings may be categorized, in Western terms, as proverbs, aphorisms, didactic adages, jokes, riddles, epithets, lines from chants, etc., and they present a variety of literary techniques such as metaphor, analogy, allegory, personification, irony, pun, and repetition.

It is worth noting, however, that the sayings were spoken, and that their meanings and purposes should not be assessed by the Western concepts of literary types and techniques. [Pukui 1983:vii]

Simply, *'ōlelo no'eau* may be understood as proverbs. The Webster dictionary notes a proverb as "a phrase which is often repeated; especially, a sentence which briefly and forcibly expresses some practical truth, or the result of experience and observation." It is a pithy or short form of folk wisdom. Pukui equates proverbs as a treasury of Hawaiian expressions (Pukui 1995:xii). Oftentimes within these Hawaiian expressions or proverbs are references to places. This section draws from the collection of author and historian Mary Kawena Pukui and her knowledge of Hawaiian proverbs describing *'āina* (land), chiefs, plants, and places. The following proverbs concerning Waiehu come from Mary Kawena Pukui's *'Ōlelo No'eau* (Pukui 1983).

### 3.3.1 Ka 'Ōlelo No'eau #357

This *'ōlelo no'eau* is from a conversation with Kahekili, the ruler of Maui, and a messenger of Kamehameha I, who at that time, was in the process of conquering the Hawaiian islands.

*E nānā mai a uhi kapa 'ele'ele ia Maui, a kau ka pua'a i ka muku, ki'i mai i ka 'āina a lawe aku.*

Watch until the black tapa cloth covers Maui and the sacrificial hop is offered, then come and take the land.

Said by Kahekili, the ruler of Maui, to a messenger sent by Kamehameha I with a question whether to have war or peace. Kahekili sent back this answer – "Wait until I am dead and all the rites performed, then invade and take the island of Maui." [Pukui 1983:43]

### 3.3.2 Ka 'Ōlelo No'eau #1462

Referencing the 'Aha'aha wind of Niua, this *'ōlelo no'eau* showcases the transition from the Kili'o'opu wind to the 'Aha'aha breeze as it reaches Waiehu. This wind is also considered a good omen for fishermen.

*Ka makani kā 'Aha'aha la'i o Niua*

The peaceful 'Aha'aha breeze of Niua that drives in the 'aha'aha fish.

The 'Aha'aha breeze begins as the Kili'o'opu in Waihe'e, Maui, before reaching Niua Point in Waiehu. It is a gentle breeze and the sea is calm when it blows. Fishermen launch their canoes and go forth to fish, for that is the time when the 'aha'aha fish arrive in schools. [Pukui 1983:158]

### 3.3.3 Ka 'Ōlelo No'eau #1465

An *'ōlelo no'eau* featuring the wind of Waikapū.

*Ka makani kolololio o Waikapū.*

The swift, gusty wind of Waikapū.

Waikapū is on Maui. [Pukui 1983:159]

### 3.3.4 Ka 'Ōlelo No'eau #1489

This *'ōlelo no'eau* describes the shape of Maui.

*Ka moku pui kuapu'u.*

The hunchbacked island.

Maui, its shape on the map resembles the figure of a hunchbacked person. [Pukui 1983:161]

### 3.3.5 Ka 'Ōlelo No'eau #1763

As with some *'ōlelo no'eau*, the purpose is to sometimes describe a person's action or lack thereof. This *'ōlelo no'eau* is an illustration of such and focuses on not only Maui, but includes Lāna'i, Moloka'i, and O'ahu.

*Ke ku no a Maui; ke ki'ei no a Lāna'i; ka moe no a Moloka'i; ka noho no a O'ahu.*

Maui stands; Lāna'i peers in; Moloka'i sleeps; O'ahu sits.

Said of people who stand about, look on, go to sleep, and sit around, but who do not lend a hand with work. [Pukui 1983:189]

### 3.3.6 Ka 'Ōlelo No'eau #2143

This *'ōlelo no'eau* references one of the ruling chiefs of Maui, Kamalalawalu.

*Maui a Kama.*

Maui, island of Kama.

Kamalalawalu was a ruling chief of Maui. [Pukui 1983:234]

### 3.3.7 Ka 'Ōlelo No'eau #2142

This *'ōlelo no'eau* is in reference to a song title with the same words.

*Maui no ka'oi.*

Maui excels.

From the song of this title by the Reverend Samuel Kapū. [Pukui 1983:234]

### 3.3.8 Ka 'Ōlelo No'eau #2145

Similar to ka *'ōlelo no'eau* #1763, this *'ōlelo no'eau* was created to illustrate a person's intelligence or lack of through the perspective of an historic event.

*Maui po'ohakahaka.*

Maui the empty headed.

The people of Maui were said to lack intelligence. This saying originally referred to the empty skulls of defeated Maui warriors. [Pukui 1983:234]

### 3.3.9 Ka 'Ōlelo No'eau #2300

This *'ōlelo no'eau*, as mentioned earlier, references the four famous waters of Maui; Waihe'e, Waiehu, Waikapū, and Wailuku.

*Nā wai 'ehā.*

The four waters.

A poetic term for these places on Maui: Wailuku, Waiehu, Waihe'e, Waikapū, eah of which has a flowing water (wai). [Pukui 1983:251]

### 3.3.10 Ka 'Ōlelo No'eau #2904

This 'ōlelo no'eau showcases the boundaries of Waiehu from one cliff to another.

*Waiehu, mai ka pali o Kapulehua a ka pali o 'A'alaloa.*

Waiehu, from the cliff of Kapulehua to the cliff of 'A'alaloa.

The boundaries of the district of Waiehu, Maui. [Pukui 1983:318]

### 3.3.11 Ka 'Ōlelo No'eau #2911

This 'ōlelo no'eau showcases Waikapū with its wind, Kokololo.

*Waikapū i ka makani kokololo.*

Waikapū of the gusty wind

Refers to Waikapū, Maui. [Pukui 1983:319]

### 3.3.12 Ka 'Ōlelo No'eau #2912

An 'ōlelo no'eau for Wailuku, Maui.

*Wailuku i ka malu he kuawa.*

Wailuku in the shelter of the valleys.

Wailuku, Maui, repose in the shelter of the clouds and the valley. [Pukui 1983:319]

## 3.4 Nā Mele (Songs)

The following section draws from the Hawaiian art of *mele*, poetic song intended to create two styles of meaning.

Words and word combinations were studied to see whether they were auspicious or not. There were always two things to consider the literal meaning and the *kaona*, or 'inner meaning.' The inner meaning was sometimes so veiled that only the people to whom the chant belonged understood it, and sometimes so obvious that anyone who knew the figurative speech of old Hawai'i could see it very plainly. There are but two meanings: the literal and the *kaona*, or inner meaning. The literal is like the body and the inner meaning is like the spirit of the poem.

The Hawaiians were lovers of poetry and keen observers of nature. Every phase of nature was noted and expressions of this love and observation woven into poems of praise, of satire, of resentment, of love and of celebration for any occasion that might arise. The ancient poets carefully selected men worthy of carrying on their art. These young men were taught the old *meles* and the technique of fashioning new ones. [Pukui 1949:247]

There exists a number of *mele* that mention Waiehu as well as other areas within Nā Wai 'Ehā. These particular *mele* may also be classified as *mele wahi pana* (songs for legendary or historic places). *Mele wahi pana* may or may not be accompanied by *hula* (dance) or *hula wahi pana* (dance for legendary or historic places). As the Hula Preservation Society notes,

*Hula Wahi Pana* comprise a large class of dances that honor places of such emotional, spiritual, historical, or cultural significance that chants were composed for them. Only the composers of the chants could know the deepest meanings, as they would be reflections of their feelings and experiences [...]. Since the subjects of *Wahi Pana* compositions are extremely varied, their implementation through *hula* are as well. Coupled with the differences from one *hula* style and tradition to the next, *Hula Wahi Pana* can be exceptionally diverse. They can be done sitting or standing, with limited body movement or wide free movement; with or without the use of implements or instruments; with the dancers themselves chanting and/or playing an implement or being accompanied by the *ho'opa'a* [drummer and *hula* chanter (memorizer)]. Beyond the particular *hula* tradition, what ultimately determines the manner in which a *Hula Wahi Pana* is performed are the specific place involved, why it is significant, the story being shared about it, and its importance in the composer's view. [Hula Preservation Society 2014]

### 3.4.1 Hanohano Waiehu

This *mele* was composed by David Alawa. Kawai Cockett (1998), a Hawaiian musician, states that

Waiehu (spraying mist) refers to the mist that forms around the upland waterfalls on windy days in this land north of 'Iao valley on Maui. The song describes the physical and emotional weight, the "heavy baggage" ('ukana lu'ulu'u) of love. The *ua Hō'eha 'ili* (rain that hurts the skin) is the name of the area's rain drops born by the wind, that gently pinch you, causing a tingling sensation. Figuratively speaking, it could imply that one's feelings have been hurt.

<i>Hanohano Waiehu i ka uhiwai</i>	Waiehu is magnificent in the heavy mist
<i>Ha'aheo i ka liko a'o ka lehua</i>	Proudly cherishing the lehua bud
<i>'O ka ne'e a ka ua Hō'eha'ili</i>	The slow creeping of the Hō'eha 'ili rain
<i>Me he ala o ku'u aloha kekahi</i>	Is like my beloved in some ways
<i>'Akahi ho'i au a 'ike maka</i>	For the first time I've experienced for myself
<i>I ka ukana lu'ulu'u a ke aloha</i>	The burdensome load of love
<i>Ha'ina 'ia mai ana ka puana</i>	The theme is told
<i>Hanohano Waiehu i ka uhiwai</i>	Waiehu is magnificent in the heavy mist



[Cockett 1998]

## 3.4.2 I Waikapū Ke Aloha/No Nā Wai 'Ehā

The lyrics below appear under the names of two different mele, I Waikapū Ke Aloha as well as No Nā Wai 'Ehā. Unfortunately, the composer for I Waikapū Ke Aloha is unknown. However, Scott Hai, who was from Ke'anae but moved to Waihe'e, is credited in composing No Nā Wai 'Ehā. The mele focuses on the areas of Nā Wai 'Ehā.

<i>I Waikapū ke aloha</i>	In Waikapū
<i>Ka makani Kokololio</i>	The gusty wind named Kokololio
<i>Pili i ka poli nahanaha</i>	Held in warm arms
<i>He 'inikini mālie</i>	Gently pinching
<i>I Wailuku [Wailuku] iho 'oe</i>	You were in Wailuku
<i>I ka piko a'o 'lao</i>	To the summit of lao
<i>(Ka makani lawe mālie)</i>	(Gentle wind)
<i>Lihilihi o ka pua rose</i>	Petals of the roses
<i>He 'inikini mālie</i>	Gently pinching
<i>I Wai'ehu iho 'oe</i>	You were in Waihe
<i>Ka makani hō'eha 'ili</i>	The wind that pierces the skin
<i>Me ka 'uhiwai a'o uka</i>	With the fog of the upland
<i>Me ke a'o ia uka</i>	heavy fog
<i>He 'inikini mālie</i>	Gently pinching
<i>I Waihe'e kūua</i>	Both of us were in Waihe'e
<i>Ka makani Kili'o'opu</i>	With the wind named Kili'o'opu
<i>Me ka wai a'o Eleile</i>	With the water of Eleile
<i>He 'inikini mālie</i>	Gently pinching
<i>I Lahaina iho 'oe</i>	You were in Lahaina
<i>Ka makani Kaua'ula</i>	With the Kaua'ula wind
<i>Me ka mālu 'ulu a'o Lele</i>	Amid the shelter of the breadfruit trees of Lele
<i>He 'inikini mālie</i>	Gently pinching

<i>Ha'ina mai ka puana</i>	Here ends my song
<i>No nā wai 'ehā</i>	Of the four waters
<i>E ho'i nō e pili</i>	Return, let us be together
<i>He 'inikini mālie</i>	Gently pinching

[huapala.org]

## 3.4.3 Waikapū/Iniki Mālie

Similar to I Waikapū Ke Aloha and No Nā Wai 'Ehā, Waikapū and 'Iniki Mālie have the same lyrics but are printed in under two different song titles. Waikapū is credited to James Kahele. Unfortunately 'Iniki Mālie did not list the composer (Elbert and Māhoe 1970:56).

<i>Waikapū [i] makani kokolo lio</i>	Waikapū has a swift blowing wind
<i>Makani houhou 'ili</i>	Wind that pierces the skin
<i>'Ini 'iniki mālie</i>	Gently pinching it
<i>Wailuku makani lawe mālie</i>	Wailuku has a gently blowing wind
<i>Makani houhou 'ili</i>	Wind that pierces the skin
<i>'Ini 'iniki mālie</i>	Gently pinching it
<i>Wai'ehu makani ho'eha 'ili</i>	Wai'ehu has a wind that pricks the skin
<i>Makani houhou 'ili</i>	Wind that pierces the skin
<i>'Ini 'iniki mālie</i>	Gently pinching it
<i>Waihe'e makani kili'o'opu</i>	Waihe'e has a cool wind
<i>Makani houhou 'ili</i>	Wind that pierces the skin
<i>'Ini 'iniki mālie</i>	Gently pinching it
<i>Ha'ina mai ana ka puana</i>	This ends my song
<i>Makani houhou 'ili</i>	Wind that pierces the skin
<i>'Ini 'iniki mālie</i>	Gently pinching it

[huapala.org]

## 3.4.4 Nā Wai Kaulana

This mele was composed by Alice Namakelua to praise and honor "the four famous streams of West Maui" (huapala.org) as well as other areas within Maui. Places like Kepaniwai, 'lao, and

Haleakalā are distinguished *wahi pana* not only for their land formations, but for the *mo'olelo* that accompany these areas.

<i>'Ike ana i ka nani o Maui</i>	Seeing the beauty of Maui
<i>I Kepaniwai o 'Īao</i>	Kepaniwai at 'Īao
<i>Ke kokolo a ka uwahi o Kula</i>	The drifting of the dust of Kula
<i>Me he uhiwai ala no ka uka</i>	Like fog, there in the uplands
<i>Hui:</i>	Chorus:
<i>Ka'apuni 'oe a pum 'o Maui</i>	You travel around Maui
<i>E 'ike i nā wai 'ehā</i>	And see the four streams
<i>O Waikapū, o Wailuku, o Waiehu</i>	Waikapū, Wailuku, Waiehu
<i>Kaulana nā wai 'ehā</i>	Famous are the four streams
<i>He 'inikini mālie</i>	Gently piercing is
<i>O Waihe'e i ka makani Kili'o'opu</i>	Waihe'e by the wind Kili'o'opu
<i>O nā wai kaulana 'ia a'o ku'u 'āina</i>	These are the famous streams of my land
<i>O nā wai kaulana 'ia a'o ku'u 'āina</i>	These are the famous streams of my land
<i>I luna a'o Haleakalā</i>	Above Haleakalā
<i>'Ike ia e ka nani kamaha'o</i>	See the wondrous beauty
<i>'Alawai aku 'oe i ka nani</i>	If you glance over there, you will see
<i>Ka nani o ke kukuna o ka lā</i>	The beautiful rays of the sun
<i>Eia iho hoi ia nani</i>	Here is the beauty
<i>O ka nani o ka pua li'ulū</i>	A mirage of flowers
<i>He pua māka'ika'i mau ia</i>	Stroll between the flowers
<i>E ka nui ma ke lehulehu</i>	Multitudes, growing in profusion
<i>Kaulana nā pua like 'ole</i>	Flowers so famous, like no other
<i>'A'ohe no a'e like aku</i>	Yes, none can compare to
<i>Me ka nani o ka pua roseleni</i>	The beauty of the rose
<i>O ka wehi a'o ku'u 'āina</i>	They adorn my land
[huapala.org]	

### 3.4.5 Mauna Kahālāwai

The composer of this *mele* is unknown, however, the showcase of love for the island of Maui is seen throughout the *mele*. The ridges of Mauna Kahālāwai, also known as West Maui Mountains touched each of Nā Wai 'Ehā. It is from these mountain ranges the waters flow to become Nā Wai 'Ehā.

<i>Hanohano i ka maka</i>	Great wonders to the eyes
<i>Ke 'ike aku</i>	To behold
<i>Mauna Kahalawai o Maui</i>	Mt. Kahalawai o Maui
<i>E noho mai a i luna</i>	It is there, up high
<i>I luna ma na wahi ki'eki'e</i>	Upon the highest point
<i>I noho i lalo Kahakuloa</i>	And there below is Kahakuloa
<i>Waiehu, Paukukalo, ame Wailuku</i>	Waiehu, Paukukalo, and Wailuku
<i>Waikapū 'a'ole po'ina Mā'alaea</i>	Waikapū, do not forget Mā'alaea
<i>Aloha i ka po'e o ka 'āina</i>	Greetings and love to the people of the land
<i>Aloha i ka po'e o ka 'āina</i>	Greetings and love to the people of the land
<i>Ha'ina 'ia mai ka puana</i>	This is the end if my story
<i>Mauna Kahalawai nou kēia mele</i>	Mt. Kahalawai, this is your song
<i>He inoa mai kahiko mai</i>	A name from ancient times
<i>Mauna Kahalawahi 'o Maui</i>	Mt. Kahalawai of Maui
<i>Mauna Kahalawahi 'o Maui</i>	Mt. Kahalawai of Maui
[huapala.org]	

## Section 4 Historical Accounts

### 4.1 Pre-Contact to Early Post-Contact Period

Waiehu Ahupua'a, along with the other *ahupua'a* of Nā Wai 'Ehā, were popular places for *ali'i* to dwell. These lands were fertile and *wai* (water) was easily accessible and attainable. James (2001:56), shares

[...] Wailuku, Paukūalo, and Waiehu were popular surfing spots amongst the chiefs of Maui, and from Waihe'e to Wailuku lay the largest continuous area of wetland taro cultivation in the Islands. [James 2001:56]

Handy and Handy reiterate the prolific cultivation of *kalo* in Wailuku District saying that, "in ancient times [Wailuku District] was the largest continuous area of wet-taro cultivation in the islands" (Handy and Handy 1972:496). *Kalo* was perhaps the most distinguished plant within traditional Hawaiian horticulture and society. This is echoed in pre-Contact descriptions of agricultural cultivation in Wailuku which are dominated by passages illustrating the prominence of *kalo*. Handy and Handy describe the multifaceted role taro played in the pre-Contact era and its significance in the socio-cultural order:

The function and nature of the taro plant, its cultivation and use, were responsible not only for its primal place in mythology but for the fact that the cult associated with it, namely that of the male god Kane (= Wakea) as first procreator, and of *Ka-wai-'ola-a-Kane* or "The-life-giving-water-of Kane," although less elaborated than that of the rain-father Lono, was more fundamental, not only in Hawaii but throughout Polynesia. It was, in fact, the basic cult of the primal procreator of nature and man, out of the union of Sky and Earth.

Actually the course of fresh-water streams and ditches patterned the entire subsistence economy, and through this, the whole round and cycle of individual and social activity. The streams and ditches were the regulators, the law givers, in communal relationship; not directly, but because upon their water depended the taro, and upon the taro depended man.

The requirements of labor, in connection with building and maintenance of dams, ditches, terraces, and embankments, and the planting, tending, and harvesting of the taro, determined the ordering of cooperative work and relationships between individuals and families within the community. This cooperation in turn was responsible for the obligations in the matter of work required of individuals and the right of individuals and families to a share in the products.

Finally, taro in its habit of growth established a biological prototype of the form in which heredity and relationship were conceived. The taro growth supplied one of the terms in which the family system of the civilization was framed: *'ohana*, meaning the dispersed biological family group as a whole. *'Oha* means a shoot or sucker from the base of a plant, but essentially and primarily was applied to the buds from the corm of the taro that were broken off and replanted by the gardener. With the substantive suffix added, *'oha-na* literally means "offshoots," or "that which is composed of offshoots."

The family stock, then, budding and branching from parent stocks, was conceived of in terms of the habit of reproduction of the taro. [Handy and Handy 1972:76]

#### 4.1.1 Kamehameha and Kahekili

After Kamehameha I conquered his island home of Hawai'i, he was more than eager to gain control of the other islands, with Maui being his next target. Maui at that time was ruled by Kahekili, who also ruled Moloka'i, O'ahu, and Kaua'i. In 1785 while Kahekili was living on O'ahu, Kamehameha decided to make his attack on Maui, in Hāna. At first the attack seemed successful and appeared that Kamehameha's army would be victorious, however, soon the battle changed and the warriors of Maui drew out Kamehameha's army.

When Kamehameha had conquered his own island, he was more than ever eager to gain control of the remainder of the group. But a great obstacle stood in his way in the person of Kahekili, Mo'i of Maui. By the time Kamehameha had become sole king of the island of Hawai'i, Kahekili had succeeded in making himself overlord of Maui, Molokai, Oahu, and Kauai.

Toward the end of 1785, Kamehameha sent an army under the command of his younger brother to attempt the reconquest of Hana on Maui. This attempt met with some success at first but the invaders were later driven out. [Hoskins n.d.:7]

In 1795, Kamehameha conquered Maui, Moloka'i, and the rest of Kahekili's domain (Hoskins n.d.:7).

#### 4.1.2 Nā Pu'uhonua a Ka'ahumanu (Ka'ahumanu's places of refuge)

In the adjacent *ahupua'a* of Waihe'e, there is land that is known to be a *pu'uhonua* (a place of refuge) that belonged to Ka'ahumanu. According to Kamakau (1992:313):

Any condemned person could be saved if Ka'ahu-manu said the word. Her lands were also turned into places of refuge. Pu'umau in Lahaina, Waipukua in Waihe'e, Kalua'aha in Molokai, and the rest, all became places where people could be saved from death. If a man killed another and he could escape from the friends of the man he had killed and run to the land set apart as a place of refuge, he would be saved from death. In the battle of Nu'uano between Kamehameha and Ka-lani-ku-pule many of the chiefs and chiefesses were taken prisoner—Ke-po'o-loku, Kalola, Ihu-ka'ika'i, Ka-'ele-o-Waipio and their followers and many others—and they were told that through Ka'ahu-manu they might be saved, that any prisoner who appealed for life to Ka'ahu-manu was saved, hence many sought Ka'ahu-manu. The same was the case when Kamehameha made war in Hilo against Namakeha; many were saved through knowing this means of safety. [Kamakau 1992:313]

#### 4.1.3 The Māhele (1848)

The Organic Acts of 1845 and 1846 initiated the process of the Māhele—the division of Hawaiian lands—that introduced private property into Hawaiian society. In 1848, the Crown and the *aliʻi* received their land titles. *Kuleana* awards to commoners for individual parcels within the *ahupuaʻa* were subsequently granted in 1850. The Crown Lands were considered the private lands of the monarch, and many lands were sold or mortgaged during the reigns of Kamehameha III and IV to settle debts to foreigners. To end this practice, the Crown Lands were made inalienable in 1865, and their dispensation was regulated by a Board of Commissioners of Crown Lands, which effectively put them under the administrative control of foreign-born residents (Kameʻlehiwa 1992:310). Before the passage of the Act of 3 January 1865, which made Crown Lands inalienable, Kamehameha III and his successors did as they pleased with the Crown Lands, selling, leasing, and mortgaging them at will (Chinen 1958:27).

In 1850, the Privy Council passed resolutions that affirmed the rights of the commoners or native tenants. To apply for fee-simple title to their lands, native tenants were required to file their claim with the Land Commission within the specified time period of February 1846 and 14 February 1848. The Kuleana Act of 1850 confirmed and protected the rights of native tenants. Under this act, the claimant was required to have two witnesses who could testify they knew the claimant and the boundaries of the land, knew that the claimant had lived on the land for a minimum of two years, and knew that no one had challenged the claim. The land also had to be surveyed.

Not everyone who was eligible to apply for *kuleana* lands did so and, likewise, not all claims were awarded. Some claimants failed to follow through and come before the Land Commission, some did not produce two witnesses, and some did not get their land surveyed. Out of the potential 2,500,000 acres of Crown and Government Lands, less than 30,000 acres of land were awarded to the Native Hawaiian tenants (Chinen 1958:31).

In general, Waiehu Ahupuaʻa is notable for having many Land Commission Awards (LCAs). Māhele records associated with the LCAs in Waiehu indicate that the vicinity west of the project area is likely a part of an extensive system of *loʻi* that was formerly characterized the Wailuku and Waiheʻe valleys (Waihona ʻAina 2000). A large portion of the LCAs located in Waiehu were primarily used for traditional cultivation of *kalo*. Other structures or infrastructure supporting both *loʻi kalo* (taro patch) and *kula* (dryland) agriculture such as paths, roads, house lots, garden plots, were all listed as ancillary to the original claims made on half of taro cultivation (Figure 8).

The project area is located within ʻāpana 20 and/or 21 of LCA 8559B\*M, which was granted to William C. Lunalilo (Figure 9). The LCA document (LCA 8559B\*M) comprises approximately 2,000 acres of land and does not specify definitive boundaries or specific land use for these ʻāpana.

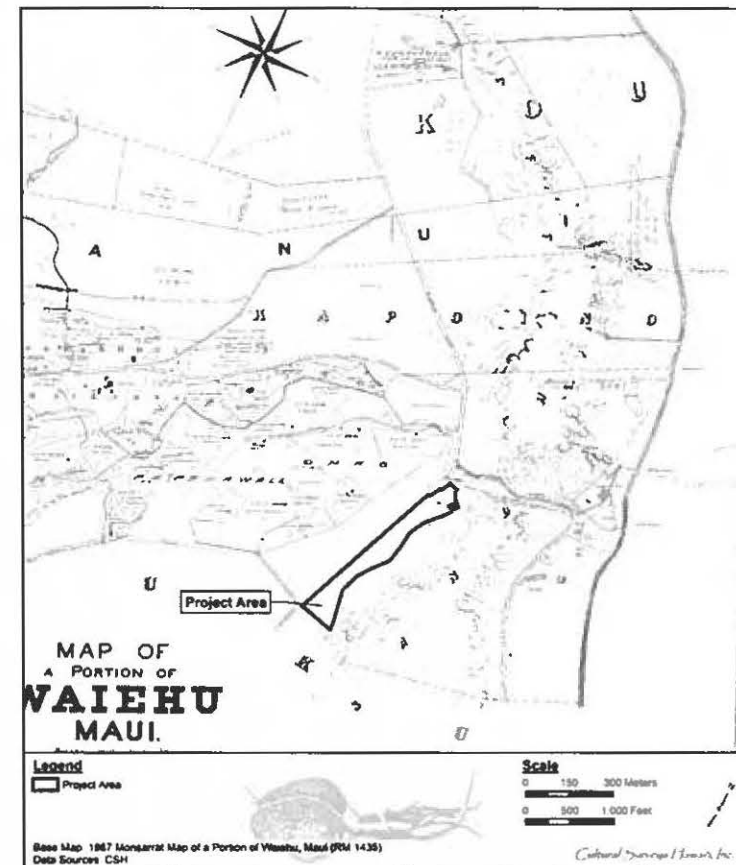


Figure 8. Portion of the Monsarrat (1867) Map of a Portion of Waiehu Maui showing numerous LCAs towards the *mauka* side and sand dunes towards the *makai* side of the project area



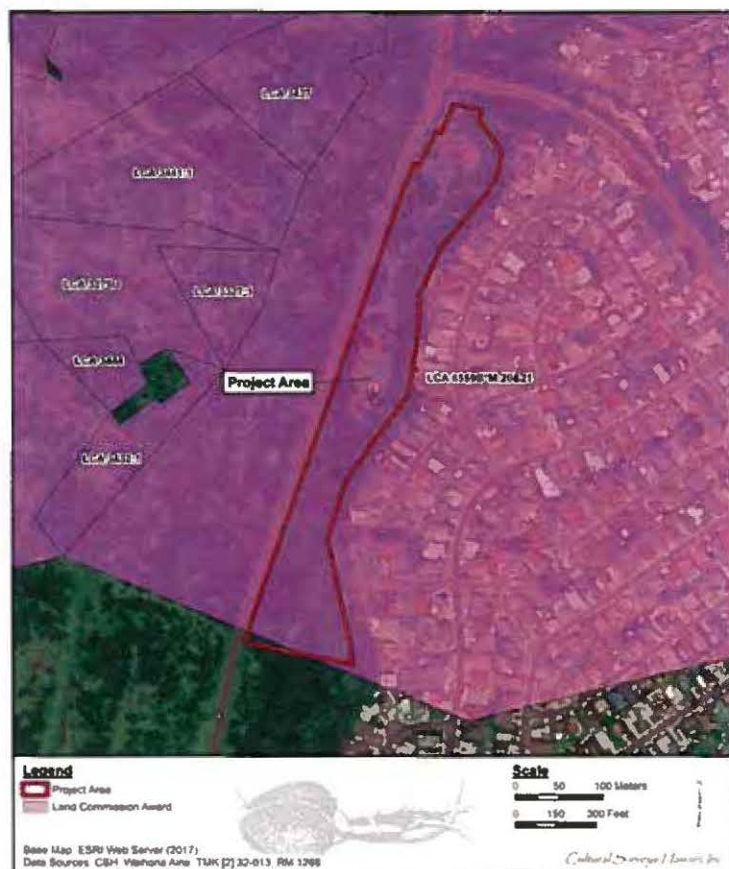


Figure 9. ESRI (2017) aerial image showing the project area and LCAs within the project area and surrounding vicinity

Table 2 indicates other LCAs within the surrounding vicinity of the project area and does not reflect all LCAs within Waiehu. As expected, many of these LCAs consist of *lo'i kalo*, pastures, house lots, and place names associated with the 'āpana.

## 4.2 Mid 1800s to 1900s

### 4.2.1 Sugar Plantation

Dorrance and Morgan (2000) wrote about the 165 years of sugar cane plantation in Hawai'i. Dorrance and Morgan (200) shared that

Early sugar makers found several varieties of wild cane: red, greenish-red, purple, green, yellow-striped, and variegated. The first Western cane farmers erected a mill amidst a large patch of cane, hired native workers, and harvested the surrounding field. The cane would be trimmed of leaves, hauled away by oxen and fed by hand into the wooden or stone grinders of an animal-powered mill. [Dorrance and Morgan 2000:4]

As the population of Native Hawaiians began to decline, the Kingdom of Hawai'i and sugar cane plantation owners began contracting workers from other countries. Prior to the overthrow of the Hawaiian Kingdom in 1893, "the Chinese, Portuguese and northern Europeans, the Japanese [...]" were among the firsts to be brought over to Hawai'i, while Filipinos were brought over after the annexation of Hawai'i in 1898 (Dorrance and Morgan 2000 4).

Throughout the years of the sugar plantation era, Maui once housed thirty-eight (38) sugar plantation companies, some short-lived, some which were bought-out by other companies, and some who were in it for the long haul.

[...] the Pacific Commercial Advertiser excitedly described a similar development occurring on the island of Maui: "What a change has taken place in Waikapu within two years! Where there were a few taro -patches... a village has sprung up with its sugar mill and buildings, its waving cane fields and busy laborers, scattering industry, thrift, and contentment everywhere. Here, where a few hundred dollar's worth of taro was formerly raised, fifty thousand dollars worth of sugar may now annually be made and sent to market [Takaki 1983:16-17]

Within the Nā Wai 'Ehā, there were two main companies, there have been multiple sugar plantation companies, some small mills to bigger enterprises.

#### 4.2.1.1 Small-scale Sugar Mill at Waiehu

George Wilfong reported in 1849 about a small-scaled sugar mill in Waiehu. This small mill is described as having a set of wooden rollers and being powered by animals.

Perhaps 18 inches in diameter and two feet long, mounted vertically and driven usually by animal power, and a series of three open try pots bought from visiting whalers. Presumably, the cane was fed by hand, the juice being simply concentrated by successive boiling in the open kettles. [Wadsworth 1936]

Table. 2. LCAs within the project area (in **bold**) and the surrounding vicinity

LCA Number	Claimant	Acreage	Land Use
3275U	Kaiolani	7.53 acres	<i>Kalo, kula, three lo'i, and a house</i>
3327:1	Naialaolao	2.36 acres	Greetings to the Land Commissioners: The Elele has said for me to state my claims for land. My house is there. At Omaa I have 3 lo'i at Omaa Two are 26 lo'i at Puupalile are 43 lo'i and one small hala tree clump. This is my little claim. A respectful farewell to the Land Commissioners. Naialaolao, Waiehu, Dec. 25, 1848
3432:1	Kula	3.53 acres	Greetings to the Land Commissioners: At Omaa are 26 lo'i, 3 hala clumps and 2 coconut trees. At Kahawai in Omaa Two are 6 lo'i, kula, and a house is there. At Puupalile are 4 lo'i. At Pahapaha is a pong named Kahakumaka. At Kuhimana is 1 lo'i. At Pahapahawale, is a small kula and the house. Omaa I, Omaa II, Puupalile 4, Pahapahawale 4. Kula, Waiehu, Dec. 25, 1848
3437	Kaliuula	6.7 acres	Greetings to the Land Commissioners: The Elele has told us to state our claims for lo'i, kula, and lauhala. At Poino are 21 lo'i, 1 kula and lauhala trees. That is my petition to you. Respectfully. Kaliuula, Waiehu 25 Dec 1847
3441:1	Kapoula	8.96 acres	Greetings to the Honorable Land Commissioners: The Elele has told us to state our claims to the Land Commissioners for our land: lo'i, kula and house lot. The land is Omaa in Waiehu. My land was from Kaliuula, a

LCA Number	Claimant	Acreage	Land Use
			total of 42 lo'i. This is my claim for land. At Kukuialaimaka are 7 lo'i. At Pahapahawale is 1 lo'i. At Halelena are 2 lo'i and 1 hala clump. That is my claim which is state d to you. Respectfully, Kapoula Waiehu, 23 Dec. 1847
3444	Kalopa, wahine	1.40 acres	Greetings to the land Commissioners: I hereby tell you of my 22 lo'i at Omaa. There are 2 dry lo'i. Kalopa, Omaa, Waiehu 28 Dec. 1847
8559B*M:20&21	Lunalilo, William C.	Approximately 2,000	Not specified

## 4.2.1.2 Waihee Sugar Company

The Waihee Sugar Company held 800 acres of land that was used for sugar cultivation, producing approximately 1,000 tons annually (Dorrance and Morgan 2000:64). Starting in 1862, Waihee Sugar Company owned and managed by Linton Torbert from 1863-1865, then Samuel Alexander and Henry Baldwin until 1969. One of the last managers of the company was Capt. James Makee. Eventually, the Waihee Sugar Company was sold to Wailuku Sugar Company and "ceased to be an independent enterprise" (Dorrance and Morgan 2000: 64-65).

At first start, the Waihee Sugar Company showed promise as the first production figures for the crop of 1865 yielded 757 tons of sugar and 45,000 gallons of molasses (Figure 10). An article published in the 3 December 1883 issue of The Honolulu Advertiser commenting on the sugar cane fields and their bright prospects mentions the opening of Waihee's Mill:

The cane is green, fresh and growing vigorously. To look over the thousands [of] acres of flowering cane ripe for the mill is a beautiful sight. The Wailuku mill after a temporary suspension, is grinding and turning out a fine quality of sugar from cane which gives a highly satisfactory yield. The Waikapu Mill is also in full blast, and I understand the Waihee will commence to-day. The planters of Maui should be in high spirits. The prospect never looked brighter. [The Honolulu Advertiser 1883 2]

Remnants of the Waihee's Mill were still standing in 1958 (Figure 11).

## 4.2.1.3 Wailuku Sugar Company

The Wailuku Sugar Company began in 1862 by a group of partners, one of them being C. Brewer & Company and managed by Rev. Edward Bailey (Dorrance and Morgan 2000:65). As the years progressed, Wailuku Sugar Company expanded its operation by acquiring neighboring plantations and possible other LCAs around the area. By 1925, many of the LCAs within the vicinity were acquired the C. Brewer & Company and the Wailuku Sugar Company (Figure 12).

By 1939 it [Wailuku Sugar Company] was producing 20,475 tons of sugar from 4,450 acres under cultivation. In the 1970s, it averaged over 30,000 tons [...] (Dorrance and Morgan 2000:66)

Throughout the years, production of sugar was morphing and started to include macadamia nuts, pineapple, and eventually consumed by urban development. By 1988, Wailuku Sugar Company shut down all its sugarcane operations (Dorrance and Morgan 2000:66).

## 4.2.2 Water Diversion

In order to maximize the growth of sugar production, many sugar plantation owners were looking for innovative ways to effectively grow and process sugar cane. Diverting water from the main water sources (streams) were being engineered as a means to help with sugar production.

In 1879, Claus Spreckels was achieved success from building the Haiku (Spreckels) Ditch linking East Maui water sources at Honomanu with his sugar fields in the central isthmus. By 1882, the Waihee's (Spreckels) Ditch was successfully engineered in West Maui, an endeavor that was not without complications:

Rapid [p]rogress is being made with the Spreckels Waihee ditch, a large dam is being constructed high up in the Waihee gulch. Tunneling through the sand hills

**1865. 1865.**

**Sugar and Molasses**

—FROM THE—

**WAIHEE PLANTATION.**

**CROP NOW COMING IN AND FOR SALE**

in quantities to suit purchasers by  
**ALDRICH, WALKER & CO.**  
452-3m

Figure 10. Advertisement for Sugar and Molasses from Waihee's Plantation in 1865 (The Pacific Commercial Advertiser 1865)

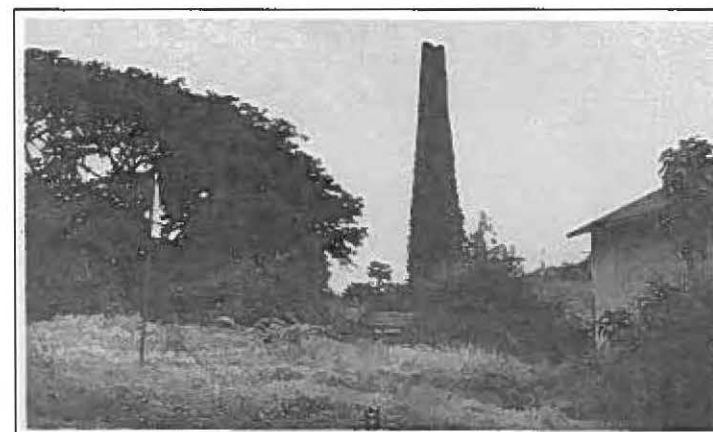


Figure 11. Smokestack and other remnants of Waihee's Mill in 1958 (HC&S Breeze 1958a)

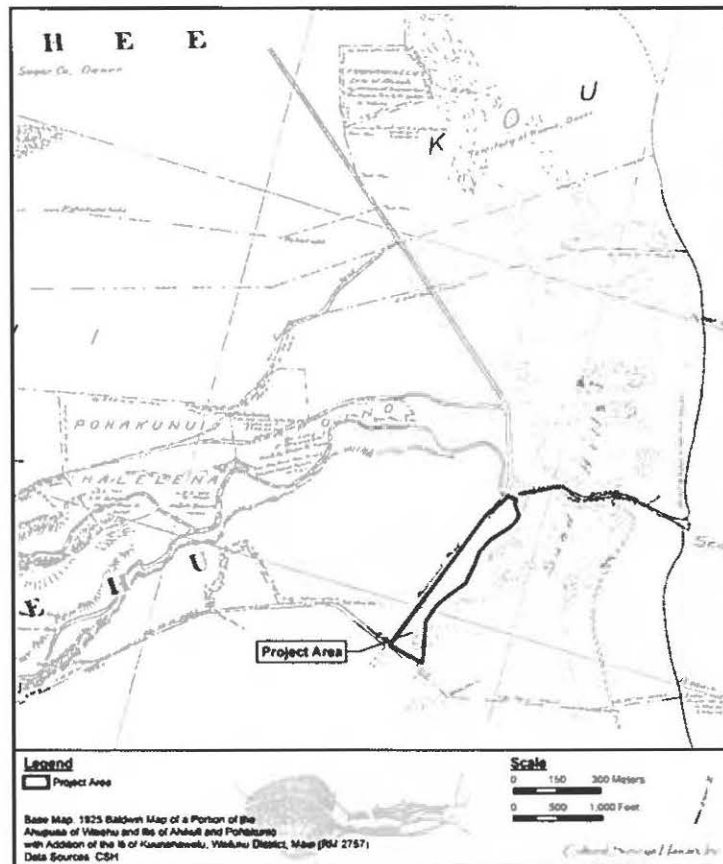


Figure 12. Portion of a Baldwin (1925) map of a portion of Waiehu Ahupua'a indicating many of the former LCAs in Waiehu had been acquired by sugar companies

was not a success, the men had finally to cut down through from the top of the hills until they got the level, then put in the pipes covered by an arched roof. The Spreckels mills now appear to be too far away from the cane, and the probabilities are that two more mills and works will be put up immediately, back of Kahului, distant about one and half miles. [The Honolulu Advertiser 1882:2]

The 15-mile-long ditch started at the 435 foot elevation of the Waihe'e Stream, and carried 60 million gallons of water per 24-hour day (mgd) to the Wai'ale Reservoir at the 214 foot elevation. In 1882, millions of gallons of water were released for Waikapū sugar fields (Adler and Spreckels 1966). Spreckels became the first to irrigate his fields by water from both the East and West Maui mountains (Wilcox 1996).

However, this new diversion of water created an issue amongst the residents of not only Waiehu, but all of Maui. By diverting waters from the freshwater streams, many Native Hawaiians were left with very little to no water to sustain their lands. A Native Hawaiian *kama'āina* of Kula, Maui wrote about concerns of the sugar plantation industry to *Ka Nupepa Kuoka*, a Native Hawaiian newspaper.

*Auwe! Pau Wailuku i ka mahiko. Ua hiki mai ma ko makou nei keena hana, he palapala na S. D. Hakuole, o Kula, Maui, e hai mai ana i ka pau loa o ka aina o Wailuku i ka mahina i ke ko. A ke hai hou mai nei no ke hoomaloo ia nei na loi kani kalo oe na haole, i wai e kanu ai i ke ko. A ke makau nei oia, e pau ana ka ai ana o na kanaka oia wahi i ka ai ana i ka poi, a e ai wale aku ana no paha i ka balena oolea hoeha niho, a [ ] palaoa mama e maona ole aku na kanaka Hawaii. Oia ua maa na kanaka i ka ai i ka poi. [Ka Nupepa Kuokoa 1866]*

A letter by S.D. Hakuole, of Kula, Maui arrived at our office, declaring that the land of Wailuku is being lost due the cultivation of sugarcane. Furthermore, he states the current condition of once cultivated taro patches being dried up by the foreigners, where they are now planting sugarcane. Also, he fears that Hawaiians of that place will no longer be able to eat poi, and that there will probably only be hard crackers which hurt the teeth when eaten, a cracker to snack on, but does not stratify the hunger of the Hawaiian people. Let it be known that the Hawaiian people are accustomed to eating poi. [Translation provided by Hui o Nā Wai 'Ehā n.d.]

Another article from *Ka Nupepa Kuokoa* stated that

*No Waikapu holookoa. He maikai no ka noho ana o ka aina; eia nae, ua hapa ka ulu nui ana o na mea kanu, no ka uuku o ka wai, i ka ua mea he nui o ka wela o ka la i keia mau la. Ua maloo na loi kalo, nakakaka ka lepo. O ka mahiko o Waikapu nei, aohe no he maloo o ke ko, no ke kamau iki no o kahi wai, a ke maloo uuku mai nei nae ma ke kauwahi. [Ka Nupepa Kuokoa 1872]*

Waikapū is a pleasant place to live however the plants only grow half as well because of the insufficient supply of water, due to the drought these days. Taro patches have dried up, the earth has cracked. The sugarcane belonging to the plantation here in Waikapū has not dried up because they have a little water. Only in a few places do they dry. [Translation provide by Hui o Nā Wai 'Ehā n.d.]



An article within *Ka Lahui Hawaii* in 1876 describes the river of Wailuku being spread out to reach the *lo'i kalo* that stretch from ocean to the cliffs. The article then describes the affect of *lo'i kalo*, the emergence of sugar cane, and the selling of land to foreigners.

*'(O) Wailuku ke kahawai i palahalaha no ka mai kala ana, no ka mea, he nui na kau papa loi, mai kai mai o Nehe, a komo i uka o na pali o Iao. I keia wa nae, ke hookamaaina maila ke ko, ma kahi o ke kalo, a ke ne mau maila ke ko e hoopiha i na loi. Me he mea la, he mau makahiki hou aku i koe, e pau loa ana paha na loi kalo, a he ko wale no. E lua no nae kumu e koe ai ka aaina aoie paa i ke ko. 1. O ke aloha i ka poi kalo, ka ai makuahine o keia aina. 2. O ka aua i ka aina taro, aoie e kuai a hoolimalima aku me ka haole. [Ka Lahui Hawaii 1876]*

Wailuku is the river that is spread out for the farming of taro, because, the taro patches are many, from the ocean of Nehe, entering the cliffs of Iao. However in this period of time, sugar is becoming acquainted with instead of taro, and sugarcane is nagging to fill the taro patches. It is as if there are a few years left and all the taro patches will be gone and there will only be sugarcane. 1. Love for poi from taro, the mother food of this land. 2. The withholding of taro land, not to be sold or leased to the foreigner. [Translation provided by Hui o Nā Wai 'Ehā n.d]

A newspaper article published in 1883 mentions "rumors of a big water suit ahead, of the people Kuleana holders of Waiehu against Sir Claus Spreckels" (The Honolulu Advertiser 1883:2). Wailuku Sugar Company took over Waihe'e Plantation in 1895, at which time, Waihe'e (Spreckels) Ditch became a source of conflict and legal action.

The diversion of water to feed the sugar plantations created a shift in the livelihood of the residents of Maui, especially those living in Nā Wai 'Ehā (Waikapū, Wailuku, Waiehu, and Waihe'e). Established in 2003, Hui o Nā Wai 'Ehā is an organization that was established and is determined to "address the negative impacts caused by dewatering of Nā Wai 'Ehā Streams by Sugar Plantations and corporate water companies" (Hui o Nā Wai 'Ehā, n.d).

As the plantation industry began to flourish in Nā Wai 'Ehā, then began the demise of the cultural landscape and Hawaiian way of life. Many families had to leave their homes and farmlands because the stream water resources that sustained them had diminished or completely disappeared. [Hui o Nā Wai 'Ehā n.d]

#### 4.3 Mid to Late 1900s

Much of land within and around the current project area was planted in commercial sugarcane until the late 1970 (Figure 13 through Figure 15) when there was a shift of plans to produce macadamia nut crops in the Waihe'e and Waiehu areas (Tanji 1979a). Nearly 2,000 acres would be dedicated to macadamia nut crops. It was anticipated that by full production, these crops would yield about 7,000 pounds of macadamia nuts per acre while the Wailuku Sugar Company will still maintain 3,100 acres of land for sugarcane production. By 1988, the Wailuku Sugar Company mill closed after 125 years of sugar operation.

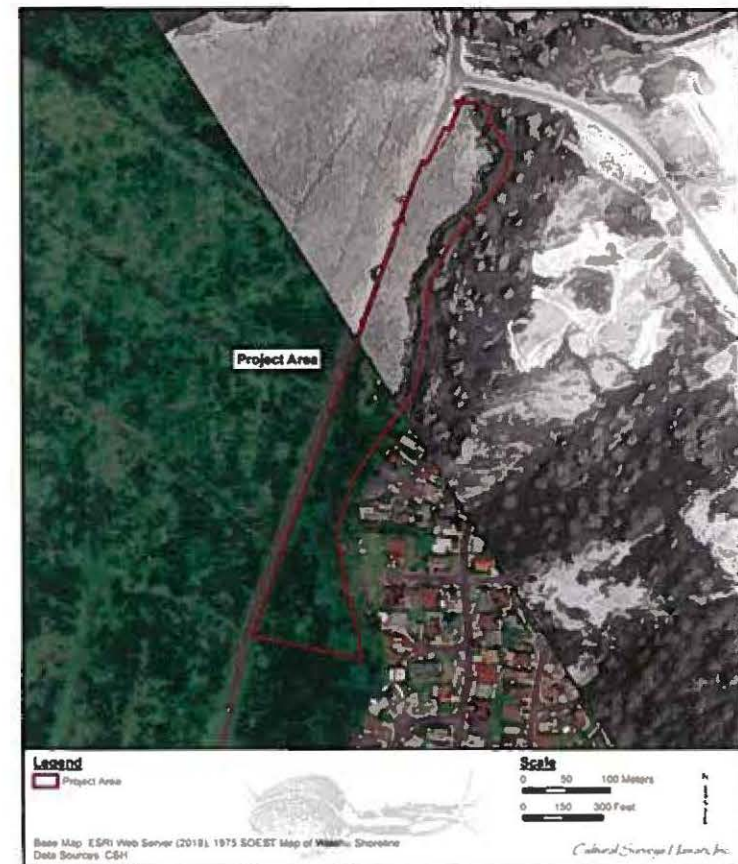


Figure 13. ESRI (2018) aerial image of the project area with a partial overlay of a 1975 photo (School of Ocean and Earth Science Technology [SOEST]) indicating the northern portion of project area with sugarcane



Figure 14. Aerial image showing the sugarcane fields and development around the project area in 1977 (U.S. Geological Survey 1977)

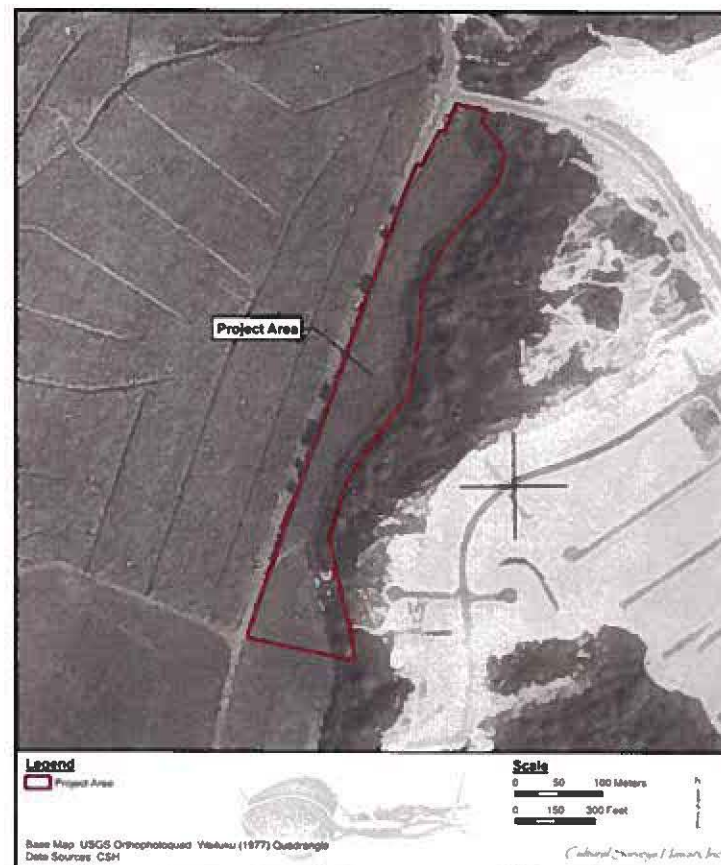


Figure 15. Zoomed in 1977 aerial image indicating project area and growth of sugarcane and other natural vegetation



#### 4.3.1 Wailuku Agribusiness/Hawaiian Sugar and Company

The Wailuku Sugar Company transformed into the Wailuku Agribusiness and incorporated other productions such as macadamia nuts, pineapples, as well as leasing of lands to other companies (Hui o Nā Wai 'Ehā, n.d).

Macadamia nuts were commercially farmed at the current project area until at least the end of the twentieth century, however, processing cost were high as the macadamia nuts needed to be shipped to O'ahu for processing. The cost to ship and process as well as the loss of macadamia nuts due to damage made for lesser yield than previously projected (The Honolulu Advertiser 1999). Unfortunately, signs for growth were not seen for Wailuku Agribusiness. An article published in the Honolulu Star-Bulletin dated 30 December 1999, shared that Wailuku Agribusiness Co. was shutting down its macadamia nut operations, stating that "the closure not only represents a loss of jobs, but is another sign of the challenge of running an agricultural operation in Hawai'i" (Honolulu Star-Bulletin 1999). Wailuku Agribusiness began with 128,982 trees on 1,329 acres. Today only 66,674 trees on 678 acres are healthy. Formerly known as Wailuku Sugar Co., the venture grew sugar cane in central Maui for 116 years before decided to diversify and close its Wailuku Sugar Mill. Macadamia nuts were planted on land between Iao and Waihee valleys, and pineapple in other areas. Chumbly, a state senator from Maui, said the company is no longer a corporate farmer, but is "more of a landlord" for 23,000 acres of land it leases out for sugar and pineapple cultivation, and other activities. [Honolulu Star-Bulletin 1999]

In 2001, Wailuku Agribusiness sold 5,000 acres of prime agricultural lands to developers. However, "instead of returning the diverted water back into the streams, the plantation ditch and stream diversion system were retained by a new company that was formed in 2004 named Wailuku Water Company" (Hui o Nā Wai 'Ehā, n.d).

Wailuku Water Company as well as other large land ownership companies, such as the Hawaiian Sugar and Commercial Company still maintain control and access to most of the water systems and streams.

As of 2009, water continued to be diverted from streams in the Nā Wai 'Ehā area for sugarcane irrigation in central Maui by Hawaiian Sugar and Commercial Company, for municipal and domestic uses, golf-course and landscape irrigation, maintaining pastures for cattle grazing, and other agricultural uses. [Okī et al. 2010:130]

#### 4.4 Late Twentieth Century to Present

A Google Earth image from 2010 indicated what resembles a small-scale agricultural operation, which included access roads and an above ground water tank/reservoir (Figure 16). By 2013, there is noticeable land clearings, agricultural plots, access roads, paved areas, and structures (Figure 17). By 2016, the agricultural operations seems to have dwindled and/or ceased with some of the previous cleared and paved area now covered with natural vegetation (Figure 18).



Figure 16. Aerial photo showing the project area in 2010 with groves of macadamia nut trees as well as what appears to be the beginning of an agricultural endeavor with access road and above water/reservoir (Google Earth 2010)





Figure 17. Aerial photo showing project area in 2013 with access roads, paved areas, structures, and agricultural plots (Google Earth 2013)

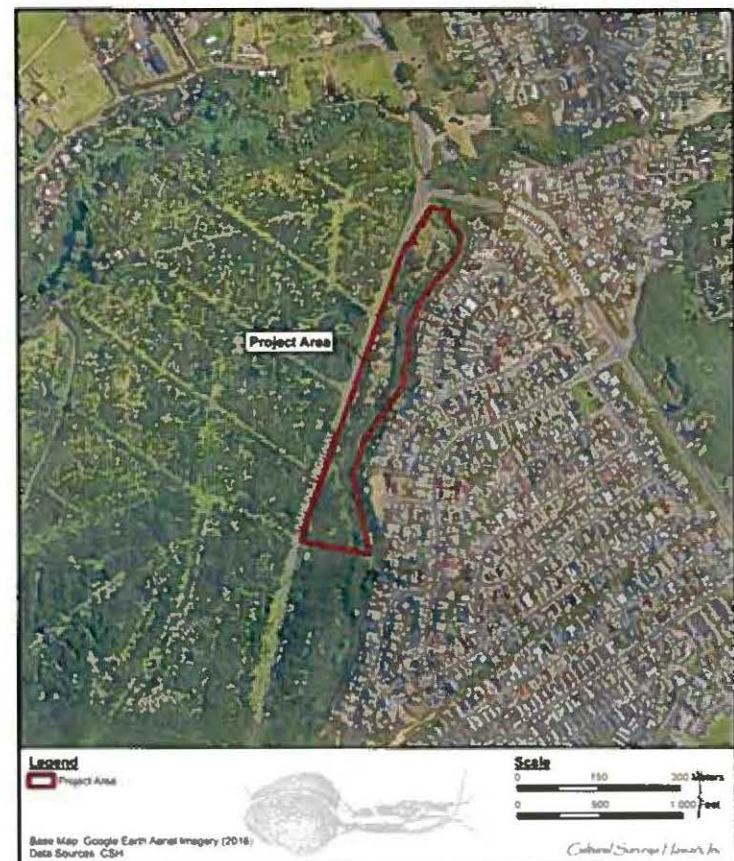


Figure 18. Aerial photo showing project area in 2016 (Google Earth 2016)



Many residents of Maui continue to fight for water rights and water access. An article in The Guardian published on 28 April 2016 stated that:

Access to Maui's water resources is another big issue. Farmers on East Maui are trying to prevent A&B from making permanent the water use permits that have kept sugar cane bountiful and would be needed for their future diversification plans. On the west side, farmers are trying to reclaim access to streams that have been dammed and diverted for others including sugar company. Hokuao Pellegrino's eco farm sits right next to one of the streams; it used to roar down the nearby mountain and out into the ocean but is now more sedate. He claims that the water and sugar companies have been water-banking for years and preventing farmers growing taro [...]. [The Guardian 2016]

In 2015, the Hawai'i Supreme Court ruled against the State Commission on Water Resource Management and provided clarity on decades-long issues with water diversion in central Maui which includes the streams in Nā Wai 'Ehā. The decision that was made required the State Commission on Water Resource Management to uphold the laws on traditional and customary Native Hawaiian practices at streams as well as provide steps to protect these practices.

As Native Hawaiian farmers and others pivot towards their next steps, all eyes are starting to focus on just how much water will be put back into the Waihe'e River as well as the Waiehu, 'Iao, and Waikapu streams, which together are known as Nā Wai 'Ehā or "The four great waters." But the Nā Wai 'Ehā case is just one of many struggles between plantations and farmers that for years have been undermining the rights that the Hawai'i Supreme Court has found to be fundamental under the State Constitution. [Kamakako'i n.d.]

## Section 5 Previous Archaeological Research

### 5.1 Previous Archaeological Research

Winslow M. Walker Walker (1931) conducted the earliest systematic archaeological study of the Waihe'e area, which expanded earlier work for the Bernice Pauahi Bishop Museum by John F.G. Stokes (1916) and Thomas G. Thrum (1908, 1916, 1917, 1918) that focused on generating descriptive lists of traditional Hawaiian ceremonial structures (i.e., *heiau* and *ko'a*). The earliest sites documented included traditional cultural burials on the long sandy ridge near the shore northeast of Waihe'e Village, an adze grinding stone at Wawaakanaka, eight *heiau* at Waihe'e, and a former fishpond at Kapoho, northeast of Waihe'e Village. Walker (1931:71) also observed active taro fields and terraces in Waihe'e.

In Waiehu, Walker (1931) identified five *heiau*: Halelau (Site 37), Kamakoa (Site 38), Malumaluakua (Site 39), Kukuikomo (Site 40), and Puukoa (Site 41). Sites 37 and 41 were both reported as destroyed. Site 38 was identified "in a grove of eucalyptus at about 600 ft. elevation" as "a group of curiously eroded stones which may have had sacred significance, but no trace of walls" was observed; this site was "[s]aid to be place of King Kamakokole where drums were heard on night of Kane" (Walker 1931:141). Walker (1931:142) describes Site 39 as "a level spot without evidences of walls or platforms" surrounded by a "grove of kukui trees" with a "large rock in the center [that] may have served for sacrificial purposes." Site 40 was identified as "[a]nother *heiau* without walls or platforms" located "on a ridge between North and South Waiehu Gulches" (Walker 1931:143). Kawailana, an 88-years-old native informant, related to Walker (1931:142) that "the *heiaus* near Waiehu were all built by Kahekili to Kane, and men and pigs were laid on the lele. In this region a *heiau* seems to mean merely a sacred spot not marked necessarily by either walls or platforms of stone." All *heiau* recorded by Walker (1931) in Waiehu were identified west and beyond the immediate vicinity of the current project area.

Between 1931 and 1976, only sporadic archaeological studies were undertaken in the Waiehu area. The National Historic Preservation Act in 1966 and HRS Chapter 6E, which established the Historic Preservation Program in 1976, mandated the historic preservation review of potential effects of proposed state projects (HRS 6E-8) and any project involving a permit, license, certificate, land use change, subdivision, or other entitlement for use, which may affect historic property (HRS 6E-42). Following the passage of the Act, archaeological studies occurred as a condition of development on a more frequent basis. However, only a few studies have been conducted within the project area vicinity (Table 2 and Figure 19). No historic properties have been previously identified within the current project area. Historic properties documented in the vicinity include confirmed and potential human burials, traditional and historic agricultural and habitation features (Figure 20).

#### 5.1.1 Han (1982)

From 4 through 12 June 1981, Bernice Pauahi (B.P.) Bishop Museum conducted archaeological salvage excavations and mapped six sites in a portion of the Waiehu dune area (Han 1982), now known as Oceanview Estates Subdivision, which is northeast of the current project area. This study was a follow-up to a previous B.P. Bishop Museum archaeological reconnaissance conducted in 1978 to test traditional claims that the area contained ancient burials and a limestone quarry.

Table 2. Previous archaeological studies within the project area (in **bold**) and vicinity

Reference	Type of Study	Location	Results (SIHP # 50-50-04-####)
Han (1982)	Archaeological salvage excavations	Oceanview Estates Subdivision	Identified four Bishop Museum sites: Ma-C10-17, limestone quarry, Ma-C10-18 and -19, human remains, and Ma-C10-20, scattered shell midden/possible materials work area; further investigated previously identified Bishop Museum Site Ma-C10-15, human burial, and Ma-C10-16, terraced wall/historic habitation area
Kennedy (1989)	Archaeological walk-through reconnaissance survey	Wailuku Project District #3 and Pihana Project District #2 lands, which included a southern portion of the current project area	Identified SIHP # -2985, rock mound/ possible burial, just outside southeast corner of current project area; also identified SIHP # -2986, likely Chinese grave with marker, SIHP # - 2987, a small agricultural terrace complex, and Mahalani Cemetery (no SIHP #) further south (not seen on Figure 20)
Estroko-Griffin (1990)	Field Inspection	Waiehu Development Increment C	Examined SIHP # -2986 (likely grave marker) previously identified by Kennedy (1989) and inspected a burial exposed near a sand pit and other reported burials (all south of current project area vicinity/not depicted on Figure 20)
Folk and Hammatt (1992)	Archaeological survey and subsurface testing	Waiehu Beach Lots	Identified SIHP # -3115, two buried charcoal lenses radiocarbon dated from the 14th to 17th century
Fredericksen and Fredericksen (1999)	AIS	Waiehu Kou 2 Residential Development	Identified SIHP # -4731, a pre-Contact habitation area with two associated human burials (north of current project area vicinity/not depicted on Figure 20)
Donham (2003)	Archaeological inspection/assessment	1376 Kaka'e Place, Oceanview Estates	No historic properties identified
Dega (2003)	Archaeological monitoring	921 Kualoa Place	No historic properties identified

Reference	Type of Study	Location	Results (SIHP # 50-50-04-####)
Wilson and Dega (2004)	AIS	Approximately 240 acres across Kahekili Highway from the current project area	Identified six historic properties, SIHP # -5522 -5527, and further documented previously identified SIHP # -1508, Spreckels Ditch; four were of these SIHPs were identified in the current project area vicinity: SIHP # -5522, sugarcane agriculture modifications, SIHP # -5523, basalt debitage; SIHP # -5524, isolated <i>Comus sp.</i> shell, and SIHP # -5525, clearing terrace and mound
Madeus and Fredericksen (2005)	AIS	2-acre parcel on Malaihi Road	Identified SIHP # -5739, a pre- and post-Contact agricultural and habitation complex; mentions SIHP # -4759, a habitation area remnant with three possible burials, which was identified by Xamanek Researches in a separate AIS conducted north of the project area (see Figure 20)
Dega (2006)	Archaeological monitoring	955 Puuloa Street	No historic properties identified
Lee-Greig et al. (2006)			Identified SIHP # -6081, historic era agricultural/habitation complex; SIHP # -6082, traditional/ historic cultural material scatter; and SIHP # -6083 is an abandoned <i>auwai</i> ; further documented four features of SIHP # -5739 previously identified by Madeus and Fredericksen (2005)
Shefcheck and Dega (2008)	AIS	Current project area	No historic properties identified.

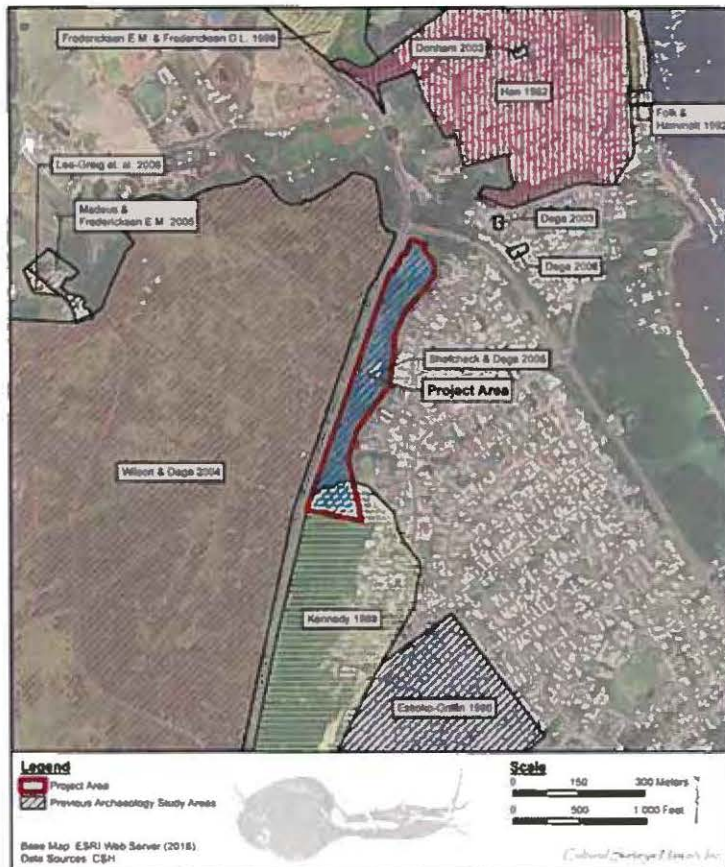


Figure 19 Esri (2018) aerial image showing previous archaeological studies conducted within the project area and vicinity



Figure 20 Esri (2018) aerial image showing the project area and locations of previously identified historic properties in the vicinity



Historic properties identified during both studies were initially designated Bishop Museum site numbers and were later designated SIHP #s. During the 1978 study, a human burial and a walled terrace were identified and designated as Bishop Museum Sites 50-Ma-C10-15 (SIHP # 50-50-04-2970) and 50-Ma-C10-16 (SIHP # -2971), respectively; a limestone quarry was not identified with any certainty at that time. During the excavations conducted in 1981, four additional sites were identified: 50-Ma-C10-17 through -20/ SIHP #s -2972 -2975. Site 50-Ma-C10-17 (SIHP # -2972) is the locus of the reputed limestone quarry. Sites 50-Ma-C10-18 and -19 (SIHP #s -2973 and -2974) are both scatters of fragmented human remains, and Site 50-Ma-C10-20 (SIHP # -2975) is a scattered shell midden and possible materials work area. At Site 50-Ma-C10-15 (SIHP # -2970), a human burial in a flexed position was disinterred during the 1981 study. Further investigation at Site 50-Ma-C10-16 (SIHP # -2971), walled terrace, determined the site to be an early to mid-1900s historic habitation area. In addition, an approximately 11.5-acre possible ancient fishpond (SIHP # -2976) was documented at the northeast corner of the subdivision (not depicted on Figure 20).

#### 5.1.2 Kennedy (1989)

Between 1 and 7 January 1983, Archaeological Consultants of Hawaii, Inc. (ACH) conducted an archaeological walk-through reconnaissance survey (Kennedy 1989), which included a southern portion of the current project area. No historic properties were identified within the current project area; however, SIHP # -50-50-04-2985, a small rock mound interpreted as a potential burial site, was documented near the southeast corner of the project area (see Figure 20). In addition, ACH identified SIHP # -2986, a likely Chinese grave with a 'typically Chinese' marker (Kennedy 1989:5), SIHP # -2987, a small agricultural terrace complex, and Mahalani Cemetery (no SIHP #) further south, away from the immediate vicinity of the current project area (i.e., not depicted on Figure 20).

#### 5.1.3 Estioko-Griffin (1990)

On 14 December 1990, the SHPD conducted a field inspection at Waiehu Development Increment C, a Housing Finance and Development Corporation (HFDC) construction site in Paukukalo (Estioko-Griffin 1990). The inspection included an examination of burials exposed at a sand mining pit and another area in which bone fragments were exposed during grubbing. In addition, a reported 'Japanese' grave previously identified by Kennedy (1989) as a likely Chinese grave (SIHP # -2986) was inspected. At least one individual within a burial pit was exposed "along the steep face of the sand mining pit" (Estioko-Griffin 1990:1). Due to safety concerns, mechanical excavation was recommended. An analysis of previously exposed fragments identified both animal and isolated human skeletal elements in an area also containing recent refuse. Subsurface testing was not recommended by the SHPD in this area, since it was slated to be filled with 20 to 30 ft of sand. Archaeological monitoring of grubbing with "small equipment" and "slow and controlled" grading was recommended for the area near where the burials were exposed (Estioko-Griffin 1990:2). The SHPD recommended that the marked Japanese or Chinese burial be relocated. No SIHP #s were identified in the immediate vicinity of the current project area (i.e., not depicted on Figure 20).

#### 5.1.4 Folk and Hammatt (1992)

CSH conducted an archaeological survey and subsurface testing of Waiehu beach lots along the coast northeast of the current project area (Folk and Hammatt 1992). The study included a pedestrian survey and subsurface testing of nine trenches excavated by backhoe. No cultural

remains were identified during the surface survey. Two buried charcoal lenses were encountered

during subsurface testing and designated SIHP # 50-50-04-3115. Radiocarbon analysis dated the lenses from the 14th to the 17th century. No cultural materials were observed in association with SIHP # -3115 or elsewhere during the study. No further archaeological work was recommended.

#### 5.1.5 Fredericksen and Fredericksen (1999)

Between March and May 1999, Xamanak Researches conducted an archaeological inventory survey (AIS) of an approximately 1,110-m long by 18-m wide drainage and diversion easement corridor for the Waiehu Kou 2 Residential Development Project (Fredericksen and Fredericksen 1999). The AIS included a 100 percent pedestrian survey of the corridor and subsurface testing within the corridor and portions of two adjacent proposed retention basins. Seventy mechanically-excavated trenches and 18 manually-excavated units were tested. One historic property was identified during the study: SIHP # 50-50-04-4731.

SIHP # -4731 is interpreted as an extensive, pre-Contact habitation area, which is located along the mauka side of a large, coastal sand dune north of the current project area. During the AIS, two human burials, one child and one adult, were identified as associated with SIHP # -4731. A dog burial was also encountered within a test unit. Artifacts recovered during the study include lithics (flakes, cores, adze fragments, etc.), worked bone pieces and tools associated with fishhook manufacturing, shells and a drilled pig's tooth for adornment, over 300 pieces of volcanic glass, a fish bone awl and picks, and a "utilized shark tooth" (Fredericksen and Fredericksen 1999:53). Radiocarbon analyses of four charcoal samples indicate that SIHP # -4731 was inhabited from the 13th century through the 18th century. SIHP # -4731, deemed significant under Criteria A, D, and E, is located north, beyond the vicinity of the current project area (not depicted on Figure 20).

#### 5.1.6 Donham (2003)

On 24 June 2003, Akahale Archaeology conducted an archaeological inspection for modification of a dwelling at 1376 Kakae Place in Oceanview Estates (Donham 2003). No historic properties were identified. Per consultation with the SHPD, the negative findings were published in an archaeological assessment report.

#### 5.1.7 Dega (2003)

On 15 September 2003, Scientific Consultant Services, Inc. (SCS) conducted archaeological monitoring of residential construction on a parcel of private property 921 Kualoa Place (Dega 2003) within a neighborhood northeast of the present project area. SCS monitored the excavation of approximately 25 linear meters (80 linear ft) of trenches measuring approximately 60 cm (2 ft) wide with a maximum depth of 30 cmbs (approximately 12 in). No historic properties were encountered. Observed stratigraphy consisted of two stratigraphic layers: a silty clay fill overlying naturally deposited Jaucus sand. Full-time archaeological monitoring was recommended for any additional ground-disturbing projects within or near the parcel due to the known cultural sensitivity of the area, which includes nearby previously identified human burials.

#### 5.1.8 Wilson and Dega (2004)

In 2004, SCS completed an archaeological inventory survey (AIS) of approximately 240 acres in Waiehu (Wilson and Dega 2004). This study area is located west of the current project area, on



the opposite, *mauka* side of Kahekili Hwy. The AIS included a 100 percent pedestrian survey and subsurface testing of mechanically-excavated trenches and manually-excavated test units. Six historic properties were newly identified: SIHP #s 50-50-07-5522 through -5527. In addition, one previously identified historic property, SIHP # -1508 (Spreckels Ditch), was also documented during the study.

SIHP # -5522 is described as sugarcane agricultural modifications. SCS identified seven cane field features comprising SIHP # -5522: 1) drainage ditch; 2) erosion control agricultural berms; 3) drainage ditch/ swale; 4) irrigation ditch with associated boulder mound; 5) motorized vehicle access dirt road; 6) piggery access dirt road; and 7) access graded dirt road. SIHP # -5523 represents an isolated lithics find of basalt debitage consisting of an interior flake, a polished flake, and a piece of volcanic glass. SIHP # -5524 marks the location of a worn, single, isolated *Conus* sp. shell interpreted as historic midden material; however, testing of the site was not conducted, and no other cultural materials were identified in association with the shell. SIHP # -5525 is a terrace and mound resulting from cane field clearing; SIHP # -5526 is the concrete and cinder block foundation remnants of a piggery; and SIHP # -5527 is a terrace complex consisting of five terraces likely associated with early historic agriculture.

No additional archaeological work was recommended for the historic properties identified during the study. SCS recommended archaeological monitoring for any land alterations occurring within 50 m (164 ft) of Kahekili Highway and noted a greater potential for encountering human burials within the northeastern portion of the study area, which is near cemeteries and sand dunes known to contain human burials.

#### 5.1.9 Madeus and Fredericksen (2005)

In August 2005, Xamanek Researches, LLC conducted an AIS of approximately 2 acres fronting Malahni Road and Waiehu Stream (Madeus and Fredericksen 2005). The study included a 100 percent pedestrian survey and the manual excavation of two 50 cm by 50 cm test units. One historic property was identified: SIHP # -50-50-04-5739, an agricultural and habitation complex consisting of 43 features. Thirty-five of these features are considered pre-Contact agricultural features used subsequently post-Contact, while the remaining eight features are interpreted as post-Contact features. Function determinations include 38 features used for agriculture and animal husbandry (35 agricultural terraces, one *auwai* (irrigation ditch), a concrete water trough, and a concrete animal pen or horse stable), four habitation features (historic house, two historic garages, and a sewer tank depression), and one feature of indeterminate function. The latter feature was a scatter of beach materials consisting of coral, cobbles, pebbles, and shell, which appeared to be imported during historic habitation, possibly for yard beautification purposes. No further archaeological work was recommended for the house, terraces, husbandry features, and scatter; the landowner agreed to preserve these features. Precautionary archaeological monitoring was recommended for ground disturbance associated with proposed construction on the parcel.

Within the previous archaeology discussion section of the AIS report, Madeus and Fredericksen (2005) discuss an AIS of the Waiehu Kou off-site sewer line previously conducted by Xamanek Researches in the year 2000. Neither CSH nor the SHPD has been able to locate the original report for this study. It is mentioned here since SIHP # -4759, "interpreted as a low-density habitation area remnant, which has at least 3 probable precontact burials associated with it," was identified

approximately 150 m (492 ft) north of the current project area (Madeus and Fredericksen 2005:12). (see Figure 20).

#### 5.1.10 Lee-Greig et al. (2006)

In 2006, CSH conducted an AIS of an approximately 0.50-acre private property on Malahni Road (Lee-Greig et al. 2006) in a residential area west of the current project area. The study consisted of a surface survey and subsurface testing. Three historic properties were newly identified: SIHP #s -6081 through -6083. SIHP # -6081 is a historic era agricultural and habitation complex consisting of seven features, which include a lotus pond, a planting circle, habitation remnants represented by low terraces and a surface scatter of cultural materials, a water control feature, and a paved area of indeterminate function. SIHP # -6082 is a cultural material (traditional and historic) scatter of indeterminate function. SIHP # -6083 is an abandoned *auwai*. In addition to identifying the aforementioned historic properties, CSH further documented four features (three earthen terraces and one *auwai*) of SIHP # -5739 previously identified by Madeus and Fredericksen (2005). CSH determined that information available from the historic properties identified during the AIS were adequately recorded; as such, the project specific effect determination was "no historic properties affected," and no additional archaeological work was recommended (Lee-Greig et al. 2006:62).

#### 5.1.11 Dega (2006)

On 9 May 2006, SCS archaeologically monitored a private residential construction project on a parcel at 955 Puuloa Street (Dega 2006) in a neighborhood northeast of the current project area. All excavations for the project consisted of three foundation trenches, which were manually excavated. These approximately 30-cm (12-in) wide trenches were excavated to a maximum depth of 50 cmbs (approximately 20 in). Two trenches were approximately 10 m (33 ft) long, while the third trench measured approximately 8 m (26 ft) in length. No historic properties were identified. Two stratigraphic layers were observed: top soil fill overlying naturally deposited Pu'uone sand. Due to the cultural sensitivity of the general area, including the nearby previous identification of human burials, SCS recommended full-time archaeological monitoring for any future ground-disturbing activities within or near the parcel.

#### 5.1.12 Shefcheck and Dega (2008) (current project area AIS)

From 29 October through 2 November 2007, SCS conducted an AIS of the current 11.5-acre project area (Shefcheck and Dega 2008). The study included a pedestrian survey of the entire project area and representative subsurface testing of 17 mechanically-excavated trenches. At the time of the AIS, the parcel was vacant and scattered throughout with modern trash; the western portion of the project area contained "a grove of macadamia nut trees (*Macadamia integrifolia*)" within a "pre-existing macadamia nut orchard" (Shefcheck and Dega 2008:5). SCS noted that the area had previously been mined for sand by Hawaiian Cement and that the project area was used to stockpile materials during the construction of Waiehu Heights Subdivision. No historic properties were identified at or below the surface.

Two general patterns of stratigraphy were observed across the project area. Stratigraphy observed in the north portion of the project area consisted of a very dark grayish brown silt loam at 0 to 40 cmbs overlying a brown silt from 40 cmbs to base of excavation (BOE). Observed stratigraphy in the southern portion of the project area consisted of three strata: a very dark grayish

brown silt loam at 0 to 10 cmbs atop a brown silt extending from 10 to 120 cmbs overlying pale brown silty sand, identified as an original deposit of pu'uone sand, at 120 cmbs to BOE.

SCS recommended the following for the current project area:

The presence of sandy matrix and the high number of burials and other culturally significant subsurface deposits in the surrounding area suggest the likelihood for the discovery of archaeological sites, such as burials and/or habitation sites, in the subsurface deposits of the project area. Thus, a program of Archaeological Monitoring is recommended as a precautionary measure during all construction related ground altering activities [Shefcheck and Dega 2008:18]

## Section 6 Community Consultation

### 6.1 Introduction

Throughout the course of this assessment, an effort was made to contact and consult with Native Hawaiian Organizations (NHO), agencies, and community members including descendants of the area, in order to identify individuals with cultural expertise and/or knowledge of the *ahupua'a* of Waiehu. CSH initiated its outreach effort in June 2020 through letters, emails, and/or telephone calls. CSH completed the community consultation in October 2020.

### 6.2 Community Contact Letter

Letters (Figure 21 and Figure 22) along with a map, an aerial photograph, and floor plans of the project were mailed with the following text:

At the request of Highridge Costa Development Company (HCDC), Cultural Surveys Hawai'i, Inc. (CSH) is conducting a Cultural Impact Assessment (CIA) for the Waiehu Affordable Housing Development Project, Waiehu Ahupua'a, Wailuku District, Maui Island, TMK: [2] 3-3-001:106. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) topographic quadrangle map, a 2018 aerial photograph, and Tax Map Key [2] 3-3-01.

#### Proposed Project

The 100% affordable housing project will involve the construction of 120 residential units including 28 1-bedroom units, 64 2-bedroom units, and 28 3-bedroom units as well as a 6,262 ft<sup>2</sup> non-profit building, a 3,600 ft<sup>2</sup> community center, two parking stalls per each residential unit (240 total stalls), and 12 additional stalls for to the community center. The project is being developed in cooperation with Maui Economic Opportunity, Inc. (MEO) and Hale Mahaolu. The project will focus on providing housing for Maui residents earning 60% or less of the area median income.

#### Purpose of the CIA

The purpose of the CIA is to gather information about the project area and its surroundings through research and interviews with individuals that are knowledgeable about this area. The research and interviews assist us when assessing potential impacts to the cultural resources, cultural practices, and beliefs identified as a result of the planned project. We are seeking your *kōkua* (assistance) and guidance regarding the following aspects of our study:

Cultural Surveys Hawai'i, Inc.  
Archaeological and Cultural Impact Studies  
Hallett H. Hamann, Ph.D., President

1860 Man Street, Wailuku, Hawai'i 96793 Ph (808) 262-9882  
P.O. Box 1114, Kailua, Hawai'i 96734 Ph (808) 262-9972 Fax (808) 262-4950

Job code: WAIEHU 4 [kamuela@culturalhawaii.com](mailto:kamuela@culturalhawaii.com) [www.culturalhawaii.com](http://www.culturalhawaii.com)



June 2020

Aloha,

At the request of Highridge Costa Development Company (HCDC), Cultural Surveys Hawai'i, Inc. (CSH) is conducting a cultural impact assessment (CIA) for the Waihehu Affordable Housing Development Project, Waihehu Ahupua'a, Wailuku District, Maui, TMK [2] 3-3-001 106. The project area is depicted on a portion of the 1997 Wailuku U.S. Geological Survey (USGS) topographic quadrangle (Figure 1), a 2018 aerial photograph (Figure 2), and Tax Map Key [2] 3-3-01 (Figure 3).

#### Proposed Project

The 100% affordable housing project will involve the construction of 120 residential units including 28 one-bedroom units, 64 two-bedroom units, and 28 three-bedroom units as well as a 6,262-square-foot (sq-ft) non-profit building, a 3,600 sq-ft community center, two parking stalls per each residential unit (240 total stalls), and 12 additional stalls for the community center. The project is being developed in cooperation with Maui Economic Opportunity, Inc. (MEO) and Hale Mahalo. The project will focus on providing housing for Maui residents earning 60% or less of the area median income.

#### Purpose of the CIA

The purpose of the CIA is to gather information about the project area and its surroundings through research and interviews with individuals knowledgeable about this area. The research and interviews assist us when assessing potential impacts to the cultural resources, cultural practices, and beliefs identified as a result of the planned project. We are seeking your *ho'ou* (assistance) and guidance regarding the following aspects of our study:

- General history and present and past land use of the project area.
- Knowledge of cultural sites—for example, historic sites, archaeological sites, and burials.
- Knowledge of traditional gathering practices in the project area, both past and ongoing.
- Cultural associations of the project area, such as legends and traditional uses.
- Referrals of *ho'i* or elders and *kama'āina* (Native-born) who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* (traditional land division extending from the mountains to the sea) lands.

Figure 21. Community Consultation Letter Page 1

#### WAIEHU 4 – CIA for the Waihehu Affordable Housing Development Project

Page 2

- Any other cultural concerns the community might have related to Hawaiian or other ethnic cultural practices within or in the vicinity of the project area.

If you contribute to this effort and with your permission, we would like to use your name in the report to give you proper credit.

Due to the current situation with COVID-19, CSH has temporarily halted in-person consultation as a necessary precaution. We are available to speak with you over the phone, by video chat, or you may also submit a written statement regarding the project, project area, and/or your knowledge of the area. If you prefer to submit a written statement, CSH is able to provide a questionnaire that you may use as a guideline or you may answer the questionnaire directly. Please choose what is convenient for you, though the questionnaire is not necessary. A pre-stamped envelope will be provided to send your statement back to us.

In following the stay-at-home order, we are working primarily from home and are available at any time through email. If you would prefer to meet in-person, we can schedule a date to meet with you after the stay-at-home order has been lifted. Your patience, understanding, and cooperation is greatly appreciated, and we pray for the safety of you and your loved ones.

If you are interested in participating in this study, please contact Kamuela Kaapana by email at [kamuela@culturalhawaii.com](mailto:kamuela@culturalhawaii.com) or by phone at (808) 262-9972.

Mahalo nui loa.

Kamuela Kaapana  
Cultural Researcher

Figure 22. Community Consultation Letter Page 2

- General history and present and past land use of the project area.
- Knowledge of cultural sites—for example, historic sites, archaeological sites, and burials.
- Knowledge of traditional gathering practices in the project area, both past and ongoing.
- Cultural associations of the project area, such as legends and traditional uses.
- Referrals of *kāpuna* or elders and *kama'āina* (Native-born) who might be willing to share their cultural knowledge of the project area and the surrounding *ahupua'a* (traditional land division extending from the mountains to the sea) lands.
- Any other cultural concerns the community might have related to Hawaiian or other ethnic cultural practices within or in the vicinity of the project area.

If you contribute to this effort and with your permission, we would like to use your name in the report to give you proper credit.

Due to the current situation with COVID-19, CSH has temporarily halted in-person consultation as a necessary precaution. We are available to speak with you over the phone, by video chat, or you may also submit a written statement regarding the project, project area, and/or your knowledge of the area. If you prefer to submit a written statement, CSH is able to provide a questionnaire that you may use as a guideline or you may answer the questionnaire directly. Please choose what is convenient for you, though the questionnaire is not necessary. A pre-stamped envelope will be provided to send your statement back to us.

In following the stay-at-home order, we are working primarily from home and are available at any time through email. If you would prefer to meet in-person, we can schedule a date to meet with you after the stay-at-home order has been lifted. Your patience, understanding, and cooperation is greatly appreciated, and we pray for the safety of you and your loved ones.

If you are interested in participating in this study, please contact Kamuela Kaapana by email at [kkaapana@culturalsurveys.com](mailto:kkaapana@culturalsurveys.com) or by phone at (808) 262-9972.

In most cases, two or three attempts were made to contact individuals, organizations, and agencies. Community outreach letters were sent to 50 individuals or groups, eight responded, and four of these *kama'āina* and/or *kūpuna* met with CSH for more in-depth interviews, with one of these individuals requesting that their identity remain confidential.

### 6.3 Community Contact Table

Table 3 contains the names, affiliations, dates of contact, and comments from NHOs, individuals, organizations, and agencies contacted for this project. Results are presented below in alphabetical order.

Table 3. Community Contact Table

Name	Affiliation	Notes
Adams, Mark	Wai'ehu Kou Phase II	Emailed letter and figures on 9 June 2020
Ahia, Noelani	Mālama Kakanilua	Emailed letter and figures on 9 June 2020
Aiwohi, Olinda	President, Paukukalo Hawaiian Homes Community Association	Mailed letter and figures on 9 June 2020
Alu Like Inc.	Ke Ola Pono No Na Kupuna Program Kumu Kahi – Elderly Services J. Walter Cameron Center	Mailed letter and figures on 9 June 2020
Ampong, Foster	Wailuku Moku Representative	Emailed letter and figures on 9 June 2020
Apana, Clare	Cultural Practitioner; Mālama Kakanilua; Aha Moku Council Burial Committee	Emailed letter and figures on 9 June 2020
Carpio, Jay	Wailuku Community Managed Makai Area	Emailed letter and figures on 9 June 2020  Mr. Carpio replied on 10 June 2020 <i>Mahalo for reaching out and including us in this matter. Please let me know what time works best for you.</i>  CSH replied on 10 June 2020 <i>Mahalo for reaching out to me. Yes, we can definitely set up a time to speak.</i>  <i>Due to COVID-19, we are not conducting in-person interviews for the safety of all. Would you prefer a phone interview or a video chat, such as Zoom? Also, please let me know if there are any specific days of the week</i>



		<p>and times that best work with your schedule to help plan a day to talk.</p> <p>Also, once a meeting time is set up, I will be emailing you our CSH authorization form. This is a general form that ask for your permission for CSH to record the interview, publish your interview, and etc. You have the right to agree or decline permission. Also, if you agree to allow us to utilize your interview in the CIA report, we will always forward you a draft of your interview summary for review and final approval. Once the CIA report is published, we will give you a copy of your interview summary for your records.</p>
Central Maui Soil & Water Conservation District	-	Mailed and Emailed letter and figures on 9 June 2020
Daniels, Roland	Kama'āina	Mailed letter and figures on 9 June 2020
Eaton, Antoinette "Toni"	Maui District Supervisor, Department of Hawaiian Home Lands	Mailed letter and figures on 9 June 2020
Farden, Hailama	President, Association of Hawaiian Civic Clubs	Mailed and Emailed letter and figures on 9 June 2020
Fisher, Scott	Chief Conservation Officer, Hawaiian Islands Land Trust (HILT)	Mailed and Emailed letter and figures on 9 June 2020
Hokoana, Lui K.	President, Central Maui Hawaiian Civic Club; University of Hawai'i Maui College's chancellor	Mailed and Emailed letter and figures on 9 June 2020
Holt-Padilla, Hokulani	Kumu Hula, Pā'ū o Hi'iaka/Cultural Specialist	<p>Emailed letter and figures on 9 June 2020</p> <p>Ms. Holt-Padilla replied on 9 June 2020</p>

		<p>I would be happy to be interviewed about the project area as well as the surrounding areas. I would prefer an oral interview and would request a review of my interview before having it added to the official record.</p> <p>CSH replied on 9 June 2020</p> <p>Mahalo nui for your quick reply and willingness to participate in an interview.</p> <p>Due to COVID-19, we are not conducting interviews in-person for the safety of all parties. Would you prefer a phone interview or a video-interview such as Zoom? Also, to help with setting up an interview, do you have a preferences on the day of the week (M-F) and the time of day (morning or afternoon)?</p> <p>Just an FYI, before the interview, I will send you an Authorization Form. This is a general form which will ask you for your permission for CSH to record, to publish, and etc. You have the right to agree or decline. CSH will always give for you your interview summary (and transcription if necessary) for your review before being published. Once published, CSH will give you a copy of your interview summary as well as a recording (if your interview is recorded).</p> <p>Please let me know if you have any questions. Once I receive which type of interview you would prefer as well as the date(s) and time(s), I will send you some options and we can see what would best fit our schedules.</p> <p>Ms. Holt-Padilla replied on 9 June 2020 with some dates and times.</p> <p>CSH replied on 10 June 2020 suggesting a day and time to speak.</p>
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		Conducted interview via phone on 15 June 2020 CSH emailed Ms. Holt-Padilla draft interview summary on 7 July 2020
Kahalehau, Clyde	Aha Moku, Wailuku	Emailed letter and figures on 9 June 2020
Kamat, Sir David	Ali'i 'Aimoku, Royal Order of Kamehameha I, Chapter IV Heiau O Kahikili (Maui)	Mailed and Emailed letter and figures on 9 June 2020
Kamaunu, Johanna	Maui/Lana'i Burial Council - Wailuku	Emailed letter and figures on 9 June 2020
Kamaunu, Kaniloa	Aha Moku Council Wailuku Representative; Aha Moku Council Burial Committee	Emailed letter and figures on 9 June 2020 Mr. Kamaunu replied on 9 June 2020 <i>My name is Kaniloa Kamaunu with Aha Moku O' Wailuku let me know when you're able to speak</i> CSH replied on 10 June 2020 <i>Mahalo for reaching out to me. Yes, we can definitely set up a time to speak.</i> <i>Due to COVID-19, we are not conducting in-person interviews for the safety of all. Would you prefer a phone interview or a video chat, such as Zoom? Also, please let me know if there are any specific days of the week and times that best work with your schedule to help plan a day to talk.</i> <i>Also, once a meeting time is set up, I will be emailing you our CSH authorization form. This is a general form that ask for your permission for CSH to record the interview, publish your interview, and etc. You have the right to agree or decline permission. Also, if you agree to allow us to utilize your interview in the CIA report, we will always forward you a draft of your interview summary for review</i>

		<i>and final approval. Once the CIA report is published, we will give you a copy of your interview summary for your records.</i> CSH conducted a interview via phone with Mr. Kamaunu on 23 June 2020 CSH emailed Mr. Kamaunu on 31 July 2020 his interview summary for his review and approval.
Kamekona, Carol Lee	Ahahui Kaahumanu - Wailuku	Mailed letter and figures on 9 June 2020
Kapahulehua, Kimokeo	President, Hui O Wa'a Kaula	Mailed and Emailed letter and figures on 9 June 2020
Kapu, Ke'eaumoku	Chief Executive Officer, 'Aha Moku O Maui	Mailed and Emailed letter and figures on 9 June 2020
Kapu, U'ilani	Treasurer, Nā 'Aikāne o Maui	Mailed and Emailed letter and figures on 9 June 2020
Kawaa, Luana	Kama'āina	Emailed letter and figures on 9 June 2020 Ms. Kawaa replied on 15 June 2020 <i>Mahalo for your email. I am interested in learning more about this project and sharing mana'o.</i> CSH replied on 15 June 2020 <i>Mahalo nui for being interested in sharing mana'o.</i> <i>As the letter stated, for the safety of all parties, CSH has currently suspended face-to-face interviews due to COVID-19. Therefore, we can either conduct interviews via phone or video chat such as Zoom. Please let me know which one you prefer. Also, to help set up a meeting time that fits both our schedules, please let me know a day of the week (M-F) as well as some times (mornings or afternoons) that are convenient to talk story.</i> <i>Unfortunately, I am unable to meet</i>

		<p><i>this Friday. However, I am available this Tuesday - Thursday. I am also pretty open next week as well.</i></p> <p><i>Mahalo again for being willing to talk story with us. If you have any questions in the meantime, please feel free to contact me.</i></p> <p>CSH emailed Ms. Kawa'a on 23 July 2020 asking if she is still interested in talking story.</p> <p>Ms. Kawa'a replied on 25 July 2020 that she is available on Monday, 27 July 2020 to talk story.</p> <p>CSH replied on 26 July 2020 if 11:00am or after will be a good time to call.</p> <p>CSH attempted two times on 27 July 2020 via phone call to reach Ms. Kawa'a. CSH left two voice mails as well as sent an email to reschedule.</p>
Kekahuna, Janice	Paukukalo Hawaiian Homestead Community Association	Emailed letter and figures on 9 June 2020
Kuloloio, Manuel	Cultural Descendant	<p>Mailed and Emailed letter and figures on 9 June 2020</p> <p>Mr. Kuloloio replied on 6 June 2020</p> <p><i>Aloha Kamuela,</i> <i>I am interested in your CIA for the below tasking in support of MEO.</i></p> <p>CSH replied on 6 June 2020</p> <p><i>Aloha mai e Uncle Manny,</i> <i>Mahalo nui for getting back to me and expressing interest in participating in an interview for the WAIEHU 4 - CIA for the Waiehu Affordable Housing Development Project.</i></p> <p><i>As mentioned in my email and in the consultation letter, CSH has currently halted conducting face-to-face interviews during the COVID-19</i></p>

		<p><i>pandemic. This is in the best interest of all parties to make everyone is healthy and safe. With that said, we can either meet via telephone call or video chat, such as Zoom. Please let me know which method you would prefer. Also, please share with me some days of the week and times that best fit your schedule. Interviews usually last at least an hour or so.</i></p> <p><i>In the meantime, I have attached an Authorization and Release Form. This form informs the interviewee their rights as a participant as well as how the knowledge that is shared is used within CSH reports. If possible, please take some time to review.</i></p> <p><i>If you should have any questions, please feel free to contact me. Looking forward to hearing from you.</i></p> <p>Mr. Kuloloio called CSH office on 22 July 2020.</p> <p>CSH returned call on 22 July 2020 to Mr. Kuloloio and talked on the phone about the project and other concerns in regards to use of interview summary.</p> <p>Mr. Kuloloio emailed CSH on 22 July 2020 in regards to updating the Authorization and Release form to reflect use of information during interview to only used for this WAIEHU 4 project.</p> <p>CSH replied to Mr. Kuloloio on 23 July 2020 addressing concerns and updating form.</p> <p>CSH met with Mr. Kuloloio on 14 August 2020 via Zoom (video conference) and phone as there were some technical issues.</p>
Lake-Farm, Sissy	Executive Director, Maui Museum/ Kumu	Mailed and Emailed letter and figures on 9 June 2020

	Hula, Nā Hanona Kūlike 'o Pi'ilani	
Lay, Ivan	Vice-Chair, Maui County Cultural Resources Commission	Mailed letter and figures on 9 June 2020
Lewis, Joseph Kūhiō	Chief Executive Officer, Council for Native Hawaiian Advancement	Mailed and Emailed letter and figures on 9 June 2020
Lindsey III, Edwin "Ekolu"	President, Maui Cultural Lands	Mailed and Emailed letter and figures on 9 June 2020  Mr. Lindsey replied on 15 June 2020 <i>In response to your Waiehu 4 request to gather information: We have no knowledge of pertinent information We do suggest contacting the following people, if you have not already done so Daniel Ornellas <a href="mailto:Daniel.Ornellas@hawaii.gov">Daniel.Ornellas@hawaii.gov</a> His family has roots in the area Bobby Pahia They had lo'i close by Bega Family They also had lo'i close by. Not sure if the 1<sup>st</sup> hand generation is still around I have not contact info for Bobby or Bega Family. Betty Bega is the matriarch. Feel free to contact me if you have any questions.</i>
Maluo-Pearson, Kahulu	Cultural Programs Director, Maui Arts & Cultural Center	Mailed letter and figures on 9 June 2020
Manuel, Kaleo M.	Former DHHL Planner Deputy of State Water Commission	Emailed letter and figures on 9 June 2020

Martin, Martha	President, Native Hawaiian Plant Society	Mailed and Emailed letter and figures on 9 June 2020
Naauao, Brian Kaniela Nae'ole	NHO	Mailed and Emailed letter and figures on 9 June 2020
Nakahashi, Ikaika	Cultural Historian, SHPD	Mailed and Emailed letter and figures on 9 June 2020
Nakanelua, Kyle	'Aha Moku o Maui	Emailed letter and figures on 9 June 2020
Nakihei, Sarah	Maui Homestead Farmers and Ranchers Association	Emailed letter and figures on 9 June 2020
Namau'u, Kili	<i>Kahu</i> , Punana Leo O Maui	Mailed letter and figures on 9 June 2020
Nekaifes, Maraea K.	Nekaifes 'Ohana (NHO)	Mailed letter and figures on 9 June 2020
Nishiyama, Patty	Member, Nā Kūpuna o Maui	Mailed letter and figures on 9 June 2020
Office of Hawaiian Affairs		Per OHA – Maui: Send requests to said email address as this is the preferred contact.
Oliveira, Roy	President, Wai'ehu Kou Phase 3 Association	Mailed and Emailed letter and figures on 9 June 2020
Ornellas, Daniel	Kwong Fook Tong Waiehu Chinese Cemetery	CSH called on 8 September 2020, left voicemail.  Mr. Ornellas returned phone call to CSH on 30 September 2020 and conducted a brief phone interview.  CSH sent interview summary, via email to Mr. Ornellas on 01 October 2020.
Pellegrino, Hokuao	Nohoana Farm Owner, Manager and Land Education Specialist for Kamehameha Schools Maui	Mailed and Emailed letter and figures on 9 June 2020



Phillips, Kealana	Burial Sites Specialist (Maui, Molokai, and Lanai)	Emailed letter and figures on 9 June 2020 Mr. Phillips replied on 13 June 2020 <i>I forwarded this e-mail to the individual burials council members.</i> CSH replied on 15 June 2020 <i>Mahalo nui for forwarding my email to the council members.</i>
Pua'a, Mikiala and Kau	Kama'āina, Kalo Farmer	Mailed letter and figures on 9 June 2020
Shimaoka, Thelma	Community Resources Coordinator, Office of Hawaiian Affairs	Mailed and Emailed letter and figures on 9 June 2020
Six, Janet Dr.	County Archaeologist	Emailed letter and figures on 9 June 2020
Sousa, Keoki	President, Kahuna La'au Lapa'au o Maui	Mailed letter and figures on 9 June 2020
Watanabe, Noelani	Maui, Vice-Chair, Native Hawaiian Historic Preservation Council (NHHPC)	Emailed letter and figures on 9 June 2020
Williams, Lahela	Executive Director, Hawaiian Community Assests Inc.	Mailed and Emailed letter and figures on 9 June 2020

## 6.4 Kama'āina Interviews

The authors and researchers of this report extend our deep appreciation to everyone who took the time to speak and share their *mana'o* and *'ike* with CSH whether in interviews or brief consultations. We request that if these interviews are used in future documents, the words of contributors be reproduced accurately and in no way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

### 6.4.1 Kumu Hōkūlani Holt-Padilla

On 15 June 2020, Cultural Surveys Hawai'i (CSH) conducted a phone interview with Kumu Hōkūlani Holt-Padilla regarding the Wai'ehu Affordable Housing Development project, to share her *'ike* (knowledge) of the *ahupua'a* (land division from mountain to sea) of Waiehu, any cultural practices that exist within the area, as well as any concerns for the proposed project.

Kumu Hōkūlani Holt-Padilla is a prominent *kumu hula* (hula master/teacher) of Pā'ū o Hi'iaka, a *hālau hula* (hula dance group). Kumu Hōkūlani is also the director of Ka Hikina O Ka Lā at the University of Hawai'i, Maui College. Ka Hikina O Ka Lā is a specialized program "committed to increasing the participation of Native Hawaiians in higher education and guiding them to leadership roles in Science, Technology, Engineering, and Mathematics (STEM)" (University of Hawai'i, n.d.). For most of her life, Kumu Hōkūlani has lived on the island of Maui, growing up in Ka'ehu. She later spent some of her years on O'ahu to attend Kamehameha Schools but soon returned back to Maui to be with her *kūpuna* (elders). Kumu Hōkūlani's *'ohana* (family) has lived in the Ka'ehu and Paukukalo area for at least six generations.

In remembering her childhood, Kumu Hōkūlani recalled that java plums (*Syzgium cumini*), guava (*Psidium guajava*), and Job's tears (*Coix lacryma-jobi*) would grow along the Waiehu Stream. There would also be fresh water *'ōpae* (shrimp) in the stream. Many *lo'i kalo* (taro patches) were along the stream. Even to this day, many families who have lived in these areas for generations still use their *lo'i kalo* for personal sustenance.

Kumu Hōkūlani also recalled gathering *lā'au lapa'au* (medicinal plants) of various sorts. *Ko'oko'olau* or *kōko'olau* (*Bidens* spp.) grew on the sand dunes of Waiehu. This plant, which is endemic to Hawai'i, was used to make tea as a general tonic or could be specifically used to help treat throat, stomach, and/or asthma-like symptoms. *'Ihi'ihī* or *'ihī ihilauākea* (*Marsilea illosa*), a type of fern that resembles a four-leaf clover, grew in sandy soils and was very hearty. When chewed and swallowed, this clover will warm your chest; it was used to help ease breathing complications associated with asthma.

Kumu Hōkūlani continued to share that the waters from Waihe'e to Kahului Harbor were excellent for various types of fishing. She explained that because of the structure of the reefs and the close distance between the shore, reef, and deep ocean, all styles of fishing practices, such as shoreline fishing, longshore fishing, and diving were easily accessible and practiced in these areas. Kumu Hōkūlani also recalled that turtles were once collected in these areas in the past, however, this is no longer practiced. Other ocean recreational activities like surfing were also prominent in these waters and were a favorite pastime for many *ali'i* (chiefs) who lived on Maui. Many of these fishing and ocean recreational practices continue today.

CSH inquired of Kumu Hōkūlani whether she knew any *mo'olelo* (stories) or *ka'ao* (legends) of the area. Kumu Hōkūlani directed CSH to *Sites of Maui* by Elspeth P. Sterling for various *mo'olelo* or *ka'ao* of the area. However, she did share a *mo'olelo* that, to her knowledge, has not yet been published. She explained that there was a *wahine hi'u i'a* (mermaid) who frequently visited the waters of Waiehu. This *wahine hi'u i'a* would surface and sunbathe on a *pōhaku* (rock) named Maluhia, located *makai* (toward the sea) of the Waiehu Stream and that could be seen during low tide. However, a tidal wave changed the area and the *pōhaku* has not been seen since. A church in the area is also named Maluhia, possibly named after this *pōhaku*.

Kumu Hōkūlani continued to explain that most of the area *makai* of the project site was once sand dunes. Maui, in general, was known to have sand dunes that covered vast amounts of land. During the sugar plantation era, the majority of the sand dunes were destroyed and the sand was removed. These former sand dunes were then flattened to create land for sugar cultivation. As Kumu Hōkūlani explained that sand dunes were an important land feature for Native Hawaiians. It is within the sand that Native Hawaiians would bury the *iwi* (bones) of family members who had passed. With no laws protecting *iwi kūpuna* (ancestral bones) during the sugar plantation era, many undocumented *iwi kūpuna* were removed and disturbed. Since the project area is relatively close to the sand dunes, it is important to note that there may be *iwi kūpuna* within the area.

Also, due to the sugar companies having large landholdings in Waiehu, water from the Waiehu Stream was diverted for sugarcane production to help sustain crops. This left many Native Hawaiians with limited access to water, which made it difficult to sustain their *lo'i* and other crops for daily survival. To this day, water access and water diversion has been a passionate concern for many Maui residents as water from Waiehu Stream, as well as other streams, is still being diverted to sustain other land areas of Maui.

CSH inquired with Kumu Hōkūlani if she had any suggestions or concerns about the project. Kumu Hōkūlani suggested that the developers be cognizant of weather patterns that occur throughout the area. It has been noted in the past that several tidal waves have devastated the area. The last big tidal wave, to Kumu Hōkūlani's recollection, happened in 1959 or 1960. Other weather factors such as wind, rain, and the sun are also a concern. As mentioned earlier, many of the lands *makai* of the project area were sand dunes. Sand dunes are predominately created by the wind picking up the sand and carrying it to a certain place. Kumu Hōkūlani shared that Native Hawaiians named the wind of Waiehu Ho'eha 'ili (to hurt the skin). This wind name refers to the wind blowing the sand around. If you were to walk by as the wind blew, the wind would blow the sand and in turn, hurt your skin. This wind typically blows from *makai* to *mauka* (toward the mountain).

In regard to the development of the building, Kumu Hōkūlani inquired about the use of alternative energy. Kumu Hōkūlani mentioned that Waiehu receives a lot of sun light toward the west. If the developer is interested in using alternative forms of energy, solar panels may possibly be a suitable choice.

#### 6.4.2 Mr. Kaniloa Kamaunu

On 23 June 2020, Cultural Surveys Hawai'i (CSH) conducted a phone interview with Kaniloa Kamaunu regarding the Waiehu Affordable Housing Development Project, to discuss his *'ike* (knowledge) of the *ahupua'a* (land division from mountain to sea) of Waiehu, any cultural practices that exist within the area, as well as, any concerns for the proposed project.

Mr. Kamaunu's *'ohana* (family) has been living within the Waiehu area for seven generations. He recalled that his mother used a different pronunciation of the area, saying, that to him, it sounded like she pronounced it, "Waihu," with no real emphasis on the "e". Growing up in Waiehu was like "country living", according to Mr. Kamaunu, who reminisced about doing things such as hiking, exploring the streams, going into the mountains, where you could get fresh water *'ōpae* (shrimp). He said that most families in Waiehu would work the land or go to the beach. Mr. Kamaunu stated that there were many *'ohana* who were *kalo* (taro) farmers and that, "It was the main cultural practice [...] that is how you got your property, your water." Mr. Kamaunu further explained that more *makai* (towards the sea) of the project area, there were both shallow and deep-water type *loko i'a* (fishpond). He continued on to state that many of these practices still exist. The families living in the area are like his *'ohana*, having been living in the area for multiple generations. Even to this day, you will find families still working in their *lo'i* (taro patch) or going down to the *kai* (sea) to fish, which is why Mr. Kamaunu mentioned that Waiehu is also known as "a food basket [because you] can get food from the mountain to the sea."

CSH inquired with Mr. Kamaunu if he knew of any past history about the area. He shared that Waiehu is part of what is more commonly known as "Nā Wai 'Ehā" (The Four Waters). Wailuku, Waiehu, Waihe'e, and Waikapū are the four *ahupua'a* that make up Nā Wai 'Ehā. He shared that at one time, Waiehu, as well as Waihe'e, stood on its own and was not part of the Wailuku Moku. This area as well as other areas around Waiehu and Waihe'e were once sand dunes. Mr. Kamaunu continued on that the sand dunes of Maui ran 12 miles long and 12 miles wide, almost like a desert. He also mentioned that even on the *mauka* (towards the mountain) side were sand dunes that were dug up and back-filled to eventually create land for development.

Mr. Kamaunu explained that the sand dunes were important to Native Hawaiians as many of them would bury their *'ohana* in the sand. He shared that Waiehu and Waihe'e were home to many *ali'i* (chiefs). He shared that there are *ali'i* (chiefs) burials in Waihe'e. There may be some in Waiehu as well. Mr. Kamaunu also shared that many of these burials were destroyed with the sand dunes. He suspects that there may even be burials towards the *mauka* side.

In regard to the project, Mr. Kamaunu said that he appreciates that this project will be creating affordable housing for people as he sees this is a need for the community. However, some concerns that Mr. Kamaunu expressed were:

- How is "affordable housing" defined? Is it "affordable" for the local families who already live in the community?
- Who will these "affordable housing units" be sold to? Local families? Or outsiders?

Mr. Kamaunu explained that due to the high cost of living in Maui, and in Hawai'i in general, many local families have multiple generations living in one household. He shared that both his children and grandchildren live in his house. As much as Mr. Kamaunu loves his *'ohana*, he also wants to make sure that the future generations will be able to buy homes and live within an affordable means. Mr. Kamaunu also added that it is people who already live in the community that need help with obtaining affordable housing. He would like to make sure that this development of affordable housing will be for the community and not for "outsiders" to move into an already densely populated community.

Mr. Kamaunu emphasized that the developers should take into consideration how this new development will affect and/or potentially affect the community and its lifestyle. Things such as

air quality, water access and use, run off, and traffic are just a few concerns that Mr. Kamaunu expressed.

In regard to water access and use, Mr. Kamaunu shared that this has always been a topic of discussion for many Maui residents. He explained that the water from the Waiehu aquifer not only takes care of Waiehu, but also gets pumped for use in other areas of Maui, like Ma'alaea, Kihei, and Makena. Adding additional housing units means an increase in population and therefore an increase in water use. It is important to keep in mind the source of the water and view water as a limited resource. Another concern in regard to water is the abundance of asphalt and concrete. Mr. Kamaunu shared that "more introduction of asphalt and cement affect the water cycle". He continued on that more asphalt and concrete, especially within the parking lot area, will produce more run-off that will flow into the stream and eventually to the ocean.

Lastly, Mr. Kamaunu expressed that the developers should take into deep consideration the area itself and reflect upon, not only the physical impact of the affordable housing development (and all its components) but the community/cultural impact as well. Mr. Kamaunu is concerned that this type of development, even though it is providing affordable housing, may/will impact zoning regulations and traffic congestion. In regard to zoning, Mr. Kamaunu is concerned that by allowing bigger complexes to be built in this community it will set a precedence and open a gateway for other types of buildings, such as commercial, to be built in the community. As for traffic congestion, Mr. Kamaunu shared that traffic is already a problem for the community as there is only two ways in and out. By adding affordable housing to the community, this will increase the community's population and in turn, both mobile and people traffic.

Mr. Kamaunu did want to emphasize that he is not against development, however, he just wants to be assured that this affordable housing development project is for the community in which it is being built in; that it will serve as an opportunity for local families of Waiehu to purchase units and continue to perpetuate the lifestyle of Waiehu.

## Section 7 Traditional Cultural Practices

Timothy R. Pauketat succinctly describes the importance of traditions, especially in regards to the active manifestation of one's culture or aspects thereof. According to Pauketat,

People have always had traditions, practiced traditions, resisted traditions, or created traditions . . . Power, plurality, and human agency are all a part of how traditions come about. Traditions do not simply exist without people and their struggles involved every step of the way. [Pauketat 2001:1]

It is understood that traditional practices are developed within the group, in this case, within the Hawaiian culture. These traditions are meant to mark or represent aspects of Hawaiian culture that have been practiced since ancient times. As with most human constructs, traditions are evolving and prone to change resulting from multiple influences, including modernization as well as other cultures. It is well known that within Hawai'i, a "broader 'local' multicultural perspective exists" (Kawelu 2015:3) While this "local" multicultural culture is deservedly celebrated, it must be noted that it has often come into contact with "traditional Hawaiian culture." This contact between cultures and traditions has undoubtedly resulted in numerous cultural entanglements. These cultural entanglements have prompted questions regarding the legitimacy of newly evolved traditional practices. The influences of "local" culture are well noted throughout this section, and understood to represent survivance or "the active sense of presence, the continuance of native stories, not a mere reaction, or a survivable name. Native survivance stories are renunciations of dominance, tragedy and victimry" (Vizenor 1999.vii). Acknowledgement of these "local" influences help to inform nuanced understandings of entanglement and of a "living [Hawaiian] contemporary culture" (Kawelu 2015:3). This section strives to articulate traditional Hawaiian cultural practices as were practiced within the *ahupua'a* in ancient times, and the aspects of these traditional practices that continue to be practiced today, however, this section also challenges "tropes of authenticity" (Cipolla 2013), and acknowledges the multicultural influences and entanglements that may "change" or "create" a tradition.

This section integrates information from Sections 3-6 in examining cultural resources and practices identified within or in proximity of the project area in the broader context of the encompassing Waiehu landscape. Excerpts from interviews are incorporated throughout this section where applicable.

### 7.1 Agriculture and Gathering Practices

Agricultural practices played a huge role in the livelihood of many Native Hawaiians. According to Handy and Handy:

It is generally assumed that an oceanic people such as the Hawaiians lived mainly by fishing. Actually fishing occupied a very small part of the time and interest of the majority of Hawaiians. For every fisherman's house along the coasts there were hundreds of homesteads of planters in the valleys and on the slopes and plains between the shore and forest. The Hawaiians, more than any other Polynesians, were a people whose means of livelihood, whose work and interests, were centered in the cultivation of the soil. The planter and his life furnish us with the key to his culture. [Handy and Handy 1972:vi]

### 7.1.1 Ka Mahi'ai Kalo (Taro Farming)

A large number of *lo'i kalo* have been identified within LCA records in Waiehu as well as the surrounding *ahupua'a*. Kalo is considered a staple food for many Native Hawaiians. Besides the observed contributions to stamina and health, *kalo* was also believed to have derived from the first-born son of Wākea and Papa.

[...] the supreme god Kane "in the form of Wakea (a form associated with the earth) produced two sequential offspring: the first became *kalo* (taro) plant, the second became Hāloa, the ancestor of man [...] thus, in kinship terms, the taro is the elder brother and the senior branch of the family tree, mankind belongs to the junior branch, stemming from the younger brother." [Trask 2012:75]

Kumu Hōkūlani Holt-Padilla shared that the lands of Waiehu consisted of a multitude of *lo'i kalo* in the past, remembering that many *lo'i kalo* could be seen along the Waiehu Stream. Even to this day, many families still use their *lo'i kalo* which has been passed down through the generations.

Mr. Kamaunu, who can trace his 'ohana to living in Waiehu for seven generations recalled that growing up in Waiehu was like "country living," going hiking, exploring in the streams, going into the mountains, and etc. Mr. Kaumnu emphasized that many 'ohana in Waiehu worked the land or go to the beach. Families in Waiehu were *kalo* farmers noting that "it was the main cultural practice [...] that is how you got your property, your water." Like Kumu Hōkūlani Holt-Padilla stated, Mr. Kamaunu also shared that many families to this day still work in their *lo'i kalo* that was started generations ago.

### 7.1.2 Ka Lā'au Lapa'au (Hawaiian Herbal Medicine)

Native Hawaiians were skilled and knowledgeable about many plants and their uses to aid in the health of their people. There were many types of *kāhuna* who specialized in specific tasks focused on healing, such as *kahuna hāhā* (medical diagnosticians), *kahuna lapa'au* (medical doctors), and *kahuna lā'au lapa'au* (herbalists) (Abbott 1992:98).

*Kāhuna lā'au lapa'au* began their instruction at a young age. Even though they specialize in identifying and understanding the uses of different plants, the knowledge they possessed was extraordinary.

A *kahuna lā'au lapa'au* begin his training at the age of five in the house of an elder expert in this field, perhaps his father but often another man. As he grew up, he received comprehensive instruction about the medicinal plants, their value and effect on the body, where they grew, how to gather, prepare, and administer them. Their knowledge spanned three disciplines we consider separate today – botany, pharmacology, and medicine. [Abbott 1992:98]

The knowledge of *lā'au lapa'au* has been passed down through multiple generations. Kumu Hōkūlani Holt-Padilla recalled gathering various *lā'au lapa'au* around Waiehu. *Ko'oko'olau* or *kōko'olau* is a plant, which is endemic to Hawai'i, used to make tea to help aid in treatment of throat, stomach, and/or asthma-like symptoms. Kumu Hōkūlani Holt-Padilla mentioned that this plant usually could be found growing alongside the sand dunes of Waiehu. Another plant, the 'ihi'ihī or 'ihi'ihīlauākea was used to help ease breathing complications, such as those associated

with asthma. This plant is shaped like a four-leaf clover and is considered very heart and grew in sandy soils.

### 7.2 Nā Wahi Pana a me Nā Mo'olelo

Waiehu is riddled with a multitude of land award claims, from individual *lo'i* to larger land claims, such as Lunalilo's 2,000 acre land claim. These land claims paint an imagery of the livelihood and lifestyle of the people of Waiehu. Many of these claims contained *lo'i kalo* and *kula* which indicated evidence of subsistence and agricultural practices.

Also these land award claims included many place names of land area, regardless of the size of land. Naming of land was a significant practice for Native Hawaiians whether it was names for large land areas like an *ahupua'a* or a smaller division such as 'ili 'āina as well as individual land plots like *lo'i kalo*. These names established the continuing connection of *kānaka* to 'āina.

#### 7.2.1 Ka Mo'olelo

Kumu Hōkūlani Holt-Padilla shared a *mo'olelo* about a *wahine hi'u i'a* that would frequent the Waiehu area. When visiting Waiehu, this *wahine hi'u i'a* would surface and sunbathe on a *pōhaku*. This *pōhaku* was named Maluhia and located *makai* of the Waiehu Stream and could be seen during low tide. Unfortunately, this *pōhaku* was damaged during a tidal wave and has not been seen since.

A confidential interviewee shared that many *ali'i* lived within the Waiehu and Waihe'e area. One *mo'olelo* that the confidential interviewee shared was stated by Kamakau. Alapa'imaloiki and Kaulunae were sent by Kahekili, who was the reigning chief of Maui, to sail to Hawai'i Island and request from Kamehameha I for canoes. Their mission was to sail to O'ahu to make war on Kahahana, chief of O'ahu. Alapa'imaloiki was known to have a *loko i'a* in Waihe'e named Ko'ahi.

### 7.3 Marine and Freshwater Resources

#### 7.3.1 Freshwater Resources

Kumu Hōkūlani Holt-Padilla shared that many Waiehu residents utilized the Waiehu Stream as part of their daily livelihood. Many *lo'i kalo* ran along the stream as fresh water access was important for this type of cultural practice. With *lo'i kalo*, Kumu Hōkūlani Holt-Padilla also shared that along the Waiehu Stream she would gather java plums, guava, and Job's tears as well as freshwater 'ōpae.

During a snorkel survey of the streams of Nā Wai 'Ehā, Oki et al. (2010) shared that there was presence of native fauna in each of the streams (which include Waiehu). The native stream fauna that were seen requires unimpeded access to and from the ocean (Oki et al. 2010, 130-131).

Native fauna observed in the Nā Wai 'Ehā streams include the endemic mountain shrimp, 'ōpaekala'ole (*Atyoida bisulcata*); endemic gobies 'o'opu 'alamo'o (*Lenipes concolor*) and 'o'opu nōpili (*Sicyopterus stimpsoni*); the indigenous goby 'o'opu nākea (*Awaous guamensis*); and an endemic eleotrid, 'o'opu 'akupa (*Eleotris sandwicensis*). [Oki et al. 2010:130]



### 7.3.1.1 Freshwater Access Rights

Freshwater access for the people of Waiehu, as well as the other *ahupua'a* of Nā Wai 'Ehā, is extremely important as it plays a role in their livelihood. At the start of the sugar plantation era, many of the sugar companies acquired large land holdings in Waiehu which lead the water from the Waiehu stream to be diverted for sugar cane production and to help sustain their crops. According to multiple interviewees, this action left many Native Hawaiians and Maui residents without the sufficient amount of fresh water to sustain their *lo'i kalo* and other types of agricultural growth.

To this day, waters from Waiehu Stream as well as the other streams of Nā Wai 'Ehā are still being diverted. A group called, Hui o Nā Wai 'Ehā was formed in 2003 to protect the waters of the streams from further diversion. According to the group, even though the production of sugar and other agricultural production has drastically reduced, water is still being diverted by private owners, still leaving many residents without access to stream water for traditional cultural and sustainable practices.

### 7.3.2 Ocean Resources

#### 7.3.2.1 Fishing Practices

Mr. Kamaunu described Waiehu as "a food basket [because you] can get food from the mountain to the sea." As well as providing information about the *lo'i kalo* up *mauka*, Mr. Kamaunu also shared about the *loko i'a* that could be found towards *makai*. He shared that there were both shallow and deep water *loko i'a* in Waiehu and that residents of Waiehu still utilized the sea for food subsistence and can be seen fishing and diving.

Kumu Hōkūlani Holt-Padilla shared similar knowledge about the ocean waters of Waiehu, describing the waters from Waihe'e to Kahului excellent for various types of fishing. Kumu Hōkūlani explained that because of the reef structure and the close distance between shore, reef, and deep ocean allowed for all styles of fishing to be practiced. Fishing styles like shoreline fishing, longline fishing, and diving were practiced along this area. Other ocean recreational activities, like surfing were practiced as well. It has been shared that surfing was one of the favorite pastime for many *ali'i*. All these practices are still continued today.

#### 7.3.2.2 Limu Gathering

A confidential informant shared that his *'ohana* practiced gathering *limu* along the waters of Waihe'e. Learning from his *kūpuna*, the knowledge of identifying *limu* has been passed down from generation to generation. The informant wanted to stress the fact that it was vital to only gather from own area. You should not gather, fish, or hunt in another person's *'āina* as you are taking from their resources. You need to utilize and learn the resources of your own *'āina*.

## 7.4 Burials

All of the interviewees shared information about the sand dunes that were prominent throughout Maui, including Waiehu. Mr. Kamaunu shared that the sand dunes of Maui ran 12 miles long and 12 miles wide, almost like a desert, where previous sand dunes could be found both *mauka* and *makai* of the proposed project area. As Kumu Hōkūlani Holt-Padilla explained, sand dunes were an important land feature for Native Hawaiians. Sandy areas were an ideal spot for Natives Hawaiian to *kumu* (bury) the *iwi* of their family members who have passed.

Mr. Kamaunu also explained that Waiehu and Waihe'e were home to many *ali'i*. He knew of some burials located in Waihe'e that were of *ali'i*, and there may be some located in Waiehu as well.

Almost all interviewees shared information that many *iwi kūpuna* and *'ilina* are now destroyed. During plantation era, sand dunes were dug up and back-filled to make land for development, such as sugar plantation. There were no laws at that time that protected the rights of *iwi kūpuna*, as Kumu Hōkūlani Holt-Padilla shared. Therefore it is hard to determine who or how many *iwi kūpuna* were destroyed during that time, however, it is important to note this history as there may still be *iwi kūpuna* within the area. Mr. Kamaunu also shared similar sentiment about the continued existence of *iwi kūpuna* within the area, with a possibility of some being *mauka* of the project area.

## Section 8 Summary and Recommendations

### 8.1 Results of Background Research

Background research for this study yielded the following results, presented in approximate chronological order:

1. Waiehu Ahupua'a was once an independent land district and did not reside in any other *moku*. Along with Waihe'e Ahupua'a, the *moku* was referred to as Nā Poko (Sterling 1998:91).
2. Waiehu Ahupua'a is a part of what is more commonly known as Nā Wai 'Ehā (The Four Waters) which consists of Waikapū, Wailuku, Waiehu, and Waihe'e. These areas were made famous for their freshwater streams.
3. Niukūkahi and 'A'awa were famous surfing spots in Waiehu Ahupua'a that we frequently visited by many Maui *ali'i*. Other famous surfing spots include Kahu and Ka'ākau of Wailuku and Pala'ie and Kahahawai of Waihe'e.
4. Traditional history describes Waiehu as a place of abundance; from the mountain to the sea. Residents of Waiehu had bountiful access to freshwater to help feed their *lo'i kalo* and their *kula*. The waters of Waiehu provided opportunity for various fishing practices and ocean recreational activity.
5. Waiehu is known to have many Land Claim Awards referencing many *'ili 'āina, lo'i kalo, and kula*. The project area resides within LCA 8559B\*M which was granted to William C. Lunalilo. This LCA document includes approximately 2,000 acres of land in Waiehu, however it does not specify definitive boundaries or land use for this *'āpana*.
6. In the mid-1800s, Waiehu was known to have a small-scale sugar mill. In Waihe'e, there was the Waihe'e Sugar Company. These two sugar plantations once produced sugar on their own until eventually being absorbed under the Wailuku Sugar Company.
7. Since the start of the sugar plantation, water diversion has been an issue amongst the residents of Maui, including Waiehu and the other *ahupua'a* of Nā Wai 'Ehā. Water was being diverted from the streams of Nā Wai 'Ehā in order to irrigate the sugar fields, leaving many Native Hawaiian and other residents with little to no access of water. The diversion of water affected many Native Hawaiians and other residents' ability to farm *kalo* and other produce.

### 8.2 Results of Community Consultations

CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Community outreach letters were sent to 73 individuals or groups; five responded, two provided written testimony, and two of these *kama'āina* and/or *kūpuna* met with CSH for more in-depth interview. Consultation was received from community members as follows:

1. Kumu Hōkūlani Holt-Padilla, *kama'āina* of Waiehu, Kumu Hula of Pā'ū o Hi'iaka, and Director of Ka Hikina O Ka Lā
2. Kaniloa Kamaumu, *kama'āina* of Waiehu
3. Confidential Informant
4. Daniel Ornellas, *kama'āina* of Waiehu, representing Kwong Fook Tong Chinese Cemetery.

### 8.3 Identification of Cultural Practices

Community consultation conducted as part of this CIA has identified the following cultural, historical, and natural resources where cultural practices (including traditional and customary native Hawaiian rights) are being exercised in Waiehu Ahupua'a:

1. All interviewees shared various cultural practices that are still practiced both *mauka* and *makai*. There are many *kama'āina* who continue to farm *kalo* as well as *kama'āina* who still fish.
2. A confidential informant shared about gathering *limu* along the edges of Waihe'e as there were a vast variety of *limu* that grew within the area.
3. All participants mentioned the sand dunes that are both *makai* and *mauka* of the project area. The sand dunes were vast and were predominantly recognized as a place where *kūpuna* would bury those who have passed.

Based on the results of community consultation and background research conducted as part of this CIA, CSH has identified the following cultural practices within Waiehu Ahupua'a:

1. *Kalo* farming
2. Fishing
3. *Limu* gathering
4. Burial practices

No on-going cultural practices were identified within the project area during community consultation for this CIA. However, the project area is located adjacent to an inland sand dune complex where numerous human burials have been documented. The project area is also located in the general vicinity of on-going subsistence-based *kalo* farms.

### 8.4 Identification of Impacts to Cultural Practices

No impacts to on-going cultural practices were identified within the project area during community consultation for this CIA. Consultation has identified a number of concerns related to the environment and the broader community:

1. Kumu Hōkūlani Holt-Padilla suggested that the project developers should be cognizant of the weather patterns that occur throughout the area, such as wind, rain, and sun. The wind Ho'ēha 'ili refers to the wind blowing up the sand around and if you should walk by, your skin would be hurt by the sand being blown in the wind. She shared that this wind blows typically blows from makai to mauka.
2. Kumu Hōkūlani Holt-Padilla also shared about past weather conditions that have devastated the area. Tidal waves have hit Waiehu on several occasions. To her recollection, the last one

being in 1959 or 1960. Even though there have been no recent tidal waves, the possibility and awareness should be taken into consideration.

3. Mr. Kamaunu shared that an increase of development and population has the potential to increase noise and traffic pollution which will affect air quality, community living, and lifestyle.
4. All interviewees shared their thoughts, memories, and opinions about the water diversion issue that has been going on for over a century. Many of them shared that this issue has left many Native Hawaiian families with limited access to water which presented a very difficult challenge in sustaining their *lo'i kalo* and other agricultural practices.
5. Mr. Kamaunu as well as the other interviewees shared that the water that is being diverted is used to sustain other areas of Maui. It is important to note that water, as Mr. Kamaunu shared, is a limited source. With an increase in population and housing in Waiehu, water usage will increase and the source of water will be stretched thin.
6. Mr. Kamaunu mentioned that an increase of concrete and asphalt affects the water cycle and the healthiness of the water. By an increase of concrete and asphalt (such as the parking lot of the project) has the potential of generating more run-off and debris which will flow into the stream and ocean.
7. Mr. Kamaunu also expressed concern on the "who" this affordable housing is for as well as how is "affordable housing" defined. Mr. Kamaunu shared that the community is made up of multiple generations of local residents. Many of these *kama'āina* are living in multigenerational homes due to the high cost of living. Will these "affordable housings" go to local residents or are for outsiders to come in?

## 8.5 Mitigation Recommendations

Based on the results of community consultation and CSH's expertise in conducting cultural impact assessments, the following actions are recommended to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups:

1. A number of concerns expressed by the community during consultation do not relate specifically to on-going cultural practices within the project area, but nonetheless should be considered during project planning and development. These concerns include:
  - a. Awareness of weather patterns
  - b. Awareness of potential for impacts from tidal events
  - c. Community impacts from an increase in noise and traffic
  - d. Community impacts from an increase in water usage
  - e. Community impacts from runoff as a result of an increase in asphalt/concrete surfaces
  - f. Understanding the need for truly affordable housing for local Maui residents
2. Project construction workers and all other personnel involved in the construction and related activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. In the event that any potential historic properties are identified during construction activities, all activities will cease and the SHPD will be notified pursuant to HAR §13-280-3. In the event that *iwi kūpuna* are identified, all earth

moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40. In addition, in the event of an inadvertent discovery of human remains, the completion of a burial treatment plan, in compliance with HAR §13-300 and HRS §6E-43, is recommended.

3. In the event that *iwi kūpuna* and/or cultural finds are encountered during construction, project proponents should consult with cultural and lineal descendants of the area to develop a reinterment plan and cultural preservation plan for proper cultural protocol, curation, and long-term maintenance.

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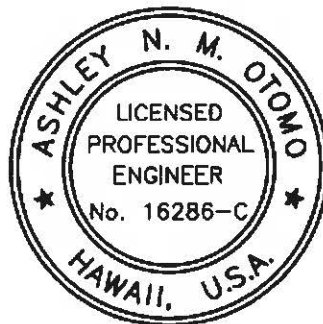
**PRELIMINARY ENGINEERING REPORT**  
**FOR**  
**HALE MAHAOLU KE KAHUA HOUSING COMMUNITY**

**Waiehu, Maui, Hawaii**

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**EXHIBIT 41**



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#### **3.2 DRAINAGE**

#### **3.3 SEWER**

#### **3.4 WATER**

#### **3.5 ELECTRIC, TELEPHONE, AND CABLE TV**

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#### **B WATER DEMAND CALCULATIONS**

#### **C WASTEWATER CALCULATIONS**

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#### **2 VICINITY MAP**

#### **3 SOIL SURVEY MAP**

#### **4 FLOOD INSURANCE RATE MAP**

#### **5 PRELIMINARY GRADING & DRAINAGE PLAN**

**PRELIMINARY ENGINEERING REPORT  
FOR  
HALE MAHAOLU KE KAHUA HOUSING COMMUNITY  
T.M.K.: (2) 3-3-001: 106**

**1.0 INTRODUCTION**

The purpose of this report is to provide information on the existing infrastructure, which will be servicing the proposed project and to also evaluate the adequacy of the existing infrastructure and anticipated improvements, which may be required for the proposed project.

The subject parcel is identified as T.M.K.: (2) 3-3-001: 106, which encompasses an area of approximately 11.476 acres. It is also known as Lot 1-C of the Paukukalo Large-lot Subdivision. It is bordered by Waiehu Beach Road to the north, the Waiehu Heights Subdivision to the east, vacant agricultural land to the south, and Kahekili Highway to the west.

The project site is undeveloped and was previously used as a macadamia nut orchard. The proposed project includes the construction of the Hale Mahaolu Ke Kahua Housing Community, which will consist of 120 units in a two-story, garden-style affordable family community. The project will also include a 3,231 sf clubhouse, fitness room, computer room, playground, and a 3,477 sf nonprofit building. Associated improvements include grading, driveways, paved parking, utility connections, and landscaping.

**2.0 EXISTING INFRASTRUCTURE**

**2.1 ROADWAYS**

Kahekili Highway is located immediately west of the project site. It is a two-lane State highway north of its intersection with Waiehu Beach Road that runs in the north-south direction between Wailuku and Waihee. South of the said intersection, it is a two-lane County roadway. The posted speed limit is 30 miles per hour (mph) in the vicinity of the project site. Kahekili Highway has paved shoulders on both sides of the travel lanes, but no curbs, gutters, or sidewalks.

Waiehu Beach Road connects Kahekili Highway with Lower Main Street. It is a two-lane, two-way State roadway that runs in a northwest-southeast direction. The posted speed limit is 30 mph. Its intersection with Kahekili Highway is an unsignalized T-intersection with a stop sign along Waiehu Beach Road. There are no separate turning lanes along any of the approaches.

## 2.2 DRAINAGE

Elevations on the site ranges from approximately 48 feet above mean sea level at the project site's northwesterly corner to approximately 155 feet above mean sea level at the project site's southeasterly corner. The project site generally slopes toward Waiehu Beach Road, averaging approximately 3%. There is an existing bank along the easterly boundary of the property.

According to Panel Number 150003 0383E of the Flood Insurance Rate Map, revised November 4, 2015, prepared by the United States Federal Emergency Management Agency, parcel is situated in Flood Zone X, which represents areas that are outside of the 0.2% annual chance flood plain.

According to the Soil Survey Geographic Database for the Island of Maui, State of Hawaii (September 2014), prepared by the United States Department of Agriculture, Natural Resources Conservation Service, the soils within the project site are classified as lae silty clay, 0 to 3 percent slopes (laA), lae cobbly silty clay, 3 to 7 percent slopes (lbB), and Puuone sand, 7 to 30 percent slopes (PZUE). laA is characterized as having slow runoff and no more than slight erosion hazard. lbB is characterized as having medium runoff and a moderate erosion hazard. PZUE is characterized as having slow runoff, rapid permeability above the cemented layer, and moderate to severe wind erosion hazard.

Onsite runoff generally sheet flows in a southwest to northeast direction toward Waiehu Beach Road. There is an existing culvert crossing Kahekili Highway to Lot 1-B, the adjacent property to the south. Runoff is then conveyed through a swale through Lot 1-B and the project site and eventually flows to the existing 48-inch culvert near the intersection of Waiehu Beach Road and Kahekili Highway. It is estimated that the existing 50-year, 1-hour storm runoff from the project site is 7.868 cfs, corresponding to a runoff volume of 23,605 cf.

### 2.3 SEWER

There are no existing gravity sewerlines in the immediate vicinity of the project site. The nearest wastewater facility is an existing 6-inch force main along Waiehu Beach Road.

Wastewater collected from the Wailuku and Waihee areas is transported to the Wailuku-Kahului Wastewater Reclamation Facility in Naska.

According to the Wastewater Reclamation Division, County of Maui, as of July 28, 2020, the Wailuku-Kahului WWRF has a capacity of 7.9 million gallons per day (mgd). The average flow into the KWRF is approximately 5.8 mgd, and the allocated capacity is 6.9 mgd. The remaining capacity is approximately 1.0 mgd. The remaining affordable housing allocation is 0.29 mgd (of 0.34 mgd).

### 2.4 WATER

There are no existing waterlines along Kahekili Highway adjacent to the project site. There are existing 8-inch and 12-inch waterlines along Kahekili Highway to the north of the Waiehu Beach Road intersection. Both waterlines traverse onto Waiehu Beach Road from Kahekili Highway.



Storage in this area is from an existing 1.0 million gallon reservoir located approximately 6,000 feet to the west of the project site at an elevation of 490 feet. The sources for this project shall originate from the North Waihee system.

There is an existing irrigation well and storage tanks on the project site.

## **2.5 ELECTRIC, TELEPHONE, AND CABLE TV**

There are existing overhead electrical, cable, and telephone lines along the mauka side of Kahekili Highway.

## **3.0 ANTICIPATED INFRASTRUCTURE IMPROVEMENTS**

### **3.1 ROADWAYS**

Access for the proposed project will be from three (3) new driveways on Kahekili Highway.

The following are the recommendations from the Draft Final Traffic Impact Analysis Report prepared by Austin, Tsutsumi & Associates, Inc. dated March 1, 2022:

- Project Driveways 1 and 3 (north and south driveways) are proposed to operate as right-in, right-out (RIRO) intersections.
- Project Driveway 2 (central driveway) is proposed as a full access intersection. A southbound entering left-turn auxiliary lane is recommended.
- At all three driveways, a right-turn auxiliary lane is recommended. However, at Project Driveway 2 (central driveway), it is anticipated that only one of the two auxiliary lanes (southbound left-turn lane OR northbound right-turn lane) can be accommodated due to right-of-way constraints.

If this is the case, the provision of the southbound left-turn lane should be prioritized over the northbound right-turn lane.

- Due to relatively low turning movements generated by the Project, signals are not warranted and all intersections are recommended to be unsignalized with stop control along the westbound Project exit approaches.

### 3.2 DRAINAGE

After the development of the proposed project, it is estimated that the 50-year, 1-hour storm runoff will be 22.205 cfs, corresponding to a runoff volume of 49,961 cf. The increase in runoff will be 14.337 cfs, with an increase in runoff volume of 26,356 cf (49,961 cf - 23,605 cf) (See Appendix A). Onsite runoff will be intercepted by catch basins located within the paved parking area and conveyed to a subsurface drainage system. The subsurface drainage system will consist of a perforated drainline embedded in crushed rock, which will be wrapped with a layer of filter fabric. Surface runoff entering the perforated pipe will be allowed to infiltrate into the ground. The drainage system will be designed to accommodate the increase in surface runoff volume from a 50-year, 1-hour storm for the proposed project. The proposed project will not alter the grades or capacity of the existing swale.

The design intent of the development plan will be to utilize the existing topography to the greatest extent practicable and to limit the need for extensive grading. Development of the project will include the implementation of site-specific best management practices (BMPs) during the construction to provide erosion control and minimize impacts to downstream properties. BMPs may include:

1. Prevention of cement products, oil, fuel, and other toxic substances from falling or leaching into the water;
2. Prompt and proper disposal of all loosened and excavated soil

- and debris material from drainage structure work;
- 3. Retention of existing ground cover until the last possible date;
- 4. Stabilization of denuded areas by sodding or planting as soon as possible;
- 5. Implementation of sediment trapping measures and basins;
- 6. Control of access and vehicular movement across disturbed areas;
- 7. Early construction of drainage features; and
- 8. Minimization of construction time.

The project will also include post-construction BMPs, which will improve the quality of storm water runoff from the proposed development.

The drainage design criteria will be to minimize any alterations to the natural pattern of the existing onsite surface runoff. The proposed drainage plan will meet the requirements of Chapter 4, "Rules for the Design of Storm Drainage Facilities in the County of Maui" and Chapter 111, "Rules for the Design of Storm Water Treatment Best Management Practices".

### 3.3 SEWER

The proposed project will generate approximately 30,600 gallons of wastewater daily (See Appendix C). The onsite sewerage collection system will be designed to accommodate this flow. The nearest gravity sewer connection is located approximately 1,500 feet from the proposed site, along Waiehu Beach Road. Connection to this system will require a lift station for the project.

According to the Wastewater Reclamation Division, County of Maui, as of July 28, 2020, the Wailuku-Kahului WWRF has a capacity of 7.9 million gallons per day (mgd). The average flow into the KWRF is approximately 5.8 mgd, and the allocated capacity is 6.9 mgd. The remaining capacity is approximately 1.0 mgd. The remaining

affordable housing allocation is 0.29 mgd (of 0.34 mgd). The wastewater generated from the project will be transported to the Wailuku-Kahului Wastewater Treatment Facility. At the present time, the treatment plant has sufficient capacity to accommodate the additional wastewater generated from the proposed project.

#### 3.4 WATER

In accordance with the Department of Water Supply's Domestic Consumption Guidelines for multi-family and commercial development, the average daily demand for the project is approximately 70,800 gallons per day (See Appendix B). Fire flow demand for multi-family development is 2,000 gallons per minute for a 2-hour duration. The project shall install approximately 2,000 feet of 8-inch waterline along Kahekili Highway and fire hydrants with a maximum spacing of 250 feet. The subject parcel was part of a large-lot subdivision, and some improvements, such as water service and fire protection, were not required until the development of the individual large lots. Fire hydrants will be installed with a maximum spacing of 250 feet.

Domestic water and fire flow calculations will be prepared and submitted during the building permit process. Water meter and fire protection improvements will be made as necessary to meet the requirements of the Department of Water Supply and Fire Department.

To the greatest extent practicable, the existing irrigation well shall be used for landscaping within the project site.

#### 3.5 ELECTRIC, TELEPHONE, AND CABLE TV

The proposed electrical, telephone, and cable TV distribution systems shall be serviced from the existing overhead facilities on



Kahekili Highway that currently service the area. Within the project site, the electric and telephone systems will be installed in accordance with the utility companies' rules and regulations. Interior project lighting shall be provided as approved by the Planning Department.

**APPENDIX A**

**HYDROLOGIC CALCULATIONS**

## DRAINAGE SYSTEM ANALYSIS AND DESIGN

Project: **Hale Mahaolu Ke Kahua Housing Community**  
 T.M.K.: **(2) 3-3-001: 106**  
 Location: **Waiehu, Maui, Hawaii**  
 Project No.: **2020-18**

### I. Determine Runoff Coefficients

#### Landscaped / Unimproved Runoff Coefficient:

Infiltration:	Medium	0.07
Relief:	Flat (0-5%)	0.00
Vegetal Cover:	Good (10-50%)	0.03
Development Type:	Landscape	0.15
Composite Runoff Coefficient, C=		0.25

#### Roof Runoff Coefficient:

C= 0.95

#### Pavement Runoff Coefficient:

C= 0.95

### II. Determine pre- and post-development runoff

Area: 11.476 acres

	Existing	Developed	Δ
Roof	0	1.480	
Pavement	0	2.780	
Landscape	11.476	7.216	
C	0.25	0.51	
Tc (min)	50	25	
I (in/hr)	2.743	3.795	
Q (cfs)	7.868	22.205	14.337
V (cf)	23,605	49,961	26,356

## **APPENDIX B**

### **WATER DEMAND CALCULATIONS**



## **WATER DEMAND CALCULATIONS**

### **Project Data:**

#### **Multi-family Residential:**

- 120 Units
- 10.876 acres

#### **Commercial:**

- Non-profit Building & Community Center
- 0.6 acres

### **Daily Consumption Guidelines (per 2002 Water System Standards):**

Multi-family Low Rise: 560 gallons/unit or 5,000 gallons/acre

Commercial: 6,000 gallons/acre

### **Average Daily Demand (ADD):**

#### **Multi-family Residential:**

ADD = 560 gallons/unit x 120 units = **67,200 gallons**

ADD = 5,000 gallons/acre x 10.876 acres = 54,380 gallons

#### **Commercial:**

ADD = 6,000 gallons/acre x 0.6 acres = **3,600 gallons**

**Total Average Daily Demand = 70,800 gpd**

**Max Daily Demand (1.5 x ADD) = 106,200 gpd**

## **APPENDIX C**

### **WASTEWATER CALCULATIONS**

## **WASTEWATER CALCULATIONS**

Project Data:

Multi-family Residential:

- 120 Units

Daily Contribution Guidelines (per the 1993 Wastewater Flow Standards):

Multi-family Residential: 255 gallons/unit/day

Daily Contribution:

Multi-family Residential:

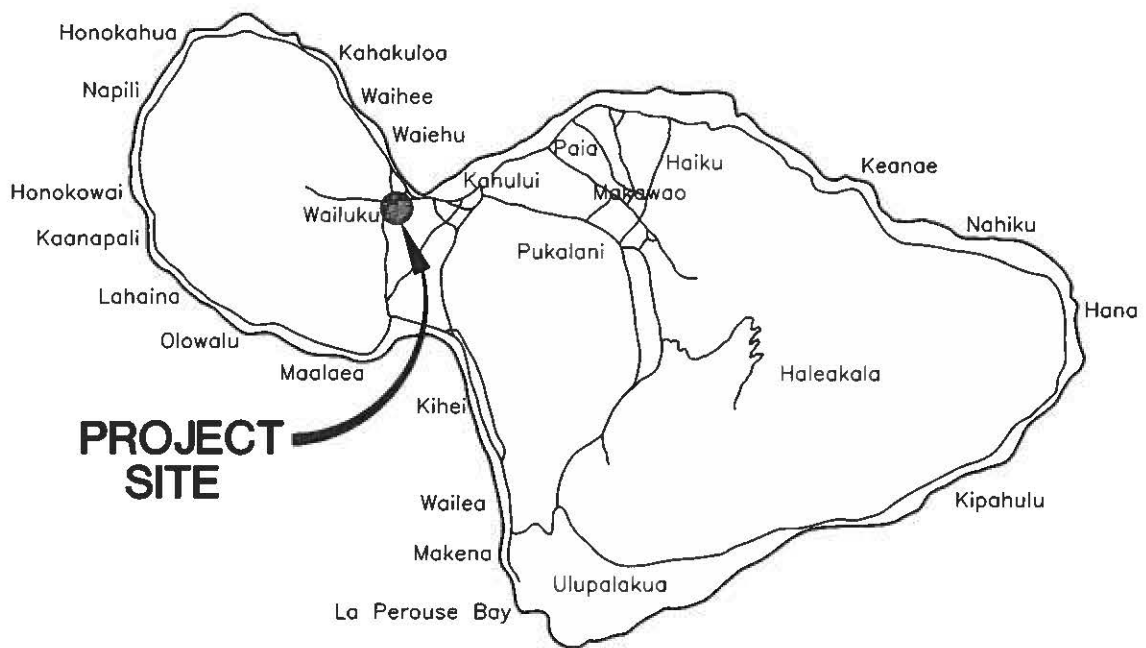
Contribution = 255 gallons/unit/day x 120 units = 30,600 gpd

**Total daily contribution is 30,600 gpd**

## **EXHIBITS**

- 1 Location Map**
- 2 Vicinity Map**
- 3 Soil Survey Map**
- 4 Flood Insurance Rate Map**
- 5 Preliminary Grading & Drainage Plan**



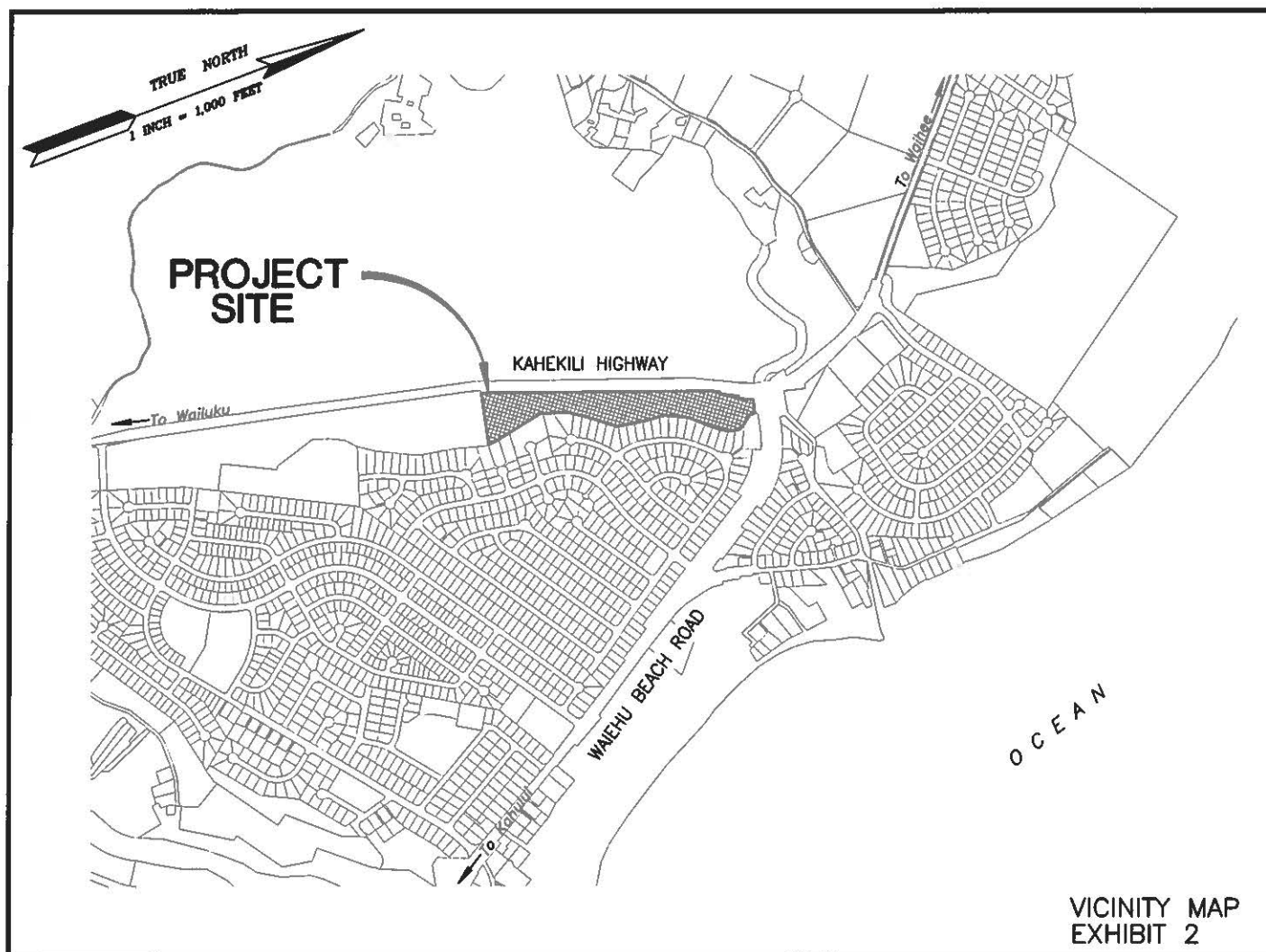


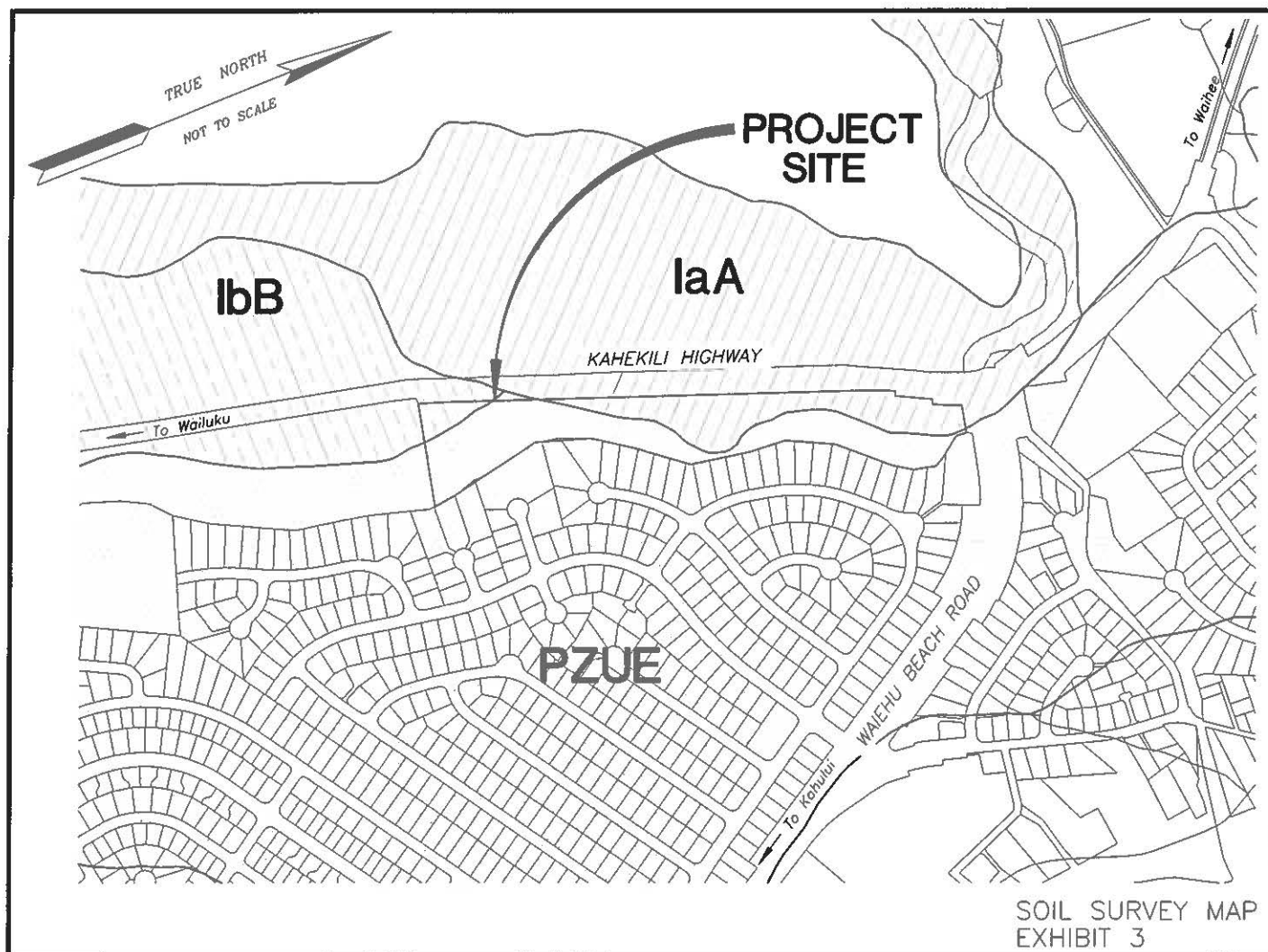
**PROJECT  
SITE**



**ISLAND OF MAUI**  
NOT TO SCALE

LOCATION MAP  
EXHIBIT 1







BASEMAP: FIRM BASEMAP



## Flood Hazard Assessment Report

[www.hawaiiinfip.org](http://www.hawaiiinfip.org)

### Property Information

COUNTY: MAUI  
 TMK NO: (2) 3-3-001:106  
 WATERSHED: WAIHEHU  
 PARCEL ADDRESS: ADDRESS NOT DETERMINED  
 WAILUKU, HI 96793

### Notes:

### Flood Hazard Information

FIRM INDEX DATE: NOVEMBER 04, 2015  
 LETTER OF MAP CHANGE(S): NONE  
 FEMA FIRM PANEL: 1500030383E  
 PANEL EFFECTIVE DATE: SEPTEMBER 25, 2009

THIS PROPERTY IS WITHIN A TSUNAMI EVACUATION ZONE: NO  
 FOR MORE INFO, VISIT: <http://www.scd.hawaii.gov/>

THIS PROPERTY IS WITHIN A DAM EVACUATION ZONE: NO  
 FOR MORE INFO, VISIT: <http://dlnreng.hawaii.gov/dam/>



0 600 1,200 ft

*Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.*

*If this map has been identified as 'PRELIMINARY', please note that it is being provided for informational purposes and is not to be used for flood insurance rating. Contact your county floodplain manager for flood zone determinations to be used for compliance with local floodplain management regulations.*

#### FLOOD HAZARD ASSESSMENT TOOL LAYER LEGEND

*[Note: legend does not correspond with NE H.]*

**SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD** - The 1% annual chance flood (100-year), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. SFHAs include Zone A, AE, AH, AO, V, and VE. The Base Flood Elevation (BFE) is the water surface elevation of the 1% annual chance flood. Mandatory flood insurance purchase applies in these zones:

	Zone A: No BFE determined.
	Zone AE: BFE determined.
	Zone AH: Flood depths of 1 to 3 feet (usually areas of ponding); BFE determined.
	Zone AO: Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined.
	Zone V: Coastal flood zone with velocity hazard (wave action); no BFE determined.
	Zone VE: Coastal flood zone with velocity hazard (wave action); BFE determined.
	Zone AEF: Floodway areas in Zone AE. The floodway is the channel of stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without increasing the BFE.

**NON-SPECIAL FLOOD HAZARD AREA** - An area in a low-to-moderate risk flood zone. No mandatory flood insurance purchase requirements apply, but coverage is available in participating communities.

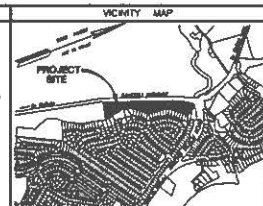
	Zone XS (X shaded): Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
	Zone X: Areas determined to be outside the 0.2% annual chance floodplain.

#### OTHER FLOOD AREAS

	Zone D: Unstudied areas where flood hazards are undetermined, but flooding is possible. No mandatory flood insurance purchase applies, but coverage is available in participating communities.
--	--

EXHIBIT 4





DESIGNED BY: JOTOMO  
CHECKED BY: JOTOMO  
DATE: 12/15/2011

HALE MAHAOLU KE KAHUA HOUSING  
COMMUNITY  
(2) 3-3-301: 106  
WAILUKU, MAUI, HAWAII  
PRELIMINARY GRADING & DRAINAGE PLAN

REVISION: DATE: REVISION: DATE: REVISION: DATE:  
APPROVED BY: JOTOMO  
DATE: 12/15/2011  
PROJECT NO: 2011-10  
SHEET NO: 0002-05  
SCALE: 1/8" = 1'-0"

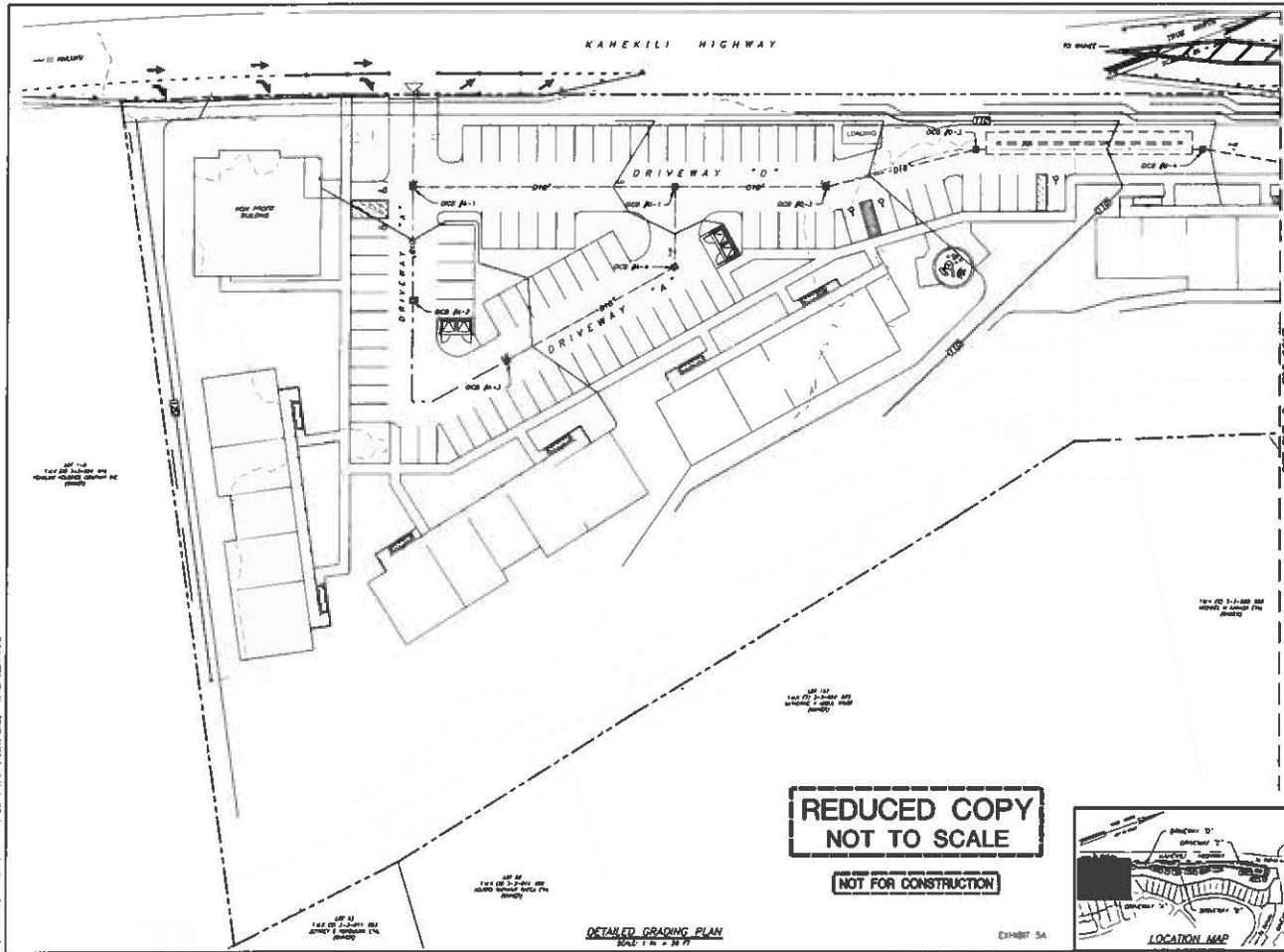
C-1

EXHIBIT 5

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NOT FOR CONSTRUCTION

PRELIMINARY GRADING & DRAINAGE PLAN  
SCALE 1/8" = 1'-0"



**JOTOMO**  
ENGINEERING, PC  
1000 KALANANĀHUNA BLVD, SUITE 100  
HONOLULU, HI 96813  
TEL: 521-1234 FAX: 521-1234  
WWW.JOTOMO-PC.COM

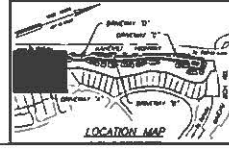
PROJECT: HALE MAHAOLU KE KAHUA HOUSING COMMUNITY  
SHEET: C-2 OF 10  
DATE: 1/10/10

**HALE MAHAOLU KE KAHUA HOUSING COMMUNITY**  
(2) 33-401: 00  
WAILUKU, MAUI, HAWAII  
**DETAILED GRADING PLAN**

NO.	DATE	REVISION
1	1/10/10	ISSUED FOR PERMIT
2	1/10/10	ISSUED FOR CONSTRUCTION
3	1/10/10	ISSUED FOR CONSTRUCTION
4	1/10/10	ISSUED FOR CONSTRUCTION
5	1/10/10	ISSUED FOR CONSTRUCTION
6	1/10/10	ISSUED FOR CONSTRUCTION
7	1/10/10	ISSUED FOR CONSTRUCTION
8	1/10/10	ISSUED FOR CONSTRUCTION
9	1/10/10	ISSUED FOR CONSTRUCTION
10	1/10/10	ISSUED FOR CONSTRUCTION

DESIGNED BY: JOTOMO  
CHECKED BY: JOTOMO  
PROJECT NO: 33-401-00  
SHEET NO: C-2 OF 10  
DATE: 1/10/10

**C-2**



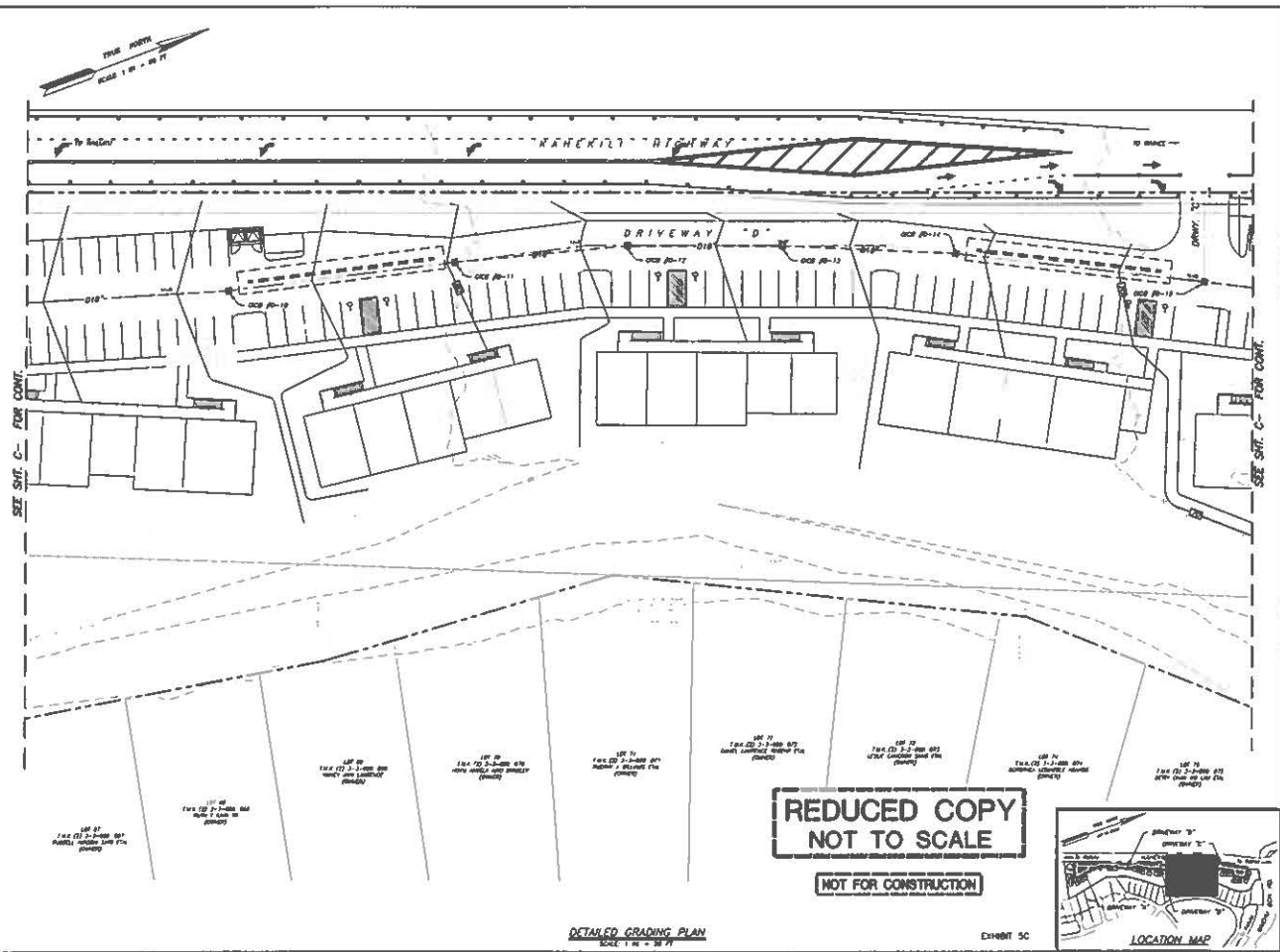
**REDUCED COPY  
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**NOT FOR CONSTRUCTION**

**DETAILED GRADING PLAN**  
SCALE: 1" = 30' 0"

EXHIBIT 5A





**REDUCED COPY  
NOT TO SCALE**

**NOT FOR CONSTRUCTION**



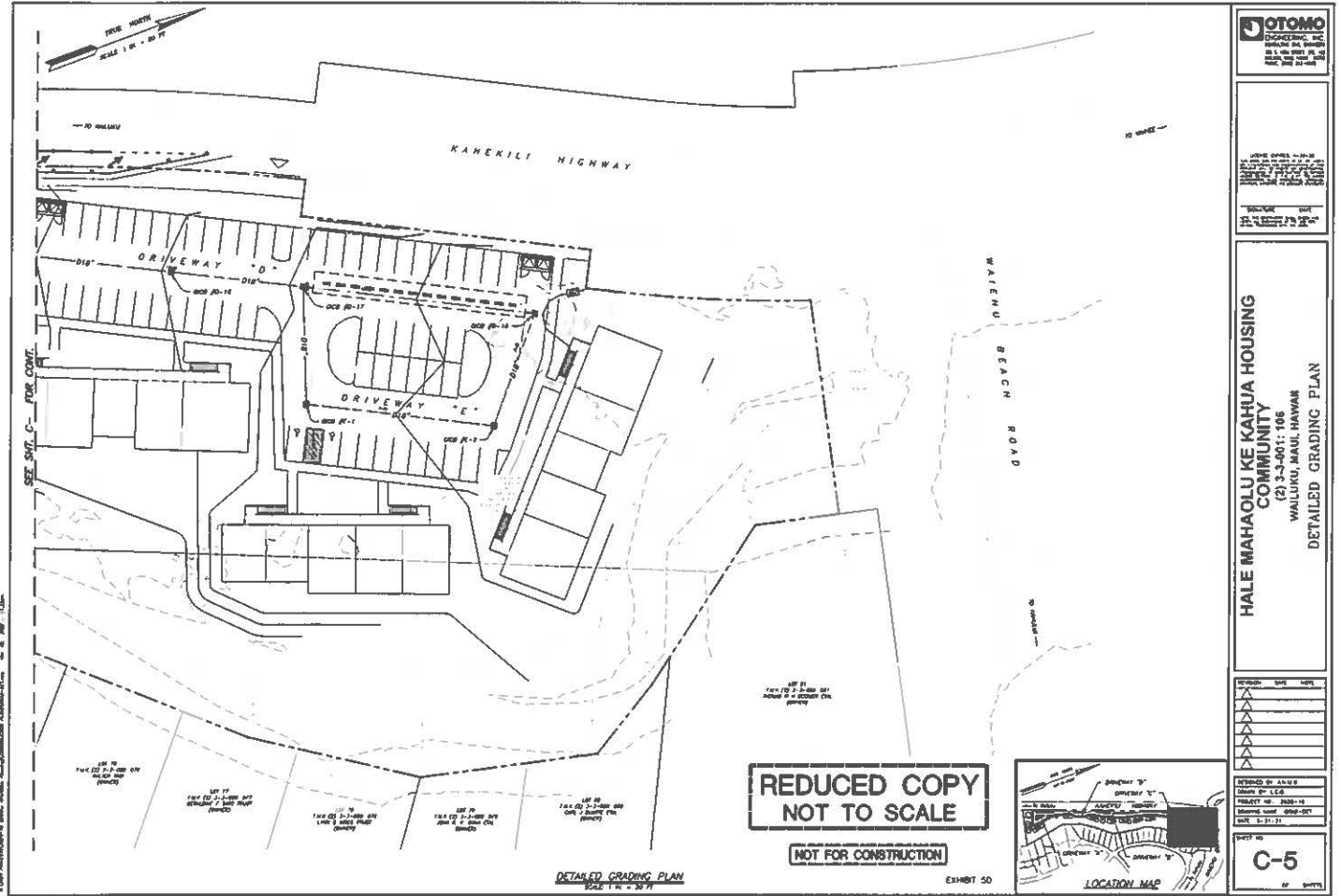
PROJECT NO. 2020-001  
DATE 12/15/2020

**HALE MAHAOLU KE KAHUA HOUSING  
COMMUNITY**  
(2) 3-3-2001: 106  
WALLUKE, MAUI HAWAII  
**DETAILED GRADING PLAN**

REVISION	DATE	BY
1		
2		
3		
4		
5		

DESIGNED BY: JAMES  
CHECKED BY: JES  
PROJECT NO. 2020-001  
SHEET NO. 106-001  
DATE 12/15/2020  
**C-4**





---

**TRAFFIC IMPACT ANALYSIS REPORT  
HALE MAHAOLU KE KAHUA HOUSING  
COMMUNITY  
WAIEHU, MAUI, HAWAII**

**DRAFT FINAL**

April 20, 2022

Prepared for:

Waiehu Housing, LP  
330 W Victoria St.  
Gardena, CA 90248



*Austin, Tsutsumi & Associates, Inc.*  
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E-mail atahnl@atahawaii.com  
Honolulu • Wailuku, Hawaii

---

**TRAFFIC IMPACT ANALYSIS REPORT  
HALE MAHAOLU KE KAHUA HOUSING COMMUNITY  
Waiehu, Maui, Hawaii**

**DRAFT FINAL**

Prepared for

**Waiehu Housing, LP  
330 W Victoria St.  
Gardena, CA 90248**

Prepared by  
**Austin, Tsutsumi & Associates, Inc.**  
Civil Engineers • Surveyors  
Honolulu • Wailuku, Hawaii

April 20, 2022

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AUSTIN, TSUTSUMI & ASSOCIATES, INC. CIVIL ENGINEERS • SURVEYORS  
CONTINUING THE ENGINEERING PRACTICE FOUNDED BY H. A. R. AUSTIN IN 1934

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MATT K. NAKAMOTO, P.E.  
GARRETT K. TOKUOKA, P.E.

AURILINE W. H. WONG, P.E., LEED AP  
Sabel Branch Manager

## TRAFFIC IMPACT ANALYSIS REPORT HALE MAHAOLU KE KAHUA HOUSING COMMUNITY Waiehu, Maui, Hawaii

### 1. INTRODUCTION

This report documents the findings of a traffic study conducted by Austin, Tsutsumi & Associates, Inc. (ATA) to evaluate the potential traffic impacts resulting from the proposed Hale Mahaolu Ke Kahua Housing Community (hereinafter referred to as the "Project").

#### 1.1 Location

The Project is located upon approximately 11.5 acres of vacant land in Waiehu, east of Kahekili Highway and south of Waiehu Beach Road. Figure 1.1 shows the location of the proposed Project site.

#### 1.2 Project Description

The Project proposes to construct 120 units of affordable housing, an approximately 3,231 SF community clubhouse and an approximately 3,477 SF non-profit building. The Project will be accessible from three (3) driveways along Kahekili Highway. The northern (Project Driveway 1) and southernmost (Project Driveway 3) accesses will be restricted to right-in, right-out access only. The middle access (Project Driveway 2) will be an unsignalized full-access driveway. The site plan can be found in Figure 1.2.

REPLY TO:  
501 SUMNER STREET, SUITE 521 • HONOLULU, HAWAII 96817-5031  
PHONE (808) 533-3646 • FAX (808) 536-1267  
EMAIL: atg@atahawaii.com

OFFICES IN:  
HONOLULU, HAWAII  
WAILUKU, MAUI, HAWAII  
HILO, HAWAII

## HALE MAHAOLU KE KAHUA HOUSING COMMUNITY

AustinTsutsumi  
ASSOCIATES, INC.  
Engineers & Surveyors

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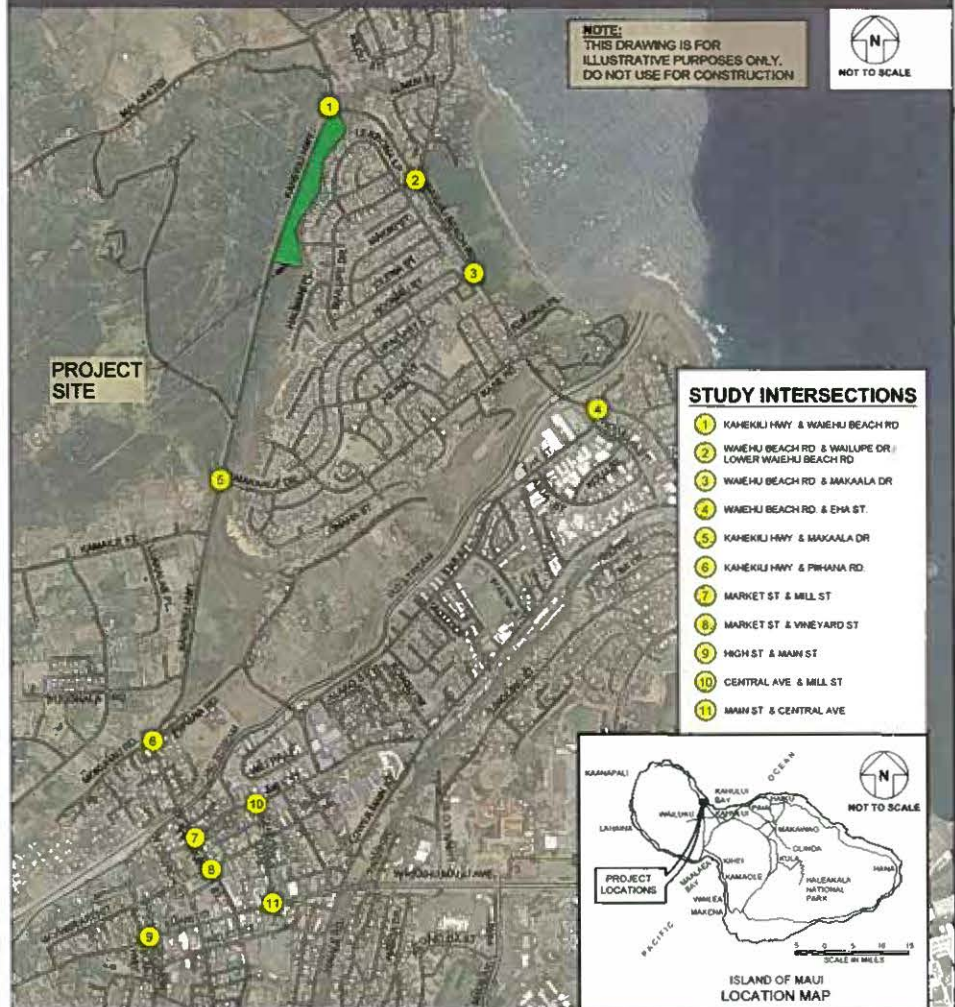
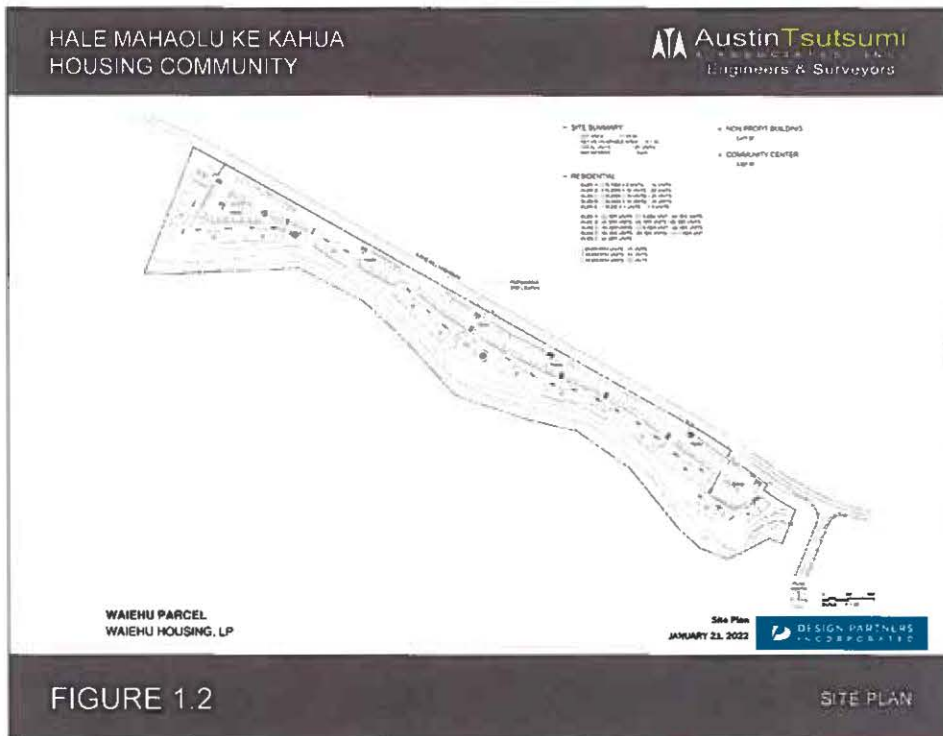


FIGURE 1.1

LOCATION MAP



## 2. METHODOLOGY

### 2.1 Study Methodology

This study will address the following:

- Assess existing traffic operating conditions at key intersections during the weekday morning (AM) and afternoon (PM) peak hours of traffic within the study area.
- Traffic projections for Year 2024 without the Project including traffic generated by other known developments in the vicinity of the Project in addition to an ambient growth rate. These other known developments are projects that are currently under construction or known new/future developments that are anticipated to affect traffic demand and operations within the study area.
- Traffic projections for Year 2024 with the Project, which includes Year 2024 without Project traffic volumes in addition to traffic volumes generated by the Project.
- Recommendations as needed to mitigate any impacts resulting from the addition of Project traffic.

### 2.2 Intersection Analysis

Level of Service (LOS) is a qualitative measure used to describe the conditions of traffic flow at intersections, with values ranging from free-flow conditions at LOS A to congested conditions at LOS F. The Highway Capacity Manual (HCM), 6<sup>th</sup> Edition, includes methods for calculating volume to capacity ratios, delays, and corresponding Levels of Service that were utilized in this study. LOS definitions for signalized and unsignalized intersections are provided in Appendix B.

Analyses for the study intersections were performed using the traffic analysis software Synchro, which is able to prepare reports based on the methodologies described in the HCM. These reports contain control delay results as based on intersection lane geometry, signal timing, and hourly traffic volumes. Based on the vehicular delay at each intersection, a LOS is assigned to each approach and intersection movement as a qualitative measure of performance. These results, as confirmed or refined by field observations, constitute the technical analysis that will form the basis of the recommendations outlined in this report.

### 2.3 Study Area Intersection Analysis

Intersection analysis within the Project study area was performed on the following intersections due to their proximity to the Project:

- Kahekili Highway/Waiehu Beach Road (unsignalized)
- Kahekili Highway/Piihaha Road/Mokuahau Road/Market Street (unsignalized)
- Kahekili Highway/Makaala Road (unsignalized)
- Waiehu Beach Road/Eha Street (signalized)
- Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road (unsignalized)
- Waiehu Beach Road/Makaala Drive (unsignalized)

- Main Street/Central Avenue (signalized)
- Main Street/High Street (signalized)
- Market Street/Mill Street (unsignalized)
- Market Street/Vineyard Street (unsignalized)
- Mill Street/Central Avenue (unsignalized)

### 3. EXISTING CONDITIONS

#### 3.1 Roadway System

The following are brief descriptions of the existing roadways in the vicinity of the Project:

Central Avenue is a north-south, two-way, two-lane roadway that begins to the north at its intersection with Mill Street and continues southward until its intersection with Main Street.

Eha Street is a two-way, two-lane, east-west roadway that provides access to commercial and residential areas. Eha Street begins to the west at its intersection of Wili Pa Loop and Imi Kala Street and continues eastward until its intersection with Waiehu Beach Road.

High Street is a north-south, two-way, two-lane, County roadway that begins to the north at its intersection with Vineyard Street and continues southward until its intersection with Keanu Street, where it transitions to Honoapiilani Highway.

Kahekili Highway is a two-way roadway. This roadway begins to the south at its intersection with Mokuahau Road and Piihaha Road and North Market Street and extends northward and then westward, generally following the coastline until it transitions to Honoapiilani Highway west of its intersection with Honokohau Valley Road.

Lower Waiehu Beach Road is a two-way, two-lane local roadway that begins to the west at its intersection with Waiehu Beach Road and Wailupe Drive and extends northeast generally following the coastline until it terminates at Waiehu Beach Park.

Main Street is an east-west, two-way, two-lane roadway that provides connectivity to commercial areas in Wailuku. Main Street begins to the east at its intersection with Lower Main Street and Kaahumanu Avenue and continues westward where it splits into Iao Valley Road and West Alu Road. Along Main Street near Central Avenue and High Street, marked curbside parking is available. This roadway begins to the west with its intersection with Kahekili Highway and continues eastward until its intersection with Waiehu Beach Road.

Market Street is a north-south, two-way, two-lane roadway that begins to the north as North Market Street at its intersection with Kahekili Highway, Piihaha Road and Mokuahau Road, and extends southward until its intersection with Main Street, where it transitions into South Market Street. Market Street is a two-way, two-lane roadway between its northern terminus and Vineyard Street. Between Vineyard Street and Main Street, Vineyard Street is a one-lane, one-way northbound roadway. Market Street serves many businesses and homes in Wailuku Town and provides regional access to Waihee via Kahekili Highway.

Mill Street is an east-west, two-way, two-lane roadway that begins to the west at its intersection with North Market Street and extends westward until it terminates to the east at its intersection with Lower Main Street. Mill Street serves a number of businesses and homes in Wailuku.

Mokuahau Road is an east-west, two-way, two-lane roadway that begins to the east at its intersection with Kahekili Highway, Piihaha Road, and North Market Street, and extends westward until it terminates in a cul-de-sac near the Konko Mission of Wailuku.

Piihaha Road is an east-west, two-way roadway that begins to the west at its intersection with Kahekili Highway, Mokuahau Road, and North Market Street and extends eastward for approximately one mile, where it terminates in a cul-de-sac. Piihaha Road serves mostly residential and agricultural uses.

Vineyard Street is an east-west, two-way, two-lane roadway that begins to the east as a cul-de-sac near the Vineyard Street/Mission Street intersection and extends westward until it transitions into Iiina Street about 600 feet west of Uhiwai Place.

Waiehu Beach Road is generally a north-south, two-way roadway that begins to the south at its intersection with Kahului Beach Road and Lower Main Street, and extends northward and terminates at its intersection with Kahekili Highway near the Waiehu Stream.

Wailupe Drive is a two-way, two-lane roadway that provides access for residences in Waiehu Heights. Wailupe Drive begins to the east at its intersection with Waiehu Beach Road and Lower Waiehu Beach Road and extends westward and southwest until it terminates in a cul-de-sac near its intersection with Olena Street.

#### 3.2 Existing Traffic Volumes

The hourly turning movement counts utilized in this report were recorded on the dates shown below:

- Kahekili Highway/Waiehu Beach Road (Tuesday May 1, 2018)
- Kahekili Highway/Piihaha Road/Mokuahau Road/Market Street (Tuesday September 20, 2016)
- Kahekili Highway/Makaala Road (Thursday April 11, 2019)
- Waiehu Beach Road/Eha Street (Thursday May 3, 2018)
- Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road (February 18, 2021)
- Waiehu Beach Road/Makaala Drive (Tuesday September 20, 2016)
- Main Street/Central Avenue (Tuesday May 8, 2018)
- Main Street/High Street (Tuesday May 1, 2018)
- Market Street/Mill Street (Tuesday May 1, 2018)
- Market Street/Vineyard Street (Thursday February 2, 2017)
- Mill Street/Central Avenue (Tuesday May 1, 2018)



Based on traffic count data, the weekday AM and PM peak hours of traffic were determined to generally occur between 6:45 AM - 7:45 AM, and 4:00 PM - 5:00 PM, respectively. Turning movement count data may be found in Appendix A.

Due to COVID-19, traffic volumes throughout Maui were significantly lower than normal levels. For this reason, turning movement counts that were collected in 2016-2019, prior to COVID-19, were utilized for this study. Based on early consultation with State DOT and County Department of Public Works, the use of historic counts were acceptable to reflect existing conditions. To be conservative, a growth rate of 2.0% per year along Kahekili Highway, 1.4% per year along Waiehu Beach Road, 1.0% per year along Main Street, and 0.9% along Honoapiilani Highway/High Street was applied to increase counts recorded between 2016-2019 to constitute "Existing 2020" volumes analyzed in this study.

Historic counts for the Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road intersection were not available; therefore turning movement counts were collected in February 2021. To adjust these counts to pre-COVID-19 levels, traffic counts were concurrently taken at the Waiehu Beach Road/Makaala Drive intersection in 2021, and was compared to pre-COVID 2016 volumes for that intersection to determine calculated rate increase from 2021 to 2016. Counts at the Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road were increased by 20-57% along most movements based on these calculated rates.

### 3.3 Existing Traffic Conditions Analysis and Observations

The analysis and observations described below are based on prevailing conditions during the time at which the data was collected. For purposes of this study, Kahekili Highway and Waiehu Beach Road are assumed to be in the north-south direction except at its intersection, where the Waiehu Beach Road approach is designated in the westbound direction.

#### 3.3.1 Regional Observations

The Waiehu area in the immediate vicinity of the Project is largely comprised of single-family homes, with a few community parks. This area is served by Waiehu Beach Road and Kahekili Highway – the two regional roadways that provide access to schools and commercial areas in Kahului and Wailuku.

During the AM peak hour as residents leave for work and school, southbound Waiehu Beach Road experiences extensive queueing which stems from the Waiehu Beach Road/Eha Street intersection and at its maximum queue, extends over 1 mile near to the Kahekili Highway/Waiehu Beach Road intersection. The length of time in queue can vary between 6-15 minutes from the back of the maximum queue to clear the Waiehu Beach Road/Eha Street intersection. As a result of the queue spillback along Waiehu Beach Road, right-turning movements from side streets turning onto southbound Waiehu Beach Road can experience slower progression or blockages, resulting in varying lengths of side street queues. However, these right-turn vehicles were also observed to slowly but consistently filter into the Waiehu Beach Road queue, which helped to process lengthy side street queues. The congestion along Waiehu Beach Road generally lasted for about an hour and dissipated completely by 8:00 AM.

Also during the AM peak period (roughly 7:15-7:45 am), southbound traffic along Kahekili Highway was observed to queue from the Happy Valley area and extend to between Puohala Road and Makaala Drive. By 8:00 AM, all queues had dissipated. The length of time in queue can

vary between 4-8 minutes. No persistent queueing was observed along Kahekili Highway or Waiehu Beach Road during the PM peak hour.

Main Street experiences relatively slow-moving stop-and-go traffic conditions due to on-street parking stalls, pedestrian crossing and numerous businesses and driveways throughout the stretch in the study area.

#### 3.3.2 Existing Intersection Analysis

##### Kahekili Highway/Waiehu Beach Road

All movements operate at LOS C or better across both peak hours. All approaches are currently single shared lanes. The following operational observations were made:

- Relatively low westbound left-turn peak traffic of only 36(31) left-turners during the AM(PM) peak hours of traffic that infrequently blocked westbound right-turn progression.
- Low conflicting northbound traffic provided frequent gaps in traffic that allowed multiple westbound right-turn vehicles and southbound left-turn vehicles to proceed unimpeded.
- No lengthy queues were observed along the southbound Kahekili Highway approach due to low conflicting northbound traffic.
- Southbound left-turn vehicles were observed to frequently slow down or stop to allow the more critical westbound left-turn vehicles to proceed through the intersection, thereby reducing overall westbound approach delays and right-turn obstructions. Westbound approach queues along Waiehu Beach Road were manageable, extending about 250-350 feet long at its maximum.

Although LOS operations are acceptable and queueing was observed to be moderate during the heavier AM peak hour, signal warrant analysis indicated a signal would be warranted ONLY if both westbound left-turn and right-turn movement volumes are included in the warrant (due to the shared lane). In lieu of a signal, the County could consider widening to provide exclusive left-turn and right-turn lanes along the westbound Waiehu Beach Road approach and an exclusive left-turn lane along the southbound Kahekili Highway approach. With this widening improvement, the intersection would just fall short of warranting a signal. Alternatively, a roundabout could be considered. However, existing corners of the intersection are relatively steep drop-offs that would need to be shored up to contain the wider pavement footprint for any auxiliary lane widening improvements or a roundabout.

##### Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road

During the AM and PM peak hours, the eastbound and westbound stop-controlled movements along Wailupe Drive and Lower Waiehu Beach Road operate at LOS E/F, though these movements continued to operate under capacity. As previously mentioned, during the AM peak hour, traffic along Waiehu Beach Road was observed to queue beyond the Waiehu Beach Road/Wailupe Drive/Waiehu Beach Road intersection. When this occurs, right-turning movements from Wailupe Drive turning onto southbound Waiehu Beach Road can experience slower progression, but they consistently filtered into the slow-moving Waiehu Beach Road queue.



#### Waiehu Beach Road/Makaala Drive

All movements at the Waiehu Beach Road/Makaala Drive intersection operate at LOS D or better across both peak hours, with the exception of the eastbound right-turn movement, which operates at LOS F during the AM peak hour due to high southbound Waiehu Beach Road traffic conflicting with a high 417-vehicle right-turn volume from Makaala Drive. Similar to the Waiehu Beach Road/Wailupe Drive/Lower Waiehu Beach Road intersection, extensive queueing during the AM peak hour along Waiehu Beach Road resulted in the eastbound Makaala Drive right-turn movement experiencing slower progression, but they consistently filtered into the slow-moving Waiehu Beach Road queue. Queues along Makaala Drive ranged from 10-40 vehicles long and at its longest, require 2-4 minutes to turn onto Waiehu Beach Road.

The northbound left-turn movement volume along Waiehu Beach Road exceeds 300 vehicles during the PM peak hour, but observations indicate that frequent gaps in traffic resulted in minimal delays and queues. Left-turn queues remained within the left-turn auxiliary lane, with queues only stacking from 1-3 vehicles at a time.

#### Waiehu Beach Road/Eha Street

During the AM peak hour, the Eha Street and Nukuwai Place approaches and Waiehu Beach Road northbound left-turn and southbound through movements operate at LOS F. Turning movements suggest that a significantly high volume – about one-third of the total southbound Waiehu Beach Road volume in the AM peak hour – turns right onto Eha Street. An existing right-turn auxiliary lane is provided, but is relatively short (150' long) due to the constraints of the upstream bridge over Wailuku River that limits the lengthening of this right-turn pocket. This short right-turn lane along Waiehu Beach Road leads to two issues during the AM peak hour that contributes to the lengthy AM queues along Waiehu Beach Road:

- Forces these right-turning vehicles to decelerate in the through lane, slowing progression along Waiehu Beach Road and through the intersection.
- When given a red light, southbound through vehicles will queue up in the through lane, blocking access to the right-turn lane. When this occurs, right-turning vehicles will be locked up in the same queue as through vehicles, further expanding the queues along Waiehu Beach Road.

#### Kahekili Highway/Makaala Drive

All movements operate adequately at LOS C or better across both peak hours. Based on observations when southbound queues extended beyond Makaala Drive, southbound vehicles allowed westbound left-turn vehicles to proceed through the intersection. As a result, westbound left-turn queues were observed to extend by only 5-6 cars at its maximum.

#### Kahekili Highway/Market Street/Mokuau Road/Piihaha Road

All movements at this intersection operate at LOS D or better across both peak hours with the exception of the westbound approach along Piihaha Road, which operates at LOS E during the AM peak hour, though significantly under capacity. Due to the skewed alignment of this intersection, the Piihaha Road approach is provided with limited sight-distance to conflicting southbound traffic along Kahekili Highway.

#### Market Street/Mill Street

During the AM peak hour, lengthy southbound congestion occurs along Market Street, primarily stemming from this intersection. Turning movements suggest that a significantly high volume – about half of the total southbound Market Street approach volume in the AM peak hour – turns left onto Mill Street. An existing left-turn auxiliary lane is provided, but is relatively short (100' long). This short left-turn lane along Market Street locks up southbound left-turn vehicles in the same queue as through vehicles, lengthening the queues beyond Happy Valley.

The westbound Mill Street left-turn movement operates at LOS F during the AM and PM peak hour. However, observations show that mainline traffic along Market Street frequently stopped to allow left-turners to proceed, resulting in significantly less delays and queues. Average westbound approach queues were relatively minimal with only 1-4 vehicles and occasional maximum queues of 5-7 vehicles.

#### Main Street/Central Avenue

All movements at this intersection operate at LOS D or better across both peak hours with the exception of the southbound left-turn movement which operates at LOS E during the AM peak hour due to the coordinated signal timings which favor progression along Main Street. Queues along Central Avenue can spill back near to Vineyard Street in the southbound direction for portions of the AM and PM peak periods.

#### Main Street/High Street

All movements operate at LOS B or better across both peak hours. During both peaks, southbound traffic can queue back from Main Street to Vineyard Street in part, due to the single shared lane approach. Traffic along the northbound approach varies during the AM peak hour due to commuter traffic and school related traffic.

#### Mill Street/Central Avenue

All movements operate at LOS D or better across both peak hours. Left and right-turn movements into Central Avenue towards Main Street and right-turns out of Central Avenue towards Imi Kala Drive are relatively high, ranging from 150-250 vehicles. All approaches are shared lane approaches with no auxiliary lanes. Queues can vary based on platoons of conflicting vehicles, but no consistent congestion was observed.

#### Market Street/Vineyard Street

This four-way stop controlled intersection operates adequately with all movements at LOS D or better. Based on AM observations, southbound traffic occasionally spilled back into the Market Street/Mill Street intersection, which partly contributed to heavy AM congestion on Kahekili Highway.

See Figure 3.1 for the laneage, volumes and LOS for Existing Conditions and Table 3.1 for a summary of LOS.

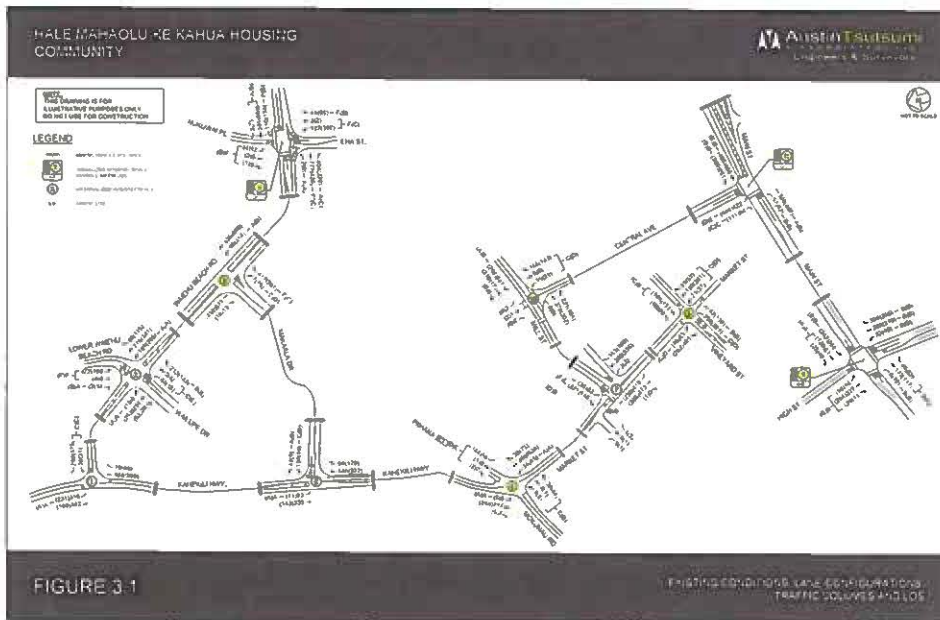


Table 3.1 Existing 2020 Conditions  
Level of Service Summary

Intersection	Existing 2020 Conditions					
	AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
<b>1: Kahekili Hwy &amp; Waiehu Beach Road</b>						
WB LT/RT	23.4	0.64	C	17.7	0.58	C
SB LT	8.5	0.25	A	8.6	0.20	A
Overall	8.6	-	-	8.4	-	-
<b>2: Waiehu Beach Rd &amp; Wallupe Dr./Lower Waiehu Beach Rd</b>						
NB LT	8.3	0.10	A	8.6	0.18	A
EB LT/TH	22.8	0.20	C	37.9	0.16	E
EB RT	12.5	0.32	B	11.3	0.21	B
WB LT/TH	61.0	0.69	F	116.2	0.80	F
WB RT	9.8	0.02	A	10.8	0.01	B
SB LT	7.9	0.00	A	8.4	0.02	A
Overall	10.7	-	-	10.6	-	-
<b>3: Waiehu Beach Rd &amp; Makaala Dr</b>						
NB LT	9.3	0.11	A	10.0	0.32	B
EB LT	16.7	0.02	C	30.6	0.10	D
EB RT	56.4	0.94	F	15.1	0.38	C
Overall	17.0	-	-	4.1	-	-
<b>4: Waiehu Beach Rd &amp; Ewa St</b>						
NB LT	105.4	0.87	F	15.6	0.29	B
NB TH/RT	5.8	0.29	A	19.9	0.77	B
EB LT/TH	105.7	0.70	F	30.8	0.70	C
EB RT	89.6	0.25	F	19.8	0.10	B
WB LT/TH/RT	86.4	0.09	F	18.9	0.01	B
SB LT	5.2	0.00	A	0.0	0.00	A
SB TH	79.8	1.07	F*	24.1	0.57	C
SB RT	9.4	0.36	A	20.3	0.35	C
Overall	52.6	-	D	22.9	-	C
<b>5: Kahekili Hwy &amp; Makaala Dr</b>						
WB LT	21.6	0.41	C	13.5	0.18	B
WB RT	9.5	0.06	A	10.1	0.01	B
SB LT	7.9	0.07	A	8.2	0.01	A
Overall	5.0	-	-	2.0	-	-
<b>6: Market St/Kahekili Hwy &amp; Mokuau Rd/Pilihana Rd</b>						
NB LT	9.5	0.04	A	7.9	0.04	A
EB LT/TH/RT	19.2	0.17	C	12.0	0.10	B
WB LT/TH/RT	49.2	0.47	E	31.0	0.27	D
SB LT	8.0	0.00	A	8.9	0.01	A
Overall	3.7	-	-	2.4	-	-
<b>7: Market St &amp; Mill St</b>						
WB LT	191.8	0.75	F	62.5	0.39	F
WB RT	12.5	0.25	B	34.7	0.77	D
SB LT	10.8	0.43	B	11.0	0.30	B
Overall	8.3	-	-	10.2	-	-

Table 3.1 Existing 2020 Conditions  
Level of Service Summary Cont'd

Intersection	Existing 2020 Conditions					
	AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
<b>8: Market St &amp; Vineyard St</b>						
NB LT/TH/RT	15.6	0.49	C	29.7	0.76	D
EB LT	17.2	0.47	C	26.4	0.68	D
EB TH	10.7	0.09	B	13.0	0.26	B
WB TH/RT	13.9	0.36	B	15.4	0.38	C
SB LT/RT	25.1	0.77	D	20.0	0.62	C
Overall	19.3	-	C	23.1	-	C
<b>9: High St. &amp; Main St</b>						
NB LT	10.9	0.08	B	11.3	0.12	B
NB TH	12.2	0.38	B	13.5	0.55	B
NB RT	14.9	0.68	B	11.2	0.18	B
EB LT	14.8	0.02	B	17.2	0.05	B
EB TH/RT	18.6	0.63	B	20.7	0.60	C
WB LT	10.4	0.47	B	11.5	0.59	B
WB TH/RT	6.8	0.14	A	7.5	0.16	A
SB LT/TH/RT	14.2	0.61	B	14.7	0.63	B
Overall	13.4	-	B	13.4	-	B
<b>10: Central Ave. &amp; Mill St</b>						
NB LT/RT	19.9	0.42	C	34.6	0.65	D
WB LT	10.4	0.29	B	9.2	0.24	A
Overall	4.9	-	-	7.8	-	-
<b>11: Main St &amp; Central Ave.</b>						
EB LT	11.5	0.13	B	13.1	0.15	B
EB TH	0.6	0.30	A	13.0	0.38	B
WB TH	17.8	0.47	B	19.8	0.52	B
WB RT	12.4	0.05	B	14.0	0.13	B
SB LT	56.9	0.91	E	52.8	0.90	D
SB RT	34.9	0.02	C	32.2	0.14	C
Overall	25.7	-	C	27.3	-	C

\* Denotes over-capacity conditions

### 3.4 Multimodal Facilities

#### 3.4.1 Bicycle and Pedestrian Facilities

Sidewalks are provided along the majority of roadways in the adjacent Waiehu Heights subdivision, although there is minimal connectivity to nearby Wailuku or Kahului. There are currently no sidewalks provided along Kahekili Highway in the study area.

HDOT completed the Bike Plan Hawaii Master Plan. This Bike Master Plan identifies existing and proposed bicycle facilities. The following locations provide existing bike facilities:

- Waiehu Beach Road between Kahekili Highway and Kahului Beach Road
- Kahekili Highway between Waiehu Beach Road and Piihaha Road
- Kaahumanu from Lunalilo Street, through to Hana Highway
- Kanaloa Avenue from Kahului Beach Road, through to Mahalani Street.

The Bike Plan Hawaii Master Plan identifies the following locations as future signed-shared roadways in the vicinity of the Project:

- Main Street between High Street and Kaahumanu Avenue
- Market Street between Main Street and Piihaha Road

A map of the existing and proposed pedestrian and bicycle facilities can be found in Figure 3.2.

#### 3.4.2 Transit Accessibility Plan

The Maui Bus system offers several routes that connect the major areas in Maui. There are several routes in the Project vicinity:

- Waihee Villager Route 8 runs between Queen Kaahumanu Center in Kahului and the Richard Pablo Caldito Sr Park, via Kahului Beach Road, Waiehu Beach Road, and Kahekili Highway.
- Wailuku Loop Routes 1 and 2 serves a number of locations throughout Waiale, Waikapu and Wailuku. Near the Project, there are several stops for both routes along Makaala Drive and Waiehu Beach Road.

In the vicinity of the Project, the nearest bus stop is located along Kahekili Highway about 0.20 miles north of the Kahekili Highway/Waiehu Beach Road intersection. A map of the transit routes are shown in Figure 3.3.



# HALE MAHAOLU KE KAHUA HOUSING COMMUNITY

**AustinTutsumi**  
ASSOCIATES, INC.  
Engineers & Surveyors

## LEGEND

- EXISTING SIDEWALKS
- EXISTING BIKE ROUTES
- PROPOSED SIGNED-SHARED ROADWAY
- STUDY INTERSECTION

PROJECT  
SITE



NOT TO SCALE

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FIGURE 3.2

EXISTING PEDESTRIAN AND  
BICYCLE FACILITIES

# HALE MAHAOLU KE KAHUA HOUSING COMMUNITY

**AustinTutsumi**  
ASSOCIATES, INC.  
Engineers & Surveyors

## LEGEND

- WAIHEE VILLAGER ROUTE 8
- WAILUKU LOOP ROUTES 1 & 2
- EXISTING BUS STOPS
- STUDY INTERSECTION

PROJECT  
SITE



NOT TO SCALE

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FIGURE 3.3

EXISTING TRANSIT FACILITIES



#### 4. BASE YEAR 2024 TRAFFIC CONDITIONS

The Year 2024 was selected to reflect the completion year of the Project.

##### 4.1 Defacto Growth Rate

Projections for Base Year 2024 traffic were based upon existing traffic counts performed by ATA, ambient regional growth, and nearby developments in the immediate vicinity of the Project. Based on historic regional growth comparisons and traffic forecasts based on the Maui Regional Travel Demand Model (MRTDM), ambient growth was conservatively estimated to be approximately 1.4% per year along Waiehu Beach Road, 2% per year along Kahekili Highway, 1.0% per year along Main Street, and 0.9% per year along Honoapiilani Highway/High Street.

##### 4.2 Traffic Forecasts for Known Developments

The following developments are anticipated to be completed in the vicinity of Study Area by the Year 2024:

- Boys & Girls Clubhouse proposes a two-story clubhouse that will replace the existing covered basketball court adjacent to the Paukukalo Community Center in Waiehu.
- Waituku Civic Complex (WCC) proposes infrastructure improvements along Church Street and Vineyard Street as part of phase 1A. Phase 1B will construct a new multi-level parking. Phase 2 of WCC, which would construct a civic building and plaza remains uncertain due to funding issues. To remain conservative, all phases of WCC was assumed to be constructed by Year 2024 for purposes of this TIAR.
- Waituku Hotel proposes a 160-room hotel with café/eating establishment at the corner of Main Street/Market Street. Full build-out and occupancy is anticipated by year 2024.

The former Hale Mua residential development adjacent and mauka of the Project site is actively being planned, but since final plans and build-out of this development is currently unknown and likely to be completed after construction of the Project, it was not included in this study. Table 4.1 shows the trips generated by each respective development and Figure 4.1 shows the locations of the known developments.

Table 4.1: Trips Generated by Known Developments

Known Development	AM Peak Hour			PM Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total
Boys & Girls Clubhouse	21	11	32	10	11	21
Waituku Civic Complex	335	92	427	240	387	627
Waituku Hotel	44	31	75	49	47	96

## HALE MAHAOLU KE KAHUA HOUSING COMMUNITY

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FIGURE 4.1

BACKGROUND PROJECTS

### 4.3 Planned Roadway Improvements

The Maui Metropolitan Planning Organization prepared The Hele Mai Maui Long Range Transportation Plan 2040 dated December 2019 (hereinafter referred to as "Hele Mai Maui L RTP 2040 Plan"). The Hele Mai Maui L RTP 2040 Plan identifies various long-range transportation improvements for the island of Maui, many of which are improvements previously identified as future planned, programmed or funded improvements by Maui County or The State of Hawaii.

The Hele Mai Maui L RTP 2040 Plan identifies several improvements in the Study Area. However, the only active Project in the area is the following:

- Mill Street Pavement Reconstruction – Pavement along Mill Street is planned to be reconstructed. No widening capacity improvements, additional lanes or traffic control changes are planned and will therefore not impact vehicular operational conditions on Mill Street. Future intersection improvements have been identified at the Mill Street/Imi Kala Street Intersection, but is not planned as part of the Mill Street Pavement Reconstruction Project.

The following roadway improvements are identified in the Hele Mai Maui L RTP 2040 Plan, but since they are not anticipated to be constructed by Year 2024, they were not included in this TIAR:

- Imi Kala Street Extension (Phase I) & Imi Kala Bridge Improvements - This regional improvement would provide a new paved roadway stemming from Kahekili Highway to the north and traversing south, intersecting with Piihaha Road and terminating at the south end at the existing Imi Kala Street/Wli Pa Loop/Eha Street intersection. The existing Imi Kala Bridge will also be reconstructed to meet the traffic demands. This improvement is planned to alleviate some of the traffic congestion along Kahekili Highway and Waiehu Beach Road. This improvement was previously tied to the conditions of approval for the former Hale Mua development. However, since these conditions of approval have been terminated, there is currently no timeframe for completion of this improvement and was therefore not included in this TIAR.
- Imi Kala Street Extension (Phase II) – This improvement is planned by Maui County and would provide a new paved roadway stemming from the existing Imi Kala Street/Mill Street intersection and traverse south, adjacent to St. Anthony School, terminating at the south end at Lower Main Street. Based on discussions with County DPW, there is currently no timeframe for completion of this improvement and was therefore not included in this TIAR.

### 4.4 Base Year 2024 Analysis

The ambient traffic growth and trips generated by background developments are anticipated to increase traffic by 30-60 vehicles along Kahekili Highway and 10-15 vehicles along Waiehu Beach Road in the vicinity of the Project site. Based on these increases, most intersections will operate similar to existing conditions. Various intersections along Kahekili Highway and Waiehu Beach Road will continue to operate with LOS E/F movements during the AM peak hour, reflective of existing congestive conditions. The following intersections will experience movements that worsen to LOS E/F conditions. As discussed above, the Imi Kala Bridge Street Extension and Bridge Improvements is the long-range improvement planned to mitigate some of the congestive conditions along Kahekili Highway and Waiehu Beach Road.

### Kahekili Highway/Market Street/Mokuhan Road/Piihaha Road

All movements at this intersection operate at LOS C or better across both peak hours with the exception of the westbound approach, which is anticipated to worsen from LOS E to LOS F during the AM peak hour and LOS D to LOS E during the PM peak hour. The westbound approach will continue to service a relatively low volume of 50-70 peak vehicles per hour and will continue to operate under capacity with little to no queuing.

### Market Street/Vineyard Street

At the Market Street/Vineyard Street intersection, the southbound approach is anticipated to worsen from LOS D to LOS F during the AM peak hour, primarily due to traffic increases potentially generated by the proposed Wailuku Civic Complex. During the PM peak hour, the northbound approach and the eastbound left-turn are anticipated to lower to LOS F, and the southbound approach is anticipated to lower to LOS E over existing conditions. Widening and/or traffic control improvements are limited at this location due to right-of-way constraints and existing buildings at three of the four corners of the intersections.

Table 4.2. Existing and Base Year 2024 Level of Service Summary

Inter-section	Existing 2020 Conditions										Base Year 2024									
	AM					PM					AM					PM				
	HCM Delay	Vol	LOS	HCM Delay	Vol	LOS	HCM Delay	Vol	LOS	HCM Delay	Vol	LOS	HCM Delay	Vol	LOS	HCM Delay	Vol	LOS	HCM Delay	Vol
<b>1. Kirtland Interchange &amp; Wilson Interchange</b>																				
WB I-75	23.4	0.64	C	12.7	0.58	C	22.0	0.88	D	20.2	0.82	C								
SB I-75	8.5	0.25	A	8.6	0.20	A	8.6	0.28	A	8.8	0.21	A								
Overall	15.9	0.45	B	10.7	0.39	B	15.3	0.58	B	14.5	0.51	B								
<b>2. Winters Branch Rd. &amp; Bridge St. &amp; Highway 99</b>																				
NB I-1	4.2	0.10	A	3.6	0.18	A	8.3	0.10	A	8.7	0.18	A								
EB I-70H	22.8	0.20	C	27.9	0.16	E	24.0	0.21	C	45.1	0.17	E								
WB I-70H	15.7	0.17	B	15.7	0.17	B	15.7	0.17	B	15.7	0.17	B								
WB I-70H	61.9	0.46	F	116.2	0.60	F	69.4	0.73	F	122.8	0.62	F								
WB RT	9.8	0.02	A	10.8	0.01	B	9.8	0.02	A	11.0	0.01	B								
SB I-1	5.9	0.09	A	10.6	0.02	A	5.9	0.09	A	11.2	0.02	A								
Overall	10.7	0.17	B	10.6	0.16	B	11.1	0.17	B	11.2	0.16	B								
<b>3. Winters Branch Rd. &amp; Mountain Dr</b>																				
NB I-1	9.2	0.11	A	10.0	0.32	B	9.4	0.12	A	10.3	0.33	B								
EB I-70H	56.4	0.94	F	19.1	0.38	C	64.5	0.97	F	47.0	0.90	F								
EB RT	17.9	-	F	4.1	-	-	18.3	-	F	16.0	-	F								
Overall	28.2	0.38	D	10.7	0.40	D	27.9	0.39	D	27.6	0.39	D								
<b>4. Winters Branch Rd. &amp; Rock St</b>																				
NB I-1	105.4	0.87	F	15.6	0.77	B	105.4	0.87	F	18.2	0.88	B								
NB I-70H	5.8	0.20	A	19.9	0.79	B	5.9	0.30	A	21.1	0.80	C								
EB I-70H	105.7	0.70	F	39.8	0.70	C	105.7	0.70	F	32.8	0.71	C								
WB I-70H	105.7	0.70	F	105.7	0.70	F	105.7	0.70	F	105.7	0.70	F								
WB I-70H	86.4	0.68	F	118.9	0.81	B	86.4	0.69	F	28.1	0.91	C								
SB I-1	5.2	0.00	A																	

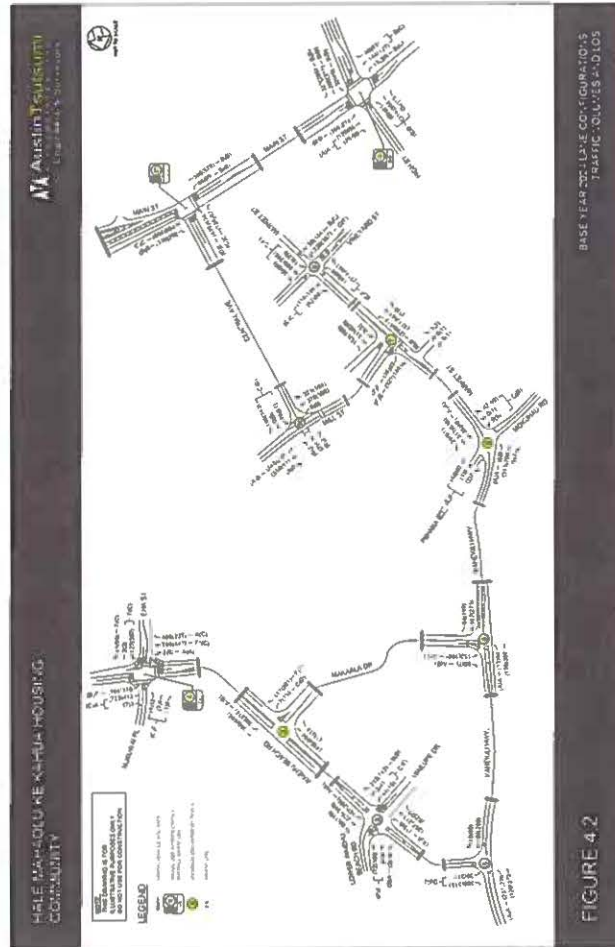




Table 4.2 Existing and Base Year 2024 Level of Service Summary Cont'd

Intersection	Existing 2020 Conditions						Base Year 2024					
	AM			PM			AM			PM		
	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS	HCM Delay	v/c Ratio	LOS
<b>7. Market St &amp; Main St</b>												
WB LT	191.8	0.75	F	82.5	0.39	F	275.3	0.92	F	84.5	0.52	F
WB RT	12.5	0.25	B	34.7	0.77	D	12.9	0.26	B	52.6	0.88	F
SB LT	10.8	0.43	B	11.0	0.30	B	11.1	0.44	B	11.8	0.22	B
Overall	8.3	-	-	10.2	-	-	9.5	-	-	13.8	-	-
<b>8. Market St &amp; Vineyard St</b>												
NB LT/THRT	15.6	0.46	C	29.7	0.74	D	19.5	0.57	C	54.6	0.93	F
EB LT	17.2	0.47	C	26.4	0.64	D	21.6	0.58	C	65.0	0.86	F
EB TH	10.7	0.09	B	13.0	0.26	B	11.8	0.12	B	15.9	0.37	C
WB THRT	13.9	0.36	B	15.4	0.38	C	16.9	0.44	C	20.2	0.48	C
SB LT/RT	25.1	0.77	D	20.0	0.62	C	61.6	0.96	F	39.8	0.84	C
Overall	19.3	-	-	22.1	-	-	27.1	-	-	45.3	-	-
<b>9. High St &amp; Main St</b>												
NB LT	10.9	0.08	B	11.3	0.12	B	10.9	0.08	B	12.9	0.14	B
NB TH	12.2	0.38	B	13.5	0.56	B	12.1	0.51	B	15.5	0.59	B
NB RT	14.9	0.88	B	11.2	0.18	B	11.2	0.20	B	12.9	0.26	B
EB LT	14.8	0.02	B	17.2	0.05	B	16.1	0.04	B	21.8	0.07	C
EB THRT	18.6	0.63	B	20.7	0.80	C	19.9	0.63	B	26.5	0.66	C
WB LT	10.4	0.47	B	11.5	0.59	B	11.2	0.50	B	15.0	0.69	B
WB THRT	6.8	0.14	A	7.5	0.16	A	7.2	0.11	A	9.8	0.19	A
SB LT/THRT	14.2	0.61	B	14.7	0.63	B	14.6	0.64	B	17.6	0.70	B
Overall	13.4	-	-	13.4	-	-	12.5	-	-	16.2	-	-
<b>10. Central Ave. &amp; High St</b>												
NB LT/RT	19.9	0.42	C	34.6	0.85	D	19.9	0.42	C	34.6	0.85	D
WB LT	10.4	0.29	B	9.2	0.24	A	10.4	0.29	B	9.2	0.24	A
Overall	4.9	-	-	7.8	-	-	4.9	-	-	7.8	-	-
<b>11. Main St &amp; Central Ave.</b>												
EB LT	11.5	0.12	B	13.1	0.15	B	14.6	0.19	B	16.6	0.28	B
EB TH	0.6	0.30	A	13.0	0.38	B	12.4	0.35	B	16.7	0.55	B
WB TH	17.8	0.47	B	19.8	0.52	B	21.4	0.60	C	24.2	0.65	C
WB RT	12.4	0.06	B	14.0	0.13	B	13.5	0.11	B	15.3	0.16	B
SB LT	56.9	0.91	E	52.8	0.90	D	56.8	0.91	E	52.5	0.91	D
SB RT	34.9	0.02	C	32.2	0.14	C	34.8	0.05	C	31.2	0.15	C
Overall	25.7	-	-	21.3	-	-	28.3	-	-	28.2	-	-

\* Denotes over-capacity conditions.

## 5. FUTURE YEAR 2024 WITH PROJECT CONDITIONS

### 5.1 Background

The Project proposes to construct 120 units of affordable housing and will also include a 3,231 SF community clubhouse and an approximately 3,477 SF non-profit building. The Project will be accessible from three (3) proposed unsignalized accesses along Kahekili Highway. The northern (Project Driveway 1) and southernmost (Project Driveway 3) accesses will be restricted to right-in, right-out access only. The middle access (Project Driveway 2) will be a full-access driveway.

#### 5.1.1 Trip Generation

The Institute of Transportation Engineers (ITE) publishes a book based on empirical data compiled from a body of more than 4,250 trip generation studies submitted by public agencies, developers, consulting firms, and associations. This publication, titled Trip Generation Manual, 10<sup>th</sup> Edition, provides trip rates and/or formulae based on graphs that correlate vehicular traffic with independent variables. The independent variables can range from Dwelling Units (DU) for single and multi-family attached homes to Square-Foot Gross Leasable Area (SF GLA) for commercial development. These trip rates/formulae and their associated directional distributions were used to estimate increases in vehicular trips generated by the proposed Project. The rates selected were based on the land use description. See Tables 5.1 and 5.2 for Trip Generation formulae and projections for the Project.

Table 5.1: Project Trip Generation Rates

Land Use (ITE Code)	Independent Variable	AM Peak Hour		PM Peak Hour	
		% Enter	Trip Rate	% Enter	Trip Rate
Multifamily Housing Low-Rise (220)	DU	23%	[a]	63%	[b]
Small Office Building (712)	1000 SF GFA	83%	1.92	32%	2.45

Notes  
DU = Dwelling Unit  
GFA = Gross Floor Area  
[a]  $T = 0.95 \ln(X) - 0.51$   
[b]  $T = \exp(0.89 \ln(X) - 0.02)$



Table 5.2: Project Trip Generation

Land Use (ITE Code)	Quantity	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Multifamily Housing Low-Rise (ITE 220)	120 DU	13	44	57	44	26	70
Small Office Building (ITE 712)	3500 SF GFA	6	1	7	3	6	9
<b>TOTAL PROJECT-GENERATED TRIPS</b>		<b>19</b>	<b>45</b>	<b>64</b>	<b>47</b>	<b>32</b>	<b>79</b>

### 5.1.2 Trip Distribution/Assignment

Traffic generated by the Project was added to the forecast Base Year 2024 traffic volumes within the vicinity of the Project to constitute the traffic volumes for the Future Year 2024 traffic conditions. Trips generated by the Project were assigned throughout the study area based upon regional origins and destinations as well as existing travel patterns within the vicinity of the Project. Project-generated trips are shown in Figure 5.1.

## 5.2 Future Year 2024 Analysis

As shown in Table 5.2, the Project is anticipated to generate 64(79) trips during the AM and PM peak hours, respectively. Regionally, the majority of Project trips will route to/from the Kahului-Wailuku areas and will add about 10-35 vehicles along Waiehu Beach Road and 5-10 vehicles along Kahekili Highway, per direction. This corresponds to an approximately 3.5% increase in traffic from Base conditions along both Kahekili Highway and Waiehu Beach Road. With the added Project trips, operations at the study intersections are generally anticipated to be similar to Base Year 2024 conditions.

Various intersections along Kahekili Highway and Waiehu Beach Road will continue to operate with LOS E/F movements during the AM peak hour, reflective of existing congestive conditions. As discussed above, the Imi Kala Bridge Street Extension and Bridge Improvements is the long-range improvement planned to mitigate some of the congestive conditions along Kahekili Highway and Waiehu Beach Road.

### Kahekili Highway/Waiehu Beach Road

All movements are anticipated to continue operating at LOS D or better across both peak hours.

### Waiehu Beach Road/Makaala Drive

All movements at the intersection are anticipated to operate at LOS D or better across both peak hours with the exception of the eastbound right-turn movement during the AM peak hour. The approach will continue operating at LOS F and overcapacity conditions during the AM peak hour. As previously discussed, extensive queueing during the AM peak hour along Waiehu Beach Road resulted in the eastbound Makaala Drive right-turn movement experiencing slower progression, but they consistently filtered into the slow-moving Waiehu Beach Road queue. Queues along Makaala Drive ranged from 10-40 vehicles long and at its longest, require 2-4 minutes to turn onto

Waiehu Beach Road. The Project adds 10 vehicles to the eastbound approach during the critical AM peak hour, which translates to one additional car every 6 minutes on average, which will add to, but not significantly worsen the queueing.

### Waiehu Beach Road/Eha Street

The Waiehu Beach Road/Eha Street intersection is anticipated to operate similar to Base Year 2024 conditions, with slight increases in delay of less than 10-15 seconds. The queue along Waiehu Beach Road that was observed in Existing conditions will continue to occur with the Project. The Project will only add 32 vehicles along Waiehu Beach Road along the critical southbound direction during the AM peak hour, which translates to approximately one car every 2 minutes on average, and will account for approximately 2.4% of the traffic at the intersection during Future Year 2024. The overall delays will increase by about 2-5 seconds during the AM and PM peak hours.

### Market Street/Vineyard Street

Numerous movements at this intersection will continue operating with the same LOS E/F as Base Year conditions. The Project will minimally add 1-3 vehicles for various turn movements, which should not significantly worsen forecast operations.

### Main Street/Central Avenue

All movements at this intersection operate at LOS D or better across both peak hours with the exception of the southbound left-turn movement operating at LOS E during the AM peak hour due to the coordinated timings which favor progression along Main Street, similar to Base Year 2024.

### Kahekili Highway/Project Driveway 1, 2 and 3

The Project's Driveways 1 and 3 are proposed to operate as right-in, right-out (RIRO) intersections. Project Driveway 2 is proposed as a full access intersection. Due to relatively low turning movements generated by the Project, signals are not warranted and all intersections are recommended to be unsignalized with stop control along the westbound Project exit approaches. Consistent with County standards, a roundabout was not considered since a signal was not warranted. For the full-access Driveway 2, a southbound entering left-turn auxiliary lane is recommended. In addition, at all three (3) Project Driveways, a northbound entering right-turn auxiliary lane is recommended. However, at Project Driveway 2, it is anticipated that only one of the two auxiliary lanes (southbound left-turn lane OR northbound right-turn lane) can be accommodated due to right-of-way constraints. If this is the case, the provision of the southbound left-turn lane should be prioritized over the northbound right-turn lane. Table 5.3 shows the recommended auxiliary lane lengths with full storage, deceleration and taper lengths. Provisions for accommodating full lane length to be verified upon design. All movements at the three Project Driveways are anticipated to operate at LOS B or better across both peak hours. As vacant lands along Kahekili Highway get developed, speeds should be enforced to ensure vehicles adhere to posted 30 mph speed limits.

Northbound traffic along Kahekili Highway will continue to be relatively low with only 200-280 northbound vehicles per peak hour, or on average 4-5 vehicles per minute. This should provide numerous gaps for entering left-turn and exiting right-turn Project vehicles to complete turns with less conflicts and delays. With low northbound traffic, no northbound queues were observed at the Kahekili Highway/Waiehu Beach Road intersection. Therefore, queue spillback into the



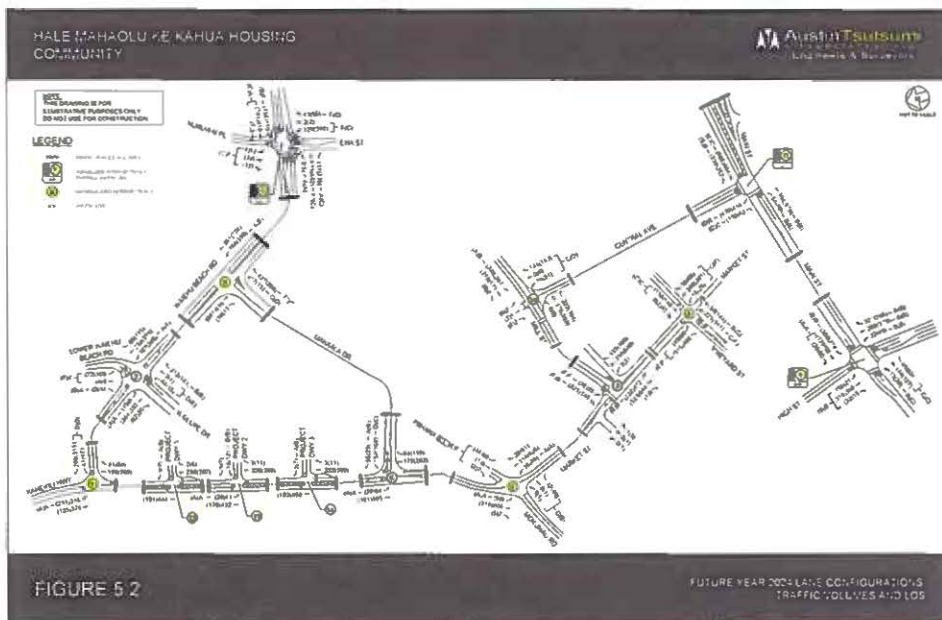


Table 5.3: Future Year 2024  
Auxiliary Storage Lane Length Calculations (AASHTO)

Movement	Peak Hour	Passenger Car Volume (veh/hr)	Storage Length <sup>1</sup>	Full Deceleration Length <sup>2</sup>	Taper Length <sup>3</sup>	Total Lane Length (ft) <sup>4</sup>
Kakekili Highway & Project Driveway 1 (North - RHO)						
Northbound right-turn lane	AM	1	50 ft.	350 ft.	100 ft.	500 ft.
	PM	5	50 ft.	350 ft.	100 ft.	500 ft.
Kakekili Highway & Project Driveway 2 (Central - Full Access)						
Northbound right-turn lane	AM	2	50 ft.	350 ft.	100 ft.	500 ft.
	PM	10	50 ft.	350 ft.	100 ft.	500 ft.
Southbound left-turn lane	AM	9	50 ft.	350 ft.	100 ft.	500 ft.
	PM	19	50 ft.	350 ft.	100 ft.	500 ft.
Kakekili Highway & Project Driveway 3 (South - RHO)						
Northbound right-turn lane	AM	3	50 ft.	350 ft.	100 ft.	500 ft.
	PM	10	50 ft.	350 ft.	100 ft.	500 ft.

Notes

1. Minimum storage length provides space for at least two passenger cars.
2. Full deceleration length based on design speed of 45 mph → measured by speed data conducted by ATA in 2016. Interpolated from AASHTO Table 9-22. Feasibility of full length to be verified on design. Assumes
3. Taper length based on 8:1 (100 ft.) along Kakekili Highway.
4. Total Lane Length = Storage Length + Full Deceleration Length + Taper Length  
Shorter lane length may be permitted if impractical to accommodate full length of auxiliary lane.



Table 5.4 Existing, Base Year 2024, and Future Year 2024 Level of Service Summary

Intersection	Existing Conditions						Base Year 2024 Conditions						Future Year 2024 Conditions					
	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	PM HCM Delay	PM v/c	PM HCM Delay	PM v/c	PM HCM Delay	PM v/c	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	PM HCM Delay	PM v/c
1. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
2. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
3. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
4. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
5. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
6. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
7. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
8. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
9. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
10. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15

Table 5.4 Existing, Base Year 2024, and Future Year 2024 Level of Service Summary Cont'd

Intersection	Existing Conditions						Base Year 2024 Conditions						Future Year 2024 Conditions					
	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	PM HCM Delay	PM v/c	PM HCM Delay	PM v/c	PM HCM Delay	PM v/c	AM HCM Delay	AM v/c	AM HCM Delay	AM v/c	PM HCM Delay	PM v/c
11. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
12. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
13. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
14. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
15. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
16. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
17. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
18. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
19. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15
20. Kalamazoo & Van Dyke	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15	17.2	0.15

Continued on next page



## 6. CONCLUSION & RECOMMENDATIONS

The Project proposes to construct 120 units of affordable housing, a 3,231 SF community clubhouse and an approximately 3,477 SF non-profit building. The Project will be accessible from three (3) driveways along Kahekili Highway. The northern (Project Driveway 1) and southernmost (Project Driveway 3) accesses will be restricted to right-in, right-out access only. The middle access (Project Driveway 2) will be an unsignalized full-access driveway.

### 6.1 Existing Conditions

The Waiehu area in the immediate vicinity of the Project is largely comprised of single-family homes, with a few community parks. This area is served by Waiehu Beach Road and Kahekili Highway – the two regional roadways that provide access to schools and commercial areas in Kahului and Wailuku.

During the AM peak hour as residents leave for work and school, southbound Waiehu Beach Road experiences extensive queueing which stems from the Waiehu Beach Road/Eha Street intersection and at its maximum queue, extends over 1 mile near to the Kahekili Highway/Waiehu Beach Road intersection. The length of time in queue can vary between 6-15 minutes from the back of the maximum queue to clear the Waiehu Beach Road/Eha Street intersection. As a result of the queue spillback along Waiehu Beach Road, right-turning movements from side streets turning onto southbound Waiehu Beach Road can experience slower progression or blockages, resulting in varying lengths of side street queues. However, these right-turn vehicles were also observed to slowly but consistently filter into the Waiehu Beach Road queue, which helped to process lengthy side street queues. The congestion along Waiehu Beach Road generally lasted for about an hour and dissipated completely by 8:00 AM.

Also during the AM peak period (roughly 7:15-7:45 am), southbound traffic along Kahekili Highway was observed to queue from the Market Street/Mill Street intersection and extend to between Puohala Road and Makaala Drive. Turning movements suggest that a significantly high volume – about half of the total southbound Market Street approach volume in the AM peak hour – turns left onto Mill Street. An existing left-turn auxiliary lane is provided, but is relatively short (100' long). This short left-turn lane along Market Street locks up southbound left-turn vehicles in the same queue as through vehicles, lengthening the queues beyond Happy Valley. By 8:00 AM, all queues had dissipated. The length of time in queue can vary between 4-8 minutes. No persistent queueing was observed along Kahekili Highway or Waiehu Beach Road during the PM peak hour.

Main Street experiences relatively slow-moving stop-and-go traffic conditions due to on-street parking stalls, pedestrian crossing and numerous businesses and driveways throughout the stretch in the study area.

### 6.2 Base Year 2024

By Year 2024, the ambient traffic growth and trips generated by background developments are anticipated to increase traffic by 30-60 vehicles along Kahekili Highway and 10-15 vehicles along Waiehu Beach Road in the vicinity of the Project site. The former Hale Mua residential development adjacent and mauka of the Project site is actively being planned, but since final plans and build-out of this development is currently unknown and likely to be completed after construction of the Project, it was not included in this study.

Based on these increases, most intersections will operate similar to existing conditions. Various intersections along Kahekili Highway and Waiehu Beach Road will continue to operate with LOS E/F movements during the AM peak hour, reflective of existing congestive conditions. In addition, various movements at the Market Street/Vineyard Street intersection will worsen to LOS E/F conditions however, widening and/or traffic control improvements are limited at this location due to right-of-way constraints and existing buildings at three of the four corners of the intersections.

The two following major long-range regional roadway extension improvements are planned on Imi Kala Street, but since they are not anticipated to be constructed by Year 2024, they were not included in this TIAR:

- Imi Kala Street Extension (Phase I) & Imi Kala Bridge Improvements– This regional improvement would provide a new paved roadway stemming from Kahekili Highway to the north and traversing south, intersecting with Piha Road and terminating at the south end at the existing Imi Kala Street/Mli Pa Loop/Eha Street intersection.
- Imi Kala Street Extension (Phase II) – This improvement is planned by Maui County and would provide a new paved roadway stemming from the existing Imi Kala Street/Mli Pa Loop intersection and traverse south, adjacent to St. Anthony School, terminating at the south end at Lower Main Street.

Both improvements are the major capacity improvement projects that will alleviate some of the existing AM traffic congestion along both Kahekili Highway and Waiehu Beach Road.

### 6.3 Future Year 2024

The Project is anticipated to generate 64(79) trips during the AM(PM) peak hours. Regionally, the majority of Project trips will route to/from the greater Kahului-Wailuku areas and will add about 10-35 vehicles along Waiehu Beach Road and 5-10 vehicles along Kahekili Highway. This corresponds to a 3.46% increase in traffic from Base conditions along both Kahekili Highway and Waiehu Beach Road. With the added Project trips, operations at the study intersections are generally anticipated to be similar to Base Year 2024 conditions.

The Waiehu Beach Road/Eha Street intersection is anticipated to operate generally similar to Base Year 2024 conditions, with slight increases in delay. The existing heavy AM queue along Waiehu Beach Road will continue to occur. The Project will only add 32 vehicles along Waiehu Beach Road along the critical southbound direction during the AM peak hour, which translates to approximately one car every 2 minutes on average, and will account for approximately 2.4% of the traffic at the intersection during Future Year 2024. The overall delays will increase by about 5 seconds during the AM and PM peak hours.

Numerous movements at the Market Street/Vineyard Street intersection will continue operating with the same LOS E/F as Base Year conditions. The Project will minimally add 1-3 vehicles for various turn movements, which should not significantly worsen forecast operations.

The Project's Driveways 1 and 3 are proposed to operate as right-in, right-out (RIRO) intersections. Project Driveway 2 is proposed as a full access intersection. Due to relatively low turning movements generated by the Project, signals are not warranted and all intersections are recommended to be unsignalized with stop control along the westbound Project exit approaches. For the full-access Driveway 2, a southbound entering left-turn auxiliary lane is recommended. In addition, at all three (3) Project Driveways, a northbound entering right-turn auxiliary lane is

recommended. However, at Project Driveway 2, it is anticipated that only one of the two auxiliary lanes (southbound left-turn lane OR northbound right-turn lane) can be accommodated due to right-of-way constraints. If this is the case, the provision of the southbound left-turn lane should be prioritized over the northbound right-turn lane. Table 5.3 shows the recommended auxiliary lane lengths with full storage, deceleration and taper lengths. Provisions for accommodating full lane length to be verified upon design. All movements at the three Project Driveways are anticipated to operate at LOS B or better across both peak hours. As vacant lands along Kahekili Highway get developed, speeds should be enforced to ensure vehicles adhere to posted 30 mph speed limits.

Northbound traffic along Kahekili Highway will continue to be relatively low with only 200-280 northbound vehicles per peak hour, or on average 4-5 vehicles per minute. This should provide numerous gaps for entering left-turn and exiting right-turn Project vehicles to complete turns with less conflicts and delays. With low northbound traffic, no northbound queues were observed at the Kahekili Highway/Waiehu Beach Road intersection. Therefore, queue spillback into the nearest Project's Driveway 1 should not occur.

## 7. REFERENCES

1. County of Maui, Maui Bus Public Transit System, [mauicounty.gov](http://mauicounty.gov).
2. Federal Highway Administration, Manual on Uniform Traffic Control Devices, 2009.
3. Institute of Transportation Engineers, Trip Generation, 10<sup>th</sup> Edition, 2017.
4. Maui Metropolitan Organization, Hele Mai Maui Long Range Transportation Plan 2040, 2019.
5. State of Hawaii Department of Transportation, Bike Plan Hawaii Master Plan, 2003.
6. Transportation Research Board, Highway Capacity Manual, 6<sup>th</sup> Edition, 2016.

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# APPENDICES

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## APPENDIX A

### TRAFFIC COUNT DATA

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# Austin Toutsuni & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : Kahekili Hwy - Waiehu Beach Rd  
Site Code : 18-503 Waiehu Golf Course  
Start Date : 5/1/2018  
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																
Start Time	KAHEKILI HWY Southbound				WAIEHU BEACH RD Westbound				KAHEKILI HWY Northbound				Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06 00 AM	44	39	0	0	1	0	15	0	0	11	5	0	0	0	0	0
06 15 AM	66	34	0	0	7	0	15	0	0	12	8	0	0	0	0	0
06 30 AM	107	51	0	0	4	0	34	0	0	25	3	0	0	0	0	0
06 45 AM	109	60	0	0	5	0	69	0	0	37	2	0	0	0	0	0
Total	326	184	0	0	17	0	133	0	0	85	18	0	0	0	0	0
07 00 AM	130	97	0	0	10	0	74	0	0	43	5	0	0	0	0	0
07 15 AM	53	100	0	0	9	0	74	0	0	57	5	0	0	0	0	0
07 30 AM	61	91	0	0	10	0	69	0	0	32	4	0	0	0	0	0
07 45 AM	63	41	0	0	6	0	45	0	0	26	4	0	0	0	0	0
Total	307	329	0	0	35	0	262	0	0	158	18	0	0	0	0	0
08 00 AM	50	29	0	0	4	0	50	0	0	27	7	0	0	0	0	0
08 15 AM	43	32	0	0	19	0	29	0	0	21	8	0	0	0	0	0
08 30 AM	58	21	0	0	8	0	25	0	0	32	11	2	0	0	0	0
08 45 AM	50	20	0	0	7	0	37	0	0	13	6	0	0	0	0	0
Total	201	102	0	0	38	0	141	0	0	93	32	2	0	0	0	0
Grand Total	834	615	0	0	90	0	536	0	0	336	68	2	0	0	0	0
Approach %	57.6	42.4	0	0	14.4	0	85.6	0	0	82.8	16.7	0.5	0	0	0	0
Total %	33.6	24.8	0	0	3.6	0	21.6	0	0	13.5	2.7	0.1	0	0	0	0
Motorcycles	3	5	0	0	2	0	3	0	0	1	0	0	0	0	0	0
% Motorcycles	0.4	0.8	0	0	2.2	0	0.6	0	0	0.3	0	0	0	0	0	0
Cars & Light Goods	813	600	0	0	86	0	517	0	0	325	67	0	0	0	0	0
% Cars & Light Goods	97.5	97.6	0	0	95.8	0	96.5	0	0	96.7	98.5	0	0	0	0	0
Buses	14	6	0	0	0	0	13	0	0	7	1	0	0	0	0	0
% Buses	1.7	1	0	0	0	0	2.4	0	0	2.1	1.5	0	0	0	0	0
Single-Unit Trucks	3	2	0	0	2	0	1	0	0	2	0	0	0	0	0	0
% Single-Unit Trucks	0.4	0.3	0	0	2.2	0	0.2	0	0	0.6	0	0	0	0	0	0
Articulated Trucks	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0.1	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	2	0	0	0	0	1	0	0	1	0	0	0	0	0	0
% Bicycles on Road	0	0.3	0	0	0	0	0.2	0	0	0.3	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	50	0	0	0	0

# Austin Toutsuni & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808) 533-3646 Fax: (808) 526-1267

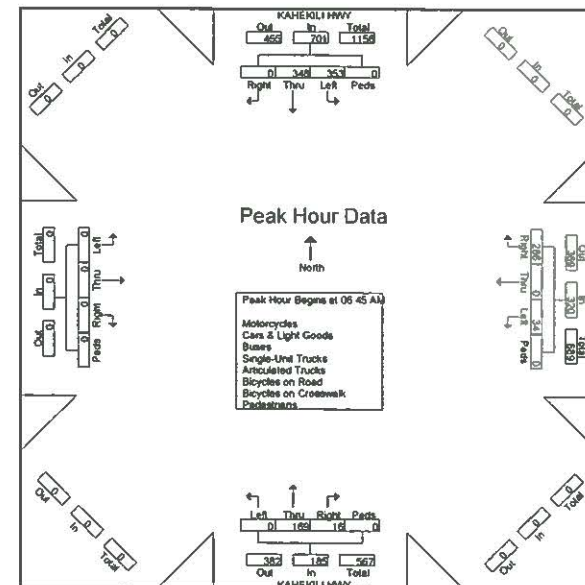
File Name : Kahekili Hwy - Waiehu Beach Rd  
Site Code : 18-503 Waiehu Golf Course  
Start Date : 5/1/2018  
Page No : 2

Start Time	KAHEKILI HWY Southbound				WAIEHU BEACH RD Westbound				KAHEKILI HWY Northbound				Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06 45 AM	109	60	0	0	5	0	69	0	0	37	2	0	0	0	0	0
07 00 AM	130	97	0	0	10	0	74	0	0	43	5	0	0	0	0	0
07 15 AM	53	100	0	0	9	0	74	0	0	57	5	0	0	0	0	0
07 30 AM	61	91	0	0	10	0	69	0	0	32	4	0	0	0	0	0
07 45 AM	63	41	0	0	6	0	45	0	0	26	4	0	0	0	0	0
Total	353	348	0	0	34	0	286	0	0	169	16	0	0	0	0	0
% App. Total	50.4	49.6	0	0	10.6	0	89.4	0	0	31.4	8.6	0	0	0	0	0
PHF	679	870	000	000	772	850	000	966	000	952	000	741	800	000	746	000

Peak Hour Analysis From 06 00 AM to 08 45 AM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 06 45 AM

06 45 AM	109	60	0	0	169	5	0	69	0	74	0	37	2	0	39	0	0	0	0	0	282
07 00 AM	130	97	0	0	227	10	0	74	0	84	0	43	5	0	48	0	0	0	0	0	359
07 15 AM	53	100	0	0	153	9	0	74	0	63	0	57	5	0	62	0	0	0	0	0	298
07 30 AM	61	91	0	0	152	10	0	69	0	79	0	32	4	0	36	0	0	0	0	0	267
Total Volume	353	348	0	0	701	34	0	286	0	320	0	169	16	0	185	0	0	0	0	0	1206
% App. Total	50.4	49.6	0	0	10.6	0	89.4	0	0	31.4	8.6	0	0	0	0	0	0	0	0	0	1206
PHF	679	870	000	000	772	850	000	966	000	952	000	741	800	000	746	000	000	000	000	000	840





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Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : Kahekili Hwy - Waiehu Beach Rd  
Site Code : 18-503 Waiehu Golf Course  
Start Date : 5/1/2018  
Page No : 1

Groups: Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																
Start Time	KAHEKILI HWY Southbound				WAIIEHU BEACH RD Westbound				KAHEKILI HWY Northbound				Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
03:00 PM	60	44	0	0	11	0	67	0	0	47	11	0	0	0	0	0
03:15 PM	56	27	0	0	7	0	64	0	0	30	9	0	0	0	0	0
03:30 PM	62	27	0	0	7	0	88	0	0	27	21	0	0	0	0	0
03:45 PM	63	35	0	0	5	0	64	0	0	37	17	0	0	0	0	0
Total	241	133	0	0	30	0	283	0	0	141	58	0	0	0	0	0
04:00 PM	55	26	0	0	9	0	67	0	0	50	13	0	0	0	0	0
04:15 PM	62	37	0	0	8	0	77	0	0	57	26	0	0	0	0	0
04:30 PM	49	31	0	0	10	0	84	0	0	44	10	0	0	0	0	0
04:45 PM	59	11	0	0	3	0	78	0	0	47	17	0	0	0	0	0
Total	225	105	0	0	30	0	306	0	0	198	66	0	0	0	0	0
05:00 PM	65	32	0	0	8	0	88	0	0	39	25	0	0	0	0	0
05:15 PM	61	26	0	0	4	0	72	0	0	30	19	0	0	0	0	0
05:30 PM	52	27	0	0	4	0	64	0	0	31	17	0	0	0	0	0
05:45 PM	36	31	0	0	13	0	62	0	0	42	11	0	0	0	0	0
Total	214	116	0	0	29	0	286	0	0	142	72	0	0	0	0	0
Grand Total	680	354	0	0	89	0	875	0	0	481	196	0	0	0	0	0
Approach %	65.8	34.2	0	0	9.2	0	90.8	0	0	71	29	0	0	0	0	0
Total %	25.4	13.2	0	0	3.3	0	32.7	0	0	18	7.3	0	0	0	0	0
Motorcycles	1	3	0	0	1	0	4	0	0	5	0	0	0	0	0	0
% Motorcycles	0.1	0.8	0	0	1.1	0	0.5	0	0	1	0	0	0	0	0	0
Cars & Light Goods	667	343	0	0	88	0	863	0	0	467	192	0	0	0	0	0
% Cars & Light Goods	98.1	96.9	0	0	98.9	0	98.6	0	0	97.1	98	0	0	0	0	0
Buses	5	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
% Buses	0.7	0	0	0	0	0	0.2	0	0	0.4	0	0	0	0	0	0
Single-Unit Trucks	7	0	0	0	0	0	3	0	0	4	2	0	0	0	0	0
% Single-Unit Trucks	1	0	0	0	0	0	0.3	0	0	0.8	1	0	0	0	0	0
Articulated Trucks	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0
% Articulated Trucks	0	0.3	0	0	0	0	0.2	0	0	0	0.5	0	0	0	0	0
Bicycles on Road	0	7	0	0	0	0	1	0	0	3	1	0	0	0	0	0
% Bicycles on Road	0	2	0	0	0	0	0.1	0	0	0.6	0.5	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

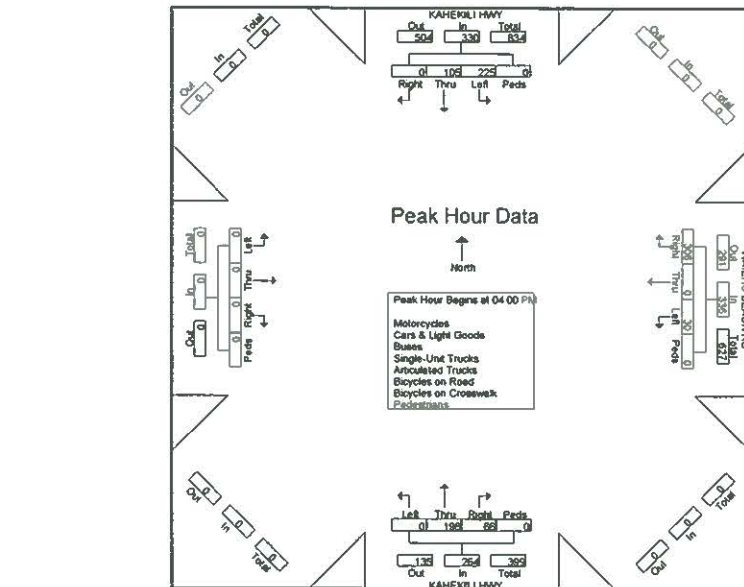
# Austin Toutsuni & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808) 533-3646 Fax: (808) 526-1267

File Name : Kahekili Hwy - Waiehu Beach Rd  
Site Code : 18-503 Waiehu Golf Course  
Start Date : 5/1/2018  
Page No : 2

Start Time	KAHEKILI HWY Southbound				WAIIEHU BEACH RD Westbound				KAHEKILI HWY Northbound				Eastbound			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
04:00 PM	55	26	0	0	81	9	0	67	0	76	0	50	13	0	83	0
04:15 PM	62	37	0	0	99	8	0	77	0	85	0	57	26	0	83	0
04:30 PM	49	31	0	0	80	10	0	84	0	94	0	44	10	0	54	0
04:45 PM	59	11	0	0	70	3	0	78	0	81	0	47	17	0	64	0
Total Volume	225	105	0	0	330	30	0	306	0	336	0	198	66	0	264	0
% App. Total	68.2	31.8	0	0	8.9	0	91.1	0	0	75	25	0	0	0	0	0
PHF	907	709	000	000	833	750	000	911	000	894	000	868	635	000	795	000



## Austin Tsutsumi & Associates

1871 Wili Pa Loop, Suite A  
Wailuku, Hawaii 96793  
Phone: (808) 224-8044 Fax: (808) 242-9163

File Name : Kehekili Hwy - Makaala Dr  
Site Code : 19-509 Boys & Girls Club  
Start Date : 4/11/2019  
Page No : 1

Groups Printed: Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																
Start Time	KAHEKILI HWY SOUTHBOUND				MAKAALA DR WESTBOUND				KAHEKILI HWY NORTHBOUND				EASTBOUND			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06:30	2	64	0	0	53	0	11	0	0	18	6	0	0	0	0	0
06:45	7	100	0	0	45	0	15	0	0	45	18	0	0	0	0	0
Total	9	164	0	0	98	0	26	0	0	63	24	0	0	0	0	0
07:00	20	107	0	0	37	0	23	0	0	45	6	0	0	0	0	0
07:15	36	67	0	0	25	0	11	0	0	38	20	0	0	0	0	0
07:30	20	52	0	0	29	0	0	0	0	15	15	0	0	0	0	0
07:45	2	44	0	0	29	0	1	0	0	32	24	0	0	0	0	0
Total	78	270	0	0	120	0	35	0	0	130	65	0	0	0	0	0
08:00	3	25	0	0	25	0	2	0	0	37	23	0	0	0	0	0
08:15	1	38	0	0	21	0	2	0	0	24	17	0	0	0	0	0
Grand Total	91	497	0	0	264	0	65	0	0	254	129	0	0	0	0	0
Approach %	15.5	84.5	0	0	80.2	0	19.8	0	0	66.3	33.7	0	0	0	0	0
Total %	7	38.2	0	0	20.3	0	5	0	0	19.5	9.9	0	0	0	0	0
Motorcycles	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
% Motorcycles	1.1	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0
Cars & Light Goods	86	488	0	0	255	0	64	0	0	249	124	0	0	0	0	0
% Cars & Light Goods	94.5	98.2	0	0	95.6	0	98.3	0	0	98	96.1	0	0	0	0	0
Buses	3	7	0	0	5	0	1	0	0	2	5	0	0	0	0	0
% Buses	3.3	1.4	0	0	1.9	0	1.5	0	0	0.8	3.9	0	0	0	0	0
Single-Unit Trucks	1	1	0	0	3	0	0	0	0	2	0	0	0	0	0	0
% Single-Unit Trucks	1.1	0.2	0	0	1.1	0	0	0	0	0.8	0	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
% Bicycles on Road	0	0.2	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

## Austin Tsutsumi & Associates

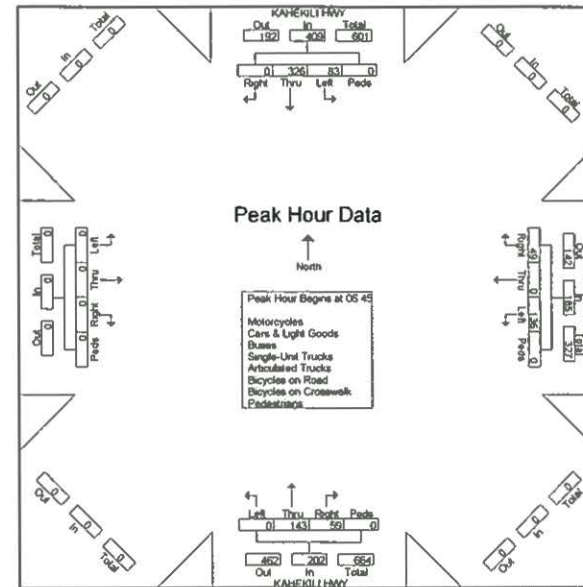
1871 Wili Pa Loop, Suite A  
Wailuku, Hawaii 96793  
Phone: (808) 224-8044 Fax: (808) 242-9163

File Name : Kehekili Hwy - Makaala Dr  
Site Code : 19-509 Boys & Girls Club  
Start Date : 4/11/2019  
Page No : 2

Start Time	KAHEKILI HWY SOUTHBOUND				MAKAALA DR WESTBOUND				KAHEKILI HWY NORTHBOUND				EASTBOUND			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06:45	7	100	0	0	107	45	0	15	0	60	0	45	18	0	63	0
07:00	20	107	0	0	127	37	0	23	0	60	0	45	6	0	51	0
07:15	36	67	0	0	103	25	0	11	0	36	0	38	28	0	36	0
07:30	20	52	0	0	72	29	0	0	0	29	0	15	15	0	30	0
Total Volume	83	326	0	0	409	136	0	49	0	185	0	143	59	0	202	0
% App. Total	20.3	79.7	0	0	73.5	0	26.5	0	0	70.8	29.2	0	0	0	0	0
PHF	57%	782	0.000	0.000	805	756	0.000	533	0.000	771	0.000	794	738	0.000	802	0.000

Peak Hour Analysis From 06:45 to 07:30 - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 06:45



# Austin Tsutsumi & Associates

1871 Wili Pa Loop, Suite A

Wailuku, Hawaii 96793

Phone: (808) 224-8044 Fax: (808) 242-9163

File Name : Kehekili Hwy - Makaala Dr

Site Code : 19-509 Boys & Girls Club

Start Date : 4/11/2019

Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

Start Time	KAHEKILI HWY SOUTHBOUND				MAKAALA DR WESTBOUND				KAHEKILI HWY NORTHBOUND				EASTBOUND				Int Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
15:00	8	57	0	0	14	0	2	0	0	38	24	0	0	0	0	0	143
15:15	5	38	0	0	29	0	2	0	0	46	30	0	0	0	0	0	150
15:30	3	36	0	0	25	0	2	0	0	43	35	0	0	0	0	0	144
15:45	4	27	0	0	21	0	4	0	0	54	33	0	0	0	0	0	143
Total	20	158	0	0	89	0	10	0	0	181	122	0	0	0	0	0	580
16:00	2	43	0	0	26	0	1	0	0	47	48	0	0	0	0	0	167
16:15	4	36	0	0	12	0	1	0	0	52	47	0	0	0	0	0	152
16:30	1	33	0	0	26	0	3	0	0	65	42	0	0	0	0	0	170
16:45	4	40	0	0	24	0	0	0	0	50	55	0	0	0	0	0	173
Total	11	152	0	0	88	0	5	0	0	214	192	0	0	0	0	0	662
17:00	0	32	0	0	16	0	2	0	0	69	36	0	0	0	0	0	155
17:15	0	30	0	0	21	0	3	0	0	50	30	0	0	0	0	0	134
Grand Total	31	372	0	0	214	0	20	0	0	514	380	0	0	0	0	0	1531
Approch %	7.7	92.3	0	0	91.5	0	8.5	0	0	57.5	42.5	0	0	0	0	0	0
Total %	2	24.3	0	0	14	0	1.3	0	0	33.6	24.8	0	0	0	0	0	0
Motorcycles	0	3	0	0	2	0	0	0	0	2	3	0	0	0	0	0	10
% Motorcycles	0	0.8	0	0	0.9	0	0	0	0	0.4	0.8	0	0	0	0	0	0.7
Cars & Light Goods	31	367	0	0	205	0	20	0	0	509	371	0	0	0	0	0	1503
% Cars & Light Goods	100	98.7	0	0	95.8	0	100	0	0	99	97.6	0	0	0	0	0	98.2
Buses	0	1	0	0	6	0	0	0	0	1	4	0	0	0	0	0	12
% Buses	0	0.3	0	0	2.8	0	0	0	0	0.2	1.1	0	0	0	0	0	0.8
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
% Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0.1
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	1	0	0	1	0	0	0	0	1	2	0	0	0	0	0	5
% Bicycles on Road	0	0.3	0	0	0.5	0	0	0	0	0.2	0.5	0	0	0	0	0	0.3
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Austin Tsutsumi & Associates

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Phone: (808) 224-8044 Fax: (808) 242-9163

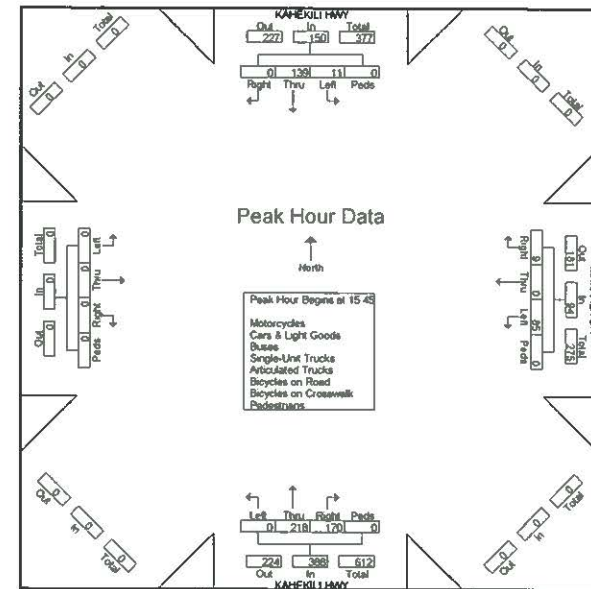
File Name : Kehekili Hwy - Makaala Dr

Site Code : 19-509 Boys & Girls Club

Start Date : 4/11/2019

Page No : 2

Start Time	KAHEKILI HWY SOUTHBOUND				MAKAALA DR WESTBOUND				KAHEKILI HWY NORTHBOUND				EASTBOUND				Int Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
15:45	4	27	0	0	31	21	0	4	0	25	0	54	33	0	87	0	143
16:00	2	43	0	0	45	28	0	1	0	27	0	47	48	0	95	0	167
16:15	4	36	0	0	40	12	0	1	0	13	0	52	47	0	99	0	152
16:30	1	33	0	0	34	26	0	3	0	29	0	65	42	0	107	0	170
Total Volume	11	139	0	0	150	85	0	9	0	94	0	218	170	0	388	0	632
% App. Total	7.3	92.7	0	0	90.4	0	9.6	0	0	56.2	43.8	0	0	0	0	0	0
PHF	688	808	000	000	833	817	000	563	000	810	000	838	885	000	907	000	929





# Austin Tsutsumi & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808)533-3646 Fax: (808)526-1267

File Name : Waiehu Beach Rd - Eha St  
Site Code : 16-014.07 Maui Signal Opt  
Start Date : 5/3/2018  
Page No : 1

Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

Start Time	WAIIEHU BEACH RD SOUTHBOUND				EHA ST WESTBOUND				WAIIEHU BEACH RD NORTHBOUND				EHA ST EASTBOUND				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:00 AM	0	117	35	0	2	5	2	0	17	50	0	0	9	1	7	0	245
06:15 AM	1	149	51	3	3	0	1	0	16	31	0	0	14	0	6	2	277
06:30 AM	0	207	84	0	3	1	0	0	22	60	1	0	15	0	3	0	396
06:45 AM	0	211	94	0	1	0	0	0	24	92	1	0	30	1	10	0	464
Total	1	684	264	3	9	6	3	0	79	233	2	0	68	2	26	2	1382
07:00 AM	0	178	98	1	3	1	2	0	24	107	0	0	30	1	6	0	452
07:15 AM	1	182	121	0	6	2	0	0	23	94	1	0	35	0	11	0	476
07:30 AM	1	185	90	0	2	2	1	0	39	87	1	0	32	0	14	0	454
07:45 AM	0	181	97	3	3	0	1	1	24	105	1	0	39	0	15	1	471
Total	2	726	407	4	14	5	4	1	110	393	3	0	136	1	46	1	1853
Grand Total	3	1410	671	7	23	11	7	1	189	626	5	0	204	3	72	3	3235
Approach %	0.1	67.4	32.1	0.3	54.8	26.2	16.7	2.4	23	76.3	0.6	0	72.3	1.1	25.5	1.1	
Total %	0.1	43.6	20.7	0.2	0.7	0.3	0.2	0	5.8	19.4	0.2	0	6.3	0.1	2.2	0.1	
Motorcycles	0	9	4	0	0	0	0	0	0	2	0	0	1	0	1	0	17
% Motorcycles	0	0.6	0.6	0	0	0	0	0	0	0.3	0	0	0.5	0	1.4	0	0.5
Cars	2	919	422	0	18	7	5	0	132	416	3	0	149	2	51	0	2126
% Cars	66.7	65.2	62.9	0	78.3	63.6	71.4	0	69.8	66.5	60	0	73	66.7	70.8	0	65.7
Light Goods Vehicles	1	460	236	0	5	4	2	0	52	181	2	0	50	1	14	0	1008
% Light Goods Vehicles	33.3	32.6	35.2	0	21.7	36.4	28.6	0	27.5	28.9	40	0	24.5	33.3	19.4	0	31.2
Buses	0	14	5	0	0	0	0	0	2	20	0	0	2	0	0	0	45
% Buses	0	1	0.7	0	0	0	0	0	1.1	3.2	0	0	1	0	0	0	1.3
Single-Unit Trucks	0	4	2	0	0	0	0	0	2	6	0	0	2	0	5	0	21
% Single-Unit Trucks	0	0.3	0.3	0	0	0	0	0	1.1	1	0	0	1	0	6.9	0	0.6
Articulated Trucks	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
% Articulated Trucks	0	0.1	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0.1
Bicycles on Road	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	0	6
% Bicycles on Road	0	0.1	0.3	0	0	0	0	0	0	0.2	0	0	0	0	1.4	0	0.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	7	0	0	0	1	0	0	0	0	0	0	0	3	11
% Pedestrians	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	100	0.3

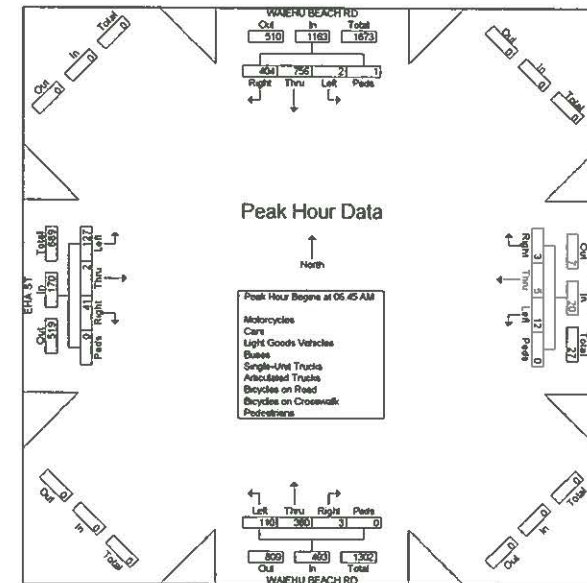
# Austin Tsutsumi & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808)533-3646 Fax: (808)526-1267

File Name : Waiehu Beach Rd - Eha St  
Site Code : 16-014.07 Maui Signal Opt  
Start Date : 5/3/2018  
Page No : 2

Start Time	WAIIEHU BEACH RD SOUTHBOUND					EHA ST WESTBOUND					WAIIEHU BEACH RD NORTHBOUND					EHA ST EASTBOUND					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analyses From 06:45 AM To 07:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	0	211	94	0	305	1	0	0	0	1	24	92	1	0	117	30	1	10	0	41	464
07:00 AM	0	178	98	0	278	3	1	0	0	6	24	107	0	0	131	30	1	6	0	37	452
07:15 AM	1	182	121	0	304	6	2	0	0	8	23	94	1	0	118	35	0	11	0	48	476
07:30 AM	1	185	90	0	278	2	2	1	0	5	39	87	1	0	127	32	0	14	0	46	454
Total Volume	2	756	404	1	1183	12	5	3	0	20	110	380	3	0	493	127	2	41	0	170	1846
% App. Total	0.2	65	34.7	0.1	60	25	15	0	22.3	77.1	0.6	0	74.7	1.2	24.1	0					
PHF	.500	.896	.835	.250	.953	.500	.625	.375	.000	.625	.705	.888	.750	.000	.941	.907	.500	.732	.000	.924	.970





# Austin Tsutsumi & Associates

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Honolulu, HI 96817-5031  
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File Name : Waiehu Beach Rd - Eha St  
Site Code : 16-014.07 Maui Signal Opt  
Start Date : 5/3/2018  
Page No : 1

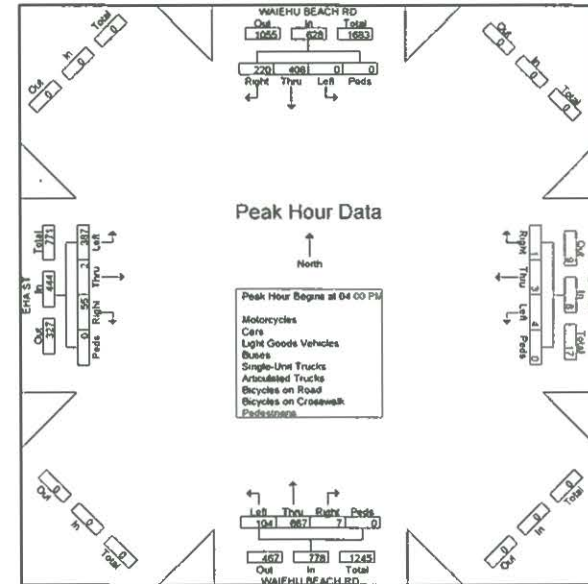
Groups Printed- Motorcycles - Cars - Light Goods Vehicles - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																
WAIIEHU BEACH RD From North					EHA ST From East				WAIIEHU BEACH RD From South				EHA ST From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
04 00 PM	62	89	0	0	0	1	1	0	0	150	24	0	18	0	100	0
04 15 PM	54	111	0	0	0	0	0	0	3	180	21	0	2	0	93	0
04 30 PM	53	112	0	0	0	0	2	0	2	177	24	0	8	0	94	0
04 45 PM	51	96	0	0	1	2	1	0	2	160	35	0	27	2	100	0
Total	220	408	0	0	1	3	4	0	7	667	104	0	55	2	387	0
Grand Total	220	408	0	0	1	3	4	0	7	667	104	0	55	2	387	0
Approch %	35	65	0	0	12.5	37.5	50	0	0.9	85.7	13.4	0	12.4	0.5	87.2	0
Total %	11.8	22	0	0	0.1	0.2	0.2	0	0.4	35.9	5.6	0	3	0.1	20.8	0
Motorcycles	0	0	0	0	0	0	0	0	0	2	2	0	0	0	4	0
% Motorcycles	0	0	0	0	0	0	0	0	0	0.3	1.9	0	0	0	1	0
Cars	151	281	0	0	0	2	2	0	6	429	72	0	44	2	242	0
% Cars	68.6	68.9	0	0	0	66.7	50	0	85.7	64.3	68.2	0	80	100	62.5	0
Light Goods Vehicles	68	122	0	0	1	1	2	0	1	231	29	0	11	0	138	0
% Light Goods Vehicles	30.9	29.9	0	0	100	33.3	50	0	14.3	34.6	27.9	0	20	0	35.7	0
Buses	1	4	0	0	0	0	0	0	0	2	0	0	0	0	3	0
% Buses	0.5	1	0	0	0	0	0	0	0	0.3	0	0	0	0	0.8	0
Single-Unit Trucks	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0
% Single-Unit Trucks	0	0	0	0	0	0	0	0	0	0.3	1	0	0	0	0	0
Articulated Trucks	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0
Bicycles on Road	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Road	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Austin Tsutsumi & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031  
Phone: 533-3646 Fax: 526-1267

File Name : Waiehu Beach Rd - Eha St  
Site Code : 16-014.07 Maui Signal Opt  
Start Date : 5/3/2018  
Page No : 2

WAIIEHU BEACH RD From North					EHA ST From East				WAIIEHU BEACH RD From South				EHA ST From West			
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
04 00 PM	62	89	0	0	0	1	1	0	0	150	24	0	18	0	100	0
04 15 PM	54	111	0	0	0	0	0	0	0	180	21	0	2	0	93	0
04 30 PM	53	112	0	0	0	0	2	0	2	177	24	0	8	0	94	0
04 45 PM	51	96	0	0	1	2	1	0	2	160	35	0	27	2	100	0
Total	220	408	0	0	1	3	4	0	7	667	104	0	55	2	387	0
% App. Total	35	65	0	0	12.5	37.5	50	0	0.9	85.7	13.4	0	12.4	0.5	87.2	0
PHF	887	911	000	000	952	250	375	500	000	500	583	926	743	000	953	509



# Austin Tsutsumi & Associates

501 Sumner Street, Suite 521  
Honolulu, HI 96817-5031

Phone: (808)533-3646 Fax: (808)526-1267

File Name : Central Ave - Main St  
Site Code : 16-014.07 Maui DOT Signal Optimization  
Start Date : 5/8/2018  
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

Start Time	CENTRAL AVE SOUTHBOUND				MAIN ST WESTBOUND				NORTHBOUND				MAIN ST EASTBOUND				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06 15 AM	39	0	7	1	0	56	14	0	0	0	0	0	3	39	0	1	160
06 30 AM	74	0	14	0	0	77	21	0	0	0	0	0	6	46	0	2	240
06 45 AM	75	0	12	0	0	101	58	0	0	0	0	0	5	56	0	0	307
Total	188	0	33	1	0	234	93	0	0	0	0	0	14	141	0	3	707
07 00 AM	99	0	20	0	0	126	59	0	0	0	0	0	12	66	0	9	391
07 15 AM	119	0	18	0	0	124	64	0	0	0	0	0	17	80	0	0	422
07 30 AM	117	0	12	1	0	105	70	0	0	0	0	0	23	118	0	0	446
07 45 AM	87	0	18	1	0	122	96	1	0	0	0	0	19	88	0	0	432
Total	422	0	68	2	0	477	289	1	0	0	0	0	71	352	0	9	1691
Grand Total	610	0	101	3	0	711	382	1	0	0	0	0	85	493	0	12	2398
Approach %	85.4	0	14.1	0.4	0	65	34.9	0.1	0	0	0	0	14.4	83.6	0	2	
Total %	25.4	0	4.2	0.1	0	29.6	15.9	0	0	0	0	0	3.5	20.6	0	0.5	
Motorcycles	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
% Motorcycles	0.3	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0.1
Cars & Light Goods	602	0	100	0	0	692	378	0	0	0	0	0	82	487	0	0	2341
% Cars & Light Goods	98.7	0	99	0	0	97.3	99	0	0	0	0	0	96.5	98.8	0	0	97.6
Buses	5	0	0	0	0	8	2	0	0	0	0	0	3	4	0	0	22
% Buses	0.8	0	0	0	0	1.1	0.5	0	0	0	0	0	3.5	0.8	0	0	0.9
Single-Unit Trucks	1	0	0	0	0	10	1	0	0	0	0	0	0	2	0	0	14
% Single-Unit Trucks	0.2	0	0	0	0	1.4	0.3	0	0	0	0	0	0	0.4	0	0	0.6
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Bicycles on Road	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.1
Bicycles on Crosswalk	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bicycles on Crosswalk	0	0	0	33.3	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	12	15
% Pedestrians	0	0	0	66.7	0	0	0	100	0	0	0	0	0	0	0	100	0.6

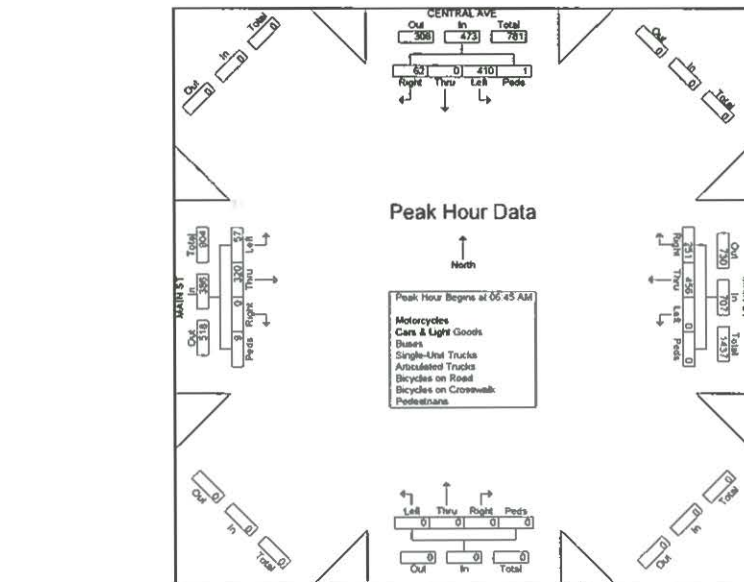
# Austin Tsutsumi & Associates

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File Name : Central Ave - Main St  
Site Code : 16-014.07 Maui DOT Signal Optimization  
Start Date : 5/8/2018  
Page No : 2

Start Time	CENTRAL AVE SOUTHBOUND				MAIN ST WESTBOUND				NORTHBOUND				MAIN ST EASTBOUND				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06 45 AM	75	0	12	0	0	101	58	0	0	0	0	0	5	56	0	0	307
07 00 AM	99	0	20	0	0	126	59	0	0	0	0	0	12	66	0	9	391
07 15 AM	119	0	18	0	0	124	64	0	0	0	0	0	17	80	0	0	422
07 30 AM	117	0	12	1	0	105	70	0	0	0	0	0	23	118	0	0	446
Total Volume	410	0	62	1	473	0	456	251	0	707	0	0	57	320	0	9	1556
% App. Total	86.7	0	13.1	0.2	0	64.5	35.5	0	0	0	0	0	14.8	82.9	0	2.3	
Peak	.861	.000	.175	.020	.863	.800	.905	.896	.000	.940	.000	.000	.000	.000	.000	.000	.878



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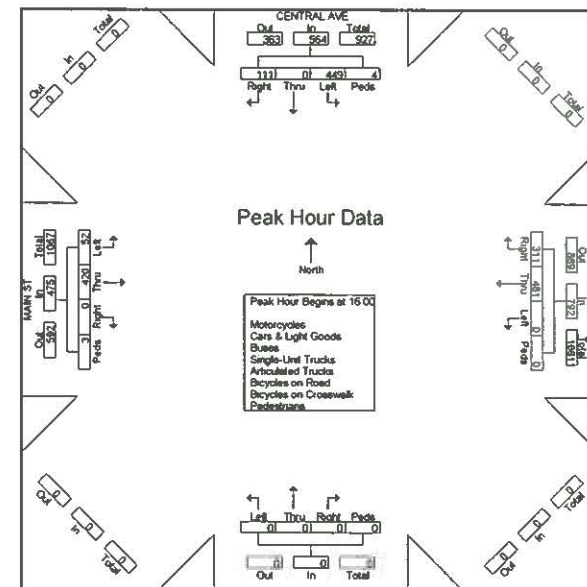
Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																			
Start Time	CENTRAL AVE SOUTHBOUND				MAIN ST WESTBOUND				NORTHBOUND				MAIN ST EASTBOUND				Int	Total	
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
15 15	96	0	25	1	0	126	82	0	0	0	0	0	11	74	0	2	417		
15 30	112	0	18	3	0	123	70	0	0	0	0	0	8	78	0	1	413		
15 45	93	0	32	2	0	134	80	0	0	0	0	0	18	86	0	2	447		
Total	301	0	75	6	0	383	232	0	0	0	0	0	37	238	0	5	1277		
16 00	121	0	18	0	0	119	62	0	0	0	0	0	16	107	0	1	444		
16 15	118	0	25	2	0	121	84	0	0	0	0	0	16	81	0	1	448		
16 30	103	0	33	2	0	111	83	0	0	0	0	0	12	125	0	0	469		
16 45	107	0	35	0	0	130	82	0	0	0	0	0	8	107	0	1	470		
Total	449	0	111	4	0	481	311	0	0	0	0	0	52	420	0	3	1831		
17 00	115	0	15	1	0	94	66	0	0	0	0	0	8	79	0	1	379		
Grand Total	865	0	201	11	0	958	609	0	0	0	0	0	97	737	0	9	3487		
Approch %	80.3	0	18.7	1	0	61.1	38.9	0	0	0	0	0	11.5	87.4	0	1.1			
Total %	24.8	0	5.8	0.3	0	27.5	17.5	0	0	0	0	0	2.8	21.1	0	0.3			
Motorcycles	0	0	0	0	0	3	3	0	0	0	0	0	1	1	0	0	8		
% Motorcycles	0	0	0	0	0	0.3	0.5	0	0	0	0	0	1	0.1	0	0	0.2		
Cars & Light Goods	856	0	196	0	0	948	603	0	0	0	0	0	93	723	0	0	3423		
% Cars & Light Goods	99.2	0	98.5	0	0	99	99	0	0	0	0	0	95.9	98.1	0	0	98.2		
Buses	3	0	0	0	0	7	2	0	0	0	0	0	2	11	0	0	25		
% Buses	0.3	0	0	0	0	0.7	0.3	0	0	0	0	0	2.1	1.5	0	0	0.7		
Single-Unit Trucks	4	0	3	0	0	0	1	0	0	0	0	0	1	2	0	0	11		
% Single-Unit Trucks	0.5	0	1.5	0	0	0	0.2	0	0	0	0	0	1	0.3	0	0	0.3		
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Pedestrians	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	9	20		
% Pedestrians	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	100	0.6		

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Start Date : 5/8/2018  
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CENTRAL AVE SOUTHBOUND						MAIN ST WESTBOUND					NORTHBOUND					MAIN ST EASTBOUND					
Start Time	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Left	Thru	Right	Peds	App Total	Int Total
Peak Hour Analysis From 15 to 17 00 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16 00																					
16 00	121	0	18	0	139	0	119	62	0	181	0	0	0	0	0	16	107	0	1	124	444
16 15	118	0	25	2	145	0	121	84	0	205	0	0	0	0	0	16	81	0	1	98	448
16 30	103	0	33	2	138	0	111	83	0	194	0	0	0	0	0	12	125	0	0	137	469
16 45	107	0	35	0	142	0	130	82	0	212	0	0	0	0	0	8	107	0	1	116	479
Total Volume	449	0	111	4	564	0	481	311	0	792	0	0	0	0	0	52	420	0	3	475	1831
% App Total	79.5	0	19.7	0.7		0	60.7	39.3	0		0	0	0	0	0	10.9	88.4	0	0.6		
PHF	928	0.00	793	500	972	0.00	925	926	0.00	934	0.00	0.00	0.00	0.00	0.00	813	840	0.00	750	867	974





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Start Date : 5/1/2018  
Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians																
Start Time	HIGH ST SOUTHBOUND				MAIN ST WESTBOUND				HIGH ST NORTHBOUND				MAIN ST EASTBOUND			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06 15 AM	5	49	0	2	48	8	8	2	6	14	30	0	2	18	8	0
06 30 AM	1	53	1	1	54	0	6	0	5	26	29	0	2	15	8	0
06 45 AM	2	86	1	1	61	13	5	2	6	37	62	2	1	21	10	0
Total	8	188	2	4	163	21	19	4	17	77	121	2	5	54	26	0
07 00 AM	4	95	3	2	79	7	14	5	8	59	67	2	1	26	7	1
07 15 AM	5	77	4	2	58	15	16	7	4	50	85	6	2	25	14	1
07 30 AM	5	79	5	2	55	15	14	3	13	54	84	3	2	58	17	0
07 45 AM	2	64	5	1	40	17	9	6	13	87	86	0	7	33	13	0
Total	16	315	17	7	232	54	53	21	38	250	322	11	12	142	51	2
Grand Total	24	503	19	11	395	75	72	25	55	327	443	13	17	196	77	2
Approach %	4.3	90.3	3.4	2	69.7	13.2	12.7	4.4	6.6	39	52.9	1.6	5.8	67.1	26.4	0.7
Total %	1.1	22.3	0.8	0.5	17.5	3.3	3.2	1.1	2.4	14.5	19.7	0.6	0.8	8.7	3.4	0.1
Motorcycles	0	3	0	0	3	0	0	0	0	1	4	0	0	0	0	0
% Motorcycles	0	0.6	0	0	0.8	0	0	0	0	0.3	0.9	0	0	0	0	0
Cars & Light Goods	24	493	19	0	380	72	72	0	51	325	430	0	17	192	74	0
% Cars & Light Goods	100	98	100	0	96.2	96	100	0	92.7	99.4	97.1	0	100	98	96.1	0
Buses	0	5	0	0	4	1	0	0	1	0	3	0	0	1	0	0
% Buses	0	1	0	0	1	1.3	0	0	1.8	0	0.7	0	0	0.5	0	0
Single-Unit Trucks	0	2	0	0	8	1	0	0	2	1	3	0	0	2	1	0
% Single-Unit Trucks	0	0.4	0	0	2	1.3	0	0	3.6	0.3	0.7	0	0	1	1.3	0
Articulated Trucks	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0
% Articulated Trucks	0	0	0	0	0	1.3	0	0	0	0	0.2	0	0	0	1.3	0
Bicycles on Road	0	0	0	0	0	0	0	0	1	0	2	0	0	1	1	0
% Bicycles on Road	0	0	0	0	0	0	0	0	1.8	0	0.5	0	0	0.5	1.3	0
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	11	0	0	0	25	0	0	0	13	0	0	0	2
% Pedestrians	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0	100

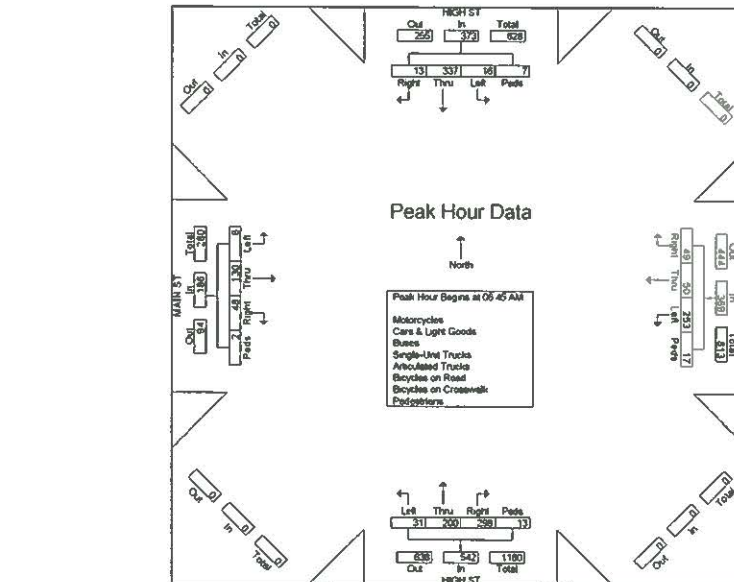
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File Name : High St - Main St  
Site Code : 16-014.07 Maui DOT Signal Optimization  
Start Date : 5/1/2018  
Page No : 2

Start Time	HIGH ST SOUTHBOUND				MAIN ST WESTBOUND				HIGH ST NORTHBOUND				MAIN ST EASTBOUND			
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds
06 45 AM	2	86	1	1	90	51	13	5	2	81	6	37	62	2	107	1
07 00 AM	4	95	3	2	104	79	7	14	5	105	8	59	67	2	136	1
07 15 AM	5	77	4	2	88	58	15	16	7	96	4	50	85	6	145	2
07 30 AM	5	79	5	2	91	55	15	14	3	87	13	54	84	3	154	2
Total Volume	16	317	13	7	373	253	50	49	17	369	31	200	298	13	542	6
% App. Total	4.3	90.3	3.5	1.9	68.6	13.6	13.3	4.6	5.7	36.9	55	2.4	3.2	69.9	25.8	1.1
PHF	.800	.887	.650	.875	.897	.801	.833	.766	.607	.879	.596	.847	.876	.542	.880	.750





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Page No : 1

Groups Printed- Motorcycles - Cars & Light Goods - Buses - Unit Trucks - Articulated Trucks - Bicycles on Road - Bicycles on Crosswalk - Pedestrians

Start Time	HIGH ST SOUTHBOUND				MAIN ST WESTBOUND				HIGH ST NORTHBOUND				MAIN ST EASTBOUND				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
03:30 PM	6	54	5	4	79	24	13	3	14	59	59	2	10	44	30	0	406
03:45 PM	11	59	10	1	73	26	10	2	14	78	78	2	6	22	14	0	404
Total	17	113	15	5	152	50	23	5	28	137	135	4	16	66	44	0	810
04:00 PM	10	82	7	3	75	29	9	6	10	84	73	1	4	35	16	0	444
04:15 PM	13	63	8	1	81	36	10	3	15	79	64	1	4	30	9	0	417
04:30 PM	12	65	7	8	97	22	4	5	10	76	72	10	6	25	25	5	449
04:45 PM	13	74	7	0	92	31	2	2	13	71	51	0	1	25	12	2	386
Total	48	284	29	12	335	118	25	16	48	310	260	12	15	115	62	7	1696
05:00 PM	12	75	2	0	88	18	9	2	14	64	68	0	4	18	15	0	389
05:15 PM	7	65	0	1	72	26	5	0	10	58	53	0	7	17	11	0	332
Grand Total	84	537	46	18	647	212	62	23	100	569	516	16	42	216	132	7	3227
Approch %	12.3	78.4	6.7	2.6	68.5	22.5	6.6	2.4	8.3	47.4	43	1.3	10.6	54.4	33.2	1.8	
Total %	2.6	16.6	1.4	0.8	20	6.6	1.9	0.7	3.1	17.6	16	0.5	1.3	6.7	4.1	0.2	
Motorcycles	0	1	0	0	5	0	0	0	0	2	3	0	0	1	0	0	12
% Motorcycles	0	0.2	0	0	0.8	0	0	0	0	0.4	0.6	0	0	0.5	0	0	0.4
Cars & Light Goods	84	531	45	0	638	212	60	0	100	561	507	0	42	214	129	0	3123
% Cars & Light Goods	100	98.9	97.8	0	98.6	100	96.8	0	100	98.6	98.3	0	100	99.1	97.7	0	96.8
Buses	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	0	7
% Buses	0	0	0	0	0.2	0	0	0	0	0	1.2	0	0	0	0	0	0.2
Single-Unit Trucks	0	1	1	0	2	0	2	0	0	6	0	0	0	0	3	0	15
% Single-Unit Trucks	0	0.2	2.2	0	0.3	0	3.2	0	0	1.1	0	0	0	0	2.3	0	0.5
Articulated Trucks	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0
Bicycles on Road	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5
% Bicycles on Road	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.2
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	18	0	0	0	23	0	0	0	16	0	0	0	7	64
% Pedestrians	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0	100	2

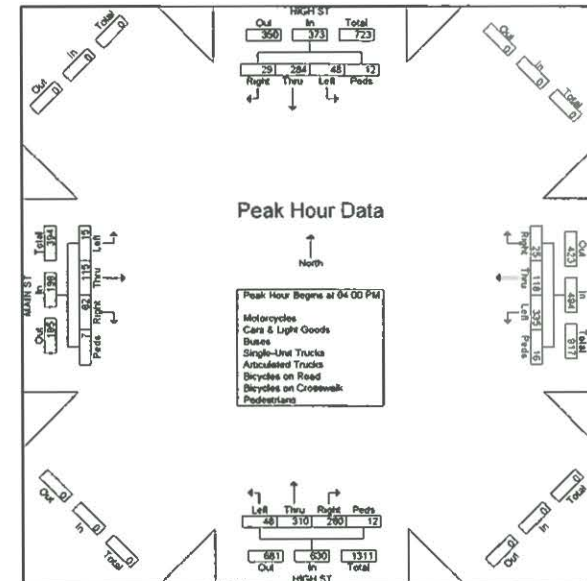
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Start Time	HIGH ST SOUTHBOUND				MAIN ST WESTBOUND				HIGH ST NORTHBOUND				MAIN ST EASTBOUND				Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
04:00 PM	10	82	7	3	75	29	9	6	10	84	73	1	4	35	16	0	444
04:15 PM	13	63	8	1	81	36	10	3	15	79	64	1	4	30	9	0	417
04:30 PM	12	65	7	8	92	22	4	5	10	76	72	10	6	25	25	5	449
04:45 PM	13	74	7	0	94	31	2	2	13	71	51	0	1	25	12	2	386
Total Volume	48	284	29	12	335	118	25	16	48	310	260	12	15	115	62	7	1696
% App. Total	12.9	76.1	7.8	3.2	67.8	23.9	5.1	3.2	7.6	49.2	41.3	1.9	7.5	57.8	31.2	3.5	
PHF	.923	.866	.806	.375	.914	.863	.819	.625	.667	.950	.800	.923	.938	.825	.821	.350	.816



## APPENDIX B LEVEL OF SERVICE CRITERIA

### APPENDIX B – LEVEL OF SERVICE (LOS) CRITERIA

#### VEHICULAR LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (HCM 6<sup>th</sup> EDITION)

Level of service for vehicles at signalized intersections is directly related to delay values and is assigned on that basis. Level of Service is a measure of the acceptability of delay values to motorists at a given intersection. The criteria are given in the table below.

Level-of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec./veh.)
A	< 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	> 80.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

#### VEHICULAR LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM 6<sup>th</sup> EDITION)

The level of service criteria for vehicles at unsignalized intersections is defined as the average control delay, in seconds per vehicle.

LOS delay threshold values are lower for two-way stop-controlled (TWSC) and all-way stop-controlled (AWSC) intersections than those of signalized intersections. This is because more vehicles pass through signalized intersections, and therefore, drivers expect and tolerate greater delays. While the criteria for level of service for TWSC and AWSC intersections are the same, procedures to calculate the average total delay may differ.

Level of Service Criteria for Two-Way Stop-Controlled Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	> 50

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**APPENDIX C**  
**LEVEL OF SERVICE CALCULATIONS**

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**APPENDIX C**  
**LEVEL OF SERVICE CALCULATIONS**

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Existing AM

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# HCM 6th TWSC

1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/27/2021

Intersection						
Int Delay, s/veh	8.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	2	2	2	2	2	2
Traffic Vol, veh/h	36	269	164	19	316	342
Future Vol, veh/h	36	269	164	19	316	342
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	292	178	21	343	372

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1247	189	0
Stage 1	189	-	-
Stage 2	1058	-	-
Critical Hdwy	8.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Plat Cap-1 Maneuver	192	853	-
Stage 1	843	-	-
Stage 2	314	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	132	1453	-
Mov Cap-2 Maneuver	132	-	-
Stage 1	843	-	-
Stage 2	229	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.4	0	4.1
HCM LOS	C	-	-

Minor Lane/Major Mvmt	NBT	NBRWB	SBL	SBT
Capacity (veh/h)	-	-	519	1373
HCM Lane V/C Ratio	-	-	0.639	0.25
HCM Control Delay (s)	-	-	23.4	4.1
HCM Lane LOS	-	-	C	A
HCM 95th %ile Delay (s)	-	-	4.5	1

Existing AM

Synchro 11 Report  
Page 1

# HCM 6th TWSC

2: Waiehu Beach Rd & Wailupe Dr./Lower Waiehu Beach Rd

04/27/2021

Intersection												
Int Delay, s/veh	10.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SEB
Lane Configurations	2	2	2	2	2	2	2	2	2	2	2	2
Traffic Vol, veh/h	44	2	212	198	6	14	107	216	60	5	294	20
Future Vol, veh/h	44	2	212	198	6	14	107	216	60	5	294	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	100	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	2	230	117	7	15	116	235	65	5	320	22

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	844	873	331
Stage 1	341	341	-
Stage 2	503	532	-
Critical Hdwy	7.12	6.52	6.22
Critical Hdwy Stg 1	6.12	5.52	-
Critical Hdwy Stg 2	6.12	5.52	-
Follow-up Hdwy	3.518	4.018	3.318
Plat Cap-1 Maneuver	283	285	711
Stage 1	674	639	-
Stage 2	551	526	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	252	260	711
Mov Cap-2 Maneuver	252	260	-
Stage 1	610	536	-
Stage 2	482	476	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	55.4	2.3	0.1
HCM LOS	B	F	-	-

Minor Lane/Major Mvmt	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SEB
Capacity (veh/h)	1217	-	-	252	211	179	771	1261	-	-	-
HCM Lane V/C Ratio	0.096	-	-	0.198	0.324	0.692	0.02	0.004	-	-	-
HCM Control Delay (s)	8.3	-	-	22.8	12.5	61	9.8	7.9	-	-	-
HCM Lane LOS	A	-	-	C	B	F	A	A	-	-	-
HCM 95th %ile Delay (s)	0.3	-	-	0.7	1.4	4.2	0.1	0.1	-	-	-

Existing AM

Synchro 11 Report  
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HCM 6th TWSC  
3: Waiehu Beach Rd & Makaala Dr

04/27/2021

Intersection						
Int Delay, s/veh	17					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	7	4	99	335	571	13
Traffic Vol, veh/h	7	417	99	335	571	13
Future Vol, veh/h	7	417	99	335	571	13
Conflicting Pairs, s/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	100	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mynt Flow	8	453	108	364	621	14
Major/Minor	Minor2	Major1	Minor3	Major2	Minor4	Major3
Conflicting Flow All	1208	628	635	0	-	0
Stage 1	628	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	8.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Plat Cap-1 Maneuver	202	483	946	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Plat Cap-1 Maneuver	179	483	946	-	-	-
Plat Cap-2 Maneuver	314	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	55.7	2.1	0			
HCM LOS	F					
Minor Lane/Mynt	NBL	NBT	EBL	EBR	SBT	SBR
Capacity (veh/h)	948	-	314	483	-	-
HCM Lane V/C Ratio	0.114	-	0.024	0.938	-	-
HCM Control Delay (s)	9.3	-	16.7	56.4	-	-
HCM Lane LOS	A	-	C	F	-	-
HCM 95th %ile Q (veh)	0.4	-	0.1	11.3	-	-

Existing AM

Synchro 11 Report  
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HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/27/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR										
Lane Configurations		↓	↑		↑	↓		↑	↓	↓	↑	↓										
Traffic Volume (veh/h)	127	2	41	12	5	3	110	391	3	2	777	404										
Future Volume (veh/h)	127	2	41	12	5	3	110	391	3	2	777	404										
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0										
Ped-Bike Adj(A, pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00										
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00										
Work Zone On Approach	No		No		No		No		No		No											
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870										
Adj Flow Rate, veh/h	138	2	45	13	5	3	120	425	3	2	845	439										
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92										
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2										
Cap, veh/h	197	2	163	147	55	20	137	1482	10	799	787	1207										
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.80	0.80	0.02	0.76	0.76										
Sat Flow, veh/h	1419	21	1578	1034	474	251	1781	1855	13	1781	1834	1585										
Grp Volume(v), veh/h	140	0	45	21	0	0	120	0	428	2	845	439										
Grp Sat Flow(s), veh/h	1440	0	1578	1758	0	0	1781	0	1868	1781	1834	1585										
Q Serve(g, s), s	18.4	0.0	5.7	0.0	0.0	0.0	10.5	0.0	13.0	0.1	166.0	19.9										
Cycle Q Clearance, s	20.6	0.0	5.7	2.3	0.0	0.0	16.3	0.0	13.0	0.1	166.0	19.9										
Prop In Lane	0.99		1.00	0.62		0.14	1.00		0.01	1.00		1.00										
Lane Grp Cap(c), veh/h	200	0	183	231	0	0	197	0	1493	780	787	1207										
V/C Ratio(X)	0.70	0.00	0.25	0.09	0.00	0.00	0.87	0.00	0.29	0.00	1.07	0.36										
Arad Cap(c), veh/h	311	0	869	893	0	0	296	0	1594	833	787	1207										
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00										
Upstream Filter	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00										
Uniform Delay (d), s/veh	94.1	0.0	87.7	86.2	0.0	0.0	89.9	0.0	5.7	5.2	26.0	8.6										
Inc Delay (d2), s/veh	11.6	0.0	1.9	0.2	0.0	0.0	15.5	0.0	0.1	0.0	53.7	0.9										
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0										
Wt Back(Qd3)(%), veh/h	0.5	0.0	2.5	1.1	0.0	0.0	7.4	0.0	5.2	0.0	48.9	7.3										
Unsig. Movement Delay, s/veh																						
LnGrp Delay(s), s/veh	195.7	0.0	89.8	86.4	0.0	0.0	125.4	0.0	5.8	5.2	79.8	9.4										
LnGrp LOS	F	A	F	F	A	A	F	A	A	A	F	A										
Approach Vol, veh/h	185			21			948			1296												
Approach Delay, s/veh	101.8			86.4			27.6			55.6												
Approach LOS	F			F			C			E												
Timer - Assigned Phs	1		2		4		5		6		7											
Phs Duration (G+Y+Rc), s	16.8		171.0		30.3		8.5		179.3		36.3											
Change Period (Y+Rc), s	4.0		5.0		5.0		4.0		5.0		5.0											
Max Green Setting (Gmax), s	31.0		186.0		120.0		11.0		186.0		120.0											
Max Q Clear Time (g_c+1), s	12.5		168.0		4.3		2.1		15.0		22.6											
Green Exit Time (g_c), s	0.3		0.0		0.1		0.0		3.1		2.6											
Intersection Summary																						
HCM 6th Ctrl Delay	52.6																					
HCM 6th LOS	D																					

Existing AM

Synchro 11 Report  
Page 4

HCM 6th TWSC  
S: Kahekili Hwy & Makaala Dr

04/27/2021

Intersection												
Int Delay, s/veh	5											
Lane Configurations	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH
Future Vol, veh/h	136	49	146	59	83	333						
Grading Pkts, PKT	0	0	0	0	0	0						
Sign Control	Stop	Stop	Free	Free	Free	Free						
RT Channelized	-	Yield	-	Yield	-	Yield						
Storage Length	80	0	-	-	90	-						
Vol in Median Storage, %	0	-	0	-	0	-						
Grade, %	0	-	0	-	0	-						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles, %	2	2	2	2	2	2						
Minor Flow	146	59	146	83	333							

Minor Flow	146	59	146	83	333							
Conflicting Flow All	733	101	0	0	223	0						
Stage 1	181	-	-	-	-	-						
Stage 2	542	-	-	-	-	-						
Critical Hdwy	3.42	1.32	-	-	1.71	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	-	-	2.218	-						
Platoon Blocked, %	381	381	-	-	1348	-						
Stage 1	841	-	-	-	-	-						
Stage 2	381	-	-	-	-	-						
Platoon blocked, %	381	381	-	-	1348	-						
Minor Cap-1 Maneuver	381	381	-	-	-	-						
Minor Cap-2 Maneuver	381	-	-	-	-	-						
Stage 1	381	-	-	-	-	-						
Stage 2	544	-	-	-	-	-						

Minor Flow	146	59	146	83	333							
HCM Control Delay, s	18.4	0	-	-	5.6	-						
HCM LOS	C											

Minor Lane Width	12	12	12	12	12	12						
Capacity, veh/h	-	-	302	891	1348	-						
HCM Lane V/C Ratio	-	-	0.408	0.063	0.067	-						
HCM Control Delay, s	-	-	23.8	18.5	7.8	-						
HCM Lane LOS	-	-	C	A	A	-						
HCM Pkts, PKT	-	-	1.0	0.2	0.8	-						

Existing AM

Synchro 11 Report  
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HCM 6th TWSC  
6: Market St/Kahekili Hwy & Mokuau Rd/Pilihana Rd

04/27/2021

Intersection												
Int Delay, s/veh	3.7											
Lane Configurations	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH	TH
Future Vol, veh/h	9	0	38	56	0	7	34	286	28	5	717	7
Grading Pkts, PKT	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	Yield	-	-	Yield
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Vol in Median Storage, %	-	-	-	-	-	-	-	-	-	-	-	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minor Flow	10	0	42	61	0	8	37	311	30	5	719	8

Minor Flow	10	0	42	61	0	8	37	311	30	5	719	8
Conflicting Flow All	1187	1200	783	1214	1187	328	787	0	0	341	0	0
Stage 1	293	293	-	-	-	-	-	-	-	-	-	-
Stage 2	404	415	-	814	797	-	-	-	-	-	-	-
Critical Hdwy	2.71	1.32	1.32	7.12	1.32	1.32	4.71	-	-	4.71	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Platoon Blocked, %	181	181	381	1348	181	381	1348	-	-	1348	-	-
Stage 1	382	400	-	626	602	-	-	-	-	-	-	-
Stage 2	181	381	-	202	381	-	-	-	-	-	-	-
Platoon blocked, %	181	381	-	202	381	-	-	-	-	-	-	-
Minor Cap-1 Maneuver	181	172	381	134	172	381	134	-	-	134	-	-
Minor Cap-2 Maneuver	181	172	-	134	172	-	-	-	-	-	-	-
Stage 1	381	381	-	381	381	-	-	-	-	-	-	-
Stage 2	582	559	-	330	386	-	-	-	-	-	-	-

Minor Flow	10	0	42	61	0	8	37	311	30	5	719	8
HCM Control Delay, s	18.2	49.2	-	-	-	-	-	-	-	-	-	-
HCM LOS	C	E										

Minor Lane Width	12	12	12	12	12	12						
Capacity, veh/h	-	-	302	891	1348	-						
HCM Lane V/C Ratio	-	-	0.444	-	0.171	0.004	-					
HCM Control Delay, s	-	-	18.2	49.2	0	0	-					
HCM Lane LOS	-	-	A	A	C	E	A	-				
HCM Pkts, PKT	-	-	0.1	-	0.8	1.1	0	-				

Existing AM

Synchro 11 Report  
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HCM 6th TWSC  
7: Market St & Mill St

04/27/2021

Intersection						
Int Delay, s/veh	8.3					
Movement	WB	WBR	NBT	NBR	SB	SBT
Lane Configurations	3	3	3	3	3	3
Traffic Vol, veh/h	33	148	300	153	419	473
Future Vol, veh/h	33	148	300	153	419	473
Conflicting Peds, #/h	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	50	-
Vol in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minpt Flow	36	161	326	166	455	514
Major/Minor						
Conflicting Flow All	1833	409	0	0	492	0
Stage 1	409	-	-	-	-	-
Stage 2	1424	-	-	-	-	-
Critical Hwy	5.42	6.22	-	-	4.12	-
Critical Hwy Stg 1	5.42	-	-	-	-	-
Critical Hwy Stg 2	5.42	-	-	-	-	-
Follow-up Hwy	3.518	3.318	-	-	2.218	-
Pol Cap-1 Maneuver	64	642	-	-	1071	-
Stage 1	671	-	-	-	-	-
Stage 2	222	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	48	642	-	-	1071	-
Mov Cap-2 Maneuver	48	-	-	-	-	-
Stage 1	671	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Approach						
WB	NB	SB				
HCM Control Delay, s	45.2	0	5.1			
HCM LOS	E					
Minor Lane/Major Mvmt						
NBT	NBR/NBL	WBL	WBR	SB	SBT	
Capacity (veh/h)	-	-	48	642	1071	-
HCM Lane V/C Ratio	-	-	0.747	0.251	0.425	-
HCM Control Delay (s)	-	-	191.8	12.5	19.8	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %ile Q (veh/h)	-	-	3	1	2.2	-

Existing AM

Synchro 11 Report  
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HCM 6th AWSC  
8: Market St & Vineyard St

04/27/2021

Intersection													
Intersection Delay, s/veh	19.3												
Intersection LOS	C												
Movement	EB	EBT	EBR	WB	WBT	WBR	NB	NBT	NBR	SB	SBT	SBR	
Lane Configurations	3	3	3	3	3	3	3	3	3	3	3	3	
Traffic Vol, veh/h	230	42	0	0	131	38	21	199	31	53	0	401	
Future Vol, veh/h	200	42	0	0	131	38	21	199	31	53	0	401	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Minpt Flow	217	46	0	0	142	42	21	216	34	58	0	430	
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0	
Approach													
Opposing Approach	WB			EB			SB			NB			
Opposing Lanes	1			2			1			1			
Conflicting Approach Left	SB			NB			EB			WB			
Conflicting Lanes Left	1			1			2			1			
Conflicting Approach Right	NB			SB			WB			EB			
Conflicting Lanes Right	1			1			1			2			
HCM Control Delay	16.1			13.9			15.6			25.1			
HCM LOS	C			B			C			D			
Lane													
NBL	EBL	EBR	WBL	WBR	SB	SBT							
Vol Left, %	8%	100%	0%	0%	0%	12%							
Vol Thru, %	79%	0%	100%	77%	3%	88%							
Vol Right, %	12%	0%	0%	23%	88%								
Sign Control	Stop	Stop	Stop	Stop	Stop								
Traffic Vol by Lane	251	200	42	170	454								
LT Vol	21	290	0	0	53								
Through Vol	199	0	42	131	0								
RT Vol	31	0	0	38	401								
Lane Flow Rate	273	217	46	185	493								
Geometry Grp	2	7	7	5	2								
Degree of Util (X)	0.489	0.468	0.092	0.356	0.77								
Departure Headway (Hd)	6.458	7.744	7.231	6.943	5.52								
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes								
Cap	557	463	494	516	642								
Service Time	4.528	5.512	4.999	5.021	3.675								
HCM Lane V/C Ratio	0.48	0.468	0.093	0.358	0.768								
HCM Control Delay	15.6	17.2	10.7	13.9	25.1								
HCM Lane LOS	C	C	B	B	D								
HCM 95th-ile Q	2.7	2.4	0.3	1.6	7.2								

Existing AM

Synchro 11 Report  
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HCM 6th Signalized Intersection Summary  
9: High St. & Main St

04/27/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	137	49	258	51	49	32	200	304	16	337	13
Future Volume (veh/h)	6	133	49	258	51	49	32	200	304	16	337	13
Initial Q (s/c), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Sp. Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	145	53	280	55	53	35	217	330	17	366	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	393	230	84	596	493	389	448	576	468	97	531	20
Arrive On Green	0.18	0.18	0.18	0.19	0.46	0.46	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1286	1307	472	1761	875	843	1003	1870	1565	32	1725	64
Grp Volume(v), veh/h	7	0	198	280	0	108	35	217	330	397	0	0
Grp Sat Flow(s), veh/h	1286	0	1761	1761	0	1719	1003	1870	1565	1621	0	0
Q Serve(s), s	0.2	0.0	4.4	4.7	0.0	1.6	0.0	3.9	7.9	0.5	0.0	0.0
Cycle Q Clearing, c/s	0.2	0.0	4.4	4.7	0.0	1.6	1.3	3.9	7.9	0.2	0.0	0.0
Prop In Lane	1.00		0.27	1.00		0.49	1.00		1.00	0.04		0.04
Lane Grp Cap(c), veh/h	393	0	314	596	0	792	446	576	468	647	0	0
V/C Ratio(X)	0.02	0.00	0.63	0.47	0.00	0.14	0.08	0.38	0.68	0.61	0.00	0.00
Arrvl Cap(c), veh/h	1089	0	1281	2728	0	3796	2228	3967	3303	3791	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	14.7	0.0	16.5	9.4	0.0	6.7	10.8	11.7	13.1	13.2	0.0	0.0
Inc Delay (d2), s/veh	0.0	0.0	2.1	1.0	0.0	0.1	0.1	0.4	1.8	1.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% In Back Queue (b/c), veh/h	0.0	1.7	1.5	0.0	0.4	0.2	1.4	2.5	2.9	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(s), s/veh	14.8	0.0	16.6	10.4	0.0	6.8	10.9	12.2	14.3	14.2	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	B	B	B	B	A	A
Approach Vol, veh/h		205		398			582			397		
Approach Delay, s/veh		18.5		9.4			13.6			14.2		
Approach LOS		B		A			B			B		
Timer - Assumed Phs		2		3		3	3			3		3
Phs Duration (G+Y+Rc), s		24.9		18.3		12.3	12.6			18.3		18.3
Change Period (Y+Rc), s		5.0		5.0		4.0	5.0			5.0		5.0
Max Green Setting (Gmax), s		95.0		90.0		60.0	31.0			90.0		90.0
Max Q Clear Time (g_c+1), s		3.6		10.2		6.7	6.4			9.9		9.9
Green Ext Time (g_e), s		1.2		3.1		1.9	1.2			3.1		3.1
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.4								
HCM 6th LOS				B								

Existing AM

Synchro 11 Report  
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HCM 6th TWSC  
10: Central Ave. & Mill St

04/27/2021

<b>Intersection</b>												
Int Delay, s/veh		4.9										
<b>Movement</b>												
Lane Configurations												
Traffic Vol, veh/h		376	221	247	171	16	145					
Future Vol, veh/h		376	221	247	171	16	145					
Conflicting Peds, #/hr		0	0	0	0	0	0					
Sign Control		Free	Free	Free	Free	Stop	Stop					
RT Channelized		-	None	-	None	-	None					
Storage Length		-	-	-	-	0	-					
Vol in Median Storage, #		0	-	-	0	0	-					
Grade, %		0	-	-	0	0	-					
Peak Hour Factor		92	92	92	92	92	92					
Heavy Vehicles, %		2	2	2	2	2	2					
Minut Flow		408	240	268	186	17	158					
<b>Major/Minor</b>												
Conflicting Flow All		0	0	649	0	1251	529					
Stage 1		-	-	-	-	509	-					
Stage 2		-	-	-	-	722	-					
Critical Hdwy		-	-	4.12	-	6.62	6.22					
Critical Hdwy Stg 1		-	-	-	-	5.42	-					
Critical Hdwy Stg 2		-	-	-	-	5.42	-					
Follow-up Hdwy		-	-	2.218	-	3.518	3.318					
Bot Cap-1 Maneuver		-	-	937	-	180	550					
Stage 1		-	-	-	-	591	-					
Stage 2		-	-	-	-	481	-					
Platoon blocked, %		-	-	-	-	-	-					
Mov Cap-1 Maneuver		-	-	937	-	128	550					
Mov Cap-2 Maneuver		-	-	-	-	129	-					
Stage 1		-	-	-	-	591	-					
Stage 2		-	-	-	-	328	-					
<b>Approach</b>												
HCM Control Delay, s		0		6.1		19.9						
HCM LOS				C								
<b>Minor Lane Major Minut</b>												
Capacity (veh/h)		415	-	-	937	-						
HCM Lane V/C Ratio		0.422	-	-	0.287	-						
HCM Control Delay (s)		19.9	-	-	10.4	0						
HCM Lane LOS		C	-	-	B	A						
HCM 95th Yule Delay		2	-	-	1.2	-						

Existing AM

Synchro 11 Report  
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## APPENDIX C

### LEVEL OF SERVICE CALCULATIONS

Existing PM

## HCM 6th TWSC

### 1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/27/2021

Intersection						
Int Delay, s/veh	8.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	2	2	2	2	2	2
Truck Vol, veh/h	31	315	206	68	231	109
Future Vol, veh/h	31	315	206	68	231	109
Conflicting Pkts, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Min/Max Flow	34	342	228	74	251	138
Main/Minor						
Conflicting Flow All	881	261	0	0	298	0
Stage 1	261	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	317	778	-	-	1263	-
Stage 1	783	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	249	778	-	-	1263	-
Mov Cap-2 Maneuver	249	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Approach						
WBS	NB					
HCM Control Delay, s	17.7	0				
HCM LOS	C	5.8				
Minor Lane/Major Min/Max						
NBT	NBR	NBL	SBT	SBL	SBL	SBL
Capacity (veh/h)	-	-	654	1263	-	-
HCM Lane V/C Ratio	-	-	0.575	0.199	-	-
HCM Control Delay (s)	-	-	17.7	8.6	0	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %ile Delay	-	-	3.7	0.7	-	-

Existing PM

Synchro 11 Report  
Page 1

# HCM 6th TWSC

2: Waiehu Beach Rd & Waiupe Dr./Lower Waiehu Beach Rd

04/27/2021

Intersection												
Int Delay, s/veh	10.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	4	143	72	4	3	205	341	115	15	253	62
Future Vol, veh/h	15	4	143	72	4	3	205	341	115	15	253	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	-	-	100	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minpt Flow	16	4	155	78	4	3	223	371	125	16	275	67
Major/Minor	Minor2	Minor1	Major1	Major2								
Conflicting Flow All	1223	1283	309	1223	1254	434	342	0	0	496	0	0
Stage 1	341	341	-	880	880	-	-	-	-	-	-	-
Stage 2	882	942	-	343	374	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	8.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Sig 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Sig 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Plat Cap-1 Maneuver	156	165	731	156	172	622	1217	-	-	1068	-	-
Stage 1	674	639	-	342	365	-	-	-	-	-	-	-
Stage 2	341	342	-	672	618	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	129	133	731	102	138	622	1217	-	-	1068	-	-
Mov Cap-2 Maneuver	129	133	-	102	138	-	-	-	-	-	-	-
Stage 1	351	629	-	278	298	-	-	-	-	-	-	-
Stage 2	273	279	-	518	609	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	14.4	112.2	2.7	0.4								
HCM LOS	B	F										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1217	-	-	130	731	103	622	1068	-	-	-	-
HCM Lane V/C Ratio	0.183	-	-	0.159	0.213	0.802	0.005	0.015	-	-	-	-
HCM Control Delay (s)	8.8	-	-	37.9	11.3	146.2	10.8	9.4	-	-	-	-
HCM Lane LOS	A	-	-	E	B	F	B	A	-	-	-	-
HCM 95th %ile D (min)	0.7	-	-	0.5	0.8	4.4	0	0	-	-	-	-

Existing PM

Synchro 11 Report  
Page 2

# HCM 6th TWSC

3: Waiehu Beach Rd & Makaala Dr

04/27/2021

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	201	314	650	450	18
Future Vol, veh/h	15	201	314	650	450	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	100	160	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minpt Flow	16	218	341	707	489	20
Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1888	499	509	0	-	0
Stage 1	499	-	-	-	-	-
Stage 2	1389	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Sig 1	5.42	-	-	-	-	-
Critical Hdwy Sig 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Plat Cap-1 Maneuver	77	572	1056	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	52	572	1056	-	-	-
Mov Cap-2 Maneuver	157	-	-	-	-	-
Stage 1	413	-	-	-	-	-
Stage 2	231	-	-	-	-	-
Approach	EB	NB	SB			
HCM Control Delay, s	16.2	3.3	0			
HCM LOS	C					
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR
Capacity (veh/h)	1056	-	157	572	-	-
HCM Lane V/C Ratio	0.323	-	0.104	0.382	-	-
HCM Control Delay (s)	10	-	30.6	15.1	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th %ile D (min)	1.4	-	0.3	1.8	-	-

Existing PM

Synchro 11 Report  
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HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/27/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	387	2	55	4	3	1	104	686	7	0	420	220
Future Volume (veh/h)	387	2	55	4	3	1	104	686	7	0	420	220
Initial Q (Q <sub>0</sub> ) (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> , p <sub>b</sub> T)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow (veh/h)	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate (veh/h)	421	2	60	4	3	1	113	746	8	0	457	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap (veh/h)	603	3	594	566	266	82	335	363	10	216	795	674
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.05	0.52	0.52	0.00	0.43	0.43
Sat Flow (veh/h)	1408	7	1543	826	708	219	1781	1547	20	1781	1870	1585
Grp Volume (v), veh/h	423	0	60	8	0	0	113	0	754	0	457	239
Grp Sat Flow (s), veh/h	1415	0	1583	1753	0	0	1781	0	1567	1781	1870	1585
Q Serve (g, s), s	25.4	0.0	2.4	0.0	0.0	0.0	3.3	0.0	31.3	0.0	18.0	9.9
Cycle Q Clear (g, c), s	25.7	0.0	2.4	0.3	0.0	0.0	3.3	0.0	31.3	0.0	18.0	9.9
Prop In Lane	1.00		1.00	0.50		0.12	1.00		0.01	1.00		1.00
Lane Grp Cap (c), veh/h	603	0	594	714	0	0	305	0	373	216	795	674
VIC Ratio (X)	0.70	0.00	0.10	0.01	0.00	0.00	0.29	0.00	0.77	0.00	0.57	0.35
Arrival Cap (c), veh/h	1580	0	1968	2083	0	0	870	0	1655	817	1471	1247
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (f)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	19.6	18.9	0.0	0.0	15.2	0.0	18.6	0.0	21.1	18.8
Per Delay (d2), s/veh	4.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	1.4	0.0	3.0	1.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Max Back (Q <sub>0</sub> + 50%) (veh)	52	0.0	0.9	0.1	0.0	0.0	1.3	0.0	13.0	0.0	8.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay (d), s/veh	30.8	0.0	19.8	18.9	0.0	0.0	15.6	0.0	18.9	0.0	24.1	20.3
LnGrp LOS	C	A	B	B	A	A	B	A	B	A	C	C
Approach Vol, veh/h	443			8			867				636	
Approach Delay, s/veh	29.5			18.9			19.4				22.8	
Approach LOS	C			B			B				C	
Timer - Assigned Phs	T	2		2	5	5	8					
Phs Duration (G+Y+Rc), s	9.3	46.1		41.3	9.0	55.3	41.3					
Change Period (Y+Rc), s	4.0	5.0		5.0	4.0	5.0	5.0					
Max Green Setting (G <sub>max</sub> ), s	21.0	75.0		120.0	11.0	95.0	120.0					
Max Q Clear Time (g, c+11), s	5.3	20.0		2.3	0.0	33.3	27.7					
Green Exp Time (g, c), s	0.3	21.1		0.0	9.0	9.8	8.5					
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			C									

Existing PM

Synchro 11 Report  
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HCM 6th TWSC  
5: Kahekili Hwy & Makaala Dr

04/27/2021

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBL	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	85	5	222	170	11	142
Future Vol, veh/h	85	5	222	170	11	142
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	80	0	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minut Flow	92	5	241	185	12	154
Major/Minor						
	Minor1	Major1	Major2			
Conflicting Flow All	512	334	0	0	426	0
Stage 1	334	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Heavy	8.42	8.22	-	-	4.12	-
Critical Hdwy Sig 1	5.42	-	-	-	-	-
Critical Hdwy Sig 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Plat Cap-1 Maneuver	522	708	-	-	1133	-
Stage 1	725	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	516	708	-	-	1133	-
Mov Cap-2 Maneuver	516	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Approach						
	WBL	NBL	SBL			
HCM Control Delay, s	13.3	0	0.6			
HCM LOS	B					
Minor Lane/Major Minut						
	NBL	NBR/BL	WBL/2	SBL	SBT	
Capacity (veh/h)	-	-	516	708	1133	-
HCM Lane V/C Ratio	-	-	0.179	0.008	0.011	-
HCM Control Delay (s)	-	-	13.3	10.1	8.2	-
HCM Lane LOS	-	-	B	B	A	-
HCM 95th %ile Q (veh)	-	-	0.6	9	0	-

Existing PM

Synchro 11 Report  
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# HCM 6th TWSC

6: Market St/Kaheki Hwy & Mokuau Rd/Pilihana Rd

04/27/2021

Inputs													
Int Delay, s/veh	2.4												
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	1
Future Vol, veh/h	5	1	44	44	1	2	43	538	73	5	284	5	
Conflicting Flows, #	1	1	0	1	1	0	1	0	1	1	0	1	
Sign Control	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	None	-	None	-	None	-	None	-	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Vol in Median Storage, #	-	0	-	-	0	-	0	-	-	-	0	-	
Grade, %	-	0	-	-	0	-	-	-	-	-	0	-	
Peak Hour Factor	72	72	72	72	72	72	72	72	72	72	72	72	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Min Flow	5	1	48	44	1	2	47	540	79	5	287	5	

Flow Metrics													
Conflicting Flow All	1020	1058	290	1043	1021	625	292	0	0	664	0	0	
Stage 1	700	700	-	718	718	-	-	-	-	-	-	-	
Stage 2	720	758	-	324	302	-	-	-	-	-	-	-	
Critical Flow	7.02	8.32	8.32	7.12	8.32	8.22	4.12	-	-	4.12	-	-	
Critical Flow Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Flow Stg 2	8.12	5.52	-	8.12	5.52	-	-	-	-	-	-	-	
Follow-up Flow	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-	
Platoon Cap-1 Maneuver	715	325	740	707	236	485	1275	-	-	915	-	-	
Stage 1	709	666	-	420	433	-	-	-	-	-	-	-	
Stage 2	419	615	-	384	664	-	-	-	-	-	-	-	
Platoon Blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Min Cap-1 Maneuver	201	219	749	183	221	489	1219	-	-	819	-	-	
Min Cap-2 Maneuver	203	210	-	183	221	-	-	-	-	-	-	-	
Stage 1	187	182	-	189	407	-	-	-	-	-	-	-	
Stage 2	381	381	-	630	660	-	-	-	-	-	-	-	

Outputs													
HCM Control Delay, s	12		15		6.5		6.2						
HCM LOS	B		D										

HCM Lane V/C Ratio													
Capacity (veh/h)	1470	-	581	188	820	-	-	-	-	-	-	-	-
HCM Lane V/C Ratio	0.037	-	0.095	0.27	0.006	-	-	-	-	-	-	-	-
HCM Control Delay (s)	7.9	-	12	3.5	6.8	-	-	-	-	-	-	-	-
HCM Lane LOS	A	-	B	D	A	-	-	-	-	-	-	-	-
HCM 95th PCE Delay	6.1	-	3.3	1	0	-	-	-	-	-	-	-	-

Existing PM

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# HCM 6th TWSC

7: Market St & Mill St

04/27/2021

Inputs													
Int Delay, s/veh	10.2												
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	
Future Vol, veh/h	36	321	538	169	230	285							
Conflicting Flows, #	0	1	0	1	0	1							
Sign Control	Stop	Stop	Free	Free	Free	Free							
RT Channelized	-	Stop	-	None	-	None							
Storage Length	0	0	-	-	50	-							
Vol in Median Storage, #	0	-	0	-	-	0							
Grade, %	0	-	0	-	-	0							
Peak Hour Factor	72	72	72	72	72	72							
Heavy Vehicles, %	2	2	2	2	2	2							
Min Flow	30	349	563	164	230	288							

Flow Metrics													
Conflicting Flow All	1483	675	0	0	767	0							
Stage 1	875	-	-	-	-	-							
Stage 2	788	-	-	-	-	-							
Critical Flow	8.42	8.22	-	-	4.12	-							
Critical Flow Stg 1	5.42	-	-	-	-	-							
Critical Flow Stg 2	5.42	-	-	-	-	-							
Follow-up Flow	3.518	3.318	-	-	2.218	-							
Platoon Cap-1 Maneuver	182	458	-	-	847	-							
Stage 1	506	-	-	-	-	-							
Stage 2	418	-	-	-	-	-							
Platoon Blocked, %	-	-	-	-	-	-							
Min Cap-1 Maneuver	100	100	-	-	847	-							
Min Cap-2 Maneuver	100	-	-	-	-	-							
Stage 1	500	-	-	-	-	-							
Stage 2	318	-	-	-	-	-							

Outputs													
HCM Control Delay, s	37.5		9		5.1								
HCM LOS	E												

HCM Lane V/C Ratio													
Capacity (veh/h)	-	-	196	454	847	-							
HCM Lane V/C Ratio	-	-	0.391	0.769	0.295	-							
HCM Control Delay (s)	-	-	82.5	34.7	11	-							
HCM Lane LOS	-	-	F	D	B	-							
HCM 95th PCE Delay	-	-	1.8	0.9	1.2	-							

Existing PM

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HCM 6th AWSC  
8: Market St & Vineyard St

04/27/2021

Intersection												
Intersection Delay, s/veh	23.1											
Intersection LOS	C											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑		←	↑		←	↑		←	↑	
Traffic Vol, veh/h	281	116	0	0	106	60	37	281	53	45	0	262
Future Vol, veh/h	281	116	0	0	106	60	37	281	53	45	0	262
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
MMF Flow	305	126	0	0	115	65	40	305	58	49	0	265
Number of Lanes	1	1	0	0	1	0	1	0	1	0	1	0
Approach	EB	WB	SB	EB	WB	SB	EB	WB	SB	EB	WB	SB
Opposing Approach	WB			EB			SB			NB		
Opposing Lanes	1			2			1			1		
Conflicting Approach Left	SB			NB			EB			WB		
Conflicting Lanes Left	1			1			2			1		
Conflicting Approach Right	NB			SB			WB			EB		
Conflicting Lanes Right	1			1			1			2		
HCM Control Delay	22.5			15.4			29.7			20		
HCM LOS	C			C			D			C		
Lane	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL	NBL	EBL	WBL	SBL
Vol Left, %	10%	100%	0%	0%	15%	76%	0%	100%	64%	0%	14%	0%
Vol Thru, %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	371	281	116	166	307	37	281	0	0	45	262	0
LT Vol	37	281	0	0	45	37	281	0	0	45	262	0
Through Vol	281	0	116	106	0	281	0	116	106	0	262	0
RT Vol	53	0	0	60	262	53	0	0	60	262	45	0
Lane Flow Rate	403	305	126	180	334	403	305	126	180	334	403	305
Geometry Grp	2	7	7	5	2	2	7	7	5	2	2	7
Degree of Utl (X)	0.774	0.681	0.264	0.382	0.619	0.774	0.681	0.264	0.382	0.619	0.774	0.681
Departure Headway (Hd)	6.906	8.031	7.545	7.613	6.673	6.906	8.031	7.545	7.613	6.673	6.906	8.031
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	449	477	471	541	528	449	477	471	541	528	449
Service Time	4.908	5.79	5.275	5.687	4.731	4.908	5.79	5.275	5.687	4.731	4.908	5.79
HCM Lane V/C Ratio	0.763	0.679	0.264	0.382	0.617	0.763	0.679	0.264	0.382	0.617	0.763	0.679
HCM Control Delay	29.7	26.4	13	15.4	20	29.7	26.4	13	15.4	20	29.7	26.4
HCM Lane LOS	D	D	B	C	C	D	D	B	C	C	D	D
HCM 95thile O	7	5	1.1	1.8	4.2	7	5	1.1	1.8	4.2	7	5

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HCM 6th Signalized Intersection Summary  
9: High St. & Main St

04/27/2021

Intersection												
Intersection Delay, s/veh	13.4											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	↑	←	←	↑	←	←	↑	←	←	↑	←
Traffic Volume (veh/h)	15	117	63	342	120	25	49	310	265	48	284	29
Future Volume (veh/h)	15	117	63	342	120	25	49	310	265	48	284	29
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A <sub>pbT</sub> )	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	127	31	372	130	6	53	337	93	52	309	31
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	212	52	631	307	37	435	616	322	121	449	32
Arrive On Green	0.15	0.15	0.15	0.22	0.46	0.46	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1253	1452	354	1751	1774	82	1040	1870	1585	120	1363	127
Grp Volume(v), veh/h	16	0	158	372	0	136	53	337	93	392	0	0
Grp Sat Flow(s), veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Q Serve(s), s	0.5	0.0	3.8	7.2	0.0	2.0	0.0	6.8	1.9	3.3	0.0	0.0
Cycle Q Clear(s), s	0.5	0.0	3.8	7.2	0.0	2.0	0.0	6.8	1.9	3.3	0.0	0.0
Prop In Lane	1.00	0.20	1.00	0.04	1.00	1.00	0.13	0.08	0.08	0.08	0.08	0.08
Lane Grp Cap(s), veh/h	336	0	263	631	0	444	435	616	322	616	0	0
V/C Ratio(X)	0.05	0.00	0.60	0.59	0.00	0.16	0.12	0.55	0.18	0.63	0.00	0.00
Unit Cap(s), veh/h	992	0	1207	2537	0	3759	2110	3628	3074	3250	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Flow	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	0.0	18.6	10.7	0.0	7.4	11.2	12.7	11.1	13.6	0.0	0.0
Incr Delay (d <sub>2</sub> ), s/veh	0.1	0.0	2.2	0.9	0.0	0.1	0.1	0.8	0.2	1.1	0.0	0.0
Initial Q Delay(d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Side Road Q Delay(d <sub>4</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh	17.2	0.0	20.7	11.5	0.0	7.5	11.7	13.5	11.2	14.7	0.0	0.0
LnGrp Delay(d), s/veh	B	A	C	B	A	A	B	B	B	B	A	A
Approach Vol, veh/h	174		536		483		392		392		14.7	
Approach Delay, s/veh	20.4		10.5		12.8		14.7		14.7		14.7	
Approach LOS	C		B		B		B		B		B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8	9	10	11	12
Phs Duration (G+Y+Rc), s	26.1	20.3	14.3	11.8	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3
Change Period (Y+Rc), s	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (G <sub>max</sub> ), s	94.0	90.0	60.0	31.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Max Q Clear Time (g <sub>c</sub> +1), s	4.0	12.1	9.2	5.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Green Ext Time (g <sub>e</sub> ), s	0.9	3.2	1.2	1.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Intersection Summary												
HCM 6th Ctrl Delay	13.4											
HCM 6th LOS	B											

Existing PM

Synchro 11 Report  
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Intersection						
Int Delay, s/veh	7.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	2	2	2	2	2	2
Traffic Vol, veh/h	302	104	246	310	51	143
Future Vol, veh/h	302	104	246	310	51	143
Conflicting Peds, Any	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minor Flow	328	113	267	337	55	155
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	441	0	1256	385
Stage 1	-	-	-	-	385	-
Stage 2	-	-	-	-	871	-
Critical Hdwy	-	-	4.12	-	5.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pol Cap-1 Maneuver	-	-	1119	-	189	663
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	410	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1119	-	133	663
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	289	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	4.1	34.6			
HCM LOS		D				
Minor Lane/Major Mvmt	NBL	EBT	EBR	WBL	WBT	
Capacity (veh/h)	324	-	-	1119	-	
HCM Lane V/C Ratio	0.651	-	-	0.239	-	
HCM Control Delay (s)	34.6	-	-	9.2	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %ile Delay	4.3	-	-	6.9	-	

## APPENDIX C

### LEVEL OF SERVICE CALCULATIONS

Base Year 2024 AM



# HCM 6th TWSC

1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/19/2022

Intersection						
Int Delay, s/veh	9.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	2	2	2	2	2	2
Traffic Vol, veh/h	36	269	188	19	316	372
Future Vol, veh/h	36	269	188	19	316	372
Conflicting Peds. #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Vehicle Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minut Flow	38	292	204	21	343	404

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1395	215	0 0 225 0
Stage 1	215	-	- - - -
Stage 2	1090	-	- - - -
Critical Hdwy	6.42	6.22	- - 4.12 -
Critical Hdwy Stg 1	5.42	-	- - - -
Critical Hdwy Stg 2	5.42	-	- - - -
Follow-up Hdwy	3.518	3.318	- - 2.218 -
Plat Cap-1 Maneuver	177	825	- - 1344 -
Stage 1	821	-	- - - -
Stage 2	322	-	- - - -
Platoon blocked, %	-	-	- - - -
Mov Cap-1 Maneuver	119	825	- - 1344 -
Mov Cap-2 Maneuver	119	-	- - - -
Stage 1	821	-	- - - -
Stage 2	216	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	37	0	3.9
HCM LOS	D	-	-

Minor Lane/Major Movt	NBT	NBR	SBL	SBR
Capacity (veh/h)	-	485	1344	-
HCM Lane V/C Ratio	-	0.684	0.256	-
HCM Control Delay (s)	-	27	6.6	0
HCM Lane LOS	-	D	A	A
HCM 95th %ile Q(veh)	-	5.1	1	-

# HCM 6th TWSC

2: Waiehu Beach Rd & Wailupe Dr./Lower Waiehu Beach Rd

04/19/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	2	2	2	2	2	2	2	2	2	2	2	2
Traffic Vol, veh/h	44	2	212	108	6	14	107	228	60	5	311	20
Future Vol, veh/h	44	2	212	108	6	14	107	228	60	5	311	20
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	-	-	100	-	-	-
Vehicle Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minut Flow	48	2	230	117	7	15	116	248	65	5	338	22

Major/Minor	Minor1	Minor2	Minor3	Major1	Major2
Conflicting Flow All	875	904	349	873	281 360 0 0 313 0 0
Stage 1	389	359	-	513	511 - - - 0 - - -
Stage 2	516	545	-	360	370 - - - - - - -
Critical Hdwy	7.12	6.52	6.22	7.12	6.52 6.22 4.12 - - 4.12 - -
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52 - - - - - - -
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52 - - - - - - -
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018 3.318 2.218 - - 2.218 - -
Plat Cap-1 Maneuver	270	277	684	271	285 758 1199 - - 1247 - -
Stage 1	659	627	-	544	536 - - - - - - -
Stage 2	542	519	-	558	620 - - - - - - -
Platoon blocked, %	-	-	-	-	- - - - - - -
Mov Cap-1 Maneuver	239	249	884	166	256 758 1199 - - 1247 - -
Mov Cap-2 Maneuver	239	249	-	166	256 - - - - - - -
Stage 1	594	624	-	491	484 - - - - - - -
Stage 2	473	469	-	436	618 - - - - - - -

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	62.9	2.3	9.1
HCM LOS	B	F	-	-

Minor Lane/Major Movt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1199	-	-	239	694	169	758	1247	-	-	-	-
HCM Lane V/C Ratio	0.097	-	-	0.209	0.332	0.733	0.02	0.004	-	-	-	-
HCM Control Delay (s)	6.3	-	-	24	12.7	69.4	8.8	7.5	-	-	-	-
HCM Lane LOS	A	-	-	C	B	F	A	A	-	-	-	-
HCM 95th %ile Q(veh)	9.3	-	-	3.8	1.5	4.5	0.1	0	-	-	-	-

HCM 6th TWSC  
3: Waiehu Beach Rd & Makaala Dr

04/19/2022

Intersection						
Int Delay, s/veh	18.8					
Movement	EBL	EBR	NBL	NBT	SBT	SEB
Lane Configurations	1	1	2	2	2	2
Traffic Vol, veh/h	7	417	99	356	594	13
Future Vol, veh/h	7	417	99	356	594	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	100	160	-	-	-
Web on Median Storage, #	0	-	0	0	0	-
Grade, %	0	-	0	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Min Flow	8	453	198	387	546	14
Major/Minor						
Conflicting Flow All	1256	653	660	0	-	0
Stage 1	653	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Critical Hwy	5.42	5.22	4.12	-	-	-
Critical Hwy Stg 1	5.42	-	-	-	-	-
Critical Hwy Stg 2	5.42	-	-	-	-	-
Follow-up Hwy	3.518	3.318	2.218	-	-	-
Platoon blocked, %	188	467	928	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	146	-	-	-	-	-
Platoon blocked, %	187	467	928	-	-	-
Mov Cap-1 Maneuver	303	-	-	-	-	-
Stage 1	458	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Approach						
HCM Control Delay, s	63.7	-	2	0	-	-
HCM LOS	F	-	-	-	-	-
Minor Lane/Major Min						
Capacity (veh/h)	328	-	303	467	-	-
HCM Lane V/C Ratio	0.116	-	0.025	0.971	-	-
HCM Control Delay (s)	3.4	-	17.2	64.5	-	-
HCM Lane LOS	A	-	C	F	-	-
HCM 95th %ile Q (veh)	0.4	-	0.1	12.2	-	-

HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/19/2022

Movement	EBL	EBR	EBL	EBR	EBL	EBR	EBL	EBR	EBL	EBR	EBL	EBR
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1
Traffic Volume (veh/h)	127	2	41	12	5	3	110	412	3	2	798	406
Future Volume (veh/h)	127	2	41	12	5	3	110	412	3	2	798	406
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	138	2	45	13	5	3	120	448	3	2	867	441
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	197	2	183	147	55	28	137	1483	10	781	787	1297
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.80	0.80	0.02	0.76	0.76
Sat Flow, veh/h	1419	21	1578	1034	474	251	1781	1856	12	1781	1034	1585
Grp Volume (V), veh/h	140	0	45	21	0	0	120	0	451	2	867	441
Grp Sat Flow (S), veh/h	1440	0	1578	1758	0	0	1781	0	1868	1781	1034	1585
Q Serve (g, s), s	18.4	0.0	5.7	0.0	0.0	0.0	10.5	0.0	13.9	0.1	166.0	20.1
Cycle Q Clear (c, s)	20.6	0.0	5.7	2.3	0.0	0.0	10.5	0.0	13.9	0.1	166.0	20.1
Prop In Lane	0.99	1.00	0.62	0.14	1.00	0.01	1.00	0.01	1.00	1.00	1.00	1.00
Lane Grp Cap (c), veh/h	200	0	183	231	0	0	137	0	1683	761	787	1207
V/C Ratio (X)	0.70	0.00	0.25	0.09	0.00	0.00	0.87	0.00	0.30	0.00	1.10	0.37
Byal Cap (c, a), veh/h	811	0	868	883	0	0	286	0	1594	814	787	1207
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	94.1	0.0	87.7	86.2	0.0	0.0	89.9	0.0	5.8	5.3	26.0	8.6
Inc Delay (d2), s/veh	11.6	0.0	1.8	0.2	0.0	0.0	15.5	0.0	0.1	0.0	53.5	0.8
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back (d4) (50%) veh/h	8.5	0.0	2.5	1.1	0.0	0.0	7.4	0.0	5.8	0.0	52.1	7.4
Unsig. Movement Delay, s/veh	105.7	0.0	89.6	86.4	0.0	0.0	105.4	0.0	5.8	5.3	89.6	9.5
Ln Grp LOS	F	A	F	F	A	A	F	A	A	A	F	A
Approach Vol, veh/h	185	-	21	-	-	-	571	-	1310	-	-	-
Approach Delay, s/veh	101.8	-	86.4	-	-	-	26.8	-	62.5	-	-	-
Approach LOS	F	-	F	-	-	-	C	-	E	-	-	-
Timer - Actuated Phs												
Phs Duration (G+Y+Rc), s	16.8	171.0	30.3	8.5	179.3	30.3	-	-	-	-	-	-
Change Period (Y+Rc), s	4.0	5.0	5.0	4.0	5.0	5.0	-	-	-	-	-	-
Max Green Setting (Gmax), s	31.0	168.0	120.0	11.0	186.0	120.0	-	-	-	-	-	-
Max Q Clear Time (g, c+1), s	12.5	168.0	4.3	2.1	15.9	22.6	-	-	-	-	-	-
Green Ext Time (p, c), s	0.3	0.0	0.1	0.0	3.3	2.8	-	-	-	-	-	-
Intersection Summary												
HCM 6th Ctrl Delay	56.5											
HCM 6th LOS	E											



Intersection						
Int Delay, s/veh	5.9					
Movement	WBL	WBR	NBT	NBR	SBL	SRT
Lane Configurations	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	152	50	157	64	84	397
Future Vol, veh/h	152	50	167	64	84	397
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	80	0	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	54	162	70	81	432

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	831	217	0	0	252	0
Stage 1	217	-	-	-	-	-
Stage 2	614	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Sig 1	5.42	-	-	-	-	-
Critical Hdwy Sig 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Platoon blocked, %	340	823	-	-	1313	-
Stage 1	819	-	-	-	-	-
Stage 2	540	-	-	-	-	-
Platoon blocked, %	317	823	-	-	1313	-
Mov Cap-1 Maneuver	317	-	-	-	-	-
Stage 1	819	-	-	-	-	-
Stage 2	503	-	-	-	-	-

Approach	WB	EB	SB
HCM Control Delay, s	23.5	0	1.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBL	WBR	SBL	SRT
Capacity (veh/h)	-	317	823	1313	-	-
HCM Lane V/C Ratio	-	0.521	0.066	0.07	-	-
HCM Control Delay (s)	-	28.1	9.7	7.9	-	-
HCM Lane LOS	-	D	A	A	-	-
HCM 95th %ile Q(veh)	-	2.8	0.2	0.2	-	-

Intersection												
Int Delay, s/veh	5.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Vol, veh/h	9	0	42	60	0	7	36	311	29	5	798	7
Future Vol, veh/h	9	0	42	60	0	7	36	311	29	5	798	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	46	65	0	8	38	338	32	5	767	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1317	1329	871	1336	1317	354	875	0	0	370	0	0
Stage 1	881	361	-	432	432	-	-	-	-	-	-	-
Stage 2	436	448	-	904	885	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Sig 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Sig 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Platoon blocked, %	154	195	390	157	166	690	771	-	-	1189	-	-
Stage 1	341	365	-	602	582	-	-	-	-	-	-	-
Stage 2	599	573	-	331	363	-	-	-	-	-	-	-
Platoon blocked, %	125	144	350	107	146	690	771	-	-	1189	-	-
Mov Cap-1 Maneuver	125	144	-	107	146	-	-	-	-	-	-	-
Stage 1	319	362	-	563	545	-	-	-	-	-	-	-
Stage 2	554	536	-	286	360	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.1	76.7	0.8	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR
Capacity (veh/h)	771	-	266	117	1189	-	-	-	-
HCM Lane V/C Ratio	0.051	-	0.208	0.622	0.005	-	-	-	-
HCM Control Delay (s)	9.9	0	22.1	76.7	0	0	-	-	-
HCM Lane LOS	A	A	-	C	F	A	A	-	-
HCM 95th %ile Q(veh)	0.2	-	0.8	3.1	0	-	-	-	-

HCM 6th TWSC  
7: Market St & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	9.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖
Traffic Vol, veh/h	33	148	331	153	419	561
Future Vol, veh/h	33	148	331	153	419	561
Conflicting Peds, #/h	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	50	-
Vol in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minut Flow	36	161	369	166	455	619
Approach						
Minor1	Minor2	Major1	Major2			
Conflicting Flow All	1963	443	0	0	526	0
Stage 1	443	-	-	-	-	-
Stage 2	1520	-	-	-	-	-
Critical Hwy	8.42	8.22	-	-	8.12	-
Critical Hwy Stg 1	5.42	-	-	-	-	-
Critical Hwy Stg 2	5.42	-	-	-	-	-
Follow-up Hwy	3.518	3.318	-	-	2.218	-
Platoon blocked, %	69	615	-	-	1041	-
Stage 1	647	-	-	-	-	-
Stage 2	199	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	39	615	-	-	1041	-
Mov Cap-2 Maneuver	39	-	-	-	-	-
Stage 1	647	-	-	-	-	-
Stage 2	112	-	-	-	-	-
Approach						
WB	NB	SB				
HCM Control Delay, s	50.8	0	4.8			
HCM LOS	F					
Minor Lane Major Movement						
NBT	NBRWB	NBRWB-2	SBL	SBR		
Capacity (veh/h)	-	38	615	1041	-	-
HCM Lane V/C Ratio	-	-	0.92	0.262	0.437	-
HCM Control Delay (s)	-	-	275.5	12.9	11.1	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th Pile Q (veh/h)	-	-	3.5	1	2.0	-

HCM 6th AWSC  
8: Market St & Vineyard St

04/19/2022

Intersection												
Intersection Delay, s/veh	37.3											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Vol, veh/h	220	50	0	0	146	40	18	208	35	58	0	483
Future Vol, veh/h	220	50	0	0	146	40	18	208	35	58	0	483
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minut Flow	239	54	0	0	150	43	20	226	38	63	0	526
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0
Approach												
Opposing Approach	WB	EB	SB									
Opposing Lanes	1	2	1									
Conflicting Approach Left	SB		EB									
Conflicting Lanes Left	1		2									
Conflicting Approach Right	NB		WB									
Conflicting Lanes Right	1		1									
HCM Control Delay	19.8		16.9		19.5					61.6		
HCM LOS	C		C		C					F		
Lane												
Vol Left, %	7%	100%	0%	0%	11%							
Vol Thru, %	30%	0%	100%	78%	0%							
Vol Right, %	13%	0%	0%	22%	89%							
Sign Control	Stop	Stop	Stop	Stop	Stop							
Traffic Vol by Lane	261	220	50	186	541							
LT Vol	18	220	0	0	58							
Through Vol	208	0	50	146	0							
RT Vol	35	0	0	40	483							
Lane Flow Rate	284	239	54	202	588							
Geometry Grp	2	7	7	5	2							
Degree of Utl (%)	0.57	0.562	0.12	0.438	0.999							
Departure Headway (ft)	7.227	8.465	7.949	7.8	6.113							
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes							
Cap	496	426	450	461	594							
Service Time	5.294	6.231	5.715	5.877	4.164							
HCM Lane V/C Ratio	0.573	0.561	0.12	0.438	0.999							
HCM Control Delay	19.5	21.6	11.8	16.9	61.6							
HCM Lane LOS	C	C	B	C	F							
HCM 95th Pile Q	3.5	3.4	0.4	2.2	14.8							



HCM 6th Signalized Intersection Summary  
9: High St. & Main St.

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Traffic Volume (veh/h)	13	144	49	274	55	50	32	288	327	21	364	15
Future Volume (veh/h)	13	144	49	274	55	50	32	288	327	21	364	15
Initial Q (Q <sub>0</sub> ) veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> poT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow (veh/h)	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate (veh/h)	14	157	30	298	60	25	35	313	102	23	396	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap. veh/h	373	250	48	599	559	237	430	611	518	97	561	19
Arrive On Green	0.16	0.16	0.16	0.20	0.45	0.45	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow (veh/h)	1313	1526	292	1791	1254	522	976	1870	1565	43	1717	59
Grp Volume (v <sub>i</sub> ) veh/h	14	0	187	298	0	85	35	313	102	433	0	0
Grp Sat Flow (s <sub>i</sub> ) veh/h	1313	0	1818	1781	0	1776	976	1870	1565	1820	0	0
Q Serve (g <sub>i</sub> ) s	0.4	0.0	4.4	5.4	0.0	1.3	0.0	6.2	2.1	1.4	0.0	0.0
Cycle Q Clear (c <sub>i</sub> ) s	0.4	0.0	4.4	5.4	0.0	1.3	1.5	6.2	2.1	9.4	0.0	0.0
Prop In Lane	1.00	0.16	1.00	0.29	1.00	1.00	0.05	0.03	0.03	0.03	0.03	0.03
Lane Grp Cap (veh/h)	373	0	298	599	0	896	430	611	518	878	0	0
V/C Ratio (X)	0.04	0.00	0.63	0.50	0.00	0.11	0.08	0.51	0.20	0.64	0.00	0.00
Avail Cap (c <sub>u</sub> ) veh/h	1052	0	1238	2586	0	3667	2040	3697	3133	3603	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (f)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d <sub>i</sub> ) s/veh	16.1	0.0	17.8	10.1	0.0	7.1	10.8	12.4	11.0	13.5	0.0	0.0
Init Delay (d <sub>0</sub> ) s/veh	0.0	0.0	2.2	1.1	0.0	0.1	0.1	0.7	0.2	1.1	0.0	0.0
Initial Q Delay (d <sub>3</sub> ) s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Rejected (Q <sub>0</sub> /Q <sub>0</sub> ) veh/h	0.0	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unsig. Movement Delay (d <sub>u</sub> ) s/veh	16.1	0.0	19.9	11.2	0.0	7.2	10.8	13.1	11.2	14.6	0.0	0.0
LnGrp Delay (d <sub>i</sub> ) s/veh	16.1	0.0	19.9	11.2	0.0	7.2	10.8	13.1	11.2	14.6	0.0	0.0
LnGrp LOS	B	A	B	B	A	A	B	B	B	B	A	A
Approach Vol (veh/h)	201		383		450		433		433		433	
Approach Delay (s/veh)	19.7		10.3		12.5		14.6		14.6		14.6	
Approach LOS	B		B		B		B		B		B	
Timer - Assigned Phs	2	4	5	6	8							
Phs Duration (G+Y+R) s	25.7	19.9	13.2	12.5	19.9							
Change Period (Y+R) s	5.0	5.0	4.0	5.0	5.0							
Max Green Setting (G <sub>max</sub> ) s	34.0	30.0	60.0	31.0	30.0							
Max Q Clear Time (g <sub>c</sub> +t <sub>1</sub> ) s	3.3	11.4	7.4	6.4	8.2							
Green Ext Time (g <sub>e</sub> ) s	0.8	3.5	2.0	1.1	2.9							
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	13.5											
HCM 6th LOS	B											

HCM 6th TWSC  
10: Central Ave. & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WB	WBT	WBL	WBR
Lane Configurations	↵ ↵ ↵ ↵ ↵ ↵					
Traffic Vol, veh/h	376	221	247	171	16	145
Future Vol, veh/h	376	221	247	171	16	145
Conflicting Phs, #/h	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Yeh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	409	240	268	186	17	158
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	649	0	1251	529
Stage 1	-	-	-	-	520	-
Stage 2	-	-	-	-	722	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Plat Cap-1 Maneuver	-	-	937	-	129	550
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	481	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	937	-	129	550
Mov Cap-2 Maneuver	-	-	-	-	129	-
Stage 1	-	-	-	-	591	-
Stage 2	-	-	-	-	328	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		6.1		19.9	
HCM LOS			C			
Minor Lane/Major Mvmt	NBL1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	415	-	-	307	-	
HCM Lane V/C Ratio	0.422	-	-	0.287	-	
HCM Control Delay (s)	19.9	-	-	10.4	-	
HCM Lane LOS	C	-	-	B	A	
HCM 95th %ile Q (veh)	2	-	-	1.2	-	

HCM 6th Signalized Intersection Summary  
11: Main St. & Central Ave.

04/19/2022

	FR	EB	WB	WB	SB	SB
Lane Configurations						
Traffic Volume (veh/h)	64	386	594	252	434	82
Future Volume (veh/h)	64	386	594	252	434	82
Initial Q (Ob.) veh	0	0	0	0	0	0
Ped-Bike Adj. (pbt)	1.00			1.00	1.00	1.00
Parking Bus, Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj. Sat. Flow (veh/h)	1670	1670	1670	1670	1670	1670
Adj. Flow Rate, veh/h	70	420	646	102	472	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2
Cap. veh/h	360	1187	1067	904	519	462
Arrive On Green	0.03	0.63	0.57	0.57	0.29	0.29
Sat. Flow, veh/h	1781	1670	1670	1585	1781	1585
Grp Volume (v), veh/h	70	420	646	102	472	22
Grp Sat. Flow (s), veh/h	1781	1670	1670	1585	1781	1585
Q Serve (g_s), s	2.1	14.3	30.6	4.0	34.5	1.3
Cycle Q Clear (c_s), s	2.1	14.3	30.6	4.0	34.5	1.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap (c), veh/h	360	1187	1067	904	519	462
V/C Ratio (X)	0.19	0.35	0.61	0.11	0.91	0.05
Avail. Cap (c_s), veh/h	365	1187	1067	904	519	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	11.6	19.0	13.3	46.1	34.4
Inc. Delay (d2), s/veh	0.2	0.8	2.8	0.3	10.5	0.1
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
% Late Back Of Q (30%), veh/h	0.8	6.1	13.8	1.5	16.9	0.5
Unsig. Movement Delay, s/veh						
Ln Grp Delay (d), s/veh	14.7	12.5	21.8	13.6	56.5	34.4
Ln Grp LOS	B	B	C	B	E	C
Approach Vol, veh/h		490	748		494	
Approach Delay, s/veh		12.8	20.5		55.6	
Approach LOS		B	C		E	
Timer - Assigned Phs	1	2	2	2	6	
Phs Duration (G+Y+Rc), s	8.5	82.0		44.3	90.7	
Change Period (Y+Rc), s	4.0	5.0		5.0	5.0	
Max Green Setting (Grmax), s	5.0	51.0		55.3	60.0	
Max Q Clear Time (g_c+11), s	4.1	32.6		36.5	16.3	
Green Ext Time (p_c), s	0.0	7.3		2.8	5.1	
Intersection Summary						
HCM 6th Ctrl Delay			28.3			
HCM 6th LOS			C			

APPENDIX C  
LEVEL OF SERVICE CALCULATIONS

Base Year 2024 PM



# HCM 6th TWSC

1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/19/2022

Intersection						
Int Delay, s/veh	8.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	31	315	256	68	231	120
Future Vol, veh/h	31	315	256	68	231	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Vehicle Median Storage, #	0	-	0	-	0	-
Grade, %	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	34	342	276	74	251	130
Major/Minor	Minor1	Major1	Minor2	Major2	Minor3	Major3
Conflicting Flow All	947	315	0	0	352	0
Stage 1	315	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	4.12	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	2.218	-	-
Platoon blocked, %	200	725	-	1207	-	-
Stage 1	740	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	225	725	-	1207	-	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	740	-	-	-	-	-
Stage 2	411	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	20.2	0	5.8			
HCM LOS	C					
Minor Lane/Minor Movt	NBL	NBR	WBL	WBR	SBL	SBR
Capacity (veh/h)	-	-	605	1207	-	-
HCM Lane V/C Ratio	-	-	0.622	0.208	-	-
HCM Control Delay (s)	-	-	20.2	8.8	-	-
HCM Lane LOS	-	-	C	A	-	-
HCM 95th %ile Delay (s)	-	-	4.3	0.8	-	-

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# HCM 6th TWSC

2: Waiehu Beach Rd & Waiupe Dr./Lower Waiehu Beach Rd

04/19/2022

Intersection												
Int Delay, s/veh	11.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	W	W	W	W	W	W	W	W	W	W	W	W
Traffic Vol, veh/h	15	4	143	72	4	3	205	360	115	15	267	62
Future Vol, veh/h	15	4	143	72	4	3	205	360	115	15	267	62
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	-	-	100	-	-	-
Vehicle Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	4	155	78	4	3	223	391	125	16	290	67
Major/Minor	Minor1	Minor2	Minor3	Major1	Major2	Major3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9
Conflicting Flow All	1258	1318	324	1258	1289	454	357	0	0	516	0	0
Stage 1	356	356	-	300	300	-	-	-	-	-	-	-
Stage 2	902	962	-	358	389	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Platoon blocked, %	148	157	717	148	154	606	1202	-	-	1050	-	-
Stage 1	661	629	-	333	357	-	-	-	-	-	-	-
Stage 2	332	334	-	685	606	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	122	126	717	96	132	606	1202	-	-	1050	-	-
Mov Cap-2 Maneuver	122	126	-	96	132	-	-	-	-	-	-	-
Stage 1	538	520	-	271	291	-	-	-	-	-	-	-
Stage 2	265	272	-	505	599	-	-	-	-	-	-	-
Approach	EB	WB	NB	SB								
HCM Control Delay, s	14.8	12.8	2.6	0.4								
HCM LOS	B	F										
Minor Lane/Minor Movt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1202	-	-	123	717	97	606	1050	-	-	-	-
HCM Lane V/C Ratio	0.185	-	-	0.168	0.217	0.852	0.005	0.016	-	-	-	-
HCM Control Delay (s)	3.7	-	-	40.1	11.4	132.6	11	8.5	-	-	-	-
HCM Lane LOS	A	-	-	E	B	F	B	A	-	-	-	-
HCM 95th %ile Delay (s)	0.7	-	-	3.6	0.8	4.7	0	0	-	-	-	-

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HCM 6th TWSC  
3: Waiehu Beach Rd & Makaala Dr

04/19/2022

Intersection						
Int Delay, s/veh	4					
Movement	EBL	EBR	NBL	NBT	SBT	SEB
Lane Configurations	1	1	1	1	1	1
Traffic Vol, veh/h	15	201	314	688	485	18
Future Vol, veh/h	15	201	314	688	485	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	0	100	160	-	-	-
Vehicle Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mynt Flow	15	218	341	748	527	20

Major/Minor	Minor2	Major1	Minor2
Conflicting Flow All	1967	537	547
Stage 1	537	-	-
Stage 2	1430	-	-
Critical Hdwy	6.42	6.22	4.12
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Pol Cap-1 Maneuver	59	544	1022
Stage 1	586	-	-
Stage 2	221	-	-
Platoon blocked, %	-	-	-
Max Cap-1 Maneuver	46	544	1022
Max Cap-2 Maneuver	148	-	-
Stage 1	230	-	-
Stage 2	221	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.1	3.2	0
HCM LOS	C	-	-

Minor Lane/Major Mvmt	NBL	NBT	EBL	EBR	SBT	SEB
Capacity (veh/h)	1022	-	148	544	-	-
HCM Lane V/C Ratio	0.334	-	0.11	0.402	-	-
HCM Control Delay (s)	10.3	-	32.3	16	-	-
HCM Lane LOS	B	-	D	C	-	-
HCM 95th Pctile Q (veh)	1.5	-	3.4	1.8	-	-

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HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/19/2022

Movement	EBL	EBT	EBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	1	1	1	1	1	1	1	1	1
Traffic Volume (veh/h)	387	2	55	4	3	1	104	723	7
Future Volume (veh/h)	387	2	55	4	3	1	104	723	7
Initial Q (veh)	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	421	2	60	4	3	1	113	786	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2
Cap, veh/h	594	2	586	361	263	82	384	979	10
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.05	0.53	0.00
Sat Flow, veh/h	1408	7	1583	829	707	219	1781	1644	19
Grp Volume (v), veh/h	423	0	60	8	0	0	113	0	794
Grp Sat Flow (v), veh/h	1415	0	1583	1756	0	0	1781	0	1867
Q Served (s), s	26.9	0.0	2.5	0.0	0.0	0.0	3.4	0.0	35.3
Cycle Q Clear (s), s	27.2	0.0	2.5	0.0	0.0	0.0	3.4	0.0	35.3
Prop In Lane	1.00	1.00	0.50	0.12	1.00	0.01	1.00	1.00	1.00
Lane Grp Cap (v), veh/h	596	0	586	706	0	0	384	0	980
V/C Ratio(X)	0.71	0.00	0.10	0.01	0.00	0.00	0.29	0.00	0.80
Avail Cap (v), veh/h	1741	0	1871	1905	0	0	833	0	1765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	20.8	20.1	0.0	0.0	15.7	0.0	19.5
Inc Delay (d2), s/veh	4.3	0.0	0.2	0.0	0.0	0.0	0.4	0.0	1.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Rejected (Q/50%), veh/h	9.8	0.0	1.0	0.1	0.0	0.0	1.4	0.0	14.8
Unsig. Movement Delay, s/veh	32.8	0.0	21.0	20.1	0.0	0.0	15.2	0.0	21.1
LnGrp Delay (d), s/veh	C	A	C	C	A	A	B	A	C
LnGrp LOS	C	A	C	C	A	A	B	A	C
Approach Vol, veh/h	463	-	8	-	-	-	907	-	733
Approach Delay, s/veh	31.4	-	20.1	-	-	-	20.5	-	23.4
Approach LOS	C	-	C	-	-	-	C	-	C

Timer - Advanced Phs	1	2	3	4	5	6	7
Phs Duration (G+Y+Rc), s	9.4	49.4	-	42.7	0.0	58.6	42.7
Change Period (Y+Rc), s	4.0	5.0	-	5.0	4.0	5.0	5.0
Max Green Setting (Gmax), s	31.0	75.0	-	120.0	11.0	95.0	120.0
Max Q Clear Time (g_c+1), s	5.4	22.1	-	2.3	0.0	37.3	29.2
Green Ext Time (g_ext), s	0.3	22.3	-	0.0	0.0	7.4	8.5

Intersection Summary	
HCM 6th Ctrl Delay	23.9
HCM 6th LOS	C

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Synchro 11 Report  
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Intersection							
Int Delay, s/veh	2.3						
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	1	1	1	1	1	1	
Traffic Vol, veh/h	100	7	271	199	13	176	
Future Vol, veh/h	100	7	271	199	13	176	
Conflicting Peds, #/hr	0	0	0	0	0	0	
Sign Control	Stop	Stop	Free	Free	Free	Free	
RT Channelized	-	Yield	-	None	-	None	
Storage Length	80	0	-	-	90	-	
Vol in Median Storage, #	0	-	0	-	0	-	
Grade, %	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	
Minv Flow	109	8	295	216	14	191	
Major/Minor	Minor1	Major1	Minor2	Major2	Minor3	Major3	
Conflicting Flow All	622	403	0	0	511	0	
Stage 1	403	-	-	-	-	-	
Stage 2	219	-	-	-	-	-	
Critical Hwy	5.42	5.22	-	-	4.12	-	
Critical Hwy Stg 1	5.42	-	-	-	-	-	
Critical Hwy Stg 2	5.42	-	-	-	-	-	
Follow-up Hwy	3.518	3.318	-	-	2.218	-	
Plat Cap-1 Maneuver	450	647	-	-	1054	-	
Stage 1	675	-	-	-	-	-	
Stage 2	817	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	
Mov Cap-1 Maneuver	444	647	-	-	1054	-	
Mov Cap-2 Maneuver	444	-	-	-	-	-	
Stage 1	675	-	-	-	-	-	
Stage 2	806	-	-	-	-	-	
Approach	WB	NB	SB				
HCM Control Delay, s	15.4	0	0.8				
HCM LOS	C						
Minor Lane/Minor Mov	NBT	NBR	WBL	WBR	SBL	SBT	
Capacity (veh/h)	-	-	444	647	1054	-	
HCM Lane V/C Ratio	-	-	0.245	0.012	0.013	-	
HCM Control Delay (s)	-	-	15.7	10.3	8.5	-	
HCM Lane LOS	-	-	C	B	A	-	
HCM 95th %ile Delay (s)	-	-	1	0	0	-	

Intersection													
Int Delay, s/veh	2.9												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	1	1	1	1	1	1	1	1	1	1	1	1	
Traffic Vol, veh/h	5	1	49	48	1	2	48	616	81	5	313	5	
Future Vol, veh/h	5	1	49	48	1	2	48	616	81	5	313	5	
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	
Vol in Median Storage, #	0	0	-	0	-	0	-	0	-	0	-	0	
Grade, %	0	-	-	0	-	0	-	0	-	0	-	0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	
Minv Flow	5	1	53	52	1	2	52	670	86	5	340	5	
Major/Minor	Minor1	Minor2	Minor3	Major1	Major2	Major3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9	
Conflicting Flow All	1173	1215	343	1198	1173	714	345	0	0	758	0	0	
Stage 1	353	353	-	818	818	-	-	-	-	-	-	-	
Stage 2	820	862	-	380	355	-	-	-	-	-	-	-	
Critical Hwy	7.12	6.52	6.22	7.12	6.32	6.22	4.12	-	-	4.12	-	-	
Critical Hwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-	
Critical Hwy Stg 2	6.12	5.52	-	5.12	5.52	-	-	-	-	-	-	-	
Follow-up Hwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-	
Plat Cap-1 Maneuver	169	181	700	182	182	431	1214	-	-	853	-	-	
Stage 1	664	631	-	370	390	-	-	-	-	-	-	-	
Stage 2	369	372	-	642	630	-	-	-	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	
Mov Cap-1 Maneuver	157	166	700	140	176	431	1214	-	-	853	-	-	
Mov Cap-2 Maneuver	157	166	-	140	176	-	-	-	-	-	-	-	
Stage 1	614	627	-	342	361	-	-	-	-	-	-	-	
Stage 2	339	344	-	588	626	-	-	-	-	-	-	-	
Approach	EB	WB	NB	SB									
HCM Control Delay, s	13	44.9	0.5	0.1									
HCM LOS	B	E											
Minor Lane/Minor Mov	NBL	NBT	NBR	EBL	EBT	EBR	SBL	SBT	SBR				
Capacity (veh/h)	1214	-	-	510	144	853	-	-	-				
HCM Lane V/C Ratio	0.043	-	-	0.117	0.385	0.006	-	-	-				
HCM Control Delay (s)	8.1	0	-	13	44.9	9.2	0	-	-				
HCM Lane LOS	A	A	-	B	E	A	A	-	-				
HCM 95th %ile Delay (s)	0.1	-	-	0.4	1.6	0	-	-	-				

HCM 6th TWSC  
7: Market St & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	13.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗	↖	↗
Traffic Vol, veh/h	36	321	630	160	230	321
Future Vol, veh/h	36	321	630	160	230	321
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	50	-
Vehicle Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minv Flow	39	349	685	184	250	349
Approach						
Minor	Major	Major	Major			
Conflicting Flow All	1626	777	0	0	869	0
Stage 1	777	-	-	-	-	-
Stage 2	849	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Platoon blocked, %	112	397	-	-	775	-
Stage 1	453	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	76	397	-	-	775	-
Mov Cap-2 Maneuver	76	-	-	-	-	-
Stage 1	453	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Approach						
WB	NB	SB				
HCM Control Delay, s	56.8	0	4.9			
HCM LOS	F					
Minor Lane/Major Move						
NBT	NBRWBL	NBRWBL2	SBL	SBT		
Capacity (veh/h)	-	-	76	397	775	-
HCM Lane V/C Ratio	-	-	0.515	0.879	0.323	-
HCM Control Delay (s)	-	-	94.5	52.8	11.8	-
HCM Lane LOS	-	-	F	F	B	-
HCM 95th %ile Q(veh)	-	-	2.2	8.8	1.4	-

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HCM 6th AWSC  
8: Market St & Vineyard St

04/19/2022

Intersection												
Intersection Delay, s/veh	45.3											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↖			↖			↖	↖
Traffic Vol, veh/h	357	144	0	0	116	62	29	298	60	49	0	314
Future Vol, veh/h	357	144	0	0	116	62	29	298	60	49	0	314
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minv Flow	388	157	0	0	126	67	32	324	65	53	0	341
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0
Approach												
EB	WB	NB	SB									
Opposing Approach	WB		EB		SB		NB					
Opposing Lanes	1		2		1		1					
Conflicting Approach Left	SB		NB		EB		WB					
Conflicting Lanes Left	1		1		2		1					
Conflicting Approach Right	NB		SB		WB		EB					
Conflicting Lanes Right	1		1		1		2					
HCM Control Delay	50.9		20.2		54.6		39.8					
HCM LOS	F		C		F		E					
Lane												
NBL	EBL	EBT	WBL	WBT	SBL							
Vol Left, %	7%	100%	0%	0%	13%							
Vol Thru, %	77%	0%	100%	65%	9%							
Vol Right, %	16%	0%	0%	35%	87%							
Sign Control	Stop	Stop	Stop	Stop	Stop							
Traffic Vol by Lane	387	357	144	178	363							
LT Vol	29	357	0	0	49							
Through Vol	298	0	144	116	0							
RT Vol	60	0	0	62	314							
Lane Flow Rate	421	388	157	193	395							
Geometry Grp	2	7	7	5	2							
Degree of Utl (X)	0.927	0.958	0.364	0.483	0.841							
Departure Headway (Hd)	7.307	8.698	8.37	8.965	7.872							
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes							
Cap.	454	407	429	400	470							
Service Time	5.999	6.647	6.128	7.067	5.735							
HCM Lane V/C Ratio	0.927	0.958	0.366	0.482	0.84							
HCM Control Delay	54.6	65	15.9	20.2	39.8							
HCM Lane LOS	F	F	C	C	E							
HCM 95th-ile Q	10.6	11	1.6	2.5	8.3							

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HCM 6th Signalized Intersection Summary  
9: High St. & Main St.

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SRT	SBR
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SRT	SBR
Traffic Volume (veh/h)	20	127	63	386	129	26	49	377	285	55	314	32
Future Volume (veh/h)	20	127	63	386	129	26	49	377	285	55	314	32
Initial Q (Q <sub>0</sub> ) (veh)	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> )	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow (veh/h)	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate (veh/h)	22	138	45	420	140	16	53	410	151	60	341	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap (veh/h)	206	203	66	609	751	86	368	699	592	113	461	41
Arrive On Green	0.15	0.15	0.15	0.24	0.46	0.46	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow (veh/h)	1231	1351	440	1781	1648	188	1509	1870	1595	116	1234	111
Grp Volume (v), veh/h	22	0	183	420	0	156	53	410	151	434	0	0
Grp Sat Flow (veh/h)	1231	0	1781	1781	0	1836	1509	1870	1585	1461	0	0
Q Serve (s), s	0.9	0.0	5.7	10.4	0.0	3.0	0.0	10.3	3.9	5.9	0.0	0.0
Cycle Q Clear (s), s	0.9	0.0	5.7	10.4	0.0	3.0	0.0	10.3	3.9	5.9	0.0	0.0
Prop In Lane	1.00	0.25	1.00	0.10	1.00	1.00	1.00	0.14	0.08	0.08	0.00	0.00
Loss Grp Cap (s), veh/h	0	299	609	0	837	368	699	592	616	0	0	0
V/C Ratio(X)	0.07	0.00	0.68	0.69	0.00	0.19	0.14	0.59	0.26	0.70	0.00	0.00
Avail Cap (s), veh/h	775	0	669	2015	0	2051	1543	2878	2439	2462	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	0.36	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	21.5	0.0	23.5	13.6	0.0	9.5	12.8	14.7	12.7	16.1	0.0	0.0
Inc Delay (d2), s/veh	0.1	0.0	3.0	1.4	0.0	0.1	0.2	0.2	0.2	1.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Side Back Q Delay (d3), s/veh	0.0	2.5	3.9	0.0	1.1	0.5	4.1	1.3	5.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh	21.6	0.0	26.5	15.0	0.0	9.6	12.9	15.5	12.9	17.6	0.0	0.0
Ln Grp Delay (d), s/veh	21.6	0.0	26.5	15.0	0.0	9.6	12.9	15.5	12.9	17.6	0.0	0.0
Ln Grp LOS	C	A	C	B	A	A	B	B	B	B	A	A
Approach Vol (veh/h)	206	0	609	420	0	614	0	410	151	434	0	0
Approach Delay, s/veh	26.0	0.0	13.5	13.5	0.0	14.6	0.0	17.6	17.6	17.6	0.0	0.0
Approach LOS	C	A	B	B	A	B	A	B	B	B	A	A
Timer - Assigned Phs	2	4	5	6	8	8	8	8	8	8	8	8
Phs Duration (G+Y+R), s	31.6	26.0	17.8	13.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8	26.8
Change Period (Y+R), s	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (G <sub>max</sub> ), s	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0	94.0
Max Q Clear Time (g <sub>c</sub> +1), s	5.0	18.2	12.4	7.7	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Green Ext Time (g <sub>ex</sub> ), s	1.1	3.7	1.4	1.1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Intersection Summary												
HCM 6th Ctrl Delay	16.2											
HCM 6th LOS	B											

HCM 6th TWSC  
10: Central Ave. & Mill St

04/19/2022

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SRT	SBR		
Lane Configurations	EBL	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SRT	SBR		
Traffic Vol (veh/h)	302	104	246	310	51	143						
Future Vol (veh/h)	302	104	246	310	51	143						
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop						
RT Channelized	-	None	-	None	-	None						
Storage Length	-	-	-	-	0	-						
Yeh In Median Storage, #	0	-	-	0	0	-						
Grade, %	0	-	-	0	0	-						
Peak Hour Factor	92	92	92	92	92	92						
Heavy Vehicles, %	2	2	2	2	2	2						
Minor Flow	302	113	267	337	55	155						
Major/Minor	Major1	Major2	Minor1	Minor2	Minor3	Minor4						
Conflicting Flow All	0	0	441	0	1256	385						
Stage 1	-	-	-	-	385	-						
Stage 2	-	-	-	-	871	-						
Critical Hdwy	-	-	4.12	-	6.42	5.22						
Critical Hdwy Stg 1	-	-	-	-	5.42	-						
Critical Hdwy Stg 2	-	-	-	-	5.42	-						
Follow-up Hdwy	-	-	2.218	-	3.518	3.318						
Plat Cap-1 Maneuver	-	-	1119	-	186	663						
Stage 1	-	-	-	-	688	-						
Stage 2	-	-	-	-	470	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	-	-	1119	-	133	663						
Mov Cap-2 Maneuver	-	-	-	-	133	-						
Stage 1	-	-	-	-	688	-						
Stage 2	-	-	-	-	289	-						
Approach	EB	WB	NB									
HCM Control Delay, s	0	4.1	34.6									
HCM LOS			D									
Minor Lane/Major Mvmt	NBL	EBT	EBR	WBL	WBT							
Capacity (veh/h)	324	-	-	1119	-							
HCM Lane V/C Ratio	0.651	-	-	0.239	-							
HCM Control Delay (s)	34.6	-	-	9.2	-							
HCM Lane LOS	D	-	-	A	A							
HCM Lane Side Q (veh/h)	4.3	-	-	0.9	-							

HCM 6th Signalized Intersection Summary  
11: Main St. & Central Ave.

04/19/2022

	EBL	EBT	WBT	WBR	SEB	SAR
Movement						
Lane Configurations						
Traffic Volume (veh/h)	89	578	604	310	470	130
Future Volume (veh/h)	89	578	604	310	470	130
Initial Q (Q <sub>0</sub> ) (veh)	0	0	0	0	0	0
Ped-Bike Adj (A <sub>pdbt</sub> )	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow (veh/h)	970	1870	1870	1870	1870	1870
Adj Flow Rate (veh/h)	97	628	657	136	511	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2
Cap. (veh/h)	344	1130	999	846	964	502
Arrive On Green	0.04	0.60	0.53	0.53	0.32	0.32
Sat Flow (veh/h)	1781	1870	1870	1585	1781	1585
Grp Volume (v), veh/h	97	628	657	136	511	77
Grp Sat Flow (s), veh/h	1781	1870	1870	1585	1781	1585
Q Serve (g, s), s	3.0	25.2	31.8	5.5	34.6	4.4
Cycle Q Clear (g, s), s	3.0	25.2	31.8	5.5	34.6	4.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap (s), veh/h	344	1130	999	846	964	502
V/C Ratio (X)	0.28	0.56	0.66	0.16	0.91	0.15
Avail Cap (c, s), veh/h	344	1130	999	846	964	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	14.9	21.1	15.0	41.3	30.9
Inc. Delay (d <sub>2</sub> ), s/veh	0.3	2.0	3.4	0.4	11.3	0.2
Initial Q Delay (d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Flow Back (Q <sub>0</sub> /S <sub>0</sub> ), veh/h	1.2	11.2	16.8	2.1	16.8	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay (d), s/veh	16.8	16.8	24.5	15.4	52.5	31.1
LnGrp LOS	B	B	C	B	D	C
Approach Vol. veh/h		725	793		588	
Approach Delay, s/veh		16.8	22.9		49.7	
Approach LOS		B	C		D	
Timer - Assigned Phs	1	2		4		5
Phs Duration (G+Y+Rc), s	8.8	72.3		44.0		61.1
Change Period (Y+Rc), s	4.0	5.0		5.0		5.0
Max Green Setting (G <sub>max</sub> ), s	5.0	48.0		58.0		57.0
Max Q Clear Time (g_c+1), s	5.0	33.8		36.6		27.2
Green Ext Time (p_c), s	0.0	6.7		3.3		5.3
Intersection Summary						
HCM 6th Ctrl Delay			28.3			
HCM 6th LOS			C			

## APPENDIX C

### LEVEL OF SERVICE CALCULATIONS

Future Year 2024 AM



HCM 6th TWSC  
1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/19/2022

Intersection						
Int Delay, s/veh	10.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	Y		Y		Y	
Traffic Vol, veh/h	41	269	193	41	316	378
Future Vol, veh/h	41	269	193	41	316	378
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Vehicle in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	.92	.92	.92	.92	.92	.92
Heavy Vehicles, %	2	2	2	2	2	2
Mynt Flow	45	292	210	45	343	411

Major/Minor	Minor1	Major1	Minor2	Major2
Conflicting Flow All	1330	233	0	255
Stage 1	233	-	-	-
Stage 2	1097	-	-	-
Critical Hdwy	5.42	6.22	-	4.32
Critical Hdwy Stg 1	5.42	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-
Follow-up Hdwy	3.518	3.318	-	2.218
Plat Cap-1 Maneuver	171	806	-	1310
Stage 1	806	-	-	-
Stage 2	320	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	113	806	-	1310
Mov Cap-2 Maneuver	113	-	-	-
Stage 1	806	-	-	-
Stage 2	212	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.2	0	4
HCM LOS	D		

Minor Lane/Major Mynt	NBT	NBR	NBT	SBL	SBR
Capacity (veh/h)	-	-	445	1310	-
HCM Lane V/C Ratio	-	-	0.757	0.262	-
HCM Control Delay (s)	-	-	34.2	4.7	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %ile D (veh)	-	-	6.4	1.1	-

HCM 6th TWSC  
2: Waiehu Beach Rd & Waiupe Dr./Lower Waiehu Beach Rd

04/19/2022

Intersection												
Int Delay, s/veh	12.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		Y	Y		Y	Y		Y	Y		Y	Y
Traffic Vol, veh/h	44	2	212	108	6	14	107	233	60	5	333	20
Future Vol, veh/h	44	2	212	108	6	14	107	233	60	5	333	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	100	-	-	100	-	-
Vehicle in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92	.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mynt Flow	48	2	239	117	7	15	116	253	65	5	362	22

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	904	933	373	902
Stage 1	383	383	-	518
Stage 2	521	550	-	384
Critical Hdwy	7.12	6.32	6.22	7.12
Critical Hdwy Stg 1	6.12	5.52	-	6.12
Critical Hdwy Stg 2	6.12	5.52	-	5.52
Follow-up Hdwy	3.518	4.018	3.318	3.518
Plat Cap-1 Maneuver	258	266	673	258
Stage 1	640	612	-	541
Stage 2	539	516	-	539
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	228	239	873	156
Mov Cap-2 Maneuver	228	239	-	156
Stage 1	577	510	-	487
Stage 2	469	465	-	417

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	72.3	2.2	0.1
HCM LOS	C	F		

Minor Lane/Major Mynt	NBL	NBT	NBR	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1174	-	-	228	673	159	753	1242	-	-	-	-
HCM Lane V/C Ratio	0.099	-	-	0.219	0.342	0.779	0.02	0.004	-	-	-	-
HCM Control Delay (s)	3.4	-	-	25.2	13.1	80	9.8	7.9	-	-	-	-
HCM Lane LOS	A	-	-	D	B	F	A	A	-	-	-	-
HCM 95th %ile D (veh)	0.3	-	-	8.8	1.5	5	0.7	0	-	-	-	-

HCM 6th TWSC  
3: Waiehu Beach Rd & Makaala Dr

04/19/2022

Intersection	EBL	EBR	NBL	NBT	SBL	SBR
Int Delay, s/veh	22.9					
Movement	EBL	EBR	NBL	NBT	SBL	SBR
Lane Configurations	7	427	104	361	615	13
Traffic Vol, veh/h	7	427	104	361	615	13
Future Vol, veh/h	7	427	104	361	615	13
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), s	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	2	45	13	5	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	189	2	165	148	56	30
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.06
Sat Flow, veh/h	1419	20	1578	1035	473	251
Grp Volume (v), veh/h	142	0	45	21	0	0
Grp Sat Flow (v), veh/h	1439	0	1578	1035	0	0
Q Serve (g, s), s	18.7	0.0	5.7	0.0	0.0	10.5
Cycle Q Clear (c), s	21.0	0.0	5.7	2.3	0.0	10.5
Prop In Lane	0.99	1.00	0.62	0.14	1.00	0.01
Lane Grp Cap (c), veh/h	202	0	165	233	0	137
V/C Ratio (X)	0.70	0.00	0.24	0.09	0.00	0.87
Wait Cap (c, s), veh/h	810	0	867	891	0	286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (f)	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	94.1	0.0	87.6	86.1	0.0	90.0
Int Delay (d <sub>2</sub> ), s/veh	11.6	0.0	1.8	0.2	0.0	16.5
Initial Q Delay (d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Rel Back (B <sub>0</sub> ), s/veh	8.7	0.0	2.5	1.1	0.0	7.4
Unsig. Movement Delay, s/veh	105.7	0.0	88.4	86.2	0.0	105.5
Ln Grp Delay (d), s/min	F	A	F	F	A	F
Ln Grp LOS	F	A	F	F	A	F
Approach Vol, veh/h	187				578	1345
Approach Delay, s/veh	101.8				26.7	70.5
Approach LOS	F				C	E

Major/Minor	Minor2	Major1	Minor2
Conflicting Flow All	1295	677	684
Stage 1	677	-	-
Stage 2	618	-	-
Critical Hdwy	5.42	5.22	4.32
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	2.218
Platoon blocked, %	179	453	909
Stage 1	505	-	-
Stage 2	538	-	-
Platoon blocked, %	-	-	-
Major Cap-1 Maneuver	157	453	909
Major Cap-2 Maneuver	292	-	-
Stage 1	442	-	-
Stage 2	538	-	-

Approach	EB	NB	SB
HCM Control Delay, s	78.3	2.1	0
HCM LOS	F		

Minor Lane/Minor	NBL	NBT	EBL	EBR	SBL	SBR
Capacity (veh/h)	309	-	292	453	-	-
HCM Lane V/C Ratio	0.124	-	0.026	1.025	-	-
HCM Control Delay (s)	9.5	-	17.7	79.3	-	-
HCM Lane LOS	A	-	C	F	-	-
HCM 95th Ptile Delay	0.4	-	0.1	13.9	-	-

Notes  
- Volume exceeds capacity - Delay exceeds 300s - Completion Not Defined - All major volume in platoon

HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4	4	4	4	4	4	4	4	4	4	4	4
Traffic Volume (veh/h)	129	2	41	32	5	3	110	419	3	2	819	417
Future Volume (veh/h)	129	2	41	32	5	3	110	419	3	2	819	417
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), s	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	140	2	45	13	5	3	120	455	3	2	890	453
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	189	2	165	148	56	30	137	1481	10	753	786	1205
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.06	0.80	0.80	0.02	0.76	0.76
Sat Flow, veh/h	1419	20	1578	1035	473	251	1751	1656	12	1781	1034	1585
Grp Volume (v), veh/h	142	0	45	21	0	0	120	0	458	2	890	453
Grp Sat Flow (v), veh/h	1439	0	1578	1035	0	0	1751	0	1668	1781	1034	1585
Q Serve (g, s), s	18.7	0.0	5.7	0.0	0.0	0.0	10.5	0.0	14.3	0.1	166.0	21.0
Cycle Q Clear (c), s	21.0	0.0	5.7	2.3	0.0	0.0	10.5	0.0	14.3	0.1	166.0	21.0
Prop In Lane	0.99	1.00	0.62	0.14	1.00	0.01	1.00	0.01	1.00	0.01	1.00	1.00
Lane Grp Cap (c), veh/h	202	0	165	233	0	0	137	0	1481	753	786	1205
V/C Ratio (X)	0.70	0.00	0.24	0.09	0.00	0.00	0.87	0.00	0.31	0.00	1.13	0.38
Wait Cap (c, s), veh/h	810	0	867	891	0	0	286	0	1591	806	786	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (f)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	94.1	0.0	87.6	86.1	0.0	0.0	90.0	0.0	5.9	5.3	26.2	8.8
Int Delay (d <sub>2</sub> ), s/veh	11.6	0.0	1.8	0.2	0.0	0.0	16.5	0.0	0.1	0.0	75.4	9.8
Initial Q Delay (d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rel Back (B <sub>0</sub> ), s/veh	8.7	0.0	2.5	1.1	0.0	0.0	7.4	0.0	5.7	0.0	54.7	7.7
Unsig. Movement Delay, s/veh	105.7	0.0	88.4	86.2	0.0	0.0	105.5	0.0	6.0	5.3	101.5	9.7
Ln Grp Delay (d), s/min	F	A	F	F	A	A	F	A	A	A	F	A
Ln Grp LOS	F	A	F	F	A	A	F	A	A	A	F	A
Approach Vol, veh/h	187				21		578				1345	
Approach Delay, s/veh	101.8				86.2		26.7				70.5	
Approach LOS	F				F		C				E	
Timer - Assigned Phs	1	2	4	5	6	8						
Phs Duration (G+Y+R), s	16.8	171.0	30.6	8.5	170.3	30.6						
Change Period (Y+R), s	4.0	5.0	5.0	4.0	5.0	5.0						
Max Green Setting (G <sub>max</sub> ), s	31.0	166.0	120.0	11.0	186.0	120.0						
Max Q Clear Time (g <sub>c</sub> +1), s	12.5	168.0	4.3	2.1	16.3	23.0						
Green Ext Time (p <sub>c</sub> ), s	0.0	0.0	0.1	0.0	3.1	2.7						
Intersection Summary												
HCM 5th Ctrl Delay												
HCM 6th LOS												



HCM 6th TWSC  
5: Kahekili Hwy & Makaala Dr

04/19/2022

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Vol, veh/h	152	55	170	64	94	405
Future Vol, veh/h	152	55	170	64	94	405
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	80	0	-	-	90	-
Yeh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	165	60	185	70	102	445

Major/Minor	Minor1	Major1	Minor2	Major2	
Conflicting Flow All	864	220	0	255	0
Stage 1	320	-	-	-	-
Stage 2	644	-	-	-	-
Critical Hdwy	6.42	6.22	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	2.218	-
Pol Cap-1 Maneuver	125	520	-	1310	-
Stage 1	817	-	-	-	-
Stage 2	523	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	300	820	-	1310	-
Mov Cap-2 Maneuver	300	-	-	-	-
Stage 1	817	-	-	-	-
Stage 2	482	-	-	-	-

Approach	WB	EB	SB
HCM Control Delay, s	25.2	0	1.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBL	WBR	SBL	SBT
Capacity (veh/h)	-	-	300	320	1310	-
HCM Lane V/C Ratio	-	-	0.551	0.073	0.078	-
HCM Control Delay (s)	-	-	30.8	9.7	8	-
HCM Lane LOS	-	-	D	A	A	-
HCM 95th %ile Q (veh)	-	-	3.1	0.2	0.3	-

HCM 6th TWSC  
6: Market St/Kahekili Hwy & Mokuau Rd/Pilihana Rd

04/19/2022

Intersection												
Int Delay, s/veh	5.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Vol, veh/h	9	0	42	60	0	7	36	314	29	5	806	7
Future Vol, veh/h	9	0	42	60	0	7	36	314	29	5	806	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	0	46	65	0	8	38	341	32	5	876	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1329	1341	880	1348	1329	357	884	0	0	373	0	0
Stage 1	890	890	-	435	435	-	-	-	-	-	-	-
Stage 2	439	451	-	913	894	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pol Cap-1 Maneuver	132	152	346	125	145	687	765	-	-	1185	-	-
Stage 1	337	361	-	600	580	-	-	-	-	-	-	-
Stage 2	597	571	-	328	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	123	141	346	105	144	687	765	-	-	1185	-	-
Mov Cap-2 Maneuver	123	141	-	105	144	-	-	-	-	-	-	-
Stage 1	115	358	-	561	542	-	-	-	-	-	-	-
Stage 2	552	534	-	282	357	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.4	79.2	0.9	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL	EBT	WBL	WBR	SBL	SBT	SBR
Capacity (veh/h)	765	-	-	262	115	1185	-	-	-	-
HCM Lane V/C Ratio	0.051	-	-	0.212	0.633	0.005	-	-	-	-
HCM Control Delay (s)	10	0	-	22.4	79.2	8.1	0	-	-	-
HCM Lane LOS	A	A	-	C	F	A	A	-	-	-
HCM 95th %ile Q (veh)	0.2	-	-	6.8	3.2	0	-	-	-	-

HCM 6th TWSC  
7: Market St & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	9.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖
Traffic Vol, veh/h	33	148	334	153	422	564
Future Vol, veh/h	33	148	334	153	422	564
Conflicting Peds, #/h	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	50	-
Vel at Medlan Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	151	353	166	459	613
Approach	Minor1	Major1	Major2			
Conflicting Flow All	1977	446	0	0	529	0
Stage 1	446	-	-	-	-	-
Stage 2	1531	-	-	-	-	-
Critical Hdwy	5.42	6.12	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Plat Cap-1 Maneuver	66	612	-	-	1038	-
Stage 1	645	-	-	-	-	-
Stage 2	197	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	38	612	-	-	1038	-
Mov Cap-2 Maneuver	38	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	53.2	0	4.8			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWB	NBRWB-2	SBL	SBR	
Capacity (veh/h)	-	-	38	612	1038	-
HCM Lane V/C Ratio	-	-	0.944	0.263	0.442	-
HCM Control Delay (s)	-	-	286.1	13	11.2	-
HCM Lane LOS	-	-	F	B	B	-
HCM 95th %ile Q (veh)	-	-	3.5	1.1	2.3	-

HCM 6th AWSC  
8: Market St & Vineyard St

04/19/2022

Intersection												
Intersection Delay, s/veh	37.9											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Vol, veh/h	221	50	0	0	146	40	18	209	35	58	0	488
Future Vol, veh/h	221	50	0	0	146	40	18	209	35	58	0	488
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	240	54	0	0	159	43	20	227	38	63	0	527
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0
Approach	EB	WB	NB	SB								
Opposing Approach	WB	EB	SB	NB								
Opposing Lanes	1	2	1	1								
Conflicting Approach Left	SB	NB	EB	WB								
Conflicting Lanes Left	1	1	2	1								
Conflicting Approach Right	NB	SB	WB	EB								
Conflicting Lanes Right	1	1	1	2								
HCM Control Delay	19.7	16.8	19.6	63								
HCM LOS	C	C	C	F								
Lane	NBLn	EBLn1	EBLn2	WBLn1	SBLn1							
Vol Left, %	7%	100%	0%	0%	11%							
Vol Thru, %	85%	0%	100%	78%	0%							
Vol Right, %	13%	0%	0%	22%	89%							
Sign Control	Stop	Stop	Stop	Stop	Stop							
Traffic Vol by Lane	262	221	50	186	543							
LT Vol	38	221	0	0	58							
Through Vol	209	0	50	146	0							
RT Vol	35	0	0	40	485							
Lane Flow Rate	285	240	54	202	590							
Geometry Gr	2	7	7	5	2							
Degree of UIM (X)	0.573	0.559	0.119	0.434	1.005							
Departure Headway (Hd)	7.248	8.441	8.024	7.89	6.128							
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes							
Cap	498	425	448	459	596							
Service Time	5.285	6.241	5.724	5.89	4.153							
HCM Lane V/C Ratio	0.572	0.595	0.12	0.44	0.99							
HCM Control Delay	19.6	21.5	11.8	16.8	63							
HCM Lane LOS	C	C	B	C	F							
HCM 95th-ile Q	3.5	3.3	0.4	2.2	15							



HCM 6th Signalized Intersection Summary  
9: High St. & Main St.

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Traffic Volume (veh/h)	13	144	49	274	50	50	32	289	327	21	365	15
Future Volume (veh/h)	13	144	49	274	55	50	32	289	327	21	365	15
Initial Q (D/L), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A, pbT)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	14	157	30	298	60	24	35	314	103	23	397	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	250	48	596	576	230	430	517	523	97	566	19
Arrive On Green	0.16	0.16	0.16	0.20	0.45	0.45	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1314	1526	292	1781	1271	508	975	1870	1565	43	1718	99
Grp Volume (v), veh/h	14	0	187	298	0	84	35	314	103	434	0	0
Grp Sat Flow (v), veh/h	1314	0	1818	1781	0	1779	975	1870	1565	1820	0	0
Q Serve (g, s), s	0.4	0.0	4.4	5.5	0.0	1.2	0.0	6.2	2.1	1.3	0.0	0.0
Cycle Q Clear (g, c), s	0.4	0.0	4.4	5.5	0.0	1.2	1.5	6.2	2.1	9.5	0.0	0.0
Prop In Lane	1.00	0.16	1.00	0.29	1.00	1.00	0.05	0.03	0.03	0.03	0.03	0.03
Lane Grp Cap (c), veh/h	372	0	250	596	0	906	430	517	523	882	0	0
V/C Ratio (X)	0.04	0.00	0.63	0.50	0.00	0.10	0.08	0.51	0.20	0.64	0.00	0.00
Avail Cap (c, a), veh/h	1041	0	1223	2598	0	3630	2011	3655	3097	3562	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.3	0.0	17.9	10.2	0.0	7.2	10.9	12.4	11.1	13.5	0.0	0.0
RT Delay (d2), s/veh	0.0	0.0	2.2	1.1	0.0	0.1	0.1	0.7	0.2	1.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wt Back Q Delay (d3), s/veh	0.0	1.9	1.9	0.0	0.4	0.2	2.3	0.7	3.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh	16.3	0.0	20.1	11.3	0.0	7.3	10.9	13.1	11.3	14.6	0.0	0.0
Ln Grp Delay (d), s/veh	16.3	0.0	20.1	11.3	0.0	7.3	10.9	13.1	11.3	14.6	0.0	0.0
Ln Grp LOS	B	A	C	B	A	A	B	B	B	A	A	A
Approach Vol, veh/h	201	201	382	452	434	434	434	434	434	434	434	434
Approach Delay, s/veh	19.8	19.8	10.4	12.5	14.6	14.6	14.6	14.6	14.6	14.6	14.6	14.6
Approach LOS	B	B	B	B	B	B	B	B	B	B	B	B
Timer - Assigned Phs	2	4	3	6	8	8	8	8	8	8	8	8
Phs Duration (G+Y+R), s	25.9	20.2	13.3	12.6	20.2	20.2	20.2	20.2	20.2	20.2	20.2	20.2
Change Period (Y+R), s	5.0	5.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Green Setting (Gmax), s	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Max Q Clear Time (g_c+1), s	3.2	11.5	7.5	6.4	8.2	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Green Est Time (g, s), s	1.0	3.7	2.1	1.1	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Intersection Summary												
HCM 6th Ctrl Delay	13.6											
HCM 6th LOS	B											

HCM 6th TWSC  
10: Central Ave. & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	4.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	T			T	T	
Traffic Vol, veh/h	378	222	247	171	16	145
Future Vol, veh/h	378	222	247	171	16	145
Conflicting Peds, #/h	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Yeh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minor Flow	411	241	268	196	17	158
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	652	0	1254	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	722	-
Critical Hdwy	-	-	4.12	-	5.82	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Plat Cap-1 Maneuver	-	-	935	-	190	547
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	481	-
Platoon blocked, %	-	-	-	-	-	-
Minor Cap-1 Maneuver	-	-	935	-	129	547
Minor Cap-2 Maneuver	-	-	-	-	129	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	327	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	8.1	19.9			
HCM LOS	C	C	C			
Minor Lane/Max Mvmt	NBL	EBT	EBR	WBL	WBT	
Capacity (veh/h)	414	-	-	935	-	
HCM Lane V/C Ratio	0.423	-	-	0.287	-	
HCM Control Delay (s)	19.9	-	-	10.4	0	
HCM Lane LOS	C	-	-	B	A	
HCM 95th %ile Q (veh)	2.1	-	-	1.2	-	

HCM 6th Signalized Intersection Summary  
11: Main St. & Central Ave.

04/19/2022

Movement	EBL	EBT	WBT	WBR	SEB	SEB
Lane Configurations						
Traffic Volume (veh/h)	64	386	594	252	434	82
Future Volume (veh/h)	64	386	594	252	434	82
Initial Q (Qb) veh	0	0	0	0	0	0
Ped-Bike Adj (A <sub>pbt</sub> )	1.00		1.00	1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow (veh/h)	1870	1870	1870	1870	1870	1870
Adj Flow Rate (veh/h)	70	420	646	102	472	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2
Cap. veh/h	360	1187	1067	904	519	462
Arrive On Green	0.03	0.63	0.57	0.57	0.29	0.29
Sat Flow (veh/h)	1781	1870	1870	1585	1781	1585
Grp Volume (v) veh/h	70	420	646	102	472	22
Grp Sat Flow (s) veh/h	1781	1870	1870	1585	1781	1585
Q Serve (g <sub>s</sub> ) s	2.1	14.3	30.6	4.0	34.5	1.3
Cycle Q Clear (c <sub>cs</sub> ) s	2.1	14.3	30.6	4.0	34.5	1.3
Prop In Lane	1.00		1.00	1.00	1.00	1.00
Lane Grp Cap (s) veh/h	360	1187	1067	904	519	462
V/C Ratio (X)	0.19	0.35	0.61	0.11	0.91	0.05
Avail Cap (c <sub>a</sub> ) veh/h	360	1187	1067	904	519	462
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d) s/veh	14.5	11.6	19.0	13.3	46.1	34.4
Int Delay (d <sub>2</sub> ) s/veh	0.2	0.8	2.6	0.3	10.5	0.1
Initial Q Delay (d <sub>3</sub> ) s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Queue Back (Q <sub>b</sub> ) (50%) veh/h	0.9	6.2	14.0	1.5	16.9	0.5
Unsig. Movement Delay, s/veh						
Ln Grp Delay (d <sub>4</sub> ) s/veh	14.7	12.5	21.6	13.6	56.6	34.4
Ln Grp LOS	B	B	C	B	E	C
Approach Vol (veh/h)	490	748			494	
Approach Delay, s/veh	12.8	20.5			55.6	
Approach LOS	B	C			E	
Timer - Assigned Phs	Y	T		T		T
Phs Duration (G+Y+Rc) s	8.6	82.0		44.3		90.7
Change Period (Y+Rc) s	4.0	5.0		5.0		5.0
Max Green Setting (G <sub>max</sub> ) s	5.0	51.0		65.0		60.0
Max Q Clear Time (g <sub>c+1</sub> ) s	4.1	32.6		36.5		16.3
Green Ext Time (g <sub>c+1</sub> ) s	0.0	7.5		2.0		5.4
Intersection Summary						
HCM 6th Ctl Delay		28.1				
HCM 6th LOS		C				

HCM 6th TWSC  
12: Kahekili Hwy & Project Dwy 1

04/19/2022

Intersection	
Int Delay, s/veh	0.1
Movement	WBL WBR NBT NBR SBL SET
Lane Configurations	
Traffic Vol (veh/h)	0 9 236 2 0 444
Future Vol (veh/h)	0 9 236 2 0 444
Conflicting Peds. #/hr	0 0 0 0 0 0
Sign Control	Stop Stop Free Free Free Free
RT Channelized	- None - None - None
Storage Length	- 0 - 50 - -
Vehicle Median Storage #	0 - 0 - - - 0
Grade, %	0 - 0 - - - 0
Peak Hour Factor	92 92 92 92 92 92
Heavy Vehicles, %	2 2 2 2 2 2
Minim Flow	0 10 257 2 0 483
Major/Minor	Minor1 Major2 Minor2
Conflicting Flow All	- 257 0 0 - -
Stage 1	- - - - -
Stage 2	- - - - -
Critical Hdwy	- 8.22 - - -
Critical Hdwy Stg 1	- - - - -
Critical Hdwy Stg 2	- - - - -
Follow-up Hdwy	- 3.318 - - -
Pol Cap-1 Maneuver	0 782 - - 0 -
Stage 1	0 - - - 0 -
Stage 2	0 - - - 0 -
Platoon blocked, %	- - - - -
Max Cap-1 Maneuver	- 782 - - -
Mov Cap-2 Maneuver	- - - - -
Stage 1	- - - - -
Stage 2	- - - - -
Approach	WBL NBL SBL
HCM Control Delay, s	9.7 0 0
HCM LOS	A
Minor Lane/Minor Mov	NBT NBRWBL NBT
Capacity (veh/h)	- - 782 -
HCM Lane V/C Ratio	- - 0.013 -
HCM Control Delay (s)	- - 9.7 -
HCM Lane LOS	- - A -
HCM 6th LOS (veh/h)	- - 0 -



HCM 6th TWSC  
13: Kahekili Hwy & Project Dwy 2

04/19/2022

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	T	T
Traffic Vol, veh/h	18	9	228	3	11	432
Future Vol, veh/h	18	9	228	3	11	432
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minvl Flow	20	10	248	3	12	470

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	744	250	0
Stage 1	250	-	-
Stage 2	494	-	-
Critical Hdwy	5.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pl Cap-1 Maneuver	392	798	-
Stage 1	792	-	-
Stage 2	613	-	-
Platoon blocked, %	-	-	-
Pl Cap-1 Maneuver	379	798	-
Pl Cap-2 Maneuver	379	-	-
Stage 1	792	-	-
Stage 2	607	-	-

Approach	WBL	NB	SB
HCM Control Delay, s	13.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBL	SBT
Capacity (veh/h)	-	458	1314
HCM Lane V/C Ratio	-	0.064	0.009
HCM Control Delay (s)	-	13.4	7.8
HCM Lane LOS	-	B	A
HCM 95th %ile D(veh)	-	0.2	0

HCM 6th TWSC  
14: Kahekili Hwy & Project Dwy 3

04/19/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	T	T
Traffic Vol, veh/h	0	9	222	3	0	450
Future Vol, veh/h	0	9	222	3	0	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minvl Flow	0	10	241	3	0	489

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	241	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	5.22	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.318	-
Pl Cap-1 Maneuver	0	798	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Pl Cap-1 Maneuver	-	798	-
Pl Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WBL	NB	SB
HCM Control Delay, s	0.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBL	SBT
Capacity (veh/h)	-	798	-
HCM Lane V/C Ratio	-	0.012	-
HCM Control Delay (s)	-	0.6	-
HCM Lane LOS	-	A	-
HCM 95th %ile D(veh)	-	0	-

## APPENDIX C LEVEL OF SERVICE CALCULATIONS

Future Year 2024 PM

### HCM 6th TWSC 1: Kahekili Hwy/Market St & Waiehu Beach Rd

04/19/2022

Intersection						
Int Delay, s/veh	10.9					
Movement	WBL	WBR	NBT	NBR	SBL	SRT
Lane Configurations	W		R		L	R
Traffic Vol, veh/h	47	315	259	84	231	125
Future Vol, veh/h	47	315	259	84	231	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Vehs in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mutl Flow	51	342	282	81	251	136
Major/Minor	Minor1	Major1	Minor2	Major2	Minor3	Major3
Conflicting Flow All	966	328	0	0	373	0
Stage 1	328	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Critical Hdwy	5.42	5.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Plat Cap-1 Maneuver	282	713	-	-	1185	-
Stage 1	730	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-
Minor Cap-1 Maneuver	217	713	-	-	1185	-
Minor Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	730	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Approach	WBL	NBL	SBL	SRT		
HCM Control Delay, s	26.3	0	5.7			
HCM LOS	D					
Minor Lane Major Minor	NBT	NBRWBL	SBL	SRT		
Capacity (veh/h)	-	550	1185	-		
HCM Lane V/C Ratio	-	0.715	0.212	-		
HCM Control Delay, s	-	26.3	5.7	0		
HCM Lane LOS	-	D	A	A		
HCM 95th %ile Q(veh)	-	5.8	0.8	-		



# HCM 6th TWSC

2: Waiehu Beach Rd & Wailupe Dr./Lower Waiehu Beach Rd

04/19/2022

Intersection												
Int Delay, s/veh	12.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	4	143	72	4	3	205	376	115	15	284	62
Future Vol, veh/h	15	4	143	72	4	3	205	376	115	15	284	62
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	Yield	-	-	None	-	-	None
Storage Length	-	-	0	-	-	100	100	-	-	100	-	-
Vol in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minor Flow	16	4	155	76	4	3	223	409	125	16	309	67

Major/Minor	Minor1	Minor2	Minor3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9	Minor10	Minor11	Minor12
Conflicting Flow All	1295	1355	343	1295	1326	472	376	0	0	534	0	0
Stage 1	375	375	-	918	918	-	-	-	-	-	-	-
Stage 2	920	980	-	377	408	-	-	-	-	-	-	-
Critical Hdwy	7.12	8.52	6.22	7.12	8.52	4.12	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Plat Cap-1 Maneuver	139	149	700	139	156	592	1182	-	-	1034	-	-
Stage 1	646	617	-	326	350	-	-	-	-	-	-	-
Stage 2	325	328	-	644	597	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	114	119	700	89	125	582	1182	-	-	1034	-	-
Mov Cap-2 Maneuver	114	119	-	89	125	-	-	-	-	-	-	-
Stage 1	524	608	-	264	284	-	-	-	-	-	-	-
Stage 2	258	266	-	490	588	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	150.9	2.6	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL-1	EBL-2	WBL-1	WBL-2	SBL	SBT	SBR
Capacity (veh/h)	1182	-	-	115	700	90	592	1034	-	-
HCM Lane V/C Ratio	0.189	-	-	0.18	0.222	0.918	0.006	0.016	-	-
HCM Control Delay (s)	5.8	-	-	43	11.6	156.4	11.1	8.5	-	-
HCM Lane LOS	A	-	-	E	B	F	B	A	-	-
HCM 95th %ile Q (veh)	0.7	-	-	0.6	0.8	5.1	0	0	-	-

# HCM 6th TWSC

3: Waiehu Beach Rd & Makaala Dr

04/19/2022

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations												
Traffic Vol, veh/h	15	208	330	704	501	18						
Future Vol, veh/h	15	208	330	704	501	18						
Conflicting Peds. #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free			
RT Channelized	-	Yield	-	None	-	None	-	-	None			
Storage Length	0	-	160	-	-	-	-	-	-			
Vol in Median Storage, #	0	-	0	0	0	-	-	-	-			
Grade, %	0	-	-	0	0	-	-	-	-			
Peak Hour Factor	92	92	92	92	92	92	92	92	92			
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2			
Minor Flow	16	226	359	765	545	20						

Major/Minor	Minor1	Minor2	Minor3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9	Minor10	Minor11	Minor12
Conflicting Flow All	2038	555	565	0	-	0						
Stage 1	555	-	-	-	-	-						
Stage 2	1483	-	-	-	-	-						
Critical Hdwy	6.42	6.42	4.12	-	-	-						
Critical Hdwy Stg 1	5.42	-	-	-	-	-						
Critical Hdwy Stg 2	5.42	-	-	-	-	-						
Follow-up Hdwy	3.518	3.318	2.218	-	-	-						
Plat Cap-1 Maneuver	62	531	1007	-	-	-						
Stage 1	575	-	-	-	-	-						
Stage 2	208	-	-	-	-	-						
Platoon blocked, %	-	-	-	-	-	-						
Mov Cap-1 Maneuver	40	531	1007	-	-	-						
Mov Cap-2 Maneuver	138	-	-	-	-	-						
Stage 1	370	-	-	-	-	-						
Stage 2	208	-	-	-	-	-						

Approach	EB	NB	SB
HCM Control Delay, s	17.9	3.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBL-1	EBL-2	SBT	SBR
Capacity (veh/h)	1007	-	138	531	-	-	-
HCM Lane V/C Ratio	0.356	-	0.118	0.426	-	-	-
HCM Control Delay (s)	10.5	-	34.6	18.7	-	-	-
HCM Lane LOS	B	-	D	C	-	-	-
HCM 95th %ile Q (veh)	1.6	-	0.4	2.1	-	-	-

HCM 6th Signalized Intersection Summary  
4: Waiehu Beach Rd & Eha St

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	398	2	55	4	3	1	104	744	7	0	462	235
Future Volume (veh/h)	398	2	55	4	3	1	104	744	7	0	462	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A <sub>pbt</sub> )	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	433	2	60	4	3	1	113	809	8	0	502	255
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	599	2	598	265	266	83	370	978	10	178	821	698
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.05	0.53	0.53	0.00	0.44	0.44
Sat Flow, veh/h	1468	7	1583	1634	1795	220	1781	1948	18	1781	1870	1585
Grp Volume (v), veh/h	435	0	60	8	0	0	113	0	817	0	502	255
Grp Sat Flow (s), veh/h	1415	0	1583	1795	0	0	1781	0	1867	1781	1870	1585
Q Serve (g, s), s	29.2	0.0	2.6	0.0	0.0	0.0	3.5	0.0	39.2	0.0	22.0	11.5
Cycle Q Clear (c, s)	29.5	0.0	2.6	0.3	0.0	0.0	3.5	0.0	39.2	0.0	22.0	11.5
Prop In Lane	1.00		1.00	0.50		0.12	1.00		0.01	1.00		1.00
Lane Grp Cap (c), veh/h	601	0	598	714	0	0	370	0	988	178	821	698
VC Ratio (x)	0.72	0.00	0.10	0.01	0.00	0.00	0.31	0.00	0.83	0.00	0.61	0.37
Avail Cap (c, s), veh/h	1553	0	1777	1891	0	0	793	0	1675	359	1329	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter (f)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	21.5	20.8	0.0	0.0	16.8	0.0	21.1	0.0	23.0	20.1
Incrt Delay (d2), s/veh	4.5	0.0	0.2	0.0	0.0	0.0	0.5	0.0	1.8	0.0	3.4	1.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% Re-Back (CA50%), veh/h	16.7	0.0	7.3	0.1	0.0	0.0	1.4	0.0	16.6	0.0	10.2	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay (d), s/veh	34.4	0.0	21.7	20.8	0.0	0.0	17.2	0.0	22.9	0.0	26.4	21.5
LnGrp LOS	C	A	C	C	A	A	B	A	C	A	C	C
Approach Vol, veh/h	495			8			930				757	
Approach Delay, s/veh	32.8			20.8			22.2				24.8	
Approach LOS	C			C			C				C	
Timer - Assigned Phs	T	2		4	5	6	0					
Phs Duration (G+Y+R), s	9.6	51.9		45.4	0.0	61.6	45.4					
Change Period (Y+R), s	4.0	5.0		5.0	4.0	5.0	5.0					
Max Green Setting (G <sub>max</sub> ), s	31.0	79.0		120.0	11.0	96.0	120.0					
Max Q Clear Time (g, c+1), s	5.5	24.0		2.3	0.0	41.2	31.5					
Green Ext Time (p, c), s	0.3	22.9		0.0	0.0	7.8	8.8					
Intersection Summary												
HCM 6th Ctrl Delay		25.5										
HCM 6th LOS		C										

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HCM 6th TWSC  
5: Kahekili Hwy & Makaala Dr

04/19/2022

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	100	23	282	199	20	181
Future Vol, veh/h	100	23	282	199	20	181
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channel	-	Yield	-	None	-	None
Storage Length	80	0	-	-	90	-
Vehicle in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minor Flow	109	25	307	216	22	197
Major/Minor	Minor1	Minor2	Major1	Major2		
Conflicting Flow All	656	415	0	523	0	
Stage 1	415	-	-	-	-	
Stage 2	241	-	-	-	-	
Critical Hdwy	5.42	6.22	-	4.12	-	
Critical Hdwy Stg 1	5.42	-	-	-	-	
Critical Hdwy Stg 2	5.42	-	-	-	-	
Follow-up Hdwy	3.518	3.318	-	2.218	-	
Platoon Cap-1 Maneuver	430	637	-	1043	-	
Stage 1	666	-	-	-	-	
Stage 2	799	-	-	-	-	
Platoon blocked, %	-	-	-	-	-	
Min Cap-1 Maneuver	421	637	-	1043	-	
Min Cap-2 Maneuver	421	-	-	-	-	
Stage 1	666	-	-	-	-	
Stage 2	782	-	-	-	-	
Approach	WBL	NBR	SBL			
HCM Control Delay, s	15.5	0	0.8			
HCM LOS	C					
Minor Lane/Minor Mvmt	NBT	NBRWBL-TWBLN2	SBL	SBT		
Capacity (veh/h)	-	-	421	637	1043	-
HCM Lane V/C Ratio	-	-	0.258	0.039	0.021	-
HCM Control Delay (s)	-	-	16.5	10.8	8.5	-
HCM Lane LOS	-	-	C	B	A	-
HCM 85th %ile Q (veh/h)	-	-	1	0.1	0.1	-

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# HCM 6th TWSC

6: Market St/Kahekili Hwy & Mokuhan Rd/Pilihana Rd

04/19/2022

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	<div> <div>EBL</div> <div>EBT</div> <div>EBR</div> <div>WBL</div> <div>WBT</div> <div>WBR</div> <div>NBL</div> <div>NBT</div> <div>NBR</div> <div>SBL</div> <div>SBT</div> <div>SBR</div> </div>											
Traffic Vol, veh/h	5	1	49	48	1	2	48	626	81	5	318	5
Future Vol, veh/h	5	1	49	48	1	2	48	626	81	5	318	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Yeh in Median Storage, #	0	0	-	0	-	0	-	-	0	-	0	-
Grade, %	0	0	-	-	0	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Minut Flow	5	1	53	52	1	2	52	586	88	5	346	5

Major/Minor	Minor1	Minor2	Minor3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9	Minor10	Minor11	Minor12
Conflicting Flow All	1189	1231	349	1214	1189	724	351	0	0	768	0	0
Stage 1	359	359	-	828	828	-	-	-	-	-	-	-
Stage 2	830	872	-	386	361	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.12	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Sig 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Sig 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Plat Cap-1 Maneuver	153	177	394	156	168	426	1208	-	-	846	-	-
Stage 1	659	627	-	365	386	-	-	-	-	-	-	-
Stage 2	364	368	-	637	626	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	153	162	394	136	173	426	1208	-	-	846	-	-
Mov Cap-2 Maneuver	153	162	-	136	173	-	-	-	-	-	-	-
Stage 1	809	623	-	337	357	-	-	-	-	-	-	-
Stage 2	334	340	-	583	622	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	48.5	0.5	0.1
HCM LOS	B	E		

Minor Lane/Minor	NBL	NBT	NBR	WBL	WBT	WBR	SBL	SBT	SBR
Capacity (veh/h)	1208	-	502	140	846	-	-	-	-
HCM Lane V/C Ratio	0.043	-	0.119	0.396	0.006	-	-	-	-
HCM Control Delay (s)	8.1	0	13.1	48.5	9.3	0	-	-	-
HCM Lane LOS	A	A	B	E	A	A	-	-	-
HCM 95th %ile Q(veh)	0.1	-	0.4	1.7	0	-	-	-	-

# HCM 6th TWSC

7: Market St & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	14					
Movement	WBL	WBR	NBL	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	321	640	166	232	323
Future Vol, veh/h	36	321	640	169	232	323
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	50	-
Yeh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minut Flow	39	349	698	184	252	351

Major/Minor	Minor1	Minor2	Minor3	Minor4	Minor5	Minor6	Minor7	Minor8	Minor9	Minor10	Minor11	Minor12
Conflicting Flow All	1643	788	0	0	880	0	-	-	-	-	-	-
Stage 1	768	-	-	-	-	-	-	-	-	-	-	-
Stage 2	855	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-	-	-	-	-	-	-
Critical Hdwy Sig 1	5.42	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Sig 2	5.42	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-	-	-	-	-	-	-
Plat Cap-1 Maneuver	116	391	-	-	768	-	-	-	-	-	-	-
Stage 1	448	-	-	-	-	-	-	-	-	-	-	-
Stage 2	417	-	-	-	-	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	74	391	-	-	768	-	-	-	-	-	-	-
Mov Cap-2 Maneuver	74	-	-	-	-	-	-	-	-	-	-	-
Stage 1	448	-	-	-	-	-	-	-	-	-	-	-
Stage 2	280	-	-	-	-	-	-	-	-	-	-	-

Approach	WBL	NBL	SB
HCM Control Delay, s	59.8	0	5
HCM LOS	F		

Minor Lane/Minor	NBL	NBR	WBL	WBR	SBL	SBT
Capacity (veh/h)	-	74	391	768	-	-
HCM Lane V/C Ratio	-	0.529	0.892	0.328	-	-
HCM Control Delay (s)	-	98.7	55.4	12	-	-
HCM Lane LOS	-	F	F	B	-	-
HCM 95th %ile Q(veh)	-	2.2	9.1	1.4	-	-

HCM 6th AWSC  
8: Market St & Vineyard St

04/19/2022

Intersection													
Intersection Delay, s/veh		47.4											
Intersection LOS		E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB	SEB
Lane Configurations	1	1	0	0	1	1	0	1	0	0	1	0	0
Traffic Vol, veh/h	361	144	0	0	116	62	29	301	60	49	0	315	0
Future Vol, veh/h	361	144	0	0	116	62	29	301	60	49	0	315	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2
West Flow	392	157	0	0	126	67	32	327	65	53	0	342	0
Number of Lanes	1	1	0	0	1	0	0	1	0	0	1	0	0
Approach	EB	WB	NB	SB									
Opposing Approach	WB	EB	SB	NB									
Opposing Lanes	1	2	1	1									
Conflicting Approach Left	SB	NB	EB	WB									
Conflicting Lanes Left	1	1	2	1									
Conflicting Approach Right	NB	SB	WB	EB									
Conflicting Lanes Right	1	1	1	2									
HCM Control Delay	53.8		20.5		57.4					41.1			
HCM LOS	F		C		F					E			

Lane	NBL	EBL	WBL	NBL	SEB
Vol Left, %	7%	100%	0%	0%	13%
Vol Thru, %	27%	0%	100%	65%	9%
Vol Right, %	15%	0%	0%	35%	87%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	390	361	144	178	364
LT Vol	29	361	0	0	49
Through Vol	301	0	144	116	0
RT Vol	60	0	0	62	315
Lane Flow Rate	424	392	157	193	396
Geometry Grp	2	7	7	5	2
Degree of U/I (X)	0.94	0.974	0.366	0.487	0.849
Departure Headway (Hd)	7.886	8.332	8.414	9.08	7.720
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	454	458	427	397	467
Service Time	6.049	6.692	6.174	7.146	5.796
HCM Lane V/C Ratio	0.934	0.961	0.368	0.486	0.848
HCM Control Delay	57.4	68.9	16	20.5	41.1
HCM Lane LOS	F	F	C	C	E
HCM 95thile Q	11	11.5	1.7	2.6	8.5

HCM 6th Signalized Intersection Summary  
9: High St. & Main St.

04/19/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	↶	↷			↶	↷	↶	↷	↶	↷	↶	↷
Traffic Volume (veh/h)	20	127	63	386	129	26	49	379	285	55	314	32
Future Volume (veh/h)	20	127	63	386	129	26	49	379	285	55	314	32
Initial Q Delay, s	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A, p/b)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No		No		No		No	
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	138	33	420	140	14	53	412	131	60	341	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	204	49	605	772	77	357	605	580	111	456	40
Arrive On Green	0.14	0.14	0.14	0.24	0.46	0.46	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	1233	1459	349	1761	1673	167	1009	1870	1585	115	1226	107
Grp Volume (v), veh/h	22	0	171	420	0	154	53	412	131	433	0	0
Grp Sat Flow, veh/h	1233	0	1806	1761	0	1840	1009	1870	1585	1448	0	0
Q Serve (g, s)	0.9	0.0	5.4	10.9	0.0	2.9	0.0	10.6	3.4	6.2	0.0	0.0
Cycle Q Clearance (s)	0.9	0.0	5.4	10.9	0.0	2.9	0.0	10.6	3.4	16.8	0.0	0.0
Prop In Lane	1.00		0.19	1.00		0.09	1.00		0.14	0.07		
Lane Grp Cap (veh/h)	283	0	253	605	0	349	387	605	580	607	0	0
V/C Ratio (X)	0.08	0.00	0.68	0.69	0.00	0.18	0.15	0.59	0.22	0.71	0.00	0.00
Avail Cap (veh/h)	754	0	335	1935	0	2807	1480	2810	2381	2406	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minimum Platoon (s)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	22.6	0.0	24.5	14.3	0.0	9.5	13.2	15.2	12.9	16.6	0.0	0.0
Inc Delay (d2), s/veh	0.1	0.0	3.1	1.4	0.0	0.1	0.2	0.3	0.2	1.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rate Back (Q/Q50%), veh/h	0.0	2.4	4.0	0.0	1.0	0.5	4.2	1.1	5.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay (d), s/veh	22.7	0.0	27.6	15.7	0.0	9.6	13.4	16.0	13.1	18.2	0.0	0.0
LnGrp LOS	C	A	C	B	A	A	B	B	B	B	A	A
Approach Vol, veh/h	193		574		596		433					
Approach Delay, s/veh	27.0		14.1		15.1		18.2					
Approach LOS	C		B		B		B					
Timer - Assigned Phs	2	4	5	6	5							
Phs Duration (G+Y+R), s	32.6	27.3	19.2	13.4	27.3							
Change Period (Y+R), s	5.0	5.0	5.0	5.0	5.0							
Max Green Setting (Gmax), s	34.0	30.0	20.0	10.0	30.0							
Max Q Clear Time (g c+1), s	4.9	18.8	12.9	7.4	12.6							
Green Ext Time (p, c), s	1.0	3.4	1.4	1.0	3.6							
Intersection Summary												
HCM 6th Ctrl Delay		16.8										
HCM 6th LOS		B										



HCM 6th TWSC  
10: Central Ave. & Mill St

04/19/2022

Intersection						
Int Delay, s/veh	7.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	1	1	2	2	1	1
Traffic Vol, veh/h	303	104	246	310	51	143
Future Vol, veh/h	303	104	246	310	51	143
Conflicting Peds. Rate	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Vehicle Median Storage, ft	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Pkwy Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Minor Flow	329	113	267	337	55	155
Major/Minor	Major1	Minor1	Major2	Minor2	Major3	Minor3
Conflicting Flow All	0	0	442	0	1257	386
Stage 1	-	-	-	-	306	-
Stage 2	-	-	-	-	871	-
Critical Hdwy	-	-	4.12	-	5.42	6.22
Critical Hdwy Sig 1	-	-	-	-	5.42	-
Critical Hdwy Sig 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Platoon Cap-1 Maneuver	-	-	1118	-	183	662
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	410	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1118	-	133	662
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	289	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	4.1	34.6			
HCM LOS	D		D			
Minor Lane/Major Mvmt	NBLnT	EBT	EBR	WBL	WBT	
Capacity (veh/h)	324	-	-	1118	-	
HCM Lane V/C Ratio	0.651	-	-	0.239	-	
HCM Control Delay (s)	34.6	-	-	9.2	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %ile Q(veh)	4.3	-	-	0.9	-	

HCM 6th Signalized Intersection Summary  
11: Main St. & Central Ave.

04/19/2022

Movement	EBL	EBT	WBV	WBL	NBL	NBR
Lane Configurations	1	1	1	1	1	1
Traffic Volume (veh/h)	303	578	605	310	470	130
Future Volume (veh/h)	89	578	605	310	470	130
Initial Q (Q <sub>0</sub> ), veh	0	0	0	0	0	0
Ped-Bike Adj (A <sub>p</sub> ), ph/T	1.00			1.00	1.00	1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No	No	No	No	No	No
Adj Sat Flow, veh/h	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	97	628	658	132	511	77
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	343	1130	999	846	564	502
Arrive On Green	0.04	0.60	0.53	0.53	0.32	0.32
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	97	628	658	132	511	77
Grp Sat Flow(s), veh/h	1781	1870	1870	1585	1781	1585
Q Serve(g, s), s	3.0	25.2	31.9	5.3	34.6	4.4
Cycle Q Clear(g, s), s	3.0	25.2	31.9	5.3	34.6	4.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	343	1130	999	846	564	502
V/C Ratio(X)	0.28	0.56	0.66	0.16	0.91	0.15
Avail Cap(c), veh/h	346	1130	999	846	564	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	14.9	21.1	14.9	41.3	30.9
Int Delay (d <sub>0</sub> ), s/veh	0.3	2.0	3.4	0.4	11.3	9.2
Initial Q Delay(d <sub>3</sub> ), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
Rate Back Of Q(50%), veh/h	1.2	11.0	14.6	2.0	16.8	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	16.8	16.8	24.5	15.3	52.5	31.1
LnGrp LOS	B	B	C	B	D	C
Approach Vol, veh/h	725	790		588		
Approach Delay, s/veh	16.8	23.0		49.7		
Approach LOS	B	C		D		
Time / Assigned Phs	1	2		4		6
Phs Duration (G+Y+R), s	8.8	72.3		44.8		81.1
Change Period (Y+R), s	4.0	5.0		5.0		5.0
Max Green Setting (G <sub>max</sub> ), s	5.0	48.0		58.0		57.0
Max Q Clear Time (g, c+1), s	5.0	33.9		36.6		27.2
Green Ext Time (g, c), s	0.0	8.5		3.3		8.0
Intersection Summary						
HCM 6th Ctrl Delay	28.3					
HCM 6th LOS	C					

HCM 6th TWSC  
12. Kahekili Hwy & Project Dwy 1

04/19/2022

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	7	287	5	0	191
Future Vol, veh/h	0	7	287	5	0	191
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	50	-	-
Vel in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mynt Flow	0	8	312	5	0	208
Major/Minor	Minor1	Major1	Minor2			
Conflicting Flow All	-	312	0	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Platoon blocked, %	0	728	-	-	-	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	728	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WBL	NB	SB			
HCM Control Delay, s	19	0	0			
HCM LOS	B					
Minor Lane/Major Movt	NBT	NBRWBL a1	SBL	SBT		
Capacity (veh/h)	-	-	728	-		
HCM Lane V/C Ratio	-	-	0.01	-		
HCM Control Delay (s)	-	-	19	-		
HCM Lane LOS	-	-	B	-		
HCM 95th %ile Q(veh)	-	-	0	-		

HCM 6th TWSC  
13. Kahekili Hwy & Project Dwy 2

04/19/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	7	286	11	20	170
Future Vol, veh/h	12	7	286	11	20	170
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Vel in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mynt Flow	13	8	311	12	22	185
Major/Minor	Minor1	Major1	Minor2			
Conflicting Flow All	546	317	0	0	323	0
Stage 1	317	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	8.42	8.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Platoon blocked, %	490	724	-	-	1237	-
Stage 1	738	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %	490	724	-	-	1237	-
Mov Cap-1 Maneuver	490	-	-	-	-	-
Mov Cap-2 Maneuver	490	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	794	-	-	-	-	-
Approach	WBL	NB	SB			
HCM Control Delay, s	11.7	0	9.8			
HCM LOS	B					
Minor Lane/Major Movt	NBT	NBRWBL a1	SBL	SBT		
Capacity (veh/h)	-	-	556	1237		
HCM Lane V/C Ratio	-	-	0.037	0.018		
HCM Control Delay (s)	-	-	11.7	9.8		
HCM Lane LOS	-	-	B	A		
HCM 95th %ile Q(veh)	-	-	0.1	0.1		



Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBT	SBR
Lane Configurations						
Trfct Vol, veh/h	0	7	290	11	0	183
Future Vol, veh/h	0	7	290	11	0	183
Conflicting Pesh, All	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	50	-	-
Vol in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Myra Flow	0	8	315	12	0	189
Map/Minor	Minor1	Major1	Minor2	Major2	Minor3	Major3
Conflicting Flow All	-	315	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Flow	-	0.22	-	-	-	-
Critical Hdwy Sig 1	-	-	-	-	-	-
Critical Hdwy Sig 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	-	-
Plat Cap-1 Maneuver	0	725	-	0	-	-
Stage 1	0	-	-	0	-	-
Stage 2	0	-	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-
Myra Cap-1 Maneuver	-	725	-	-	-	-
Myra Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WBL	NBT	SBT			
HCM Control Delay, s	13	0	0			
HCM LOS	B					
Minor Lane/Minor Mov	NBT	NBR/WSL n1	SBT			
Capacity (veh/h)	-	725	-			
HCM Lane VIC Ratio	-	0.01	-			
HCM Control Delay (s)	-	13	-			
HCM Lane LOS	-	B	-			
HCM 95th %ile Delay	-	31	-			

## APPENDIX D

### SIGNAL WARRANT ANALYSIS

Existing Kahekili Hwy/Waiehu Beach Rd  
(WBLT Minor)

Weekday Kahikili Hwy/Waiehu Beach Road 8-Hour Signal Warrant

Thursday, October 5, 2017

Warrant Information		Warrant Justification		Warrant Status	
Warrant Number	409	Warrant Title	Kahikili Hwy/Waiehu Beach Road 8-Hour Signal Warrant	Warrant Status	Active
Warrant Type	Standard	Warrant Justification	Warrant Justification	Warrant Status	Active
Warrant Date	10/5/17	Warrant Justification	Warrant Justification	Warrant Status	Active

Kahikili Hwy		Waiehu Beach Rd		100 % Warrant		Combinations	
Time	Warrant	Warrant	Warrant	Warrant	Warrant	Warrant	Warrant
0:00	0	0	0	0	0	0	0
0:15	0	0	0	0	0	0	0
0:30	0	0	0	0	0	0	0
0:45	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0
1:15	0	0	0	0	0	0	0
1:30	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0
2:45	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0
3:15	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0
4:15	0	0	0	0	0	0	0
4:30	0	0	0	0	0	0	0
4:45	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0
5:15	0	0	0	0	0	0	0
5:30	0	0	0	0	0	0	0
5:45	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0
6:30	0	0	0	0	0	0	0
6:45	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0
19:15	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0
20:00	0	0	0	0	0	0	0
20:15	0	0	0	0	0	0	0
20:30	0	0	0	0	0	0	0
20:45	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
21:15	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0

Hours where condition met?		Signal Warranted?		Notes	
7	1	4	No		

Weekday Kahikili Hwy/Waiehu Beach Road 4-Hour Signal Warrant

Thursday, October 5, 2017

Warrant Information		Warrant Justification		Warrant Status	
Warrant Number	409	Warrant Title	Kahikili Hwy/Waiehu Beach Road 4-Hour Signal Warrant	Warrant Status	Active
Warrant Type	Standard	Warrant Justification	Warrant Justification	Warrant Status	Active
Warrant Date	10/5/17	Warrant Justification	Warrant Justification	Warrant Status	Active

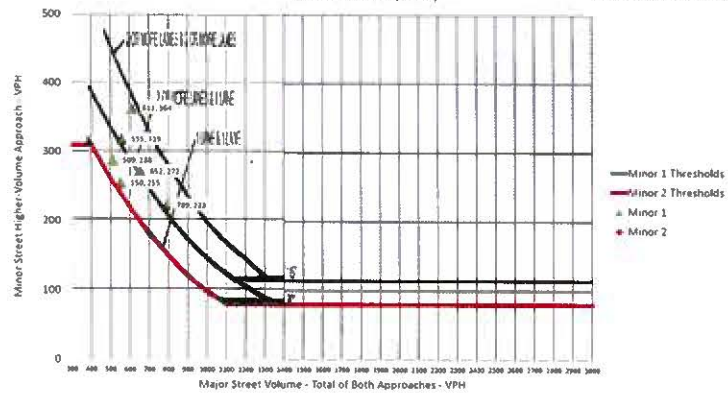
Kahikili Hwy		Waiehu Beach Rd		100 % Warrant		Combinations	
Time	Warrant	Warrant	Warrant	Warrant	Warrant	Warrant	Warrant
0:00	0	0	0	0	0	0	0
0:15	0	0	0	0	0	0	0
0:30	0	0	0	0	0	0	0
0:45	0	0	0	0	0	0	0
1:00	0	0	0	0	0	0	0
1:15	0	0	0	0	0	0	0
1:30	0	0	0	0	0	0	0
1:45	0	0	0	0	0	0	0
2:00	0	0	0	0	0	0	0
2:15	0	0	0	0	0	0	0
2:30	0	0	0	0	0	0	0
2:45	0	0	0	0	0	0	0
3:00	0	0	0	0	0	0	0
3:15	0	0	0	0	0	0	0
3:30	0	0	0	0	0	0	0
3:45	0	0	0	0	0	0	0
4:00	0	0	0	0	0	0	0
4:15	0	0	0	0	0	0	0
4:30	0	0	0	0	0	0	0
4:45	0	0	0	0	0	0	0
5:00	0	0	0	0	0	0	0
5:15	0	0	0	0	0	0	0
5:30	0	0	0	0	0	0	0
5:45	0	0	0	0	0	0	0
6:00	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0
6:30	0	0	0	0	0	0	0
6:45	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0
8:15	0	0	0	0	0	0	0
8:30	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0
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14:30	0	0	0	0	0	0	0
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15:15	0	0	0	0	0	0	0
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16:15	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0
18:00	0	0	0	0	0	0	0
18:15	0	0	0	0	0	0	0
18:30	0	0	0	0	0	0	0
18:45	0	0	0	0	0	0	0
19:00	0	0	0	0	0	0	0
19:15	0	0	0	0	0	0	0
19:30	0	0	0	0	0	0	0
19:45	0	0	0	0	0	0	0
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20:15	0	0	0	0	0	0	0
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20:45	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0
21:15	0	0	0	0	0	0	0
21:30	0	0	0	0	0	0	0
21:45	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0
22:15	0	0	0	0	0	0	0
22:30	0	0	0	0	0	0	0
22:45	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0
23:15	0	0	0	0	0	0	0
23:30	0	0	0	0	0	0	0
23:45	0	0	0	0	0	0	0

Hours where condition met?		Signal Warranted?		Notes	
7	1	4	No		

4 hr Warrant (100%)

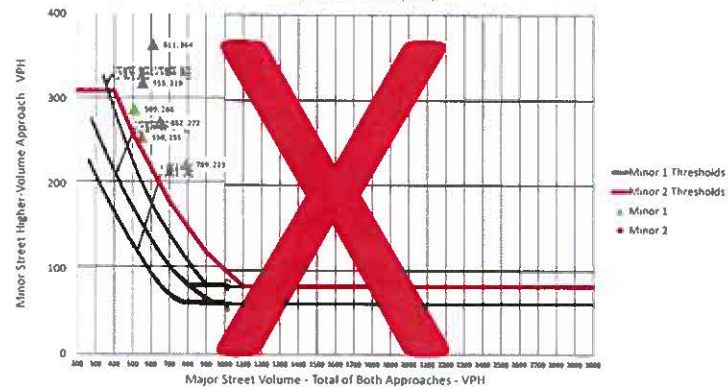
4-Hour Warrant (100%)

Thursday, October 5, 2017



4-Hour Warrant (70%)

Thursday, October 5, 2017



AUSTIN TSUTSUMI & ASSOCIATES, INC.  
CIVIL ENGINEERS - SAN FRANCISCO

## APPENDIX D

### SIGNAL WARRANT ANALYSIS

Existing Kahekili Hwy/Waiehu Beach Rd  
(WBLT & WBRT Minor)

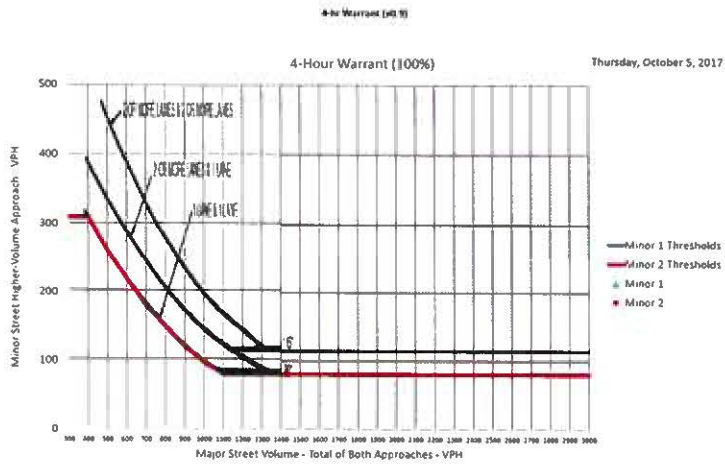


**Weekday** **Kahekili Hwy/Waiehu Beach Road 4-Hour Signal Warrant**

[illegible]

Condition met	Yes	No
Signal is present		





## APPENDIX D

### SIGNAL WARRANT ANALYSIS

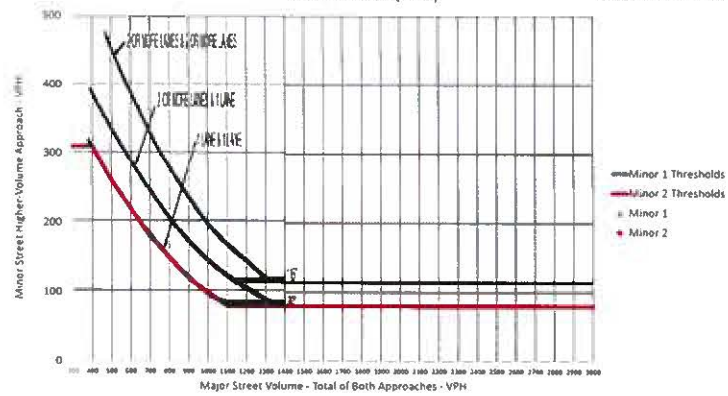
FY 2024 Kahekili Hwy/Waiehu Beach Rd  
(SBLT Minor)



4-Hr Warrant (v0.9)

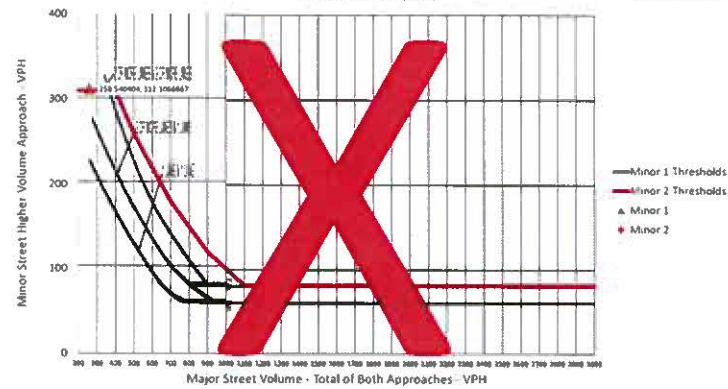
4-Hour Warrant (100%)

Thursday, October 5, 2017



4-Hour Warrant (70%)

Thursday, October 5, 2017



ATA AUSTIN TSUTSUMI & ASSOCIATES, INC.  
CIVIL ENGINEERS - NEW YORK

## APPENDIX D

### SIGNAL WARRANT ANALYSIS

FY 2024 Kahekili Hwy/Waiehu Beach Rd  
(WBLT Minor)



**Weekday**   **Kahekili Hwy/Waiehu Beach Road 8-Hour Signal Warra**

Wednesday, August 19, 1925

[illegible]

**Weekday** Kaheki Hw/Waiehu Beach Road 4-Hour Signal Warrant

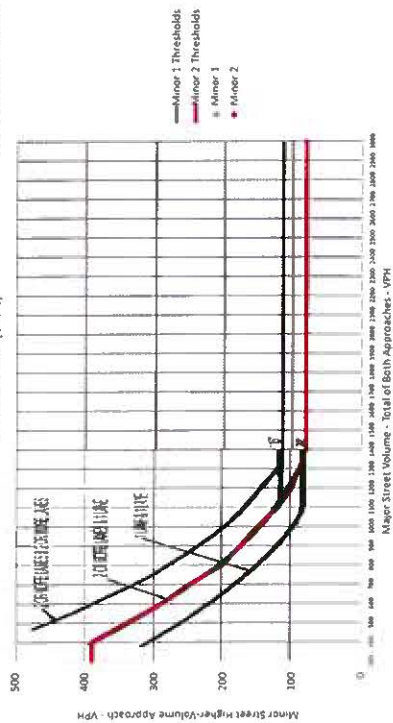
Electronics Division, Building 18, 30070

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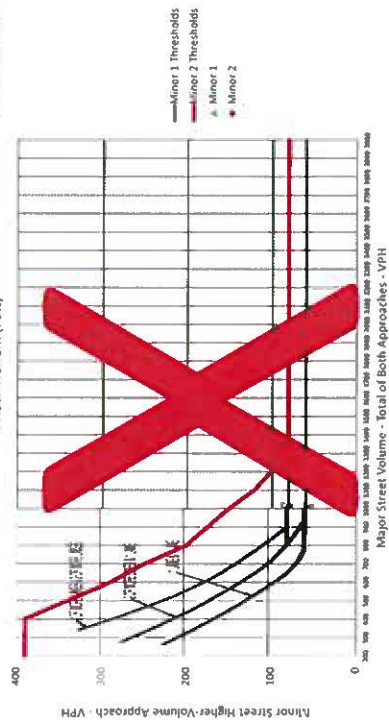
# 4 Hour Warrant (100%)

Wednesday, August 19, 2020



# 4-Hour Warrant (70%)

Wednesday, August 19, 2020



REPORT  
 GEOTECHNICAL INVESTIGATION  
 PROPOSED WAIIEHU APARTMENTS  
 KAHEKILI HIGHWAY  
 WAIIEHU, MAUI, HAWAII  
 TMK: (2) 3-3-001:106 [(2) 3-3-001:016 (POR.)]

for

HIGHRIDGE COSTA DEVELOPMENT COMPANY, LLC

Project No. 20-0094  
 January 8, 2021

SHINSATO ENGINEERING, INC.  
 98-747 KUAHAO PLACE, #E  
 PEARL CITY, HI 96782

**SHINSATO ENGINEERING, INC.**  
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January 8, 2021  
 Project No. 20-0094

Highridge Costa Development Company, LLC  
 Attention: Harrison Herzberg  
 330 Victoria Street  
 Gardena, California 90248-3527

Subject: REPORT  
 Geotechnical Investigation  
 Proposed Waiehu Apartments  
 Kahekili Highway  
 Waiehu, Maui, Hawaii  
 TMK: (2) 3-3-001:106, [(2) 3-3-001:016 por.]

Dear Mr. Herzberg:

This report presents the data, conclusions and recommendations of a geotechnical investigation for the proposed apartment development to be constructed at Kahekili Highway in Waiehu, Maui, Hawaii.

- 1) The subsurface conditions at the site were explored by excavating 16 test pits to depths of 7 to 9 feet below grade, and performing 8 soil infiltration tests.

In general, the test pits disclosed the site to be underlain by medium stiff, light-brown and brown elastic SILT and loose to medium dense, light-brown, tan, and brown silty SAND and SAND to the final depths of the test pits. At Test Pit 12, medium dense, tan silty GRAVEL was found from the ground surface to a depth of 6 feet followed by medium dense tan SAND.

No groundwater was encountered in the test pits at the time of the field investigation.

- 2) Based on the findings and observations of this investigation, it is concluded that from a geotechnical engineering perspective, the site may be developed for the intended use. The proposed structures may be supported on relatively shallow footings that bear on firm on-site soils and/or properly compacted structural fill.
- 3) Special considerations will be required in the design and construction of the project due to the subsurface conditions encountered in this investigation. These include but may not be limited to the following:
- a) The on-site elastic SILT soil has a moderate swelling potential when allowed to air-dry. In order to minimize the possible adverse effects from swelling of the on-site soils, it is recommended that:
- i) Where the subgrade soil consists of the elastic SILT, the surface should be kept moist by intermittent sprinkling of water to maintain the in-situ moisture content until non-expansive fill have been placed over the soil.

- ii) Where the subgrade soil beneath concrete floor slabs consists of the elastic SILT, the elastic SILT shall be over excavated to a depth of 12-inches below the bottom of the slab elevation and then be backfilled with non-expansive granular fill. Any granular cushion or capillary moisture barrier may be considered as a part of the 12-inch thickness. For exterior slabs, the thickness may be reduced to a minimum of 6-inches.
- b) The on-site elastic SILT soil should not be used as fill and backfill material within 12-inches from finished subgrade elevation under building slabs. It may be used as fill below 12-inches from finished subgrade elevations provided the soil is placed at a moisture content of between optimum moisture and 3 percent above optimum moisture, and the degree of compaction shall be between 90 and 95 percent of the maximum dry density. The maximum dry density and optimum moisture shall be determined by the ASTM D1557 test procedure.
- 4) A summary of the foundation design parameters is as follows:
- a) Allowable soil bearing pressure: 2,500 psf for footings bearing on firm on-site soil and/or properly compacted structural fill.
- b) Minimum footing embedment depth: 18-inches below lowest adjacent grade (measured to bottom of footing). This may be reduced to 12 inches by providing 6-inches of compacted structural fill beneath the footing.
- c) Estimated settlement: less than 1-inch.
- d) Earth pressure coefficients: On-site soil:  
 $K_p = 3.00$   
 $K_a = 0.40$  (unrestrained)  
 $K_o = 0.60$  (restrained, at-rest)  
 Soil Unit Weight: 100 pcf  
 Coefficient of Friction:  $0.4 \times DL$   
 Imported structural fill:  
 $K_p = 3.50$   
 $K_a = 0.27$  (unrestrained)  
 $K_o = 0.42$  (restrained, at-rest)  
 Soil Unit Weight: 140 pcf  
 Coefficient of Friction:  $0.7 \times DL$
- e) Site class definition: D - "stiff soil" (2006 and 2012 IBC)
- f) Slab-on-grade: Where the subgrade soil consists of the elastic SILT, provide a minimum of 12-inches of structural fill beneath interior floor slabs; any granular cushion or capillary moisture barrier may be considered as a part of the 12-inch thickness.
- g) The soil infiltration rates per the field tests varied from 1.80 to 5.62 inch per hour.

h) Pavement Design

Gross Vehicle Weight (lbs.)	Representative Vehicle Type	Flexible Pavement			Rigid Pavement	
		AC	Base	Select Borrow	Concrete	Base
10,000 or less	cars, SUVs, pick-up trucks, delivery vehicle	2"	6"	0	5"	4"
10,001 to 33,000	cargo van, delivery truck, small bus	2.5"	6"	6"	6"	6"
over 33,000	semi-tractor trailer, concrete mixer, dump truck, garbage truck, fire truck, large bus	3"	6"	12"	6"	8"

Details of the findings and recommendations are presented in the attached report.

This investigation was made in accordance with generally accepted engineering procedures and included such field and laboratory tests considered necessary for the project. In the opinion of the undersigned, the accompanying report has been substantiated by mathematical data in conformity with generally accepted engineering principles and presents fairly the design information requested by your organization. No other warranty is either expressed or given.

Respectfully submitted,

SHINSATO ENGINEERING, INC.

*Lawrence S. Shinsato*  
 Lawrence S. Shinsato, P.E.  
 President

LSS:ts



This work was prepared by me or under my supervision.  
 License Expires 04/30/22

**GEOTECHNICAL INVESTIGATION REPORT**  
**Proposed Waiehu Apartments**  
**Kahekili Highway**  
**Waiehu, Maui, Hawaii**  
**TMK: (2) 3-3-001:106 [(2) 3-3-001:016 por.]**

**1.0 INTRODUCTION**

This investigation was made for the purpose of obtaining information on the subsurface conditions from which to provide geotechnical engineering recommendations for the design and construction of the proposed Waiehu Apartment development at Kahekili Highway in the Waiehu, Maui, Hawaii. The location of the site, relative to the existing streets and landmarks, is shown on the Vicinity Map, Plate 1.

**2.0 SCOPE OF WORK**

The services included excavating 16 test pits to the depths of 7 to 9 feet below the existing grade, performing 8 soil infiltration tests, obtaining samples of the underlying soils, performing laboratory tests to determine pertinent engineering properties of the representative soil samples, and performing an engineering analysis in order to provide foundation design parameters and site work procedures. The following information is provided for use by the Architect and/or Engineer:

- 1) General subsurface conditions, as disclosed by the test pits.
- 2) Physical characteristics of the soils encountered at the site.
- 3) Recommendations for foundation design, including bearing values, embedment depth and estimated settlement.
- 4) Recommendations for sitework including placement of fill and backfill.
- 5) Results of the falling head percolation used to calculate the soil percolation and infiltration rates.
- 6) Special considerations.

**3.0 PLANNED DEVELOPMENT**

From the information provided, Waiehu Apartments will be a planned 120-unit, two-story garden style affordable family community located in Waiehu, Maui. The currently vacant site is approximately 11.476 acres adjacent to Kahekili Highway and Waiehu Beach Road. In addition to offering affordable homes in and around the community where the residents live and work, the project's amenities will include a clubhouse, manager's office, fitness room, computer room, playground, and 3,000 square foot community center reserved primarily for programs targeted at the resident population. Additionally, there will be a 3,500 square foot building for local non-profit, Maui Economic Opportunity, Inc. (MEO), to run their programs out of.

The 120 affordable units will be comprised of two 8-unit buildings, ten 10-unit buildings, and one 4-unit building. 30 units will be one-bedroom, one-bath apartments, 58 will be two-bedroom, two-bath apartments and 32 will be three-bedroom, two-bath apartments. All units will be set aside for individuals and families earning 60% or less of area median income.

**4.0 FIELD INVESTIGATION**

**4.1 General**

The field investigation consisted of excavating test pits with a CASE 580M backhoe at the locations shown on the Plot Plans, Plates A2.1 and A2.2. Material excavated from the pit and the sides and bottom of the pits were visually inspected and a continuous log of each hole was kept.

**4.2 Soil Sampling**

Bulk samples of the underlying soils were obtained from test pits. The soil samples were visually classified in the field using the Unified Soil Classification System. Samples were packed in moisture proof containers and transported to the laboratory for testing.

**4.3 Soil Infiltration Testing**

Eight (8) falling head percolation tests were performed to determine the percolation/infiltration rates of the on-site soils. The falling head percolation tests were performed in general accordance with the procedures detailed in the Hawaii Administrative Rules 11-62 Appendix C. The Porchet Method was used to estimate the infiltration rate based on the results of the falling head percolation tests.

The results of the tests are as follows:

Percolation Test No.	Test Depth (ft)	Percolation Rate (min/inch)	Infiltration Rate (inch/hour)	Soil Description
P-1	1.5	2.86	3.15	silty SAND
P-2	1.5	4.44	1.80	silty SAND
P-3	1.5	3.33	2.57	silty SAND
P-4	1.5	2.11	4.89	silty SAND
P-5	1.5	3.08	2.85	silty SAND
P-6	1.5	2.50	3.79	silty SAND
P-7	1.5	1.93	5.62	silty SAND
P-8	1.5	2.00	5.29	silty SAND

**5.0 LABORATORY TESTING**

**5.1 General**

Laboratory tests are performed on various soil samples to determine their engineering properties. Descriptions of the various tests are listed below.

**5.2 Unit Weight and Moisture Content**

The in-place moisture content and unit weight of the samples are used to correlate similar soils at various depths. The sample is weighed, the volume determined, and a portion of the sample is placed in the oven. After oven-drying, the sample is again weighed to determine the moisture loss. The data is used to determine the wet-density, dry-density and in-place moisture content.

**5.3 Classification Tests**

The terms and symbols used to describe the soil materials are based on the Unified Soil Classification System which provides a basis for classifying soils using either visual methods or laboratory test results. Laboratory



tests include sieve and hydrometer analysis for particle size distribution, and Atterberg Limits test for liquid limit, and plasticity index determination.

Grain-size distribution of the soil is determined by passing the soil through a series of sieves. If 50 percent or more of the soil by dry weight passes the #200 sieve, the soil is classified as fine-grained. If more than 50 percent of the soil by dry weight is retained on the #200 sieve, the soil is classified as coarse grained.

Coarse grained soils are described as follows:

Boulder	Material retained on a 12-inch square sieve
Cobble	Material passing a 12-inch sieve but retained on a 3-inch sieve
Gravel	Material passing a 3-inch sieve but retained on a #4 sieve
Sand	Material passing a #4 sieve but retained on a #200 sieve

Fine-grained materials are silts and clays. The liquid limit and plastic limit results from an Atterberg Limits test are used to determine if the soil is a silt or clay.

## 6.0 SITE CONDITIONS

### 6.1 Surface

The property is located along the southeast side of Kahakili Highway at the intersection with Waiehu Beach Road and is bordered by Kahakili Highway to the northwest and a residential subdivision to the southeast.

At the time of the field investigation, the site was vacant. The interior of the property has grass covered sections while the perimeter of the lot is overgrown by trees and brush.

### 6.2 Subsurface

The subsurface conditions at the site were explored by excavating 16 test pits to depths of 7 to 9 feet below grade and performing 8 field percolation tests at depths of 1.5 feet below grade. The locations of the test pits and field percolation tests are shown on the Plot Plans, Plates A2.1 and A2.2. Detailed logs of the test pits are presented at the end of this report on the Log of Test Pits, Plates TP1 through TP16.

In general, the test pits disclosed the site to be underlain by medium stiff, light-brown and brown elastic SILT and loose to medium dense, light-brown, tan, and brown silty SAND and SAND to the final depths of the test pits. At Test Pit 12, medium dense, tan silty GRAVEL was found from the ground surface to a depth of 6 feet followed by medium dense tan SAND.

No groundwater was encountered in the test pits at the time of the field investigation.

From the USDA Soil Conservation Service "Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii," the soils within the majority of the site (along Kahakili Highway) are designated as lao silty clay, 0 to 3 percent slopes (IaA). The soils along the southeast perimeter adjacent to the existing residential subdivision is designated as Puuone sand, 7 to 30 percent slopes (PZUE).

The USDA manual describes the soil types as follows:

*"The lao soil series consists of well-drained soils on valley fill and alluvial fans. They developed in alluvium derived from basic igneous rock. In a representative profile of the IaA soil, the surface layer is dark brown clay about 15 inches thick. The subsoil, about 45 inches thick is very dark brown, dark-brown and very dark grayish-brown clay and silty clay. The substratum is clayey alluvium. Permeability is moderately slow. Runoff is medium and the erosion hazard is slight to moderate." (USDA, 1972, pp. 46).*

*"The Puuone soil series consists of somewhat excessively drained soils on low uplands on the island of Maui. They developed in material derived from coral and seashells. In a representative profile of the PZUE soil, the surface layer is grayish-brown, calcareous sand about 20 inches thick. This is underlain by grayish-brown, cemented sand. Permeability is rapid above the cemented layer. Runoff is slow and the wind erosion hazard is moderate to severe." (USDA, 1972, pp. 117).*

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

### 7.1 General

Based on the findings and observations made during this investigation, it is concluded that from a geotechnical perspective, the site may be developed for the intended use provided the recommendations contained in this report are included in the design and construction of the project.

### 7.2 Special Considerations

Special considerations will be required in the design and construction of the project due to the subsurface conditions encountered in this investigation. These include but may not be limited to the following:

- a) The on-site elastic SILT soil has a moderate swelling potential when allowed to air-dry. In order to minimize the possible adverse effects from swelling of the on-site soils, it is recommended that:
  - i) Where the subgrade soil consists of the elastic SILT, the surface should be kept moist by intermittent sprinkling of water to maintain the in-situ moisture content until non-expansive fill have been placed over the soil.
  - ii) Where the subgrade soil beneath concrete floor slabs consists of the elastic SILT, the elastic SILT shall be over excavated to a depth of 12-inches below the bottom of the slab elevation and then be backfilled with non-expansive granular fill. Any granular cushion or capillary moisture barrier may be considered as a part of the 12-inch thickness. For exterior slabs, the thickness may be reduced to a minimum of 6-inches.
- b) The on-site elastic SILT soil should not be used as fill and backfill material within 12-inches from finished subgrade elevation under building slabs. It may be used as fill below 12-inches from finished subgrade elevations provided the soil is placed at a moisture content of between optimum moisture and 3 percent above optimum moisture, and the degree of compaction shall be between 90 and 95 percent of the maximum dry density. The maximum dry density and optimum moisture shall be determined by the ASTM D1557 test procedure.

### 7.3 Foundations

An allowable bearing value of 2,500 pounds per square foot may be used for footings that bear on firm on-site soil and/or properly compacted structural fill. The bearing value is for dead plus live loads and may be increased by one-third (1/3) for momentary loads due to wind or seismic forces. If any footing is eccentrically loaded, the maximum edge pressure shall not exceed the bearing pressure for permanent or for momentary loads.

Footings shall be embedded a minimum of 18-inches below the lowest adjacent finished grade (measured to the bottom of the footing) and shall bear on firm soil. The embedment depth may be reduced to 12 inches by providing 6-inches of compacted structural fill beneath the footing. Any soft or loose soil encountered at the bottom of the footing excavation shall be removed to firm soil and the resulting depression shall be backfilled with properly compacted structural fill.

For interior footings (slab-on-grade construction), the footing embedment depth may be reduced to 12-inches below the top of the floor slab.

For footings located adjacent to utility trenches, the bottom of the footing shall be deepened below a 1 horizontal to 1 vertical plane projected upwards from the edge of the utility trench.

For footings located on or adjacent to slopes, the footing shall be deepened such that there is a minimum horizontal distance of 5-feet from the edge of the footing to the slope face.

For footings located adjacent to retaining walls or other structural elements which are not designed for surcharge loading, the new footing shall be deepened below a 45-degree plane projected upwards from the adjacent structure.

All loose and disturbed soil at the bottom of footing excavations shall be removed to firm soil or the disturbed soil shall be compacted prior to laying of steel or pouring of concrete.

### 7.4 Site Class Definition

In accordance with the 2006 and 2012 International Building Code, the site class and soil profile name may be assumed as D: stiff soil profile.

### 7.5 Settlement

Under the fully applied recommended maximum bearing pressure of 2,500 psf, it is estimated that the total settlement of 4-foot square column footings and 3-foot wide continuous footings that bear on firm on-site soils and/or properly compacted FILL will be on the order of 1-inch.

For the purpose of estimating differential settlement between footings, the total settlement may be assumed to increase or decrease in proportion to the increase or decrease in footing width and applied bearing pressure.

### 7.6 Lateral Earth Coefficients

The values for the lateral earth pressure coefficients and frictional resistance may be assumed as follows:

Material Type	Passive Earth Coefficient (Kp)	Active Earth Coefficient (Ka)	At-Rest Earth Coefficient (Ko)	Frictional Coefficient (x D.L.)	Unit Weight (pcf)
on-site soil	3.0	0.40	0.60	0.4	100
Imported Structural Fill	3.5	0.27	0.42	0.7	140

### NOTES:

- The passive, active and at-rest earth pressures are determined by multiplying the respective earth coefficient by the unit weight.
- The allowable passive earth resistance values may be used for structural elements in direct contact with undisturbed material. Where the ground surface adjacent to the resisting element is exposed to the weather, the top 12 inches shall be neglected in calculating the passive earth resistance. This is to allow for soil shrinkage and/or erosion.
- Lateral resistance and friction may be combined.
- The above active earth coefficients do not include surcharge loads such as footings located within a 45-degree plane projected upwards from the heel of the footing, sloping ground and/or from hydrostatic pressures. If such conditions occur, the active earth pressures shall be increased accordingly.
- The active earth pressure coefficient is for unrestrained conditions. Unrestrained walls are defined as walls that are allowed to rotate between 0.005 and 0.01 times the wall height. The rotation of the wall develops the "active earth pressure." If the wall is not allowed to move as in the case of basement walls or walls that are restrained at the top, the soil pressure that will develop is known as an "at-rest" pressure. For restrained walls, the above "at-rest" earth pressures shall be used to design the structure.
- The active earth pressure coefficient for imported structural fill may be used to design retaining walls where the imported structural fill is placed within a 1H:2V plane projected upward and outward from the heel of the wall footing. Where this cannot be accomplished, the active earth pressure for the on-site soil shall be used to design the wall.
- Drainage for the retaining wall backfill shall be accomplished by providing 4-inch diameter weepholes spaced 8-feet on-center or by using a minimum 4-inch diameter perforated PVC footing drain pipe. A 2-foot thick layer of crushed gravel (ASTM No. 67), which is wrapped with geotextile filter fabric, shall be placed above the pipe; the crushed gravel shall be continuous from weephole to weephole, or in the case of a footing drain pipe, laid throughout the full length of the pipe. Geotextile fabric shall be MIRAFI 140N or similar.
- The backfill material for retaining walls shall be properly compacted in accordance with the Site Preparation and Grading section to this report. Also, surface drainage shall be designed to minimize surface water runoff from entering the backfill area. In non-pavement areas, the top 12 inches of backfill material shall be fine-grained, cohesive soil.

### 7.7 Slab-on-Grade

The onsite clayey soil was found to have a moderate shrink-swell potential when allowed to air-dry. Concrete floor slabs-on-grade should be constructed with a minimum of 12-inches of non-expansive granular fill beneath the slabs. Any granular cushion or capillary barrier may be considered as part of the 12-inch thickness. The thickness of granular fill for exterior slabs such as sidewalks may be reduced to a minimum of 6-inches.

It is recommended that concrete floor slabs that have moisture sensitive floor covering be constructed using a vapor retarder and a capillary moisture barrier of 4-inches of clean gravel cushion material such as #3-fine

gravel (ASTM Designation No. 67).

For design of slabs, a modulus of subgrade reaction of 100 pci may be used for the on-site soil or properly compacted structural fill.

The subgrade clayey soil should be kept moist by intermittent sprinkling of water to maintain the in-situ moisture content until non-expansive fill have been placed over the soil. Preparation of the subgrade shall be in accordance with the Site Preparation and Grading section to this report.

#### 7.8 Pavement Design

For design of pavement areas, the recommended pavement sections are as follows:

Gross Vehicle Weight (lbs.)	Representative Vehicle Type	Flexible Pavement			Rigid Pavement	
		AC	Base	Select Borrow	Concrete	Base
10,000 or less	cars, SUVs, pick-up trucks, delivery vehicle	2"	6"	0	5"	6"
10,001 to 32,000	cargo van, delivery truck, small bus	2.5"	6"	6"	6"	6"
over 32,000	semi-tractor trailer, concrete mixer, dump truck, garbage truck, fire truck, loader	3"	6"	12"	6"	8"

The top 6 inches of pavement subgrade, subbase, and base course gravel shall be compacted to at least 95 percent of the maximum dry density (ASTM D1557).

All material quality and compaction requirements for the pavement section shall be in accordance with the Hawaii State Standard Specifications for Road and Bridge Construction, dated 2005.

#### 7.9 Slopes

The maximum recommended slope gradients for cut and fill slopes are 2 horizontal to 1 vertical (2H:1V).

Where cut and fill slopes are greater than 15-feet in vertical height, terraces or benches shall be provided at vertical height intervals of 15-feet except that where only one bench is required, it shall be at the midpoint. The terrace or bench shall be a minimum of eight feet wide and shall be provided with drainage provisions to control erosion on the slope face and bench surface.

Exposed slopes shall be covered as soon as practical after construction to minimize erosion.

Fill slopes shall be constructed by either overfilling and cutting back to compacted soil, or the slope shall be track-rolled.

#### 7.10 Site Preparation and Grading

It is recommended that the site be prepared in the following manner:

- Cleaning and Grubbing:**  
In all areas to receive fill and in structural areas, all vegetation, weeds, roots, stumps, debris, soft soil, old fill, and other deleterious material shall be removed and disposed of off-site.
- Preparation of Ground to Receive Fill:**  
The exposed surface shall then be scarified to a depth of 6 inches, moisture conditioned to near optimum moisture (ASTM D1557) and then compacted to the degree of compaction specified below. If soft spots are encountered, the soft areas shall be removed to firm material and the resulting depression shall be filled with properly compacted fill.
- Types of Fill and Backfill Material:**  
Structural fill and backfill shall be described as material placed beneath buildings and extending a horizontal distance of 3 feet beyond the edge of the building line. Non-structural fill shall be described as material placed beyond 3 feet from the building line.
- Material Quality:**  
Fill and backfill material shall consist of soil which is free of organics and debris. The maximum size particle for fill and backfill material shall be as follows:

Structural Fill	
Top 2 feet below finished subgrade (FSG)	3"
Below 2 feet from FSG	6"
Non-structural fill and Pavement areas	
Top 2 feet from FSG	3"
2 to 6 feet from FSG	6"
Below 6 feet from FSG	12"

Imported structural fill shall have a Unified Soil Classification of either GW, GM, SW, or SM. The plasticity index of the fine portion as determined by the ASTM D4318 test shall be less than 15.

The on-site clayey soil should not be used as fill and backfill material within 12-inches from finished subgrade elevation under building slabs. It may be used as fill below 12-inches from finished subgrade elevations provided the soil is placed at a moisture content of between optimum moisture and 3 percent above optimum moisture, and the degree of compaction shall be between 90 and 95 percent of the maximum dry density. The maximum dry density and optimum moisture shall be determined by the ASTM D1557 test procedure.

- Placement of Fill and Backfill:**  
Each layer of fill and backfill material shall be placed in lifts not exceeding the following (loose thickness):

<b>Structural Fill (including pavement areas)</b>	
Top 2 feet below finished subgrade (FSG)	8"
Below 2 feet from FSG	12"
<b>Non-structural fill</b>	
Top 6 feet from FSG	12"
Below 6 feet from FSG	*

\*The loose thickness of this layer shall not exceed 1.5 times the largest size particle; this is predicated upon proper compaction of each lift.

Prior to placing of fill and backfill material, the material shall be aerated or moistened to near optimum moisture content (ASTM D1557 test procedure).

Where fill is placed on existing ground that is steeper than 5 horizontal to 1 vertical, the existing ground surface shall be benched into firm soil as the fill is placed.

f) Degree of Compaction:

Each layer of fill and backfill shall be thoroughly compacted from edge to edge using conventional compaction equipment designed for the purpose. The minimum degree of compaction for each layer (as determined by the ASTM D1557 test procedure) shall be as follows:

Structural Fill (under and 3 feet beyond the edge of buildings)	95 %
Non-structural fill	* 90 %

\*Where compaction tests are not practical due to the size of the material, each layer shall be compacted by track rolling until it does not weave or creep under the weight of the track rolling equipment (D-8 dozer or larger).

It is particularly important to see that all fill and backfill soils are properly compacted in order for the design parameters to remain applicable.

g) Preparation of Footing Excavations:

Footing excavations shall be cleaned of loose material and soils disturbed by the excavation prior to placing of steel or pouring of concrete. Any soft soil encountered at the bottom of the footing excavation shall be removed to firm material. The resulting depression shall then be backfilled with properly compacted structural fill.

h) Site Drainage:

During construction, drainage shall be provided to minimize ponding of water adjacent to or on foundation and pavement areas. Ponded areas shall be drained immediately. Any subgrade soil that has become soft due to ponding shall be removed to firm material and replaced with compacted structural fill.

8.0 INSPECTION

During the progress of construction, so as to evaluate compliance with the design concepts, specifications and recommendations contained in this report, it is recommended that a representative from Shinsato Engineering be present to observe the following operations:

- 1) Site preparation and grading including field density tests for soil compaction.
- 2) Foundation excavations to verify that suitable bearing material has been encountered at the bottom of foundation excavations.
- 3) Any special inspection services that may apply.

9.0 REMARKS

The conclusions and recommendations contained herein are based on the findings and observations made at the test pit locations. If conditions are encountered during construction which appear to differ from those disclosed by the explorations, this office shall be notified so as to consider the need for modifications.

This report has been prepared for the exclusive use of Highridge Costa Development Company, LLC and their respective design consultants. It shall not be used by or transferred to any other party or to another project without the consent and/or thorough review by this facility. Should the project be delayed beyond the period of one year from the date of this report, the report shall be reviewed relative to possible changed conditions.

Samples obtained in this investigation will deteriorate with time and will be unsuitable for further laboratory tests within one (1) month from the date of this report. Unless otherwise advised, the samples will be discarded at that time.

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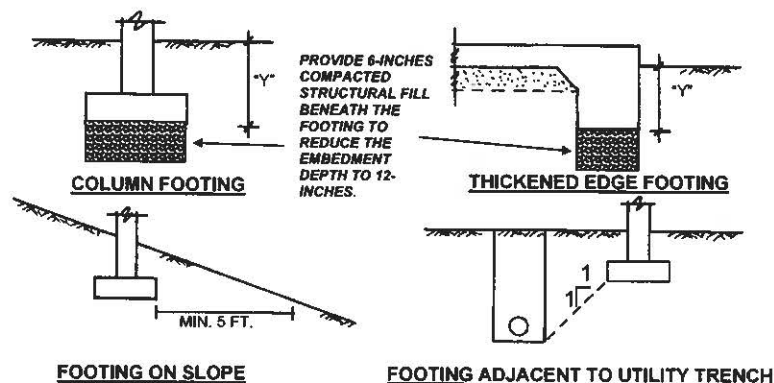
The following are included and complete this report:

Plate

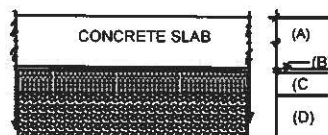
Foundation Design Details	GE-1.0
Vicinity Map	A-1
Plot Plans	A2.1 and A2.2
Logs of Test Pits	TP1 through TP16
Results of Laboratory Tests	L-1 and L-2



- "Y" = min. 18-inches to bottom of footing. This may be reduced to 12-inches by providing 6-inches of compacted structural fill beneath the footing.
- Allowable soil bearing pressure = 2,500 psf for footings bearing on firm on-site soil and/or compacted structural fill.
- Remove any soft soil found at bottom of the footing trench and replace with compacted structural fill.
- Reinforcing details to be provided by others.
- Site Class (2006 and 2012 IBC): D (stiff soil profile)

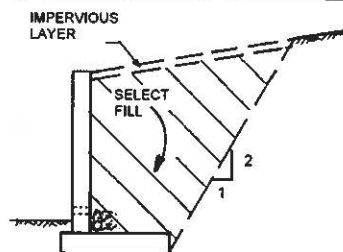


#### FOOTING EMBEDMENT DEPTH DETAILS



- (A) Slab thickness and reinforcing details by others.  
 (B) Vapor retarder  
 (C) Capillary clean gravel fill such as #3-fine; detail by others.  
 (D) If the subgrade soil consists of the on-site elastic SILT, over excavate 12-inches of the elastic SILT and replace it with compacted structural fill beneath interior type floor slabs; any capillary gravel fill may be considered as a part of the 12-inch thickness; Provide 8-inches for exterior slabs.

#### SLAB-ON-GRADE



Provide backfill drainage using weepholes or a footing drain; Cap the top 12-inches of backfill with an impervious layer (clayey soil, concrete AC, etc.)  
 If the on-site clayey soil is used as backfill material in lieu of select (granular) fill, design the wall for a higher active earth pressure.

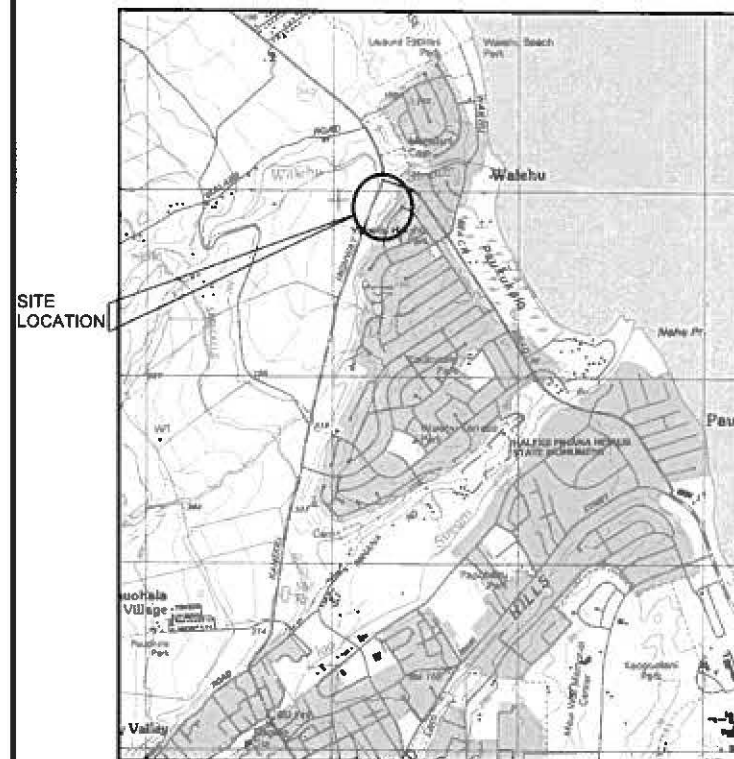
#### RETAINING WALL BACKFILL

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 Project No. 20-0094

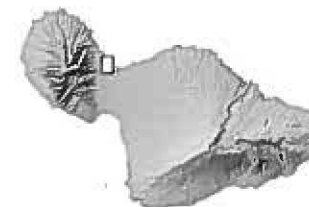
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 98-747 Kuahao Pl. Pearl City, HI 96782

PLATE  
 GE-1.0

#### VICINITY MAP



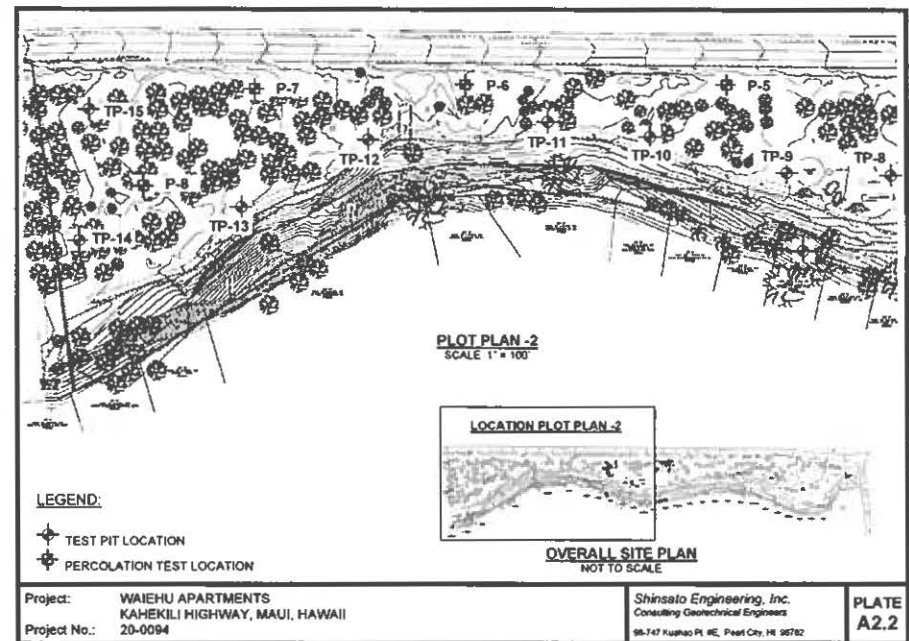
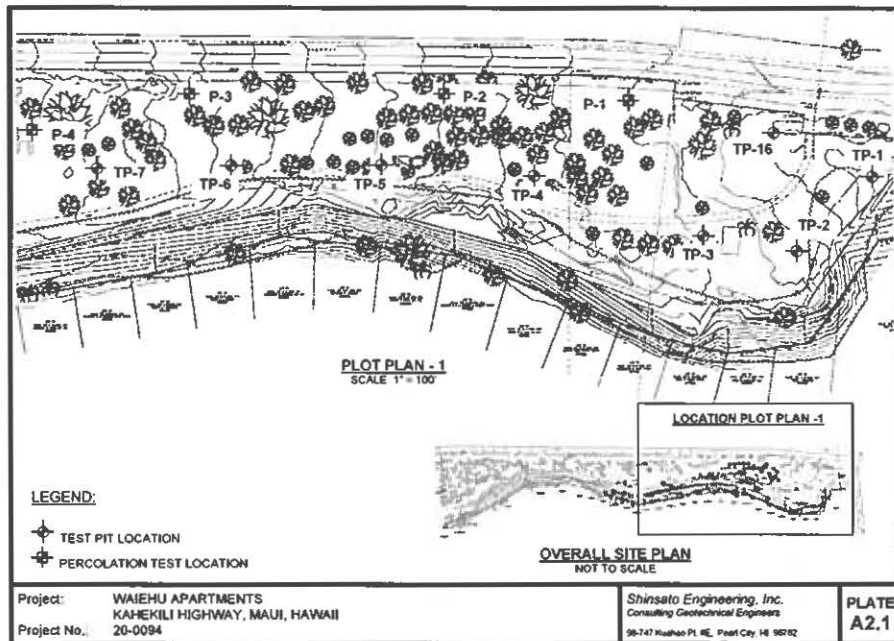
REFERENCE:  
 USGS TOPOGRAPHIC MAP  
 WAILUKU QUADRANGLE  
 DATED 1997  
 SCALE: 1"=2000'



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PLATE  
 A1



LOG OF TEST PIT NO. 1				ELEVATION: Unknown							
EQUIPMENT USED: CASE 580M BACKHOE				DEPTH OF TEST PIT (FT.): 8.5							
DATE EXCAVATED: November 9, 2020				DEPTH TO GROUNDWATER (FT.): Unknown							
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with cobbles, gravel and sand, some organic debris with roots		brown	slightly moist	medium stiff		8.8		
1											
2		SM	silty SAND, mild organic odor		gray brown	very moist	loose - medium dense		32.3		
3											
4											
5											
6							medium dense				
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

LOG OF TEST PIT NO. 2				ELEVATION: Unknown							
EQUIPMENT USED: CASE 580M BACKHOE				DEPTH OF TEST PIT (FT.): 7							
DATE EXCAVATED: November 9, 2020				DEPTH TO GROUNDWATER (FT.): Unknown							
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		SM	silty SAND, with gravel, some cobbles		light brown	slightly moist	loose - medium dense				
1											
2			-few boulders						10.7		
3											
4			-less fines, few cemented areas						4.2		
5							medium dense				
6			-with boulders								
7			-more boulders, with cobbles, gravel END OF TEST PIT				dense				
8											
9											
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

LOG OF TEST PIT NO. 3											
ELEVATION: Unknown											
EQUIPMENT USED: CASE 580M BACKHOE											
DATE EXCAVATED: November 9, 2020											
DEPTH OF TEST PIT (FT.): 7											
DEPTH TO GROUNDWATER (FT.): Unknown											
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		SM	silty SAND, with gravel, some metallic debris		light brown	slightly moist	loose				
1		SP	SAND, -no debris, with fines		tan				5.7		
2											
3		SM	silty SAND, few gravel, old water lines		brown	moist	medium dense				
4											
5											
6											
7			END OF TEST PIT								
8											
9											
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

LOG OF TEST PIT NO. 4											
ELEVATION: Unknown											
EQUIPMENT USED: CASE 580M BACKHOE											
DATE EXCAVATED: November 9, 2020											
DEPTH OF TEST PIT (FT.): 7											
DEPTH TO GROUNDWATER (FT.): Unknown											
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with sand, few gravel		light brown	slightly moist	medium stiff				
1											
2											
3									19.8		
4											
5											
6											
7			END OF TEST PIT								
8											
9											
10											
11											
12											
13											
14											
15											

Project:	WAIIEHU APARTMENTS KAHEKILI HIGHWAY, MAUI, HAWAII	SHINSATO ENGINEERING, INC. CONSULTING GEOTECHNICAL ENGINEERS 98-747 Kuahao Place, #E, Pearl City, HI 96782	PLATE TP4
Project No.:	20-0094		



**LOG OF TEST PIT NO. 5**EQUIPMENT USED: CASE 580M Backhoe  
DATE EXCAVATED: November 9, 2020ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 8.6  
DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORQUE STRENGTH (TSF)
0		MH	elastic SILT, with sand, few gravel		light brown	slightly moist	medium stiff				
1											
2			—small black irrigation hose								
3											
4											
5											
6											
7			—with cobbles								
8		MH	elastic SILT, with sand, few gravel								
9			END OF TEST PIT								
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
Project No.: 20-0094SHINSATO ENGINEERING, INC.  
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98-747 Kuahao Place, #E, Pearl City, HI 96782PLATE  
TP5**LOG OF TEST PIT NO. 6**EQUIPMENT USED: CASE 580M BACKHOE  
DATE EXCAVATED: November 9, 2020ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 8  
DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORQUE STRENGTH (TSF)
0		MH	elastic SILT, with sand, few gravel		light brown	slightly moist	medium stiff				
1											
2											
3											
4											
5											
6											
7		SM	silty SAND				loose to medium dense		18.3		
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
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TP6

LOG OF TEST PIT NO. 7											
ELEVATION: Unknown											
EQUIPMENT USED: CASE 580M BACKHOE											
DATE EXCAVATED: November 9, 2020											
DEPTH OF TEST PIT (FT.): 8											
DEPTH TO GROUNDWATER (FT.): Unknown											
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with sand, few gravel		light brown	slightly moist	medium stiff				
1											
2											
3											
4											
5		SP-SM	SAND, with fines		tan		loose				
6		SM	silty SAND,		light brown		medium dense				
7			-small layer of gravel						16.2		
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

LOG OF TEST PIT NO. 8											
ELEVATION: Unknown											
EQUIPMENT USED: CASE 580M BACKHOE											
DATE EXCAVATED: November 9, 2020											
DEPTH OF TEST PIT (FT.): 9											
DEPTH TO GROUNDWATER (FT.): Unknown											
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with sand, few gravel		light brown	slightly moist	medium stiff				
1											
2											
3											
4		GP-GM	GRAVEL, with sand and fines		light gray		loose				
5		SM	silty SAND, few gravel		tan		loose - medium dense				
6											
7											
8											
9			END OF TEST PIT								
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

**LOG OF TEST PIT NO. 9**  
 EQUIPMENT USED: CASE 680M BACKHOE  
 DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
 DEPTH OF TEST PIT (FT.): 7.5  
 DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with sand, some gravel, few cobbles		light brown	slightly moist	medium stiff		12.1		
1											
2		SP-SM	SAND, some gravel and cobbles, trace fines		tan		medium dense		6.1		
3											
4											
5											
6											
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIHEHU APARTMENTS  
 KAHEKILI HIGHWAY, MAUI, HAWAII  
 Project No.: 20-0094

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PLATE TP9

**LOG OF TEST PIT NO. 10**  
 EQUIPMENT USED: CASE 680M BACKHOE  
 DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
 DEPTH OF TEST PIT (FT.): 7.5  
 DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with sand, some gravel		brown	slightly moist	medium stiff				
1									13.5		
2											
3		SM	silty SAND, some gravel, few cobbles		light brown		loose - medium dense		16.3		
4											
5											
6											
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIHEHU APARTMENTS  
 KAHEKILI HIGHWAY, MAUI, HAWAII  
 Project No.: 20-0094

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PLATE TP10

**LOG OF TEST PIT NO. 11**  
EQUIPMENT USED: CASE 580M BACKHOE  
DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 8.5  
DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with gravel and sand, few cobbles		brown	slightly moist	medium stiff		15.7		
1											
2											
3		SP-SM	SAND, with gravel and fines, few cobbles		tan		loose - medium dense				
4											
5		MH	SILT, with gravel and sand		light brown		medium stiff				
6											
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
Project No.: 20-0094

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**PLATE TP11**

**LOG OF TEST PIT NO. 12**  
EQUIPMENT USED: CASE 580M BACKHOE  
DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 7.5  
DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		GM	silty GRAVEL, with sand and cobbles, few boulders		tan	slightly moist	medium dense				
1											
2											
3											
4											
5											
6		SP-SM	SAND, with gravel and fines, few cobbles								
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
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**PLATE TP12**



LOG OF TEST PIT NO. 13				ELEVATION: Unknown							
EQUIPMENT USED: CASE 580M BACKHOE				DEPTH OF TEST PIT (FT.): 8							
DATE EXCAVATED: November 10, 2020				DEPTH TO GROUNDWATER (FT.): Unknown							
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	SILT, with gravel and sand, few cobbles		light brown	slightly moist	medium stiff				
1											
2		SM	silly SAND		tan		loose - medium dense				
3											
4									5.4		
5											
6											
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project:	WAIIEHU APARTMENTS KAHEKILI HIGHWAY, MAUI, HAWAII	SHINSATO ENGINEERING, INC. CONSULTING GEOTECHNICAL ENGINEERS 98-747 Kuahao Place, #E, Pearl City, HI 96782	PLATE TP13
Project No.:	20-0094		

LOG OF TEST PIT NO. 14				ELEVATION: Unknown							
EQUIPMENT USED: CASE 580M BACKHOE				DEPTH OF TEST PIT (FT.): 8							
DATE EXCAVATED: November 10, 2020				DEPTH TO GROUNDWATER (FT.): Unknown							
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED SOIL CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with gravel and sand, few cobbles		light brown	slightly moist	medium stiff				
1											
2									14.7		
3											
4											
5											
6											
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

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Project No.:	20-0094		

**LOG OF TEST PIT NO. 15**  
EQUIPMENT USED: CASE 580M BACKHOE  
DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 8  
DEPTH TO GROUNDWATER (FT.): Unknown

DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT,		light brown	slightly moist	medium stiff				
1											
2		GP-GM	GRAVEL, with sand and fines, some cobbles		tan		medium dense				
3									10.5		
4											
5		SP-SM	SAND, with gravel and fines, some cobbles								
6											
7									10.4		
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
Project No.: 20-0094

SHINSATO ENGINEERING, INC.  
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98-747 Kuahao Place, #E, Pearl City, HI 96782

PLATE  
TP15

**LOG OF TEST PIT NO. 16**  
EQUIPMENT USED: CASE 580M BACKHOE  
DATE EXCAVATED: November 10, 2020

ELEVATION: Unknown  
DEPTH OF TEST PIT (FT.): 8  
DEPTH TO GROUNDWATER (FT.): Unknown

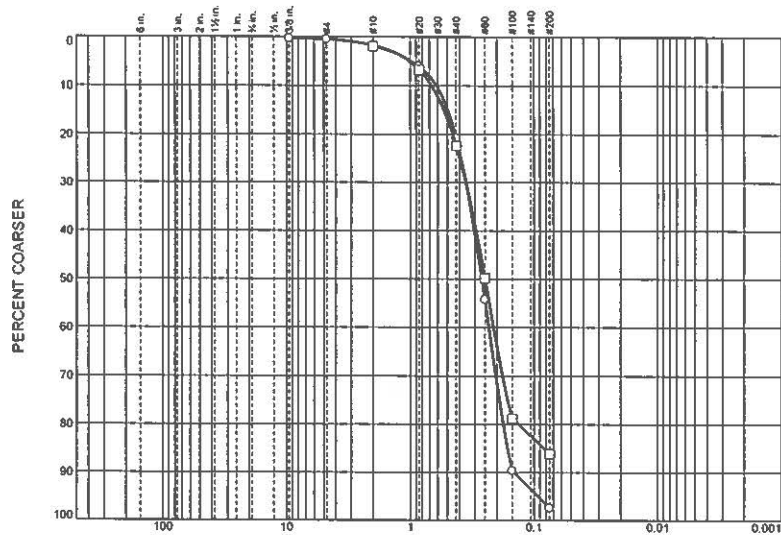
DEPTH (FT.)	GRAPHIC SYMBOL	UNIFIED CLASSIFICATION	DESCRIPTION	SAMPLE	COLOR	MOISTURE	CONSISTENCY	DRY DENSITY (PCF)	MOISTURE CONTENT (% OF DRY WT.)	PENETROMETER (TSF)	TORVANE STRENGTH (TSF)
0		MH	elastic SILT, with gravel and sand, some cobbles		light brown	slightly moist	medium stiff				
1									20.8		
2											
3			-no cobble, few gravel						26.5		
4											
5		SM	silty SAND		brown	moist	medium dense				
6									28.3		
7											
8			END OF TEST PIT								
9											
10											
11											
12											
13											
14											
15											

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII  
Project No.: 20-0094

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98-747 Kuahao Place, #E, Pearl City, HI 96782

PLATE  
TP16

## Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
<input type="checkbox"/>			1.2	19.1	76.7	2.5	
<input type="checkbox"/>			20.4	63.8	13.9		
<input type="checkbox"/>							
<input type="checkbox"/>							

### SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	3	1	1.0	SAND	SP
□	13	1	4.0	silty SAND	SM

SHINSATO ENGINEERING, INC.

Pearl City, HI

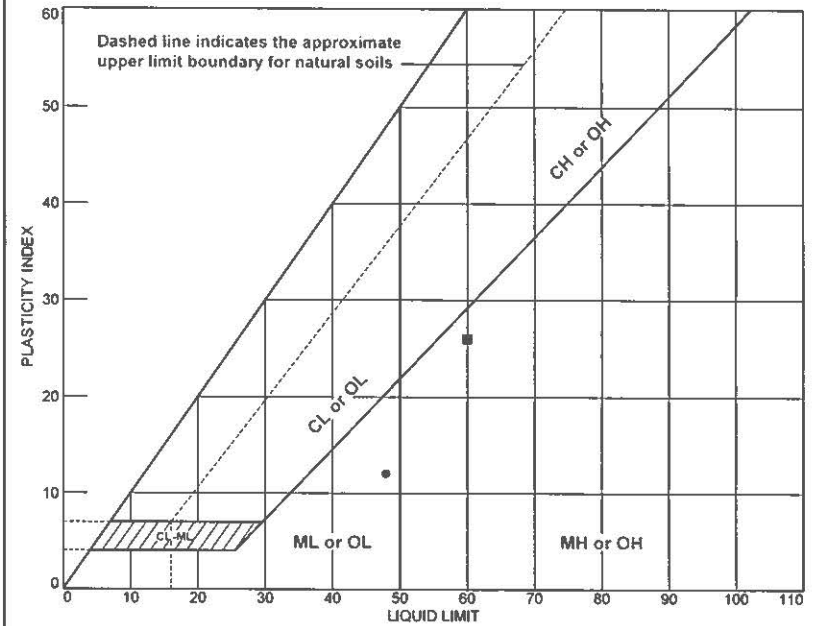
Client:

Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII

Project No.: 20-0094

Figure L-1

## ATTERBERG LIMITS



### SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	1	2	3.0	32.3	36	48	12	SM
■	16	2	3.0	26.5	34	60	26	MH

SHINSATO ENGINEERING, INC.

Pearl City, HI

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Project: WAIIEHU APARTMENTS  
KAHEKILI HIGHWAY, MAUI, HAWAII

Project No.: 20-0094

Figure L-2



**PHASE I ENVIRONMENTAL  
SITE ASSESSMENT REPORT**

**Southeast Corner of Kahekili  
Highway & Waiehu Beach Road**  
Maui Island, Hawaii 96793

Report Date: July 2, 2020  
Partner Project No. 20-283903.1



Prepared for:  
**Highridge Costa Development Company, LLC**  
330 West Victoria Street  
Gardena, California 90248

July 2, 2020

Mr. Harrison Herzberg  
Highridge Costa Development Company, LLC  
330 West Victoria Street  
Gardena, California 90248

Subject: Phase I Environmental Site Assessment  
Southeast Corner of Kahekili Highway & Waiehu Beach Road  
Maui Island, Hawaii 96793  
Partner Project No. 20-283903.1

Dear Mr. Harrison Herzberg:

Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the *Phase I Environmental Site Assessment* (Phase I ESA) report of the abovementioned address (the "subject property"). This assessment was performed in conformance with the scope and limitations as detailed in the ASTM Practice E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

This assessment included a site reconnaissance as well as research and interviews with representatives of the public, property ownership, site manager, and regulatory agencies. An assessment was made, conclusions stated, and recommendations outlined.

We appreciate the opportunity to provide environmental services to you. If you have any questions concerning this report, or if we can assist you in any other matter, please contact me at 310-765-7271.

Sincerely,

Lyly Churchill, MA  
Relationship Manager



## EXECUTIVE SUMMARY

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in accordance with the scope of work and limitations of ASTM Standard Practice E1527-13, the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) and set forth by Highridge Costa Development Company, LLC for the property located at Southeast Corner of Kahekili Highway & Waiehu Beach Road in Wailuku, Maui County, Hawaii (the "subject property"). The Phase I Environmental Site Assessment is designed to provide Highridge Costa Development Company, LLC with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the subject property.

### Property Description

The subject property is located on the southeast corner of Kahekili Highway and Waiehu Beach Road within a residential area of Maui County. Please refer to the table below for further description of the subject property:

Subject Property Data	
Address:	Southeast Corner of Kahekili Highway & Waiehu Beach Road, Wailuku, Hawaii
Property Use:	Vacant
Land Acreage (Ac):	13.248 Ac
Number of Buildings:	None
Assessor's Parcel Number (APN):	330011060000
Current Tenants:	Vacant
Site Assessment Performed By:	Josh Barton of Partner
Site Assessment Conducted On:	June 8, 2020

The subject property is generally vacant land with water storage tanks, sheds, water well pump, and planter boxes located throughout the property. The property appears to have been most recently used for agricultural purposes. There are currently no onsite operations. The property consists of various species of trees and native grasses. According to Mr. Don Medeiros, key site manager, the property was formerly used to grow native Hawaiian fruits and vegetables.

According to available historical sources, the subject property appears to have been used agriculturally by 1922, and developed with an orchard by 2010 to 2019. The subject property is currently unused, but the structures remain.

The immediately surrounding properties consist of wooded land and a cemetery to the north across Waiehu Beach Road; undeveloped wooded land to the south; a residential neighborhood to the east; and undeveloped wooded land to the west across Kahekili Highway.

According to online research and topographic map interpretation, the depth to groundwater in the vicinity of the subject property is inferred to be approximately 3 to 15 feet below ground surface (bgs) and groundwater flow is inferred to be toward the northeast.

## Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property; due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- The subject property was historically used for agricultural purposes. There is a potential that typical agricultural chemicals such as pesticides, herbicides, and fertilizers may have been used and stored on-site. Because residential development is proposed, the possible historical use of agricultural chemicals use is a REC.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner observed a possible water well located in a wooden shed structure. The presence of this well provides access to groundwater, which could result in future environmental exposure and liabilities.
- The drainage ditch along or adjacent to the eastern perimeter is a mapped Riverine habitat according to the United States Fish & Wildlife Service. A comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property.

## Conclusions, Opinions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of Southeast Corner of Kahekili Highway & Waiehu Beach Road in Wailuku, Maui County, Hawaii (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed evidence of a recognized environmental condition and environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends the following:

- Prior to residential development, a limited subsurface investigation should be conducted in order to determine the presence or absence of historical agricultural chemicals onsite.
- The possible water well located in the wooden shed structure should be decommissioned in accordance with application regulations.

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## 1.0 INTRODUCTION

Partner Engineering and Science, Inc. (Partner) has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of ASTM Standard Practice E1527-13 and the Environmental Protection Agency Standards and Practices for All Appropriate Inquiries (AAI) (40 CFR Part 312) for the property located at Southeast Corner of Kahekili Highway & Waiehu Beach Road in Wailuku, Maui County, Hawaii (the "subject property"). Any exceptions to, or deletions from, this scope of work are described in the report.

### 1.1 Purpose

The purpose of this ESA is to identify existing or potential Recognized Environmental Conditions (as defined by ASTM Standard E1527-13) affecting the subject property that: 1) constitute or result in a material violation or a potential material violation of any applicable environmental law; 2) impose any material constraints on the operation of the subject property or require a material change in the use thereof; 3) require clean-up, remedial action or other response with respect to Hazardous Substances or Petroleum Products on or affecting the subject property under any applicable environmental law; 4) may affect the value of the subject property; and 5) may require specific actions to be performed with regard to such conditions and circumstances. The information contained in the ESA Report will be used by Client to: 1) evaluate its legal and financial liabilities for transactions related to foreclosure, purchase, sale, loan origination, loan workout or seller financing; 2) evaluate the subject property's overall development potential, the associated market value and the impact of applicable laws that restrict financial and other types of assistance for the future development of the subject property; and/or 3) determine whether specific actions are required to be performed prior to the foreclosure, purchase, sale, loan origination, loan workout or seller financing of the subject property.

This ESA was performed to permit the User to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 U.S.C. §9601) liability (hereinafter, the "landowner liability protections," or "LLPs"). ASTM Standard E1527-13 constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice" as defined at 42 U.S.C. §9601(35)(B).

### 1.2 Scope of Work

The scope of work for this ESA is in accordance with the requirements of ASTM Standard E1527-13. This assessment included: 1) a property and adjacent site reconnaissance; 2) interviews with key personnel; 3) a review of historical sources; 4) a review of regulatory agency records; and 5) a review of a regulatory database report provided by a third-party vendor. Partner contacted local agencies, such as environmental health departments, fire departments and building departments in order to determine any current and/or former hazardous substances usage, storage and/or releases of hazardous substances on the subject property. Additionally, Partner researched information on the presence of activity and use limitations (AULs) at these agencies. As defined by ASTM E1527-13, AULs are the legal or physical restrictions or limitations on the use of, or access to, a site or facility; 1) to reduce or eliminate potential exposure to hazardous substances or petroleum products in the soil or groundwater on the subject

property; or 2) to prevent activities that could interfere with the effectiveness of a response action, in order to ensure maintenance of a condition of no significant risk to public health or the environment. These legal or physical restrictions, which may include institutional and/or engineering controls (IC/ECs), are intended to prevent adverse impacts to individuals or populations that may be exposed to hazardous substances and petroleum products in the soil or groundwater on the property.

If requested by Client, this report may also include the identification, discussion of, and/or limited sampling of asbestos-containing materials (ACMs), lead-based paint (LBP), mold, and/or radon.

### 1.3 Limitations

Partner warrants that the findings and conclusions contained herein were accomplished in accordance with the methodologies set forth in the Scope of Work. These methodologies are described as representing good commercial and customary practice for conducting an ESA of a property for the purpose of identifying recognized environmental conditions. There is a possibility that even with the proper application of these methodologies there may exist on the subject property conditions that could not be identified within the scope of the assessment or which were not reasonably identifiable from the available information. Partner believes that the information obtained from the record review and the interviews concerning the subject property is reliable. However, Partner cannot and does not warrant or guarantee that the information provided by these other sources is accurate or complete. The conclusions and findings set forth in this report are strictly limited in time and scope to the date of the evaluations. The conclusions presented in the report are based solely on the services described therein, and not on scientific tasks or procedures beyond the scope of agreed-upon services or the time and budgeting restraints imposed by the Client. No other warranties are implied or expressed.

Some of the information provided in this report is based upon personal interviews, and research of available documents, records, and maps held by the appropriate government and private agencies. This report is subject to the limitations of historical documentation, availability, and accuracy of pertinent records, and the personal recollections of those persons contacted.

This practice does not address requirements of any state or local laws or of any federal laws other than the all appropriate inquiry provisions of the LLPs. Further, this report does not intend to address all of the safety concerns, if any, associated with the subject property.

Environmental concerns, which are beyond the scope of a Phase I ESA as defined by ASTM include the following: ACMs, LBP, radon, and lead in drinking water. These issues may affect environmental risk at the subject property and may warrant discussion and/or assessment; however, are considered non-scope issues. If specifically requested by the Client, these non-scope issues are discussed in Section 6.3.

### 1.4 User Reliance

Highridge Costa Development Company, LLC engaged Partner to perform this assessment in accordance with an agreement governing the nature, scope and purpose of the work as well as other matters critical to the engagement. All reports, both verbal and written, are for the sole use and benefit of Highridge Costa Development Company, LLC. Either verbally or in writing, third parties may come into possession of this report or all or part of the information generated as a result of this work. In the absence of a written agreement with Partner granting such rights, no third parties shall have rights of recourse or recovery

whatsoever under any course of action against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such Use. Unauthorized use of this report shall constitute acceptance of and commitment to these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted. Additional legal penalties may apply.

### 1.5 Limiting Conditions

The findings and conclusions contain all of the limitations inherent in these methodologies that are referred to in ASTM E1527-13.

Specific limitations and exceptions to this ESA are more specifically set forth below:

- Interviews with past or current owners, operators and occupants were not reasonably ascertainable and thus constitute a data gap. Based on information obtained from other historical sources (as discussed in Section 3.0), this data gap is not expected to alter the findings of this assessment.
- Information relative to deed restrictions and environmental liens, a title search, and completion of the AAI User Questionnaire from the Report User was not provided at the time of the assessment.
- Partner was not able to document the historical use of the subject property prior to 1922. The following sources were reviewed during the course of this assessment and found to be limited: aerial photographs were not available prior to 1950; city directories were not available prior to 1992; topographic maps prior to 1922 were not reasonably ascertainable from local agencies; and other historical sources such as fire insurance maps did not provide coverage of the subject property. This data failure is not considered critical and does not change the conclusions of this report, as the 1950 aerial photograph revealed the subject property to be undeveloped or agricultural land. In addition, the adjacent and surrounding areas are shown mostly as farmland.
- Partner submitted Freedom of Information Act (FOIA) requests to Hawaii Department of Health – Safe Drinking Water Branch (DOH-SDWB) for information pertaining to hazardous substances, underground storage tanks, releases, inspection records, etc. for the subject property and/or adjacent properties. As of this writing, this agency has not responded to Partner's request. Based on information obtained from other historical sources, this limitation is not expected to alter the overall findings of this assessment.

Due to time constraints associated with this report, the Client has requested the report despite the above-listed limitations.



## 2.0 SITE DESCRIPTION

### 2.1 Site Location and Legal Description

The subject property is located at the southeast corner of Kahekili Highway and Waiehu Beach Road. According to the Maui County Assessor, the subject property is legally described as LOT 1-C Paukukalo Large-Lot Subdivision Por GR 3343, and ownership has been vested in Maui Economic Opportunity Inc. since 2006.

Please refer to Figure 1: Site Location Map, Figure 2: Site Plan, Figure 3: Topographic Map, and Appendix A: Site Photographs for the location and site characteristics of the subject property.

### 2.2 Current Property Use

The subject property is generally vacant land with water storage tanks, sheds, water well pump, and planter boxes located throughout the property. The property appears to have been most recently used for agricultural purposes. There are currently no onsite operations. The property consists of various species of trees and native grasses. According to Mr. Don Medeiros, key site manager, the property was formerly used to grow native Hawaiian fruits and vegetables.

The subject property is designated for agriculture development by Maui County.

The subject property was not identified in the regulatory database report of Section 4.2.

### 2.3 Current Use of Adjacent Properties

The subject property is located within a residential area of Maui County. During the vicinity reconnaissance, Partner observed the following land use on properties in the immediate vicinity of the subject property:

#### **Immediately Surrounding Properties**

**North:** Waiehu Beach Road beyond which is wooded land and a cemetery

**South:** Undeveloped wooded land

**East:** A residential neighborhood

**West:** Kahekili Highway beyond which is undeveloped wooded land

No adjacent properties were identified in the regulatory database report of Section 4.2.

### 2.4 Physical Setting Sources

#### 2.4.1 Topography

The United States Geological Survey (USGS) *Wailuku, Hawaii* Quadrangle 7.5-minute series topographic map was reviewed for this ESA. According to the contour lines on the topographic map, the subject property is located at a range of approximately 60 to 160-feet above mean sea level (MSL). The contour lines in the area of the subject property indicate the area is sloping moderately toward the northwest. Improvements, with the exception of roadways, are not depicted on the 2013 map. The subject property is depicted agriculturally on the 1997 with no specific improvements.

A copy of the most recent topographic map is included as Figure 3 of this report.

#### 2.4.2 Hydrology

According to topographic map interpretation, the direction of groundwater flow in the vicinity of the subject property is inferred to be toward the northeast. The nearest surface water in the vicinity of the subject property is the Waiehu Stream located approximately 110-feet north of the subject property. A drainage ditch runs along the eastern perimeter of the property. No other settling ponds, lagoons, surface impoundments, wetlands or natural catch basins were observed at the subject property during this assessment.

According to available information, a public water system operated by the Maui County Department of Water Supply serves the subject property vicinity. According to available information, shallow groundwater directly beneath the subject property may be utilized for domestic purposes. The sources of public water for the Wailuku System (central/south Maui) are primarily groundwater sources as well as surface waters.

Information specific to the subject property regarding the depth to groundwater and direction of groundwater flow was not available for the subject area. However, according to information obtained from online research, depth to the high-water table is anticipated between 3 and 15 feet below ground surface (bgs).

#### 2.4.3 Geology/Soils

According to the U.S. Geological Survey, the geologic formation underlying the soils at the subject property is the Kula Volcanic rock from the Pleistocene series, specifically from lava flows.

Based on information obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service Web Soil Survey online database, the subject property is mapped as Molokai silty clay loam. These soils formed in material weathered from basic igneous rock and is found on smooth slopes. The soil is well drained, and slightly acidic to neutral. Permeability is moderate, runoff is low, and erosion hazard is slight. These soils are used for sugarcane, pineapple, pasture, wildlife habitat and residential sites. The natural vegetation consists of kiawe, ilima, uhaloa, feather fingergrass and buffelgrass. Slopes range from 0 to 3 percent.

#### 2.4.4 Flood Zone Information

Partner performed a review of the Flood Insurance Rate Map, published by the Federal Emergency Management Agency. According to Community Panel Number 1500030383E, dated September 25, 2009, the subject property appears to be located in Zone X, an area located outside of the 100-year and 500-year flood plains.

A copy of the reviewed flood map is not included in Appendix B of this report.

### 3.0 HISTORICAL INFORMATION

Partner obtained historical use information about the subject property from a variety of sources. A chronological listing of the historical data found is summarized in the table below:

#### Historical Use Information

Period/Date	Source	Description/Use
1922-1950	Topographic Maps	Undeveloped or agricultural land
1950-circa 2019	Aerial Photographs, Interviews, Topographic Maps	Agricultural land, with an orchard and small structures appearing since 2010
Present	Aerial Photographs, Interviews	Vacant with small structures remaining

The subject property was historically used for agricultural purposes. There is a potential that typical agricultural chemicals such as pesticides, herbicides, and fertilizers may have been used and stored on-site. Because residential development is proposed, sampling pertaining to the historical agricultural use is recommended.

#### 3.1 Aerial Photograph Review

Partner obtained available aerial photographs of the subject property and surrounding area from Environmental Data Resources (EDR) and from Google Earth (as noted) on June 8, 2020. The following was observed on the subject property and adjacent properties during the aerial photograph review:

Date:	1950	Scale:	1"=500'
<b>Subject Property:</b>	The property appears to be mostly agricultural. A ditch runs along the eastern perimeter of the property.		
<b>North:</b>	Appears to be developed with small structures such as residences and wooded land.		
<b>South:</b>	Appears to be developed for agriculture use		
<b>East:</b>	Appears to be undeveloped land		
<b>West:</b>	Appears to be agriculture land beyond a road		

Date:	1976	Scale:	1"=500'
<b>Subject Property:</b>	No significant changes visible		
<b>North:</b>	Appears to be wooded land beyond a road		
<b>South:</b>	No significant changes visible		
<b>East:</b>	Appears to be graded for residential development beyond wooded land		
<b>West:</b>	No significant changes visible		

Date:	2010*, 2011*	Scale:	1"=500'
<b>Subject Property:</b>	The property appears to contain orchards with cleared areas and small structures. A round water tank is located on the central portion of the property.		
<b>North:</b>	No significant changes visible		
<b>South:</b>	Appears to be wooded land		
<b>East:</b>	Developed with a residential neighborhood		
<b>West:</b>	No significant changes visible		

Date:	2012*, 2013*, 2016*	Scale:	1"=500'
<b>Subject Property:</b>	Appears to be developed with orchards, agriculture structures including water tank,		

Date:	2012*, 2013*, 2016*	Scale:	1"=500'
	sheds, planting beds, and pathways.		
<b>North:</b>	No significant changes visible		
<b>South:</b>	No significant changes visible		
<b>East:</b>	No significant changes visible		
<b>West:</b>	No significant changes visible		

\*Images viewed from Google Earth.

Copies of select aerial photographs are included in Appendix B of this report.

#### 3.2 Fire Insurance Maps

Sanborn map coverage was not available for the subject property.

A copy of the Certified Sanborn Map Report is included in Appendix B.

#### 3.3 City Directories

City directories were not identified for the subject property. Properties in the vicinity area identified as residential listings.

Copies of reviewed city directories are included in Appendix B of this report.

#### 3.4 Historical Topographic Maps

Partner reviewed historical topographic maps obtained from EDR on June 5, 2020. The following was observed on the subject property and adjacent properties during the topographic map review:

Date:	1922
<b>Subject Property:</b>	Appears to be undeveloped with a railroad track along or adjacent to the eastern perimeter
<b>North:</b>	Appears to be undeveloped
<b>South:</b>	Appears to be undeveloped with a possible railroad track
<b>East:</b>	Appears to be undeveloped
<b>West:</b>	Appears to be undeveloped beyond a road

Date:	1955, 1961
<b>Subject Property:</b>	Appears to be undeveloped
<b>North:</b>	Appears to be wooded land followed by a road and cemetery. A stream tracks east to west at the northern perimeter of the subject property.
<b>South:</b>	Appears to be undeveloped
<b>East:</b>	Appears to be undeveloped
<b>West:</b>	Appears to be undeveloped beyond a highway

Date:	1983, 1997, 2013
<b>Subject Property:</b>	No significant changes depicted
<b>North:</b>	Appears to be vacant land and a cemetery beyond a road
<b>South:</b>	No significant changes depicted
<b>East:</b>	Appears to be developed with a residential neighborhood
<b>West:</b>	No significant changes depicted

Copies of reviewed topographic maps are included in Appendix B of this report.



## 4.0 REGULATORY RECORDS REVIEW

### 4.1 Regulatory Agencies

#### 4.1.1 State Department

##### Regulatory Agency Data

**Name of Agency:** Hawaii Department of Health – Office of Hazard Evaluation and Emergency Response (DOH-HEER)  
**Point of Contact:** Ms. Rosa Lu  
**Agency Address:** 2385 Waimano Home Road, Pearl City, Hawaii  
**Agency Phone Number:** (808) 586-4249  
**Date of Contact:** June 9, 2020  
**Method of Communication:** Faxed Request  
**Summary of Communication:** No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the DOH-HEER.

#### 4.1.2 Health Department

##### Regulatory Agency Data

**Name of Agency:** Hawaii Department of Health - Solid and Hazardous Waste (DOH-SHWB)  
**Point of Contact:** Ms. Amy Susana  
**Agency Address:** 2827 Waimano Home Road, Pearl City, Hawaii  
**Agency Phone Number:** (808) 586-4226  
**Date of Contact:** June 9, 2020  
**Method of Communication:** Faxed Request  
**Summary of Communication:** No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the DOH-SHWB.

#### 4.1.3 Fire Department

##### Regulatory Agency Data

**Name of Agency:** Maui Fire Department (MFD)  
**Point of Contact:** Mr. Paul Haake  
**Agency Address:** 313 Manea Place, Wailuku, Hawaii  
**Agency Phone Number:** (808) 876-4690  
**Date of Contact:** June 9, 2020  
**Method of Communication:** Faxed Request  
**Summary of Communication:** No records regarding hazardous substance use, storage or releases, or the presence of USTs and AULs on the subject property were on file with the MFD.

#### 4.1.4 Regional Water Quality Agency

##### Regulatory Agency Data

**Name of Agency:** Hawaii Department of Health – Safe Drinking Water Branch (DOH-SDWB)  
**Point of Contact:** Norris Uehara  
**Agency Address:** 2385 Waimano Home Road, Pearl City, Hawaii  
**Agency Phone Number:** (808) 586-4258  
**Date of Contact:** June 9, 2020  
**Method of Communication:** Faxed Request  
**Summary of Communication:** As of the date of this report, Partner has not received a response from the DOH-SDWB for inclusion in this report.

#### 4.1.5 Building Department

##### Regulatory Agency Data

**Name of Agency:** Maui Building Department (MBD)  
**Agency Address:** 700 Halia Nakoa Street, Wailuku, Hawaii  
**Agency Phone Number:** (808) 270-7735  
**Date of Contact:** June 24, 2020  
**Method of Communication:** Online  
**Summary of Communication:** The MBD online database indicates several permits dating from as early as 1973. The mapping tool indicates that the subject property is part of a larger parcel where permit information was found. Many permits are associated with a subdivision. There is a permit for well and tank site from 1996 and 1977. No other details are given. Based on the larger parcel, aerial photograph showing the subject property as undeveloped or agricultural land during this time frame, and the tank most likely being associated with a water well, these findings do not represent an environmental concern.

#### 4.1.6 Planning Department

##### Regulatory Agency Data

**Name of Agency:** Maui County Planning Department (MCPD)  
**Agency Address:** One Main Plaza, 2200 Main Street, Wailuku, Hawaii  
**Agency Phone Number:** (808) 270-7735  
**Date of Contact:** June 24, 2020  
**Method of Communication:** Online  
**Summary of Communication:** According to records reviewed, the subject property is zoned AG for agriculture development by Maui County.

#### 4.1.7 Assessor's Office

##### Regulatory Agency Data

**Name of Agency:** Maui County Real Property Tax (MCRPT)  
**Agency Address:** 100 Ainoa Street, Kaunakakai, Hawaii  
**Agency Phone Number:** (808) 270-7297  
**Date of Contact:** June 24, 2020  
**Method of Communication:** Online  
**Summary of Communication:** According to records reviewed, the subject property is identified by

#### Regulatory Agency Data

Assessor Parcel Number (APN) 330011060000 and has been owned by Maui Economic Opportunity Inc. since 2006. The parcel measures 11.476-acres.

Copies of pertinent documents are included in Appendix B of this report.

#### 4.2 Mapped Database Records Search

Information from standard federal, state, county, and city environmental record sources was provided by Environmental Data Resources, Inc. (EDR). Data from governmental agency lists are updated and integrated into one database, which is updated as these data are released. The information contained in this report was compiled from publicly available sources and the locations of the sites are plotted utilizing a geographic information system, which geocodes the site addresses. The accuracy of the geocoded locations is approximately +/- 300 feet.

Using the ASTM definition of migration, Partner considers the migration of hazardous substances or petroleum products in any form onto the subject property during the evaluation of each site listed on the radius report, which includes solid, liquid, and vapor.

##### 4.2.1 Regulatory Database Summary

#### Radius Report Data

Database	Search Radius (mile)	Subject Property	Adjacent Properties	Sites of Concern
Federal NPL or Delisted NPL Site	1.00	N	N	N
Federal CERCLUS Site	0.50	N	N	N
Federal CERCLUS-NFRAP Site	0.50	N	N	N
Federal RCRA CORRACTS Facility	1.00	N	N	N
Federal RCRA TSDF Facility	0.50	N	N	N
Federal RCRA Generators Site (LQG, SQG, CESQG)	0.25	N	N	N
Federal IC/EC Registries	0.50	N	N	N
Federal ERNS Site	Subject Property	N	N	N
State/Tribal Equivalent NPL	1.00	N	N	N
State/Tribal Equivalent CERCLUS	1.00	N	N	N
State/Tribal Landfill/Solid Waste Disposal Site	0.50	N	N	N
State/Tribal Leaking Storage Tank Site	0.50	N	N	N
State/Tribal Registered Storage Tanks (UST/AST)	0.25	N	N	N
State/Tribal Voluntary Cleanup Sites (VCP)	0.50	N	N	N
State/Tribal Spills	0.50	N	N	N
Federal Brownfield Sites	0.50	N	N	N
State Brownfield Sites	0.50	N	N	N
EDR MGP	Varies	N	N	N
EDR US Hist Auto Station	Varies	N	N	N
EDR US Hist Cleaners	Varies	N	N	N

##### 4.2.2 Subject Property Listings

The subject property is not identified in the regulatory database report.

##### 4.2.3 Adjacent Property Listings

The adjacent properties are not identified in the regulatory database report.

##### 4.2.4 Sites of Concern Listings

No sites of concern are identified in the regulatory database report.

##### 4.2.5 Orphan Listings

No orphan listings are identified in the regulatory database report.

A copy of the regulatory database report is included in Appendix C of this report.



## 5.0 USER PROVIDED INFORMATION AND INTERVIEWS

In order to qualify for one of the *Landowner Liability Protections (LLPs)* offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the *Brownfields Amendments*), the *User* must conduct the following inquiries required by 40 CFR 312.25, 312.28, 312.29, 312.30, and 312.31. The *User* should provide the following information to the *environmental professional*. Failure to provide this information could result in a determination that *all appropriate inquiries* is not complete. The *User* is asked to provide information or knowledge of the following:

- Review Title and Judicial Records for Environmental Liens and AULs
- Specialized Knowledge or Experience of the User
- Actual Knowledge of the User
- Reason for Significantly Lower Purchase Price
- Commonly Known or Reasonably Ascertainable information
- Degree of Obviousness
- Reason for Preparation of this Phase I ESA

Fulfillment of these user responsibilities is key to qualification for the identified defenses to CERCLA liability. Partner requested our Client to provide information to satisfy User Responsibilities as identified in Section 6 of the ASTM guidance.

Pursuant to ASTM E1527-13, Partner requested the following site information from Highridge Costa Development Company, LLC (User of this report).

User Responsibilities				
Item	Provided By User	Not Provided By User	Discussed Below	Does Not Apply
AAI User Questionnaire			X	
Title Records, Environmental Liens, and AULs			X	
Specialized Knowledge			X	
Actual Knowledge			X	
Valuation Reduction for Environmental Issues			X	
Identification of Key Site Manager	Section 5.1.3			
Reason for Performing Phase I ESA	Section 1.1			
Prior Environmental Reports		X		
Other				X

### 5.1 Interviews

#### 5.1.1 Interview with Owner

The owner of the subject property since 2006, identified as Maui Economic Opportunity Inc., was not available to be interviewed at the time of the assessment.

#### 5.1.2 Interview with Report User

Please refer to Section 5.2 below for information requested from the Report User.

#### 5.1.3 Interview with Key Site Manager

Mr. Dan Medeiros, key site manager, indicated that he had no information pertaining to any pending, threatened, or past litigation relevant to hazardous substances or petroleum products in, on, or from the subject property; any pending, threatened, or past administrative proceedings relevant to hazardous substances or petroleum products in, on, or from the subject property; or any notices from a governmental entity regarding any possible violation of environmental laws or possible liability relating to hazardous substances or petroleum products.

#### 5.1.4 Interviews with Past Owners, Operators and Occupants

Interviews with past owners, operators and occupants were not conducted since information regarding the potential for contamination at the subject property was obtained from other sources.

#### 5.1.5 Interview with Others

As the subject property is not an abandoned property as defined in ASTM 1527-13, interview with others were not performed.

### 5.2 User Provided Information

#### 5.2.1 Title Records, Environmental Liens, and AULs

Partner was not provided with title records or environmental lien and AUL information for review as part of this assessment.

#### 5.2.2 Specialized Knowledge

No specialized knowledge of environmental conditions associated with the subject property was provided by the User at the time of the assessment.

#### 5.2.3 Actual Knowledge of the User

No actual knowledge of any environmental lien or AULs encumbering the subject property or in connection with the subject property was provided by the User at the time of the assessment.

#### 5.2.4 Valuation Reduction for Environmental Issues

No knowledge of valuation reductions associated with the subject property was provided by the User at the time of the assessment.

#### 5.2.5 Commonly Known or Reasonably Ascertainable Information

The User did not provide information that is commonly known or reasonably ascertainable within the local community about the subject property at the time of the assessment.

#### 5.2.6 Previous Reports and Other Provided Documentation

No previous reports or other pertinent documentation was provided to Partner for review during the course of this assessment.

## 6.0 SITE RECONNAISSANCE

The weather at the time of the site visit was sunny and clear. Refer to Section 1.5 for limitations encountered during the field reconnaissance and Sections 2.1 and 2.2 for subject property operations. The table below provides the site assessment details:

### Site Assessment Data

Site Assessment Performed By: Josh Barton  
Site Assessment Conducted On: June 8, 2020

The table below provides the subject property personnel interviewed during the field reconnaissance:

### Site Visit Personnel for Southeast Corner of Kāhehili Highway & Waiehu Beach Road (Subject Property)

Name	Title/Role	Contact Number	Site Walk* Yes/No
Mr. Don Medeiros	Key Site Manager	(808) 268-4183	Yes*

\* Accompanied Partner during the field reconnaissance activities and provided information pertaining to the current operations and maintenance of the subject property

No potential environmental concerns were identified during the onsite reconnaissance.

### 6.1 General Site Characteristics

#### 6.1.1 Solid Waste Disposal

Solid waste is not generated at the subject property. No evidence of illegal dumping of solid waste was observed during the Partner site reconnaissance.

#### 6.1.2 Sewage Discharge and Disposal

Sanitary discharges are not present on the subject property. No wastewater treatment facilities or septic systems were observed or reported on the subject property.

#### 6.1.3 Surface Water Drainage

Storm water is removed from the subject property primarily by percolation into soils.

The drainage ditch along or adjacent to the eastern perimeter is a mapped Riverine habitat according to the United States Fish & Wildlife Service. A comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property. No additional surface impoundments, wetlands, natural catch basins, settling ponds, or lagoons are located elsewhere on the subject property. No drywells were identified on the subject property.

#### 6.1.4 Source of Heating and Cooling

Heating and cooling systems are not present.

#### 6.1.5 Wells and Cisterns

Partner observed a possible water well located in a wooden shed structure. This feature consists of a cast concrete slab with metal piping protruding from the top. Piping from this feature tracks to a poly above

ground water storage tank. The property has historically been used to grow native fruits and vegetation. No other aboveground evidence of wells or cisterns was observed during the site reconnaissance.

#### 6.1.6 Wastewater

Domestic wastewater is not generated at the subject property. No industrial process is currently performed at the subject property.

#### 6.1.7 Septic Systems

No septic systems were observed or reported on the subject property.

#### 6.1.8 Additional Site Observations

No additional general site characteristics were observed during the site reconnaissance.

### 6.2 Potential Environmental Hazards

#### 6.2.1 Hazardous Substances and Petroleum Products Used or Stored at the Site

No hazardous substances or petroleum products were observed on the subject property during the site reconnaissance.

#### 6.2.2 Aboveground & Underground Hazardous Substance or Petroleum Product Storage Tanks (ASTs/USTs)

Partner observed one large circular metal holding tank without a top. The structure was formerly used for rainwater storage. Currently, vegetation is growing out of the structure. Adjacent to this structure is located a poly storage tank for water. This tank is located near a shed that contains what appears to be a well pump. There are also two 225-gallon poly totes for water storage along the western perimeter of the property. Based on the former contents and use, the tanks do not represent an environmental concern.

#### 6.2.3 Evidence of Releases

No spills, stains or other indications that a surficial release has occurred at the subject property were observed.

#### 6.2.4 Polychlorinated Biphenyls (PCBs)

No potential PCB-containing equipment (transformers, oil-filled switches, hoists, lifts, dock levelers, hydraulic elevators, etc.) was observed on the subject property during Partner's reconnaissance.

#### 6.2.5 Strong, Pungent or Noxious Odors

No strong, pungent or noxious odors were evident during the site reconnaissance.

#### 6.2.6 Pools of Liquid

No pools of liquid were observed on the subject property during the site reconnaissance.

#### 6.2.7 Drains, Sumps and Clarifiers

No drains, sumps, or clarifiers, other than those associated with storm water removal, were observed on the subject property during the site reconnaissance.

#### 6.2.8 Pits, Ponds and Lagoons

No pits, ponds or lagoons were observed on the subject property.

#### 6.2.9 Stressed Vegetation

No stressed vegetation was observed on the subject property.

#### 6.2.10 Additional Potential Environmental Hazards

No additional environmental hazards, including landfill activities or radiological hazards, were observed.

#### 6.3 Non-ASTM Services

##### 6.3.1 Asbestos-Containing Materials (ACMs)

Due to the lack of development, ACMs were not considered within the scope of this assessment.

##### 6.3.2 Lead-Based Paint (LBP)

Due to the lack of development, LBP was not considered within the scope of this assessment.

##### 6.3.3 Radon

Radon is a colorless, odorless, naturally occurring, radioactive, inert, gaseous element formed by radioactive decay of radium (Ra) atoms. The US EPA has prepared a map to assist National, State, and local organizations to target their resources and to implement radon-resistant building codes. The map divides the country into three Radon Zones, according to the table below:

EPA Radon Zones		
EPA Zones	Average Predicted Radon Levels	Potential
Zone 1	Exceed 4.0 pCi/L	Highest
Zone 2	Between 2.0 and 4.0 pCi/L	Moderate
Zone 3	Less than 2.0 pCi/L	Low

It is important to note that the EPA has found homes with elevated levels of radon in all three zones, and the US EPA recommends site-specific testing in order to determine radon levels at a specific location. However, the map does give a valuable indication of the propensity of radon gas accumulation in structures.

Radon sampling was not conducted as part of this assessment. Review of the US EPA Map of Radon Zones places the subject property in Zone 3. Based upon the radon zone classification, radon is not considered to be a significant environmental concern.

##### 6.3.4 Lead in Drinking Water

According to available information, a public water system operated by the County of Maui Department of Water Supply serves the subject property vicinity. However, the subject property does not appear to be connected to the municipal system. According to information obtained from the 2018 Water Quality Report, shallow groundwater beneath the subject property is not utilized for domestic purposes. According to the County of Maui Department of Water Supply and the 2018 Annual Water Quality Report, water supplied to the subject property is in compliance with all State and Federal regulations pertaining to

drinking water standards, including lead and copper. Water sampling was not conducted to verify water quality.

##### 6.3.5 Mold

Molds are microscopic organisms found virtually everywhere, indoors and outdoors. Mold will grow and multiply under the right conditions, needing only sufficient moisture (e.g. in the form of very high humidity, condensation, or water from a leaking pipe, etc.) and organic material (e.g., ceiling tile, drywall, paper, or natural fiber carpet padding).

Due to the lack of development, mold was not considered within the scope of this assessment.

#### 6.4 Adjacent Property Reconnaissance

The adjacent property reconnaissance consisted of observing the adjacent properties from the subject property premises. No items of environmental concern were identified on the adjacent properties during the site assessment, including hazardous substances, petroleum products, ASTs, USTs, evidence of releases, PCBs, strong or noxious odors, pools of liquids, sumps or clarifiers, pits or lagoons, stressed vegetation, or any other potential environmental hazards.



## 7.0 FINDINGS AND CONCLUSIONS

### Findings

A *recognized environmental condition (REC)* refers to the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: due to release to the environment; under conditions indicative of a release to the environment; or under conditions that pose a material threat of a future release to the environment. The following was identified during the course of this assessment:

- The subject property was historically used for agricultural purposes. There is a potential that typical agricultural chemicals such as pesticides, herbicides, and fertilizers may have been used and stored on-site. Because residential development is proposed, the possible historical use of agricultural chemicals use is a REC.

A *controlled recognized environmental condition (CREC)* refers to a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority, with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls. The following was identified during the course of this assessment:

- Partner did not identify any controlled recognized environmental conditions during the course of this assessment.

A *historical recognized environmental condition (HREC)* refers to a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls. The following was identified during the course of this assessment:

- Partner did not identify any historical recognized environmental conditions during the course of this assessment.

An *environmental issue* refers to environmental concerns identified by Partner, which do not qualify as RECs; however, warrant further discussion. The following was identified during the course of this assessment:

- Partner observed a possible water well located in a wooden shed structure. The presence of this well provides access to groundwater, which could result in future environmental exposure and liabilities.
- The drainage ditch along or adjacent to the eastern perimeter is a mapped Riverine habitat according to the United States Fish & Wildlife Service. A comprehensive wetlands survey would be required in order to formally determine actual wetlands on the subject property.

### Conclusions, Opinions and Recommendations

Partner has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-13 of Southeast Corner of Kahekili Highway & Waiehu Beach Road in

Wailuku, Maui County, Hawaii (the "subject property"). Any exceptions to, or deletions from, this practice are described in Section 1.5 of this report.

This assessment has revealed evidence of a recognized environmental condition and environmental issues in connection with the subject property. Based on the conclusions of this assessment, Partner recommends the following:

- Prior to residential development, a limited subsurface investigation should be conducted in order to determine the presence or absence of historical agricultural chemicals onsite.
- The possible water well located in the wooden shed structure should be decommissioned in accordance with application regulations.



## 8.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

Partner has performed a Phase I Environmental Site Assessment of the property located at Southeast Corner of Kahekili Highway & Waiehu Beach Road in Wailuku, Maui County, Hawaii in conformance with the scope and limitations of the protocol and the limitations stated earlier in this report. Exceptions to or deletions from this protocol are discussed earlier in this report.

By signing below, Partner declares that, to the best of our professional knowledge and belief, we meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR §312. Partner has the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. Partner has developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Prepared By:



Josh Barton  
Environmental Professional

Reviewed By:



Jared Eudell  
Senior Author

## 9.0 REFERENCES

### Reference Documents

American Society for Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, ASTM Designation: E1527-13.

Environmental Data Resources (EDR), Radius Report, June 2020

Federal Emergency Management Agency, Federal Insurance Administration, National Flood Insurance Program, Flood Insurance Map, accessed via internet, June 2020

United States Department of Agriculture, Natural Resources Conservation Service, accessed via internet, June 2020

United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey, accessed via the internet, June 2020

United States Environmental Protection Agency, EPA Map of Radon Zones (Document EPA-402-R-93-071), accessed via the internet, June 2020

United States Geological Survey, accessed via the Internet, June 2020

United States Geological Survey Topographic Map, 7.5 minute series, accessed via internet, June 2020

## FIGURES

- 1 SITE LOCATION MAP
- 2 SITE PLAN
- 3 TOPOGRAPHIC MAP

**PARTNER**



Drawing Not To Scale

KEY:  
Subject Property

**FIGURE 1: SITE LOCATION MAP**  
Project No. 20-283903.1

**PARTNER**



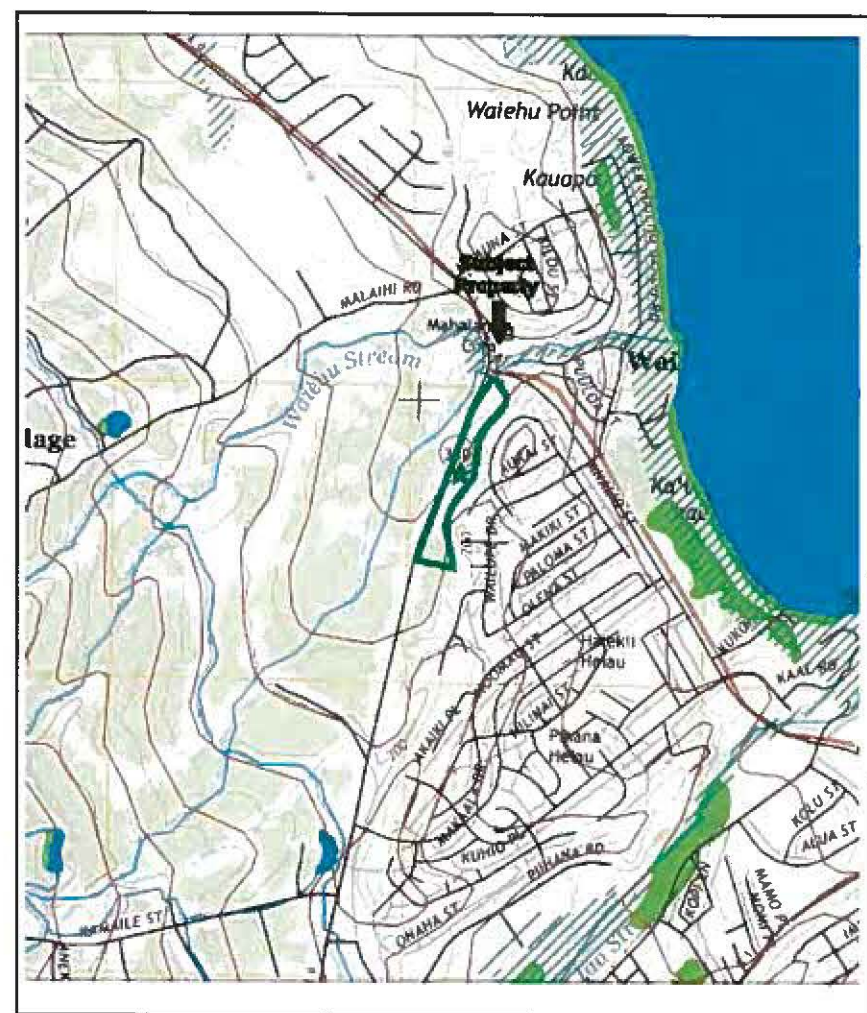


**NA**

**GROUNDWATER FLOW** 

KEY:  
Subject Property   
Well Pump and Storage Tank 

## PARTNER



N

USGS 7.5 Minute *Wailuku, Hawaii* Quadrangle  
Created: 2013

KEY: ☐ Subject Property

## PARTNER

## APPENDIX A: SITE PHOTOGRAPHS

**PARTNER**



1. View of subject property grounds looking south



2. View of subject property grounds looking west



3. View of subject property grounds looking north



4. View of subject property grounds looking south



5. Storage containers at south end of property



6. Water collection tanks

**APPENDIX A: SITE PHOTOGRAPHS**  
Project No. 20-283903.1

**PARTNER**





7. Possible water well



8. Water storage totes



9. Aquaponic beds



10. Debris



11. Portable shed building



12. Property grounds with thatch roof structure

**APPENDIX A: SITE PHOTOGRAPHS**  
Project No. 20-283903.1

**PARTNER**



13. East side of property looking south



14. Property grounds with thatch roof structure



15. Ditch with vegetation growth along north and eastern perimeters of property



16. Subject property grounds looking south



17. Subject property ground with portable shed structure



18. Adjacent property to the north

**APPENDIX A: SITE PHOTOGRAPHS**  
Project No. 20-283903.1

**PARTNER**



19. Adjacent property to the west



20. Adjacent intersection to the northwest



21. Adjacent properties to the east



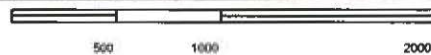
22. Adjacent property to the south

## APPENDIX B: HISTORICAL/REGULATORY DOCUMENTATION





Aerial Photograph Year: 1950



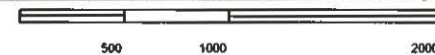
Key: Subject Property 

APPENDIX B: AERIAL PHOTOGRAPHS  
Project No. 20-283903.1

**PARTNER**  
6084367 - 8 page 3



Aerial Photograph Year: 1976



Key: Subject Property 

APPENDIX B: AERIAL PHOTOGRAPHS  
Project No. 20-283903.1

**PARTNER**  
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SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
Wailuku, HI 96793

Inquiry Number: 6084367.3  
June 05, 2020

## Certified Sanborn® Map Report



6 Armstrong Road 4th floor  
Shelton, CT 06484  
Toll Free 800.352.0050  
www.edrnet.com

### Certified Sanborn® Map Report

06/05/20

**Site Name:**

SE Corner of Kahekili Hwy & W  
SE Corner of Kahekili Hwy & W  
Wailuku, HI 96793  
EDR Inquiry # 6084367.3

**Client Name:**

Partner Engineering and Science, Inc.  
2154 Torrance Blvd, Suite 200  
Torrance, CA 90501-0000  
Contact: Cindy Sallee



The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Partner Engineering and Science, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Parris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting [www.edrnet.com/sanborn](http://www.edrnet.com/sanborn).

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

**Certified Sanborn Results:**

Certification # 1355-4825-BC41  
PO # 20-283903.1  
Project 20-283903.1

**UNMAPPED PROPERTY**

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.



Sanborn® Library search results  
Certification #: 1355-4825-BC41

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Parris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1868™

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SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
Wailuku, HI 96793

Inquiry Number: 6084367.5  
June 05, 2020

## The EDR-City Directory Image Report



6 Armstrong Road  
Shelton, CT 06484  
800.352.0050  
www.edrnet.com

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#### SECTION

Executive Summary

Findings

City Directory Images

*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

### DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Report is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Report includes a search of available city directory data at 5 year intervals.

### RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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### RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. A check mark indicates where information was identified in the source and provided in this report.

<u>Year</u>	<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
2017	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2014	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2010	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2005	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
2000	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1995	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive
1992	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EDR Digital Archive

## FINDINGS

### TARGET PROPERTY STREET

SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
 Wailuku, HI 96793

<u>Year</u>	<u>CD Image</u>	<u>Source</u>
<b><u>KAHEKILI HWY</u></b>		
2017	pg A2	EDR Digital Archive
2014	pg A6	EDR Digital Archive
2010	pg A11	EDR Digital Archive
2005	pg A16	EDR Digital Archive
2000	pg A20	EDR Digital Archive
1995	pg A23	EDR Digital Archive
1992	pg A27	EDR Digital Archive

### WAIIEHU BCH RD

1995	pg A24	EDR Digital Archive
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### WAIIEHU BEACH RD

2017	pg A4	EDR Digital Archive
2014	pg A9	EDR Digital Archive
2010	pg A14	EDR Digital Archive
2005	pg A18	EDR Digital Archive
2000	pg A21	EDR Digital Archive
1995	pg A26	EDR Digital Archive
1992	pg A28	EDR Digital Archive

**FINDINGS**

**CROSS STREETS**

No Cross Streets Identified

City Directory Images

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2017

1913 BECRAFT, JAMIE J  
 1925 JOHNSON, JEFFREY R  
 1933 KAAHUI, KAHEKILI  
 1939 YIP, WARREN M  
 1945 ANDRIN, DAVID  
 1953 ANAKALEA, ELIZABETH K  
 1956 KAMAUNU, P  
 1957 HILARIO, PEDRO A  
 1975 NAKAMURA, KARL M  
 1980 BALBERDI, EVELYN J  
 1987 YAMANAKA, KEITH K  
 1991 MANGLICMOT, WESLEY F  
 1994 SHEEHAN, CLAIRE M  
 1999 CONNORS, MELISSA E  
 2003 PIANO, JULIA S  
 2007 HARADA, CLIFFORD H  
 2011 FUKUNAGA, MELVIN T  
 2012 BORTZ, WADE R  
 2021 FERREIRA, FRANK  
 2025 LAVAKA, AKESA  
 2041 DADEZ, MARCELO S  
 2042 JOYO, LAWRENCE J  
 2053 TAYLAN, SERVANDO  
 2062 PALAKIKO, RICHARD  
 2068 PARIS, J  
 2069 TOM, PAMELA K  
 2070 PATINA INTERIOR DESIGN  
 VASSILICOS, STEFANIE A  
 2072 AGPAOA, HOKUALII  
 2075 KAILIHIWA, VALERIE U  
 2080 APO, PAUL W  
 2108 KINA, QUENTIN L  
 2110 BIO, ELMER C  
 MOHAN, SHAUN  
 2120 GOO, JEFF M  
 2155 IDEOKA, MERLE Y  
 2161 WALLACE, JOSEPH M  
 2239 TEXEIRA, NOEL S  
 2315 CHANG, CORDELL  
 2345 SUZUKI, SHAUNA  
 2525 BROWN MD D  
 BROWN, DAVID H  
 DAVID H BROWN MD  
 2535 NAGANUMA, SCOTT  
 2555 TAMALIS, MICHAEL A  
 2585 KOKI, LAWRENCE T  
 2609 CABILES, DERRICK  
 SINGER, DENNIS  
 2611 ALO, CLARENCE H  
 2644 FREITAS, WILLIAM B

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2017 (Cont'd)

3220 MENDES, ALBERT L  
 MENDES, ERNEST R  
 3225 NILES, WILLIAM R  
 3400 MEDEIROS, KELLY M  
 MENDES, MELVIN A  
 NOBRIGA, RANDY K  
 SEELY, JAY T  
 3450 CAMP, MALUHIA  
 3460 MENDES, ALBERT  
 3499 HOOPIL, RICHARD K  
 3500 SANTOS, JOANN  
 3530 FERREIRA, ANGELESE  
 MENDES RANCH & TRAIL RIDES  
 3600 FERREIRA, WILLIAM J  
 3656 ANDRADE, KAWAHAMAE D  
 3660 TEXEIRA, KELLEY K  
 3700 CURTIS, BRENDA  
 4625 MOLINA, MARCO  
 4890 BANDIT TRUCKING



Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BEACH RD 2017

200	BB TRUCKING & STORAGE LYNDEN INTERNATIONAL VOLVO
240	ALOHA HOUSE INC
250	ABC CORPORATION HISAMOTO BODY & FENDER INC MIYAKE CONCRETE ACCESSORIES INC R P L EQUIPMENT LLC
253	RED ROAD TELECOM
263	DEREGO, BRADLEY S DUARTE, LEONA P
270	GIULIETTA SWENSON PSYD HAWAII BEHAVIORAL HEALTH LLC JON BETWEE MD KARAOKE COOL II MAUI CHAMP CLINIC INC MAUI TRIBE PRODUCTIONS RAYS DELI & LOUNGE SANDYS LOUNGE SHELL STATE OF HAWAII SUPER STOP SUSAN BROWN MA THE IRIS BEAUTIQUE WATERCRESS
286	DELATORRE, RICARDO D
293	PARTIN, JESSICA
295	HIRAIDE, JAY J
301	SATO, IWAO A
321	ANDAYA, ANDREW V CORRALES, MARIO HONOKAUPU, LINDA
324	PEROS REAL ESTATE APPRAISALS PEROS REALTY COMPANY INC
331	GRIMES, JEFFERY L
341	AGONOY, REYNALDO M
344	KAILI, SHEREEN KAUHAHAHA, CORI
351	RODRIGUES, ALFRED J
358	OCEAN FRONT SCREENS TUMBAGA, JOHNATHAN
361	MAEDA, HEIDI M
371	YATSUSHIRO, JANE A
372	TOMS MINI MART
380	ALEJANDRO, JAN B
381	PANALIGAN, ADAM S SAKUTORI, NANCY Y
390	AGCAOILI, FREDDIE T
391	HERMAN, GARY J
403	TAKABAYASHI, EARL

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BEACH RD 2017 (Cont'd)

409	KAWAMOTO, ERIC L
427	FRANCISCO, MICHAEL A
432	DOOR OF FAITH CHURCHWAILUKU TENGAN, JUNE J
435	BELLA, ELLA SANTOS, JOYCE TACDERAN, JUSTINIANO C
446	DRAPIZA, RAVIDA D RAVIDA, DOMINGO D
464	IGLESIA NI CRISTO
600	BADILLO, MARCOS NEFULDA, LORENZO K
603	PLUNKETT, JOSHUA
616	RUIZ, ARTHUR A
621	SADO, DOUGLAS M
628	FRANCO, BLISS K FRANCO, CARISSA E FRANCO, DAVID U FRANCO, JOE HOWLAND, BRIAN D
633	HERRICK, TIM K
634	ANDERSON, GERALD C DAQUIS, KATHLEEN C GREENWOOD, BRUCE W GREENWOOD, JULIA A MACMILLIN, AARON SNIFFEN, SHANNAN L
641	WAIPA, T
647	HIMALAYA, TRENSON
650	YI, GIOUNG
655	HOOKANO, STEPHANIE
658	HANO, ELEANOR K TADAKI, ALMA K
663	HOKOANA, LUI K
668	GAUTUSA, SOLI HAYES, BRENT C MAGANA, VICENTE G ROSAGA, LATOYA
781	STANT, HENRY H

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# KAHEKILI HWY 2014

338	KAIMI, JULIA H
1913	BECRAFT, JAMIE J
1919	DIAS, WILFRED N
1925	APERTO, MICHAEL
1933	TAPURO, NICKY N
1939	YIP, WARREN M
1945	ANDRIN, DAVID
1953	ANAKALEA, VICTORIA L
1956	KAMAUNU, P
1957	HILARIO, PEDRO A
1961	BASBAS, LAURALEE
1962	CARRIER, SHANNON J
1975	NAKAMURA, KARL M
1980	BALBERDI, EVELYN J
1981	OCCUPANT UNKNOWN,
1987	YAMANAKA, KEITH K
1988	OCCUPANT UNKNOWN,
1991	MANGLICMOT, WESLEY F
1994	SHEEHAN, CLAIRE M
1999	PARESA, GEORGE N
2003	PIANO, JULIA S
2005	TEXEIRA, JERRY
2007	HARADA, CLIFFORD H
2011	FUKUNAGA, MELVIN T
2012	BORTZ, WADE R
2025	LAVAKA, AKESA
2035	TARIO, CAROL
2038	OHTA, CHRIS
2041	DADEZ, MARCELO S
2042	VALLESTEROS, ALEXANDER
2047	SALTIBAN, WILFREDO J
2048	KELLY, CHRISTOPHER
2053	TAYLAN, SERVANDO
2062	PALAKIKO, KANANI
2068	BROTHERTON, IVY
2069	TOM, PAMELA K
2070	WUERTZ, STEFANIE
2072	OCCUPANT UNKNOWN,
2075	KAILIHIWA, VALERIE U
2078	OCCUPANT UNKNOWN,
2080	APO, ANDREW
2108	KINA, QUENTIN L
2110	BIO, ELMER C
2120	GOO, AVERY
	GOO, JAMES
	GOO, JEFF M
2155	BIVINS, TANYA L
	CARLES, WILLIAM K
	IDEOKA, MERLE Y
2161	WALLACE, JOSEPH M

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# KAHEKILI HWY 2014 (Cont'd)

2229	SARASIN, BRYAN C
2239	TEXEIRA, NOEL S
2295	KANA, JACOB H
2299	OCCUPANT UNKNOWN,
2315	CLELAND, NING W
2335	NAGANUMA, MAUREEN
2525	BROWN DAVID H MD
	BROWN, DAVID H
	OCCUPANT UNKNOWN,
2535	NAGANUMA, STANLEY A
2555	TAMALIS, MICHAEL A
2570	OCCUPANT UNKNOWN,
2585	KOKI, LAWRENCE T
2609	OCCUPANT UNKNOWN,
2611	ALO, CLARENCE H
	OCCUPANT UNKNOWN,
2644	FREITAS, WILLIAM B
2672	CERIZO, FRANCISCO A
3220	MENDES, ALBERT L
	WIGGERS, MARVIN
3225	NILES, WILLIAM R
3400	MENDES, MELVIN A
	SEELY, JAY T
3450	CAMP, MALUHIA
3473	SATO, RONALD
3484	COSTON, JOHN K
3492	DUDOIT, KARLEE
3499	KENOLIO, HERBERT
3500	SANTOS, JOANN
3530	MENDES RANCH & TRAIL RIDES INC
	MENDES, ALLAN J
3600	PERREIRA, WILLIAM J
3656	ANDRADE, KAWAHAMAE D
3658	DUNN, COLIN A
3660	KAILIEHU, ALFRED
	TEXEIRA, KELLEY K
3700	WNN, PETER
4625	MOLINA, MARCO
4890	FLINT, MICHAEL T
4892	OCCUPANT UNKNOWN,
4896	STROJ, DRAZENA
4900	GRAY, JEFF J
	OCCUPANT UNKNOWN,
	RODRIGUES, ROBERT
4910	RODRIGUES, ANTHONY J
4920	ANCHETA, ROSENDO V
4933	KERR, EDGAR D
4980	WEAVER, FLOYD E
5030	OCCUPANT UNKNOWN,
	TURNBULL STUDIOS & SCULPTURE GARDEN

<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
✓	-	EDR Digital Archive

**KAHEKILI HWY 2014 (Cont'd)**

7465 OCCUPANT UNKNOWN,

<u>Target Street</u>	<u>Cross Street</u>	<u>Source</u>
✓	-	EDR Digital Archive

**WAIIEHU BEACH RD 2014**

200 BB TRUCKING & STORAGE  
 LYNDEN INTERNATIONAL  
 MAUI GREENS MARKET INC  
 PYAWAFAY, DARWIN  
 240 ALOHA HOUSE INC  
 250 ABC CHEMICAL CORPORATION  
 HISAMOTO BODY & FENDER INC  
 MIYAKE CONCRETE ACCESSORIES INC  
 R P L EQUIPMENT LLC  
 253 BOWMAN TERMITE & PEST MANAGEMENT LLC  
 270 FINANCE INSURANCE LTD  
 HALEAKALA GROUP LLC  
 HAWAII BEHAVIORAL HEALTH LLC  
 IRIS BEAUTIQUE THE  
 KARAOKE COOL II  
 MAUI CHAMP CLINIC INC  
 MAUI CHILD & ADOLESCENT MENTAL HEALT  
 MAUI TRIBE PRODUCTIONS  
 MAUI WOWIE INC  
 RAYS DELI & LOUNGE  
 SALON BY GINGER  
 SANDYS LOUNGE  
 STATE OF HAWAII GOVERNMENT  
 SUPER STOP  
 SWENSON GIULIETTA MD  
 WAIIEHU SHELL  
 WATERCRESS  
 273 COSARE, DARREL D  
 293 FOSBINDER, JAMES H  
 OCCUPANT UNKNOWN,  
 295 HIRAIDE, JAY J  
 298 OCCUPANT UNKNOWN,  
 301 SATO, IWAO A  
 310 OCCUPANT UNKNOWN,  
 321 ANDAYA, ANDREW V  
 324 PEROS REAL ESTATE APPRAISALS  
 PEROS REALTY COMPANY INC  
 331 OCCUPANT UNKNOWN,  
 341 AGONNOY, REYNALDO M  
 351 RODRIGUES, ALFRED J  
 358 NAKAYAMA, MILES  
 371 YATSUSHIRO, JANE A  
 372 TOMS MINI MART  
 380 SYLVA, BRANDON L  
 381 PANALIGAN, ADAM S  
 SAKUTORI, NANCY Y  
 390 AGCAOILI, FREDDIE T  
 391 HERMAN, GARY J  
 OCCUPANT UNKNOWN,  
 394 OCCUPANT UNKNOWN,

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

WAIEHU BEACH RD 2014 (Cont'd)

403	TAKABAYASHI, EARL
409	KAWAMOTO, ERIC S
415	OCCUPANT UNKNOWN,
420	MORNINGSTAR, MATILDA
421	SPELLICY, TIMOTHY
427	FRANCISCO, MICHAEL A
432	DOOR OF FAITH CHURCHWAILUKU
	TENGAN, JUNE J
434	OCCUPANT UNKNOWN,
435	BELLA, ELLA
	GUILLERMO, MERCEDES
	SABLE, JEUS
	STAMPER, VILMA
	TACDERAN, JUSTINIANO C
446	RABIDA, DOMINGO D
464	IGLESIA NI CRISTO
	VERGARA, GLORIA
480	OCCUPANT UNKNOWN,
484	OCCUPANT UNKNOWN,
580	EUGENIO, GILBERT
600	BADILLO, MARCOS
	FAULVE, DANILO S
	NEFULDA, LORENZO K
603	HOOPAI, MELECIA K
616	BUCHWALD, JEFFREY A
	OCCUPANT UNKNOWN,
621	SADO, JOSHUA
625	OCCUPANT UNKNOWN,
628	GURNEY, RENEE
	LAVAKA, TEVITA N
	YOUNG, KAREN B
633	ROCK, BRANDON
634	DAQUIS, KATHLEEN C
	HAMILTON, VAN U
	MACMILLIN, AARON
	OCCUPANT UNKNOWN,
641	CHUN, DEBORAH G
647	HIMALAYA, TRENSON
658	HANO, ELEANOR K
	OCCUPANT UNKNOWN,
	TADAKI, ALMA K
663	HOKOANA, LUI K
668	CRUZ, MICHAEL C
	MAGANA, VICENTE G
	ROSAGA, LATOYA
781	STANT, HENRY H
810	CHURCH OF CHRIST MAUI
	WATTS, TOM T

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2010

338	KAIWI, JULIA H
1905	MURAKAMI, PARIS J
1913	OCCUPANT UNKNOWN,
1919	DIAS, WILFRED N
1925	APERTO, MICHAEL
1933	OCCUPANT UNKNOWN,
1939	YIP, WARREN M
1945	ANDRIN, DAVID
1949	OCCUPANT UNKNOWN,
1953	ANAKALEA, RAMSAY K
1956	MOKU, SARAH E
1957	HILARIO, PEDRO A
1961	OCCUPANT UNKNOWN,
1962	MEDEIROS, KANANI N
1980	BALBERDI, EVELYN J
1988	LAI, DARLENE L
1991	MANGLICMOT, WESLEY F
1999	PARESA, GEORGE N
2003	AMBROSE, LAURITA P
2005	OCCUPANT UNKNOWN,
2007	HARADA, CLIFFORD H
2011	FUKUNAGA, MELVIN T
2012	ACANG, IMELDA
2025	SUGIKI, MILTON S
2035	TARIO, CAROL
2038	OHTA, CHRISTOPHER
2041	DADEZ, MARCELO S
2042	VALLESTEROS, ALEXANDER
2047	SALTIBAN, WOLFREDO J
2048	CORREA, EDITH H
2053	TAYLAN, SERVANDO
2062	OCCUPANT UNKNOWN,
2068	OCCUPANT UNKNOWN,
2069	TOM, CLAYTON N
2070	OCCUPANT UNKNOWN,
2072	AGUIINALDO, JOEL P
2075	KAILIHIWA, VALERIE U
2085	NUNES, CHARLES J
2108	AYERS, ALAMA
2110	KINA, DAVIDA P
2120	GOO, DIANNAH E
	GOO, JEFFREY M
	GOO, MILLIE
2125	WAIHEE SCHOOL
2155	BIVINS, TANYA L
2161	KAILIEHU, A
2229	SARASIN, BRYAN C
2239	TEXEIRA, NOEL S
2295	KANA, JACOB H
2315	CHANG, CORDELL



Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2010 (Cont'd)

2315 LOKELAINI OHANA  
 2345 APO, GORDAN K  
 2525 BROWN, DAVID H  
       KOEPPERLING, KATHLYN  
 2535 BREWSTER, MITZI P  
 2555 CAMPEN, ROBERT  
 2570 KANUHA, CROSBY L  
 2575 OCCUPANT UNKNOWN,  
 2580 ARAKAWA, JANET T  
 2585 KOKI, LAWRENCE T  
 2609 OCCUPANT UNKNOWN,  
 2611 BENIOFF, LINDA  
       BLANCHE, MICHAEL L  
 2644 FREITAS, KAU Z  
 3220 CORDEIRO, CLARENCE F  
       MENDES, ERNEST R  
       PAISHON, DAYTON K  
 3225 NILES, WILLIAM R  
 3400 LEMA, C  
       MAUI FRESH FISH  
       MEDEIROS, KELLY  
       MENDES, MELVIN A  
 3450 OCCUPANT UNKNOWN,  
 3460 JOHNSON, A  
       PRISTINE CLEANING ON MAUI  
 3473 SATO, RONALD  
 3476 CHANG, CHRISTOPHER K  
 3483 NAKOA, DOREEN  
 3484 COSTON, JOHN K  
 3499 HAWAIIAN CONGREGATIONAL CHURCH  
       KENOLIO, HERBERT  
 3500 CHRISTENSEN, HAROLD J  
 3530 MENDES RANCH & TRAIL RIDES  
       MENDES, ALLAN J  
 3600 PERREIRA, WILLIAM J  
 3658 DUNN, COLIN A  
 3660 ANDRADE, KAWAHAMAE K  
       KAILIEHU, INA  
 4625 MOLINA, MARCO  
 4890 BANDIT TRUCKING  
       ROCK, ANDREA  
 4892 RODRIGUES, ANTHONY J  
 4896 STROJ, ROBERT  
 4900 AJR LIMITED  
       GRAY, JEFF J  
       OCCUPANT UNKNOWN,  
 4910 RODRIGUES, ANTHONY J  
 4920 ANCHETA, ROSENDO V  
 4933 KERR, EDGAR D  
 4980 WEAVER, FLOYD E

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2010 (Cont'd)

5030 OCCUPANT UNKNOWN,  
 TURNBULL STUDIOSSCULPTURE GDN

# WAIEHU BEACH RD 2010

200	ALL ISLAND EQUIPMENT
	HISCO INC
202	JEGO, YVES P
250	ABC CORP
	ALOHA HOUSE INC
	HISAMOTO BODY & FENDER INC
	MIYAKE CONCRETE ACCESSORIES
	RPL EQUIPMENT LLC
253	BOWMAN TERMITE & PEST CONTROL
263	BISSEN-MELTON, DEBRA
270	BROWN SUSAN
	CHILD & ADOLESCENT MENTAL HLTH
	DONNAS LOUNGE
	ENDERBODIES DAY SPA
	EPIC INC
	IRIS BEAUTIQUE
	JACKIES HAIR STUDIO LLC
	JON BETWEE LTD
	MAUI CHAMP CLINIC INC
	MAUI FIRST TO WORK
	PATCH PEOPLE ATTENTIVE TO CHLD
	RAYS DELI & LOUNGE
	SUPER STOP
	SWENSON GIULIETTA PHD
273	KELIHOOMALU, JEROME K
281	SASSY ELEGANCE BOUTIQUE
293	FOSBINDER, JAMES
	OCCUPANT UNKNOWN,
	TREVINO, RICHARD C
295	CARVALHO, ISABELLE F
301	SATO, IWAO A
302	VERSOLAS PLATE LUNCH
310	OCCUPANT UNKNOWN,
311	FOSBINDER, JAMES H
321	ANDAYA, ANDREW V
	LADERA, MARIANNE K
324	PEROS REAL ESTATE APPRAISALS
331	YANAGI, IRENE S
344	CARROLL, PUALANI
351	RODRIGUES, ALFRED J
358	OCEAN FRONT SCREENS
	WHITNEY, KEONI
361	OCCUPANT UNKNOWN,
371	YATSUSHIRO, JANE A
372	TOMS MINI MART
380	SYLVA, BRANDON L
381	SAKUTORI, NANCY Y
391	OCCUPANT UNKNOWN,
394	OCCUPANT UNKNOWN,
403	TAKABAYASHI, RICHARD Y

# WAIEHU BEACH RD 2010 (Cont'd)

415	OCCUPANT UNKNOWN,
420	MORNINGSTAR, MATILDA
421	NAEOLE, JOSEPH K
427	FRANCISCO, MICHAEL A
432	DOOR OF FAITH CHURCHWAILUKU
	ISAIAH ACADEMY FOR EXCELLENCE
	TENGAN, JUNE J
434	OCCUPANT UNKNOWN,
435	GUILLERMO, MERCEDES
	STAMPER, VILMA
	TACDERAN, JUSTINIANO C
446	RAVIDA, ROLAND D
464	IGLESIA NI CRISTO
	IGLESIA, NI
484	OCCUPANT UNKNOWN,
580	SMITH, LORIN A
600	NEFULDA, LORENZO K
	STAUFFER, JONATHAN
603	PLUNKETT, JAMES J
616	BUCHWALD, JEFFREY A
	OCCUPANT UNKNOWN,
	RUIZ, ARTHUR A
621	SADO, DOUGLAS M
625	OCCUPANT UNKNOWN,
628	BROWN, ERIC K
	LAVAKA, TEVITA N
	TAUKEIAHO, UNALOTO
	YOUNG, KAREN
633	MASUDA, KAZUNORI
634	ALIPIO, TEODORO R
	BAISA, BRADLEY
	MACMILLIN, AARON
641	CHUN, DEBORAH G
647	HERNANDEZ, NOEMI
655	HAO, JACK K
658	HANO, ELEANOR K
663	HOKOANA, LUI
668	CRUZ, MICHAEL C
	GAUTUSA, CAROLYN
	MAGANA, VICENTE G
	RODRIGUES, FRANK C
781	STANT, HENRY H
810	CHURCH OF CHRIST MAUI

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2005

140	TAMALIS, MICHAEL
148	THOMPSON, GARY
1905	MURAKAMI, JAMES T
1913	BECRAFT, JAMIE J
1919	KAHAE, DEANNA L
1925	GALARITA, JOSEPH T
1939	YIP, GARY S
1945	ANDRIN, DAVID
1949	OCCUPANT UNKNOWN,
1953	ANAKALEA, MICAH M
1956	OCCUPANT UNKNOWN,
1957	HILARIO, PEDRO A
1961	KAHOLOKULA, JARED L
1962	DEMATTOS, RITA
1980	BALBERDI, EVELYN J
1988	LAI, MILTON B
1991	MANGLICMOT, WESLEY A
1994	PASCUA, KATHERINE E
1999	PARESA, GEORGE N
2003	OCCUPANT UNKNOWN,
2005	OCCUPANT UNKNOWN,
2007	HARADA, MITSUO W
2011	FUKUNAGA, MELVIN T
2012	OCCUPANT UNKNOWN,
2017	OSHIRO, SCOTT
2021	OCCUPANT UNKNOWN,
2025	SUGIKI, MILTON S
2035	OCCUPANT UNKNOWN,
2038	OHTA, FRANCIS M
2041	DADEZ, MARCELO S
2047	SALTIBAN, DARRELL J
2048	OCCUPANT UNKNOWN,
2062	MEDEIROS, JAMES A
2068	ACOB, SARAH C
2069	TOM, CLAYTON N
2075	KAILIHIWA, VALERIE U
2078	OCCUPANT UNKNOWN,
2080	OCCUPANT UNKNOWN,
2108	MARTIN, DORIS
2120	GOO, EVELYN B
	GOO, JEFFREY
	OCCUPANT UNKNOWN,
2125	MAUI SCHOOL DISTRICT
2155	CARLES, WILLIAM K
	OCCUPANT UNKNOWN,
2161	OCCUPANT UNKNOWN,
2295	KANA, JACOB H
2525	BROWN, DAVID H
2535	OCCUPANT UNKNOWN,
2555	TAMALIS, MICHAEL A

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

KAHEKILI HWY 2005 (Cont'd)

2570	KANUHA, CROSBY L
2575	OCCUPANT UNKNOWN,
2585	KOKI, LAWRENCE T
2609	OCCUPANT UNKNOWN,
2611	BENIOFF, LINDA
	OCCUPANT UNKNOWN,
2644	FREITAS, KAU Z
3220	CORDEIRO, CLARENCE F
	OCCUPANT UNKNOWN,
3225	NILES, WILLIAM
3400	MEDES, MELVIN A
	OCCUPANT UNKNOWN,
3460	DAY, MARIA
3470	BONNELL, JACOB
3476	CHANG, CHRISTOPHER K
	KAUKINI FARM
3483	NAKOA, DOREEN
3484	COSTON, JOHN K
3492	PALEKA, KALANI
3499	OCCUPANT UNKNOWN,
3500	KUAMOO, MARGARET
3520	HOOPIL, RICHARD K
3530	MEDES TRAIL RIDES
	MEDES, ALLAN J
4890	BANDIT TRUCKING
	OCCUPANT UNKNOWN,
4900	AJR LIMITED
	GRAY, JEFF
	OCCUPANT UNKNOWN,
	RODRIGUES, ANTHONY J
4980	OCCUPANT UNKNOWN,
5030	OCCUPANT UNKNOWN,
	TURNBULL STUDIOS & SCULPTURE GARDEN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BEACH RD 2005

200	ALOHA TEAK N TINGS ALOHA TEAK N TINGS LLC HAWAII EXPRESS MOVING SERVICES PREMIER RELOCATION & TRANSPORT
202	KAYA, KYOHEE
250	ABC CORP KRYSER CORP MY MOTORCYCLE R P L EQUIPMENT LLC STRUCTURAL CON BNDING RSTRN
253	BOWMAN TERMITE & PEST CONTROL OCCUPANT UNKNOWN,
263	BISSIN, RUDY
270	AMERICAN INCOME LIFE INSUR BEN EMPL & SUPP SERVICES DIVISION HALEAKALA GROUP LLC INSIGHTS TO SUCCESS FIRST TO W IRIS BEAUTIQUE THE LEGACY MORTGAGE INC MAUI PACIFIC INC PATCHPEOPLE ATTENTIVE TO CHILDREN RAYS DELI & LOUNGE INC SPORTSWEAR MAUI INC SUPERSTOP
273	OCCUPANT UNKNOWN,
286	BURROWS, EVANETTE B
293	OCCUPANT UNKNOWN,
295	NOCK, BENJAMIN
298	YOSHIDA, WAYNE
301	SATO, IWAO A
302	CAOILE VARIETY STORE
310	OCCUPANT UNKNOWN,
321	ANDAYA, P V
324	PEROS REALTY CO INC
331	OCCUPANT UNKNOWN,
344	OCCUPANT UNKNOWN,
351	JOANNS BARBERING & STYLING RODRIGUES, ALFRED J
358	MIN, ROBERT K
371	YATSUSHIRO, TAMIO
372	TOMS MINI MART
380	SYLVA, BRANDON L
381	SAKUTORI, NANCY Y
391	BARUT, RODNEY
394	OCCUPANT UNKNOWN,
403	TAKABAYASHI, RICHARD Y
415	TATEYAMA, KENJI T
427	FRANCISCO, MICHAEL A
432	DOOR OF FAITH CHURCH ISAIAH CENTER FOR EXCELLENCE

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BEACH RD 2005 (Cont'd)

432	TENGAN BARBARA PASTOR TENGAN, BARBARA Y
435	PENA, EVELYN
464	OCCUPANT UNKNOWN,
484	BROOME, KIMBERLY R
580	SEVILLA, DUKE A
600	BALOALOA, FLORDELINO T CABATBAT, RONALD NEFULDA, LORENZO NETO, LUIZ SULTENFUSS, ROBERT J WILLIAMS, ROBIN
603	PLUNKETT, JAMES J
616	BUCHWALD, JEFFREY A RUIZ, ARTHUR A
621	SADO, DOUGLAS M
625	KAHOOHANOHOANO, ADRIAN K
628	ANDREWS, CHRISTINE DELFINO, BIENVENIDO
633	CRAVALHO, JUSTIN
634	BAISA, BRADLEY OCCUPANT UNKNOWN,
641	CHUN, DEBORAH G
646	KAHAE, MOSES L KEKIM, EDWARD J KIM, HYUN S LEE, MICHAEL
650	LEE, MICHAEL M
655	DELACRUZ, L
658	LAVALLEE, ROYAL H
663	HOKOANA, J M
668	CRUZ, MICHAEL C OCCUPANT UNKNOWN, RODRIGUES, FRANK C
781	STANT, HENRY
810	CHURCH OF CHRIST MAUI



Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# KAHEKILI HWY 2000

93	HORNTHRUN, KEO
131	KANA, JACOB
140	TAMALIS, MICHAEL
146	PATTON, SARA
	THOMPSON, GARY
1925	GALARITA, MOMI
1945	ANDRIN, DAVID
1949	OCCUPANT UNKNOWN,
1957	HILARIO, PEDRO A
1981	BAGLEY, KEVIN
1988	LAI, MILTON B
1994	OCCUPANT UNKNOWN,
2003	ASUNCION, LENORA K
2007	OCCUPANT UNKNOWN,
2012	MALARY, JAMES
	MCMEEN, KEVIN
	PEDERSEN, ROBERT H
2025	VERDADERO, FAUSTO B
2035	OCCUPANT UNKNOWN,
2038	OHTA, FRANCIS M
2041	DADEZ, MARCELO
2042	JOYO, JAMIE
2047	OCCUPANT UNKNOWN,
2075	KAILIHIWA, VALERIE U
2085	OCCUPANT UNKNOWN,
2108	MARTIN, DORIS
2110	OCCUPANT UNKNOWN,
2120	GOO, WILLIE
2525	DOLAN, MIKE R
2535	OCCUPANT UNKNOWN,
2555	OCCUPANT UNKNOWN,
2644	FREITAS, WILLIAM B
3225	NILES, C M
3483	OCCUPANT UNKNOWN,
3520	HOOPII, LEROY
3530	MENDES, ALAN

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIIEHU BEACH RD 2000

200	WATER GARDENS OF HAWAII
250	ABC CHEMICAL CORPORATION
	HISAMOTO BODY & FENDER INCORPORATED
	HONDA MAUI MOTORCYCLE
	L & M BROTHERS INCORPORATED
	MAUI REFRIGERATION SERVICE INCORPORATED SHOP
	MIYAKE CONCRETE ACCESSORIES INCORPORATED
	STRUCTURAL CONCRETE BONDING & RESTORATION INCORPORATED
253	GUSHIKEN, RICHARD K
263	BISSEN, RUDY
270	DONNAS
	OCCUPANT UNKNOWN,
273	OCCUPANT UNKNOWN,
293	SMITH, MAXFRAN
295	CARVALHO, I F
301	SATO, IWAO
302	PAUKUKALO STORE
310	TOKUNAGA, SOLOMAN
321	CLAVERIA, CARIDAD
	VALDEZ, ESTELA C
324	OCCUPANT UNKNOWN,
331	OCCUPANT UNKNOWN,
344	REBOLLEDO, HERBERT
351	RODRIGUES, ALFRED
358	OCCUPANT UNKNOWN,
361	OCCUPANT UNKNOWN,
371	YATSUSHIRO, TAMIO
372	TOMS MINI MART
380	ALEJANDRO, JAN B
390	ACIO, NELSON
391	FUKUHARA, K C
394	OCCUPANT UNKNOWN,
403	TAKABAYASHI, R
408	OCCUPANT UNKNOWN,
409	TOM, F L
415	TATEYAMA, KENJI T
421	OCCUPANT UNKNOWN,
427	CARIAGA, V
	FRANCISCO, MICHAEL
432	DOOR OF FAITH CHURCH WAILUKU
	DOOR OF FAITH CHURCH WAILUKU PARSONAGE RES
	TENGAN BARBARA PASTOR
	TENGAN, J J
435	M B SALES UNLIMITED
464	IGLESIA NI CRISTO CHURCH OF CHRIST PARSONAGE
	IGLESIA NI CRISTO CHURCH OF CHRIST WAILUKU
580	EUGENIO, GILBERT
600	NEFULDA, LORENZO
	TORRICER, JEROME L
603	OCCUPANT UNKNOWN,

**WAIIEHU BEACH RD 2000 (Cont'd)**

6084367.5 Page: A22

**KAHEKILI HWY 1995**

6084367.5 Page: A23

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BCH RD 1995

101	OCCUPANT UNKNOWNN
185	MAEDA, JAMES T
186	ROSS, LORENZO
250	METHENY, TERRELL
253	GUSHIKEN, JOSEPH K
263	BISSEN, RUDY
270	CHO, JOY S
280	POTTER, RODNEY F
283	ALO, LOU A
286	BARKLIE, GAYLE
293	KOAHOU, WILLIAM SR
	TACKER, BILL
295	AQUINO, B
	HAYES, GREG
301	SATO, IWAO
310	TOKUNAGA, SOLOMAN
321	CABACUNGAN, DONATO S
324	YI, YOUNG H
331	YANAGI, KEEN
341	FABELLA, ROMELL
344	REBOLLEDO, MACARIA
351	CALHOUN, THOMAS M
358	OCCUPANT UNKNOWNN
361	SUZUKI, KAZUO
380	OCCUPANT UNKNOWNN
381	SAKUTORI, BRANDON E
390	TACDERAN, L
	WILLIAMS, DAN
391	FUKUHARA, K C
394	OCCUPANT UNKNOWNN
403	TAKABAYASHI, R
408	OCCUPANT UNKNOWNN
409	WONG, GEORGE S
415	TATEYAMA, KENJI T
427	FRANCISCO, MICHAEL
432	TENGAN, J J
435	ABRAHAM, ANTONIA
	BORJA, F C
446	RAYOAN, CONNIE
	RUIZ, LORETTA
464	OCCUPANT UNKNOWNN
480	KAMEYA, CHOZEN
484	OCCUPANT UNKNOWNN
600	BALOALOA, P
	BORGES, RICHARD
	DUDOIT, M
	GOROSPE, ANGIE
	NEFULDA, M
	TORRICER, JEROME L
616	LINTAO, A D

Target Street	Cross Street	Source
✓	-	EDR Digital Archive

# WAIEHU BCH RD 1995 (Cont'd)

616	RUIZ, OFELIA
621	OCCUPANT UNKNOWNN
625	DUTRO, KEALA
628	DELFINO, V S
633	MASUDA, ANNA
634	MALIN, EDELIZA B
	MORREIRA, FRANK A
	OMONDANG, LEANN
646	TOKUNAGA, MOMI
647	AMIZAVALLE, S
655	HAO, DRAKE P
658	DOUGLAS, DAVID J
668	DAVIS, S J
781	STANT, HENRY

WAIEHU BEACH RD 1995

6084367.5 Page: A26

KAHEKILI HWY 1992

6084367.5 Page: A27



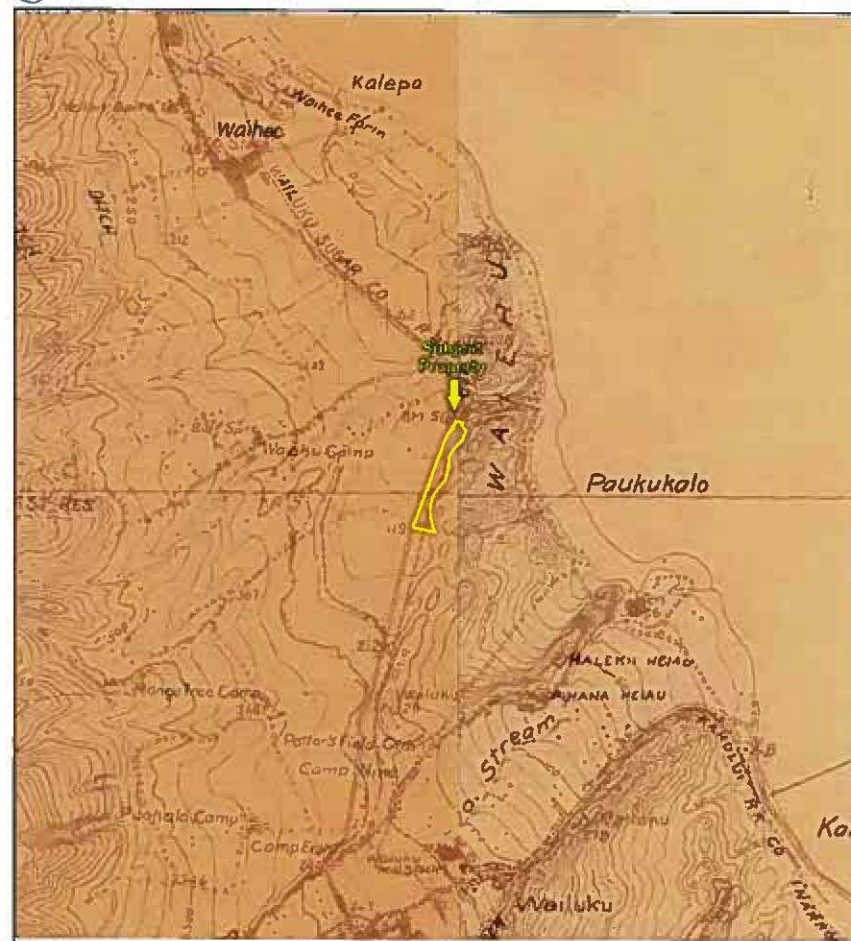
Target Street Cross Street Source  
 ✓ - EDR Digital Archive

WAIERU BEACH RD 1992

28 PEREZA, JAMES S  
 65 TRAN, DUNG A  
 185 MAEDA, JAMES T  
 253 GUSHIKEN, JOSEPH K  
 263 BISSEN, RUDY  
 270 WAIERU, CHEVRON  
 295 DAVIS, LUTHER  
 301 SATO, IWAO  
 310 TOKUNAGA, SOLOMAN  
 321 HAUPU, G K  
 324 YI, YOUNG H  
 331 YANAGI, KEEN  
 341 MAGLIBA, S  
 351 NISHIHARA, MITSUYO  
 358 NAKAGAWA, MICHAEL M  
 361 SUZUKI, KAZUO  
 380 LENT, ROBERT L  
 390 TACDERAN, L  
 391 FUKUHARA, K C  
 403 TAKABAYASHI, R  
 408 ABRAHAM, SUSANA B  
 415 TATEYAMA, KENJI T  
 427 FRANCISCO, MICHAEL  
 432 TANGAN, B  
 TENGAN, SHUICHI  
 435 BORJA, F C  
 446 RAYOAN, CONNIE  
 480 KAMEYA, CHOZEN  
 600 BALOALOA, P  
 CAMBRA, WAYNE L  
 FONG, K  
 GOROSPE, ANGIE  
 616 COCKETT, DELL  
 RUIZ, OFELIA  
 621 SADO, DOUGLAS  
 625 DUTRO, L K  
 634 MORREIRA, FRANK A  
 646 FAFOA, MELE T  
 TOKUNAGA, MOMI  
 647 VALLE, IDA H  
 658 DOUGLAS, DAVID J  
 663 HOKOANA, LEROY  
 668 BRANN, SCOTT  
 DAVIS, S J  
 781 STANT, HENRY  
 4354 ABRAHAM, ANTONIA



Topographic Map Year: 1922



TP. PAIA, 1922, 7.5-minute  
 W. WAILUKU, 1922, 7.5-minute



Key: Subject Property

APPENDIX B: Topographic Maps  
 Project No. 20-283903.1

**PARTNER**



Topographic Map Year: 1955



TP, Waiehu, 1955, 7.5-minute



Key: Subject Property

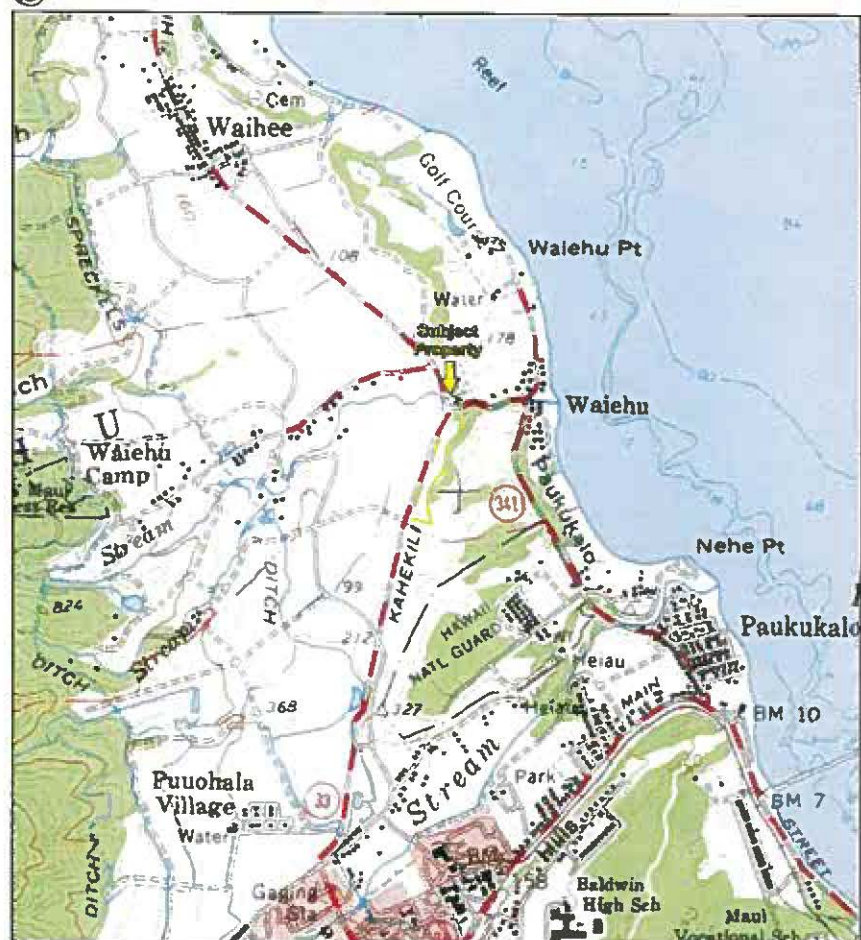
APPENDIX B: Topographic Maps  
Project No. 20-283903.1

**PARTNER**

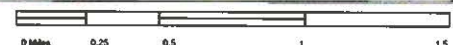
6084367 - 4



Topographic Map Year: 1961



TP, MAHE, 1961, 15-minute



Key: Subject Property

APPENDIX B: Topographic Maps  
Project No. 20-283903.1

**PARTNER**

6084367 - 4





Topographic Map Year: 1983



TP, Waiheke, 1983, 7.5-minute



Key: Subject Property

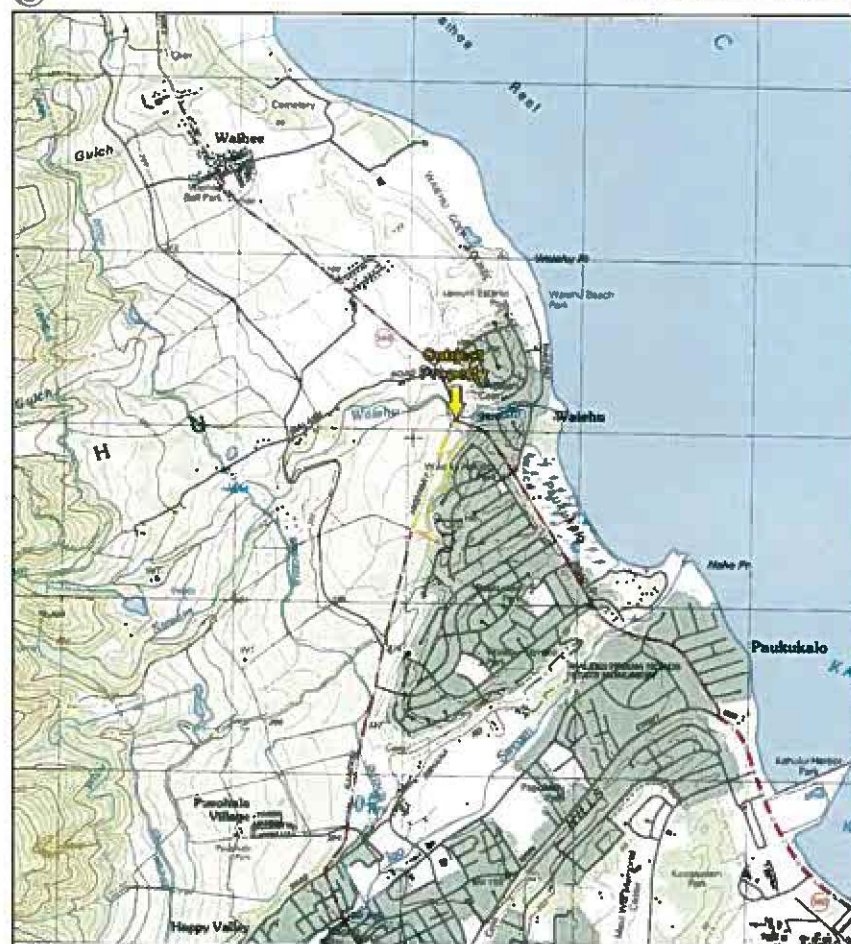
APPENDIX B: Topographic Maps  
Project No. 20-283903.1

**PARTNER**

6084367 - 4



Topographic Map Year: 1997



TP, Waiheke, 1997, 7.5-minute



Key: Subject Property

APPENDIX B: Topographic Maps  
Project No. 20-283903.1

**PARTNER**

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TP, Wójcik, 2013, 7.5-minute



**Key Subject Property** 

**APPENDIX B: Topographic Maps**  
Project No. 20-283903.1

## PARTNER

6084367 - 4





## APPENDIX C: REGULATORY DATABASE REPORT

**PARTNER**

SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
SE Corner of Kahekili Hwy & Waiehu Beach Rd.  
Wailuku, HI 96793

Inquiry Number: 6084367.2s  
June 05, 2020

The EDR Radius Map™ Report with GeoCheck®



6 Armstrong Road 4th floor  
Shelton, CT 06484  
Toll Free 800 352 0050  
www.edrnet.com

FORM-LBC-ASH

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 <b>GEOCHECK ADDENDUM</b>	
Physical Setting Source Addendum .....	A-1
Physical Setting Source Summary .....	A-2
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*Thank you for your business.*  
Please contact EDR at 1-800-352-0050  
with any questions or comments.

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## EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

### TARGET PROPERTY INFORMATION

#### ADDRESS

SE CORNER OF KAHEKILI HWY & WAIHEU BEACH RD.  
WAILUKU, HI 96793

#### COORDINATES

Latitude (North): 20.9144270 - 20° 54' 51.93"  
Longitude (West): 156.4986270 - 156° 29' 55.05"  
Universal Transverse Mercator: Zone 4  
UTM X (Meters): 760178.7  
UTM Y (Meters): 2314568.8  
Elevation: 98 ft. above sea level

### USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 5941607 WAILUKU, HI  
Version Date: 2013

# MAPPED SITES SUMMARY

Target Property Address:  
SE CORNER OF KAHKILU HWY & WAIHEHU BEACH RD.  
WAILUKU, HI 96793

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
-----------	-----------	---------	-------------------	-----------------------	-------------------------------

NO MAPPED SITES FOUND

# EXECUTIVE SUMMARY

## TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

## DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable") government records either on the target property or within the search radius around the target property for the following databases:

## STANDARD ENVIRONMENTAL RECORDS

### Federal NPL site list

NPL..... National Priority List  
Proposed NPL..... Proposed National Priority List Sites  
NPL LIENS..... Federal Superfund Liens

### Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

### Federal CERCLIS list

FEDERAL FACILITY..... Federal Facility Site Information listing  
SEMS..... Superfund Enterprise Management System

### Federal CERCLIS NFRAP site list

SEMS-ARCHIVE..... Superfund Enterprise Management System Archive

### Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

### Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

### Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators  
RCRA-SQG..... RCRA - Small Quantity Generators  
RCRA-VSQG..... RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

### Federal institutional controls / engineering controls registries

LUCIS..... Land Use Control Information System

## EXECUTIVE SUMMARY

US ENG CONTROLS..... Engineering Controls Sites List  
US INST CONTROLS..... Institutional Controls Sites List

### *Federal ERNS list*

ERNS..... Emergency Response Notification System

### *State- and tribal - equivalent CERCLIS*

SHWS..... Sites List

### *State and tribal landfill and/or solid waste disposal site lists*

SWFLF..... Permitted Landfills in the State of Hawaii

### *State and tribal leaking storage tank lists*

LUST..... Leaking Underground Storage Tank Database  
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

### *State and tribal registered storage tank lists*

FEMA UST..... Underground Storage Tank Listing  
UST..... Underground Storage Tank Database  
INDIAN UST..... Underground Storage Tanks on Indian Land

### *State and tribal institutional control / engineering control registries*

ENG CONTROLS..... Engineering Control Sites  
INST CONTROL..... Sites with Institutional Controls

### *State and tribal voluntary cleanup sites*

INDIAN VCP..... Voluntary Cleanup Priority Listing  
VCP..... Voluntary Response Program Sites

### *State and tribal Brownfields sites*

BROWNFIELDS..... Brownfields Sites

### ADDITIONAL ENVIRONMENTAL RECORDS

#### *Local Brownfield lists*

US BROWNFIELDS..... A Listing of Brownfields Sites

#### *Local Lists of Landfill / Solid Waste Disposal Sites*

INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands  
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations  
ODI..... Open Dump Inventory  
IHS OPEN DUMPS..... Open Dumps on Indian Land

#### *Local Lists of Hazardous waste / Contaminated Sites*

US HIST CDL..... Delisted National Clandestine Laboratory Register

## EXECUTIVE SUMMARY

CDL..... Clandestine Drug Lab Listing  
US CDL..... National Clandestine Laboratory Register

### *Local Land Records*

LIENS 2..... CERCLA Lien Information

### *Records of Emergency Release Reports*

HMIRS..... Hazardous Materials Information Reporting System  
SPILLS..... Release Notifications  
SPILLS 90..... SPILLS 90 data from FirstSearch

### *Other Ascertainable Records*

RCRA NonGen / NLR..... RCRA - Non Generators / No Longer Regulated  
FUDS..... Formerly Used Defense Sites  
DOD..... Department of Defense Sites  
SCRD DRYCLEANERS..... State Coalition for Remediation of Drycleaners Listing  
US FIN ASSUR..... Financial Assurance Information  
EPA WATCH LIST..... EPA WATCH LIST  
2020 COR ACTION..... 2020 Corrective Action Program List  
TSCA..... Toxic Substances Control Act  
TRIS..... Toxic Chemical Release Inventory System  
SSTS..... Section 7 Tracking Systems  
ROD..... Records Of Decision  
RMP..... Risk Management Plans  
RAATS..... RCRA Administrative Action Tracking System  
PRP..... Potentially Responsible Parties  
PADS..... PCB Activity Database System  
ICIS..... Integrated Compliance Information System  
FTTS..... FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)  
MLTS..... Material Licensing Tracking System  
COAL ASH DOE..... Steam-Electric Plant Operation Data  
COAL ASH EPA..... Coal Combustion Residues Surface Impoundments List  
PCB TRANSFORMER..... PCB Transformer Registration Database  
RADINFO..... Radiation Information Database  
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing  
DOT OPS..... Incident and Accident Data  
CONSENT..... Superfund (CERCLA) Consent Decrees  
INDIAN RESERV..... Indian Reservations  
FUSRAP..... Formerly Utilized Sites Remedial Action Program  
UMTRA..... Uranium Mill Tailings Sites  
LEAD SMELTERS..... Lead Smelter Sites  
US AIRS..... Aerometric Information Retrieval System Facility Subsystem  
US MINES..... Mines Master Index File  
ABANDONED MINES..... Abandoned Mines  
FINDS..... Facility Index System/Facility Registry System  
DOCKET HWC..... Hazardous Waste Compliance Docket Listing  
ECHO..... Enforcement & Compliance History Information  
UXO..... Unexploded Ordnance Sites  
FUELS PROGRAM..... EPA Fuels Program Registered Listing  
AIRS..... List of Permitted Facilities  
DRYCLEANERS..... Permitted Drycleaner Facility Listing



## EXECUTIVE SUMMARY

Financial Assurance..... Financial Assurance Information Listing  
LEAD..... LEAD  
UIC..... Underground Injection Wells Listing  
MINES MRDS..... Mineral Resources Data System

### EDR HIGH RISK HISTORICAL RECORDS

#### *EDR Exclusive Records*

EDR MGP..... EDR Proprietary Manufactured Gas Plants  
EDR Hist Auto..... EDR Exclusive Historical Auto Stations  
EDR Hist Cleaner..... EDR Exclusive Historical Cleaners

### EDR RECOVERED GOVERNMENT ARCHIVES

#### *Exclusive Recovered Govt. Archives*

RGA HWS..... Recovered Government Archive State Hazardous Waste Facilities List  
RGA LF..... Recovered Government Archive Solid Waste Facilities List  
RGA LUST..... Recovered Government Archive Leaking Underground Storage Tank

### SURROUNDING SITES: SEARCH RESULTS

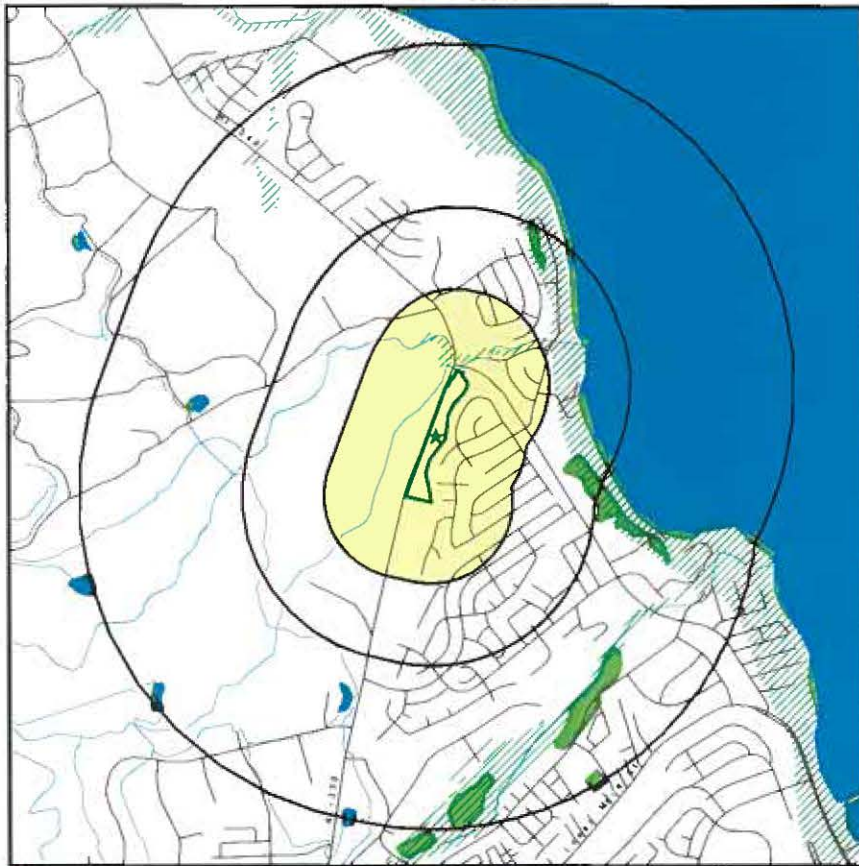
Surrounding sites were not identified.

Unmappable (orphan) sites are not considered in the foregoing analysis.

## EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 6084367.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

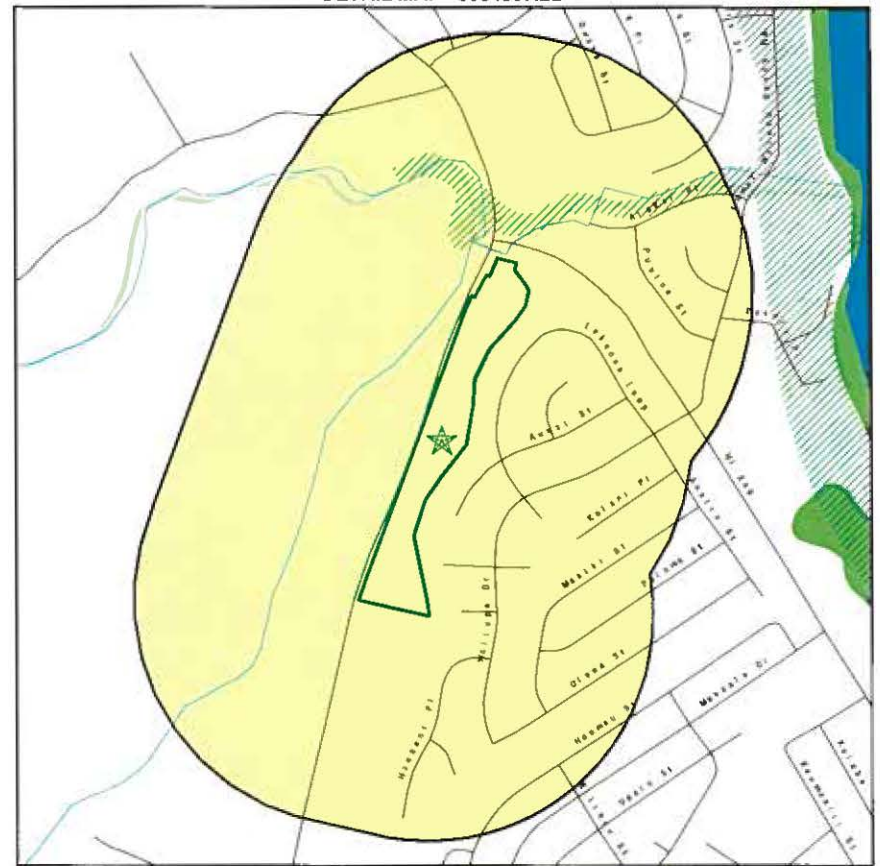
This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: SE Corner of Kahalo Hwy & Walehu Beach Rd.  
ADDRESS: SE Corner of Kahalo Hwy & Walehu Beach Rd.  
Wailuku HI 96793  
LAT/LONG: 20.914427 / 156.498627

CLIENT: Partner Engineering and Science, Inc.  
CONTACT: Cindy Salles  
INQUIRY #: 6084367.2s  
DATE: June 05, 2020 5:17 pm

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DETAIL MAP - 6084367.2S



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Special Flood Hazard Area (1%)
- 0.2% Annual Chance Flood Hazard
- National Wetland Inventory
- State Wetlands

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: SE Corner of Kahalo Hwy & Walehu Beach Rd.  
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CONTACT: Cindy Salles  
INQUIRY #: 6084367.2s  
DATE: June 05, 2020 5:17 pm

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### MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
<b>STANDARD ENVIRONMENTAL RECORDS</b>								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site list</i>								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
SHWS	1.000		0	0	0	0	NR	0
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
<i>State and tribal registered storage tank lists</i>								
FEMA UST	0.250		0	0	NR	NR	NR	0

### MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
UST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
<i>State and tribal institutional control / engineering control registries</i>								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
<i>State and tribal voluntary cleanup sites</i>								
INDIAN VCP	0.500		0	0	0	NR	NR	0
VCP	0.500		0	0	0	NR	NR	0
<i>State and tribal Brownfields sites</i>								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
<b>ADDITIONAL ENVIRONMENTAL RECORDS</b>								
<i>Local Brownfield lists</i>								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
<i>Local Lists of Landfill / Solid Waste Disposal Sites</i>								
INDIAN ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
<i>Local Lists of Hazardous waste / Contaminated Sites</i>								
US HIST CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US CDL	TP		NR	NR	NR	NR	NR	0
<i>Local Land Records</i>								
LIENS 2	TP		NR	NR	NR	NR	NR	0
<i>Records of Emergency Release Reports</i>								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
<i>Other Ascertainable Records</i>								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0

### MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TRIS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ROD	1,000		0	0	0	0	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
CONSENT	1,000		0	0	0	0	NR	0
INDIAN RESERV	1,000		0	0	0	0	NR	0
FUSRAP	1,000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
DOCKET HWC	TP		NR	NR	NR	NR	NR	0
ECHO	TP		NR	NR	NR	NR	NR	0
UXO	1,000		0	0	0	0	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
MINES MRDS	TP		NR	NR	NR	NR	NR	0

#### EDR HIGH RISK HISTORICAL RECORDS

##### EDR Exclusive Records

EDR MGP	1,000		0	0	0	0	NR	0
EDR Hist Auto	0.125		0	NR	NR	NR	NR	0
EDR Hist Cleaner	0.125		0	NR	NR	NR	NR	0

#### EDR RECOVERED GOVERNMENT ARCHIVES

##### Exclusive Recovered Govt. Archives

RGA HWS	TP		NR	NR	NR	NR	NR	0
RGA LF	TP		NR	NR	NR	NR	NR	0
RGA LUST	TP		NR	NR	NR	NR	NR	0

- Totals - 0 0 0 0 0 0 0 0

### MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
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#### NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database



LOCATED MAP FINDINGS

Map ID	EDR ID Number
Direction	EPA ID Number
Distance	Database(s)
Elevation	Site

NO SITES FOUND

Count: 0 records	OFFHAW SUMMARY
City	Site Name
	Site Address
	Date(s)

NO SITES FOUND

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

### STANDARD ENVIRONMENTAL RECORDS

#### Federal NPL site list

##### NPL National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/27/2020  
Date Data Arrived at EDR: 05/06/2020  
Date Made Active in Reports: 05/28/2020  
Number of Days to Update: 22

Source: EPA  
Telephone: N/A  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Quarterly

##### NPL Site Boundaries

##### Sources

EPA's Environmental Photographic Interpretation Center (EPIC)  
Telephone: 202-564-7333

EPA Region 1  
Telephone: 617-918-1143

EPA Region 3  
Telephone: 215-814-5418

EPA Region 4  
Telephone: 404-562-8033

EPA Region 5  
Telephone: 312-886-6686

EPA Region 10  
Telephone: 206-553-8665

EPA Region 6  
Telephone: 214-655-6659

EPA Region 7  
Telephone: 913-551-7247

EPA Region 8  
Telephone: 303-312-5774

EPA Region 9  
Telephone: 415-947-4246

#### Proposed NPL Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/27/2020  
Date Data Arrived at EDR: 05/06/2020  
Date Made Active in Reports: 05/28/2020  
Number of Days to Update: 22

Source: EPA  
Telephone: N/A  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Quarterly

#### NPL LIENS Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/15/1991  
Date Data Arrived at EDR: 02/02/1994  
Date Made Active in Reports: 03/30/1994  
Number of Days to Update: 56

Source: EPA  
Telephone: 202-564-4267  
Last EDR Contact: 08/15/2011  
Next Scheduled EDR Contact: 11/28/2011  
Data Release Frequency: No Update Planned

#### Federal Delisted NPL site list

##### Delisted NPL National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/27/2020  
Date Data Arrived at EDR: 05/06/2020  
Date Made Active in Reports: 05/28/2020  
Number of Days to Update: 22

Source: EPA  
Telephone: N/A  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Quarterly

#### Federal CERCLIS list

##### FEDERAL FACILITY Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019  
Date Data Arrived at EDR: 04/05/2019  
Date Made Active in Reports: 05/14/2019  
Number of Days to Update: 39

Source: Environmental Protection Agency  
Telephone: 703-603-8704  
Last EDR Contact: 04/03/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Varies

##### SEMS Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly known as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/27/2020  
Date Data Arrived at EDR: 05/06/2020  
Date Made Active in Reports: 05/28/2020  
Number of Days to Update: 22

Source: EPA  
Telephone: 800-424-9346  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 07/27/2020  
Data Release Frequency: Quarterly

#### Federal CERCLIS NFRAP site list

##### SEMS-ARCHIVE Superfund Enterprise Management System Archive

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site, it only means that, based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 04/27/2020	Source: EPA
Date Data Arrived at EDR: 05/06/2020	Telephone: 800-424-9346
Date Made Active in Reports: 05/28/2020	Last EDR Contact: 06/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/27/2020
	Data Release Frequency: Quarterly

### Federal RCRA CORRACTS facilities list

#### CORRACTS Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/23/2020	Source: EPA
Date Data Arrived at EDR: 03/25/2020	Telephone: 800-424-9346
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

### Federal RCRA non-CORRACTS TSD facilities list

#### RCRA-TSDF RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

### Federal RCRA generators list

#### RCRA-LQG RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### RCRA-SQG RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

### RCRA-VSQG RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

### Federal institutional controls / engineering controls registries

#### LUCIS Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/04/2019	Source: Department of the Navy
Date Data Arrived at EDR: 11/13/2019	Telephone: 843-820-7326
Date Made Active in Reports: 01/28/2020	Last EDR Contact: 05/14/2020
Number of Days to Update: 76	Next Scheduled EDR Contact: 08/24/2020
	Data Release Frequency: Varies

#### US ENG CONTROLS Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, bailing, foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 05/15/2020
Number of Days to Update: 65	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

#### US INST CONTROLS Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 02/13/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/20/2020	Telephone: 703-603-0695
Date Made Active in Reports: 05/15/2020	Last EDR Contact: 05/15/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### Federal ERNS list

ERNS Emergency Response Notification System  
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/16/2019  
Date Data Arrived at EDR: 12/19/2019  
Date Made Active in Reports: 03/06/2020  
Number of Days to Update: 78

Source: National Response Center, United States Coast Guard  
Telephone: 202-267-2180  
Last EDR Contact: 03/24/2020  
Next Scheduled EDR Contact: 07/06/2020  
Data Release Frequency: Quarterly

### State- and tribal - equivalent CERCLIS

#### SHWS Sites List

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 04/17/2019  
Date Data Arrived at EDR: 05/21/2019  
Date Made Active in Reports: 05/30/2019  
Number of Days to Update: 9

Source: Department of Health  
Telephone: 808-586-4249  
Last EDR Contact: 05/26/2020  
Next Scheduled EDR Contact: 08/31/2020  
Data Release Frequency: Semi-Annually

### State and tribal landfill and/or solid waste disposal site lists

#### SWF/LF Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/09/2020  
Date Data Arrived at EDR: 03/13/2020  
Date Made Active in Reports: 05/29/2020  
Number of Days to Update: 77

Source: Department of Health  
Telephone: 808-586-4245  
Last EDR Contact: 03/05/2020  
Next Scheduled EDR Contact: 07/06/2020  
Data Release Frequency: Varies

### State and tribal leaking storage tank lists

#### LUST Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 02/25/2020  
Date Data Arrived at EDR: 02/26/2020  
Date Made Active in Reports: 05/01/2020  
Number of Days to Update: 65

Source: Department of Health  
Telephone: 808-586-4228  
Last EDR Contact: 05/29/2020  
Next Scheduled EDR Contact: 09/07/2020  
Data Release Frequency: Semi-Annually

#### INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 10/04/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/27/2020  
Number of Days to Update: 85

Source: Environmental Protection Agency  
Telephone: 415-972-3372  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

#### INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 10/01/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 68

Source: EPA Region 1  
Telephone: 617-918-1313  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 10/10/2019  
Date Data Arrived at EDR: 12/05/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 67

Source: EPA Region 4  
Telephone: 404-562-8677  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 10/11/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 68

Source: EPA Region 10  
Telephone: 206-553-2857  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land

Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 10/01/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 68

Source: EPA Region 5  
Telephone: 312-866-7439  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 10/02/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 68

Source: EPA Region 6  
Telephone: 214-665-6597  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 10/03/2019  
Date Data Arrived at EDR: 12/04/2019  
Date Made Active in Reports: 02/14/2020  
Number of Days to Update: 72

Source: EPA Region 8  
Telephone: 303-312-6271  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies

#### INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 10/15/2019  
Date Data Arrived at EDR: 12/17/2019  
Date Made Active in Reports: 02/10/2020  
Number of Days to Update: 55

Source: EPA Region 7  
Telephone: 913-551-7003  
Last EDR Contact: 05/20/2020  
Next Scheduled EDR Contact: 08/03/2020  
Data Release Frequency: Varies



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### State and tribal registered storage tank lists

#### FEMA UST Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 08/27/2019	Source: FEMA
Date Data Arrived at EDR: 08/28/2019	Telephone: 202-646-5797
Date Made Active in Reports: 11/11/2019	Last EDR Contact: 03/19/2020
Number of Days to Update: 75	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: Varies

#### UST: Underground Storage Tank Database

Registered Underground Storage Tanks, UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/25/2020	Source: Department of Health
Date Data Arrived at EDR: 02/25/2020	Telephone: 808-586-4228
Date Made Active in Reports: 05/01/2020	Last EDR Contact: 05/29/2020
Number of Days to Update: 65	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Semi-Annually

#### INDIAN UST R10 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 10/11/2019	Source: EPA Region 10
Date Data Arrived at EDR: 12/04/2019	Telephone: 206-553-2857
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 68	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 10/01/2019	Source: EPA Region 1
Date Data Arrived at EDR: 12/04/2019	Telephone: 617-918-1313
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 68	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R4 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations).

Date of Government Version: 10/10/2019	Source: EPA Region 4
Date Data Arrived at EDR: 12/05/2019	Telephone: 404-562-9424
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 67	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R5 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 10/01/2019	Source: EPA Region 5
Date Data Arrived at EDR: 12/04/2019	Telephone: 312-886-6136
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 68	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

#### INDIAN UST R6 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 10/02/2019	Source: EPA Region 6
Date Data Arrived at EDR: 12/04/2019	Telephone: 214-665-7591
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 68	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R7 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 10/11/2019	Source: EPA Region 7
Date Data Arrived at EDR: 12/04/2019	Telephone: 913-551-7003
Date Made Active in Reports: 02/10/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 68	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R8 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 10/03/2019	Source: EPA Region 8
Date Data Arrived at EDR: 12/04/2019	Telephone: 303-312-6137
Date Made Active in Reports: 02/14/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 72	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

#### INDIAN UST R9 Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 10/04/2019	Source: EPA Region 9
Date Data Arrived at EDR: 12/04/2019	Telephone: 415-972-3368
Date Made Active in Reports: 02/27/2020	Last EDR Contact: 05/20/2020
Number of Days to Update: 65	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: Varies

### State and tribal institutional control / engineering control registries

#### ENG CONTROLS Engineering Control Sites

A listing of sites with engineering controls in place.

Date of Government Version: 04/17/2019	Source: Department of Health
Date Data Arrived at EDR: 05/21/2019	Telephone: 404-586-4249
Date Made Active in Reports: 05/30/2019	Last EDR Contact: 05/26/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

#### INST CONTROL Sites with Institutional Controls

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 04/17/2019	Source: Department of Health
Date Data Arrived at EDR: 05/21/2019	Telephone: 404-586-4249
Date Made Active in Reports: 05/30/2019	Last EDR Contact: 05/26/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

### State and tribal voluntary cleanup sites

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN VCP R1 Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015	Source: EPA, Region 1
Date Data Arrived at EDR: 09/29/2015	Telephone: 617-918-1102
Date Made Active in Reports: 02/18/2016	Last EDR Contact: 03/18/2020
Number of Days to Update: 142	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Varies

### INDIAN VCP R7 Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

### VCP Voluntary Response Program Sites

Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 04/17/2019	Source: Department of Health
Date Data Arrived at EDR: 05/21/2019	Telephone: 808-586-4249
Date Made Active in Reports: 05/30/2019	Last EDR Contact: 05/26/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

### State and tribal Brownfields sites

#### BROWNFIELDS Brownfields Sites

With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 04/17/2019	Source: Department of Health
Date Data Arrived at EDR: 05/21/2019	Telephone: 808-586-4249
Date Made Active in Reports: 05/30/2019	Last EDR Contact: 05/26/2020
Number of Days to Update: 9	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

### ADDITIONAL ENVIRONMENTAL RECORDS

#### Local Brownfield lists

#### US BROWNFIELDS A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/02/2019	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/16/2019	Telephone: 202-566-2777
Date Made Active in Reports: 03/06/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 81	Next Scheduled EDR Contact: 06/29/2020
	Data Release Frequency: Semi-Annually

#### Local Lists of Landfill / Solid Waste Disposal Sites

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN ODI Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998	Source: Environmental Protection Agency
Date Data Arrived at EDR: 12/03/2007	Telephone: 703-308-8245
Date Made Active in Reports: 01/24/2008	Last EDR Contact: 04/16/2020
Number of Days to Update: 52	Next Scheduled EDR Contact: 08/10/2020
	Data Release Frequency: Varies

### DEBRIS REGION 9 Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009	Source: EPA, Region 9
Date Data Arrived at EDR: 05/07/2009	Telephone: 415-947-4219
Date Made Active in Reports: 09/21/2009	Last EDR Contact: 04/09/2020
Number of Days to Update: 137	Next Scheduled EDR Contact: 08/03/2020
	Data Release Frequency: No Update Planned

### ODI Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 05/30/1985	Source: Environmental Protection Agency
Date Data Arrived at EDR: 08/09/2004	Telephone: 800-424-9346
Date Made Active in Reports: 09/17/2004	Last EDR Contact: 06/09/2020
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### IHS OPEN DUMPS Open Dumps on Indian Land

A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014	Source: Department of Health & Human Services, Indian Health Service
Date Data Arrived at EDR: 08/06/2014	Telephone: 301-443-1452
Date Made Active in Reports: 01/29/2015	Last EDR Contact: 05/01/2020
Number of Days to Update: 176	Next Scheduled EDR Contact: 08/10/2020
	Data Release Frequency: Varies

### Local Lists of Hazardous waste / Contaminated Sites

#### US HIST CDL National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 06/11/2019	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 06/13/2019	Telephone: 202-307-1000
Date Made Active in Reports: 09/03/2019	Last EDR Contact: 05/18/2020
Number of Days to Update: 82	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: No Update Planned

#### CDL Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010	Source: Department of Health
Date Data Arrived at EDR: 09/10/2010	Telephone: 808-586-4249
Date Made Active in Reports: 10/22/2010	Last EDR Contact: 05/18/2020
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: No Update Planned

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### US CDL Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 05/11/2019	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 05/13/2019	Telephone: 202-307-1000
Date Made Active in Reports: 09/03/2019	Last EDR Contact: 05/18/2020
Number of Days to Update: 82	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Quarterly

### Local Land Records

#### LIENS 2 CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 04/27/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/06/2020	Telephone: 202-564-6023
Date Made Active in Reports: 05/28/2020	Last EDR Contact: 06/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/13/2020
	Data Release Frequency: Semi-Annually

### Records of Emergency Release Reports

#### HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/05/2019	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 12/06/2019	Telephone: 202-366-4555
Date Made Active in Reports: 02/14/2020	Last EDR Contact: 03/24/2020
Number of Days to Update: 70	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

#### SPILLS: Release Notifications

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 11/18/2019	Source: Department of Health
Date Data Arrived at EDR: 11/19/2019	Telephone: 808-586-4249
Date Made Active in Reports: 01/21/2020	Last EDR Contact: 05/14/2020
Number of Days to Update: 63	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

#### SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/11/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### Other Ascertainable Records

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/23/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/25/2020	Telephone: (415) 495-8895
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 03/25/2020
Number of Days to Update: 57	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Quarterly

### FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 01/28/2020	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 02/19/2020	Telephone: 202-528-4285
Date Made Active in Reports: 05/14/2020	Last EDR Contact: 05/18/2020
Number of Days to Update: 85	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

### DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/10/2020
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: Semi-Annually

### FEDLAND: Federal and Indian Lands

Federally and Indian administered lands of the United States. Lands included are administered by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018	Source: U.S. Geological Survey
Date Data Arrived at EDR: 04/11/2018	Telephone: 888-275-8747
Date Made Active in Reports: 11/06/2019	Last EDR Contact: 04/06/2020
Number of Days to Update: 574	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: N/A

### SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/03/2017	Telephone: 615-532-8599
Date Made Active in Reports: 04/07/2017	Last EDR Contact: 05/15/2020
Number of Days to Update: 63	Next Scheduled EDR Contact: 08/24/2020
	Data Release Frequency: Varies

### US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/16/2019  
 Date Data Arrived at EDR: 12/19/2019  
 Date Made Active in Reports: 02/27/2020  
 Number of Days to Update: 70

Source: Environmental Protection Agency  
 Telephone: 202-566-1917  
 Last EDR Contact: 03/24/2020  
 Next Scheduled EDR Contact: 07/06/2020  
 Data Release Frequency: Quarterly

### EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013  
 Date Data Arrived at EDR: 03/21/2014  
 Date Made Active in Reports: 06/17/2014  
 Number of Days to Update: 88

Source: Environmental Protection Agency  
 Telephone: 617-520-3000  
 Last EDR Contact: 05/04/2020  
 Next Scheduled EDR Contact: 08/17/2020  
 Data Release Frequency: Quarterly

### 2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017  
 Date Data Arrived at EDR: 05/08/2018  
 Date Made Active in Reports: 07/20/2018  
 Number of Days to Update: 73

Source: Environmental Protection Agency  
 Telephone: 703-308-4044  
 Last EDR Contact: 05/08/2020  
 Next Scheduled EDR Contact: 08/17/2020  
 Data Release Frequency: Varies

### TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016  
 Date Data Arrived at EDR: 06/21/2017  
 Date Made Active in Reports: 01/05/2018  
 Number of Days to Update: 198

Source: EPA  
 Telephone: 202-260-5521  
 Last EDR Contact: 03/20/2020  
 Next Scheduled EDR Contact: 06/29/2020  
 Data Release Frequency: Every 4 Years

### TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018  
 Date Data Arrived at EDR: 02/05/2020  
 Date Made Active in Reports: 04/24/2020  
 Number of Days to Update: 79

Source: EPA  
 Telephone: 202-566-0250  
 Last EDR Contact: 05/21/2020  
 Next Scheduled EDR Contact: 08/31/2020  
 Data Release Frequency: Annually

### SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 05/01/2019  
 Date Data Arrived at EDR: 10/23/2019  
 Date Made Active in Reports: 01/15/2020  
 Number of Days to Update: 84

Source: EPA  
 Telephone: 202-564-4203  
 Last EDR Contact: 04/21/2020  
 Next Scheduled EDR Contact: 08/03/2020  
 Data Release Frequency: Annually

### ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 04/27/2020  
 Date Data Arrived at EDR: 05/06/2020  
 Date Made Active in Reports: 05/28/2020  
 Number of Days to Update: 22

Source: EPA  
 Telephone: 703-416-0223  
 Last EDR Contact: 06/03/2020  
 Next Scheduled EDR Contact: 09/14/2020  
 Data Release Frequency: Annually

### RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n) Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases. Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures, and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g. the fire department) should an accident occur.

Date of Government Version: 11/05/2019  
 Date Data Arrived at EDR: 11/20/2019  
 Date Made Active in Reports: 04/17/2020  
 Number of Days to Update: 149

Source: Environmental Protection Agency  
 Telephone: 202-564-8600  
 Last EDR Contact: 04/15/2020  
 Next Scheduled EDR Contact: 08/03/2020  
 Data Release Frequency: Varies

### RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995  
 Date Data Arrived at EDR: 07/03/1995  
 Date Made Active in Reports: 08/07/1995  
 Number of Days to Update: 35

Source: EPA  
 Telephone: 202-564-4104  
 Last EDR Contact: 06/02/2008  
 Next Scheduled EDR Contact: 09/01/2008  
 Data Release Frequency: No Update Planned

### PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 01/30/2020  
 Date Data Arrived at EDR: 02/06/2020  
 Date Made Active in Reports: 02/14/2020  
 Number of Days to Update: 8

Source: EPA  
 Telephone: 202-564-6023  
 Last EDR Contact: 06/03/2020  
 Next Scheduled EDR Contact: 08/17/2020  
 Data Release Frequency: Quarterly

### PADS: PCB Activity Database System

PCB Activity Database. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 10/09/2019  
 Date Data Arrived at EDR: 10/11/2019  
 Date Made Active in Reports: 12/20/2019  
 Number of Days to Update: 70

Source: EPA  
 Telephone: 202-566-0500  
 Last EDR Contact: 04/10/2020  
 Next Scheduled EDR Contact: 07/20/2020  
 Data Release Frequency: Annually

### ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016  
 Date Data Arrived at EDR: 11/23/2016  
 Date Made Active in Reports: 02/10/2017  
 Number of Days to Update: 79

Source: Environmental Protection Agency  
 Telephone: 202-566-2501  
 Last EDR Contact: 03/26/2020  
 Next Scheduled EDR Contact: 07/20/2020  
 Data Release Frequency: Quarterly

### FTTS: FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009  
 Date Data Arrived at EDR: 04/16/2009  
 Date Made Active in Reports: 05/11/2009  
 Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances  
 Telephone: 202-566-1667  
 Last EDR Contact: 08/18/2017  
 Next Scheduled EDR Contact: 12/04/2017  
 Data Release Frequency: No Update Planned

### FTTS INSP: FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009  
 Date Data Arrived at EDR: 04/16/2009  
 Date Made Active in Reports: 05/11/2009  
 Number of Days to Update: 25

Source: EPA  
 Telephone: 202-566-1667  
 Last EDR Contact: 08/18/2017  
 Next Scheduled EDR Contact: 12/04/2017  
 Data Release Frequency: No Update Planned

### MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 10/25/2019  
 Date Data Arrived at EDR: 10/25/2019  
 Date Made Active in Reports: 01/15/2020  
 Number of Days to Update: 82

Source: Nuclear Regulatory Commission  
 Telephone: 301-415-7169  
 Last EDR Contact: 04/10/2020  
 Next Scheduled EDR Contact: 08/03/2020  
 Data Release Frequency: Quarterly

### COAL ASH DOE: Steam-Electric Plant Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018  
 Date Data Arrived at EDR: 12/04/2019  
 Date Made Active in Reports: 01/15/2020  
 Number of Days to Update: 42

Source: Department of Energy  
 Telephone: 202-586-8719  
 Last EDR Contact: 03/06/2020  
 Next Scheduled EDR Contact: 05/15/2020  
 Data Release Frequency: Varies

### COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 01/12/2017  
 Date Data Arrived at EDR: 03/05/2019  
 Date Made Active in Reports: 11/11/2019  
 Number of Days to Update: 251

Source: Environmental Protection Agency  
 Telephone: N/A  
 Last EDR Contact: 05/01/2020  
 Next Scheduled EDR Contact: 09/14/2020  
 Data Release Frequency: Varies

### PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019  
 Date Data Arrived at EDR: 11/06/2019  
 Date Made Active in Reports: 02/10/2020  
 Number of Days to Update: 96

Source: Environmental Protection Agency  
 Telephone: 202-566-0517  
 Last EDR Contact: 05/08/2020  
 Next Scheduled EDR Contact: 08/17/2020  
 Data Release Frequency: Varies

### RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019  
 Date Data Arrived at EDR: 07/01/2019  
 Date Made Active in Reports: 09/23/2019  
 Number of Days to Update: 84

Source: Environmental Protection Agency  
 Telephone: 202-343-9775  
 Last EDR Contact: 07/01/2019  
 Next Scheduled EDR Contact: 07/13/2020  
 Data Release Frequency: Quarterly

### HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006  
 Date Data Arrived at EDR: 03/01/2007  
 Date Made Active in Reports: 04/10/2007  
 Number of Days to Update: 40

Source: Environmental Protection Agency  
 Telephone: 202-564-2501  
 Last EDR Contact: 12/17/2007  
 Next Scheduled EDR Contact: 03/17/2008  
 Data Release Frequency: No Update Planned

### HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006  
 Date Data Arrived at EDR: 03/01/2007  
 Date Made Active in Reports: 04/10/2007  
 Number of Days to Update: 40

Source: Environmental Protection Agency  
 Telephone: 202-564-2501  
 Last EDR Contact: 12/17/2007  
 Next Scheduled EDR Contact: 03/17/2008  
 Data Release Frequency: No Update Planned

### DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020  
 Date Data Arrived at EDR: 01/28/2020  
 Date Made Active in Reports: 04/17/2020  
 Number of Days to Update: 80

Source: Department of Transportation, Office of Pipeline Safety  
 Telephone: 202-366-4595  
 Last EDR Contact: 04/28/2020  
 Next Scheduled EDR Contact: 08/10/2020  
 Data Release Frequency: Quarterly

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### CONSENT Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2019	Source: Department of Justice, Consent Decree Library
Date Data Arrived at EDR: 01/17/2020	Telephone: Varies
Date Made Active in Reports: 03/06/2020	Last EDR Contact: 03/26/2020
Number of Days to Update: 49	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: Varies

### BRS Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2015	Source: EPA/NTIS
Date Data Arrived at EDR: 02/22/2017	Telephone: 800-424-9346
Date Made Active in Reports: 09/28/2017	Last EDR Contact: 03/25/2020
Number of Days to Update: 218	Next Scheduled EDR Contact: 07/06/2020
	Data Release Frequency: Biennially

### INDIAN RESERV Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014	Source: USGS
Date Data Arrived at EDR: 07/14/2015	Telephone: 202-206-3710
Date Made Active in Reports: 01/10/2017	Last EDR Contact: 04/10/2020
Number of Days to Update: 546	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: Semi-Annually

### FUSRAP Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017	Source: Department of Energy
Date Data Arrived at EDR: 09/11/2018	Telephone: 202-586-3559
Date Made Active in Reports: 09/14/2018	Last EDR Contact: 04/29/2020
Number of Days to Update: 3	Next Scheduled EDR Contact: 08/17/2020
	Data Release Frequency: Varies

### UMTRA Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low, however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 06/30/2019	Source: Department of Energy
Date Data Arrived at EDR: 11/15/2019	Telephone: 505-845-0011
Date Made Active in Reports: 01/28/2020	Last EDR Contact: 05/18/2020
Number of Days to Update: 74	Next Scheduled EDR Contact: 08/31/2020
	Data Release Frequency: Varies

### LEAD SMELTER 1 Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 04/27/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/06/2020	Telephone: 703-603-8787
Date Made Active in Reports: 05/28/2020	Last EDR Contact: 06/03/2020
Number of Days to Update: 22	Next Scheduled EDR Contact: 07/13/2020
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### LEAD SMELTER 2 Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust.

Date of Government Version: 04/05/2001	Source: American Journal of Public Health
Date Data Arrived at EDR: 10/27/2010	Telephone: 703-305-6451
Date Made Active in Reports: 12/02/2009	Last EDR Contact: 12/02/2009
Number of Days to Update: 36	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

### US AIRS (AFS) Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016	Source: EPA
Date Data Arrived at EDR: 10/26/2016	Telephone: 202-564-2496
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 09/28/2017
Number of Days to Update: 100	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Annually

### US AIRS MINOR Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 10/12/2016	Source: EPA
Date Data Arrived at EDR: 10/26/2016	Telephone: 202-564-2496
Date Made Active in Reports: 02/03/2017	Last EDR Contact: 09/28/2017
Number of Days to Update: 100	Next Scheduled EDR Contact: 01/08/2018
	Data Release Frequency: Annually

### MINES VIOLATIONS MSHA Violation Assessment Data

Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 03/31/2020	Source: DOL, Mine Safety & Health Admin
Date Data Arrived at EDR: 04/01/2020	Telephone: 202-693-9424
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 05/27/2020
Number of Days to Update: 50	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Quarterly

### US MINES Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/11/2020	Source: Department of Labor, Mine Safety and Health Administration
Date Data Arrived at EDR: 02/25/2020	Telephone: 303-231-5959
Date Made Active in Reports: 05/21/2020	Last EDR Contact: 05/21/2020
Number of Days to Update: 96	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Semi-Annually

### US MINES 2 Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 01/16/2018	Source: USGS
Date Data Arrived at EDR: 02/28/2020	Telephone: 703-648-7709
Date Made Active in Reports: 05/22/2020	Last EDR Contact: 05/27/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011	Source: USGS
Date Data Arrived at EDR: 06/08/2011	Telephone: 703-648-7709
Date Made Active in Reports: 09/13/2011	Last EDR Contact: 05/21/2020
Number of Days to Update: 97	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

### ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 03/05/2020	Source: Department of Interior
Date Data Arrived at EDR: 03/06/2020	Telephone: 202-206-2606
Date Made Active in Reports: 05/29/2020	Last EDR Contact: 06/03/2020
Number of Days to Update: 84	Next Scheduled EDR Contact: 09/21/2020
	Data Release Frequency: Quarterly

### FINDS: Facility Index System/Facility Registry System

Facility Index System, FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 02/03/2020	Source: EPA
Date Data Arrived at EDR: 03/03/2020	Telephone: (415) 947-8000
Date Made Active in Reports: 05/28/2020	Last EDR Contact: 06/02/2020
Number of Days to Update: 86	Next Scheduled EDR Contact: 09/14/2020
	Data Release Frequency: Quarterly

### ECHO: Enforcement & Compliance History Information

ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 01/05/2020	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/07/2020	Telephone: 202-564-2280
Date Made Active in Reports: 03/06/2020	Last EDR Contact: 04/07/2020
Number of Days to Update: 59	Next Scheduled EDR Contact: 07/20/2020
	Data Release Frequency: Quarterly

### DOCKET HWC: Hazardous Waste Compliance Docket Listing

A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/26/2018	Telephone: 202-564-0527
Date Made Active in Reports: 10/05/2018	Last EDR Contact: 05/18/2020
Number of Days to Update: 71	Next Scheduled EDR Contact: 09/07/2020
	Data Release Frequency: Varies

### UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2017  
Date Data Arrived at EDR: 01/17/2019  
Date Made Active in Reports: 04/01/2019  
Number of Days to Update: 74

Source: Department of Defense  
Telephone: 703-704-1564  
Last EDR Contact: 04/03/2020  
Next Scheduled EDR Contact: 07/27/2020  
Data Release Frequency: Varies

### FUELS PROGRAM: EPA Fuels Program Registered Listing

This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 02/18/2020  
Date Data Arrived at EDR: 02/19/2020  
Date Made Active in Reports: 05/14/2020  
Number of Days to Update: 85

Source: EPA  
Telephone: 800-385-6164  
Last EDR Contact: 05/19/2020  
Next Scheduled EDR Contact: 08/31/2020  
Data Release Frequency: Quarterly

### AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 12/19/2019  
Date Data Arrived at EDR: 12/23/2019  
Date Made Active in Reports: 03/02/2020  
Number of Days to Update: 70

Source: Department of Health  
Telephone: 808-586-4200  
Last EDR Contact: 03/20/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Varies

### DRYCLEANERS: Permitted Drycleaner Facility Listing

A listing of permitted drycleaner facilities in the state.

Date of Government Version: 12/19/2019  
Date Data Arrived at EDR: 12/23/2019  
Date Made Active in Reports: 03/04/2020  
Number of Days to Update: 72

Source: Department of Health  
Telephone: 808-586-4200  
Last EDR Contact: 03/20/2020  
Next Scheduled EDR Contact: 07/13/2020  
Data Release Frequency: Varies

### Financial Assurance: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/11/2020  
Date Data Arrived at EDR: 03/12/2020  
Date Made Active in Reports: 05/22/2020  
Number of Days to Update: 71

Source: Department of Health  
Telephone: 808-586-4226  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 09/21/2020  
Data Release Frequency: Varies

### LEAD: Lead Inspection Listing

Lead inspections

Date of Government Version: 03/05/2020  
Date Data Arrived at EDR: 03/06/2020  
Date Made Active in Reports: 05/15/2020  
Number of Days to Update: 70

Source: Department of Health  
Telephone: 808-586-5800  
Last EDR Contact: 06/03/2020  
Next Scheduled EDR Contact: 09/21/2020  
Data Release Frequency: Varies

### UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013  
Date Data Arrived at EDR: 02/12/2013  
Date Made Active in Reports: 04/09/2013  
Number of Days to Update: 56

Source: Department of Health  
Telephone: 808-586-4258  
Last EDR Contact: 05/18/2020  
Next Scheduled EDR Contact: 09/07/2020  
Data Release Frequency: Varies

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### PCS ENF Enforcement data

No description is available for this data

Date of Government Version: 12/31/2014  
Date Data Arrived at EDR: 02/05/2015  
Date Made Active in Reports: 03/06/2015  
Number of Days to Update: 29

Source: EPA  
Telephone: 202-564-2497  
Last EDR Contact: 03/26/2020  
Next Scheduled EDR Contact: 07/20/2020  
Data Release Frequency: Varies

### PCS INACTIVE Listing of Inactive PCS Permits

An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014  
Date Data Arrived at EDR: 01/05/2015  
Date Made Active in Reports: 05/06/2015  
Number of Days to Update: 120

Source: EPA  
Telephone: 202-564-2496  
Last EDR Contact: 03/26/2020  
Next Scheduled EDR Contact: 07/20/2020  
Data Release Frequency: Semi-Annually

### PCS Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011  
Date Data Arrived at EDR: 08/05/2011  
Date Made Active in Reports: 09/29/2011  
Number of Days to Update: 55

Source: EPA, Office of Water  
Telephone: 202-564-2496  
Last EDR Contact: 03/06/2020  
Next Scheduled EDR Contact: 06/22/2020  
Data Release Frequency: Semi-Annually

### MINES MRDS Mineral Resources Data System

Mineral Resources Data System  
Date of Government Version: 04/06/2018  
Date Data Arrived at EDR: 10/21/2019  
Date Made Active in Reports: 10/24/2019  
Number of Days to Update: 3

Source: USGS  
Telephone: 703-648-6533  
Last EDR Contact: 05/21/2020  
Next Scheduled EDR Contact: 09/07/2020  
Data Release Frequency: Varies

### EDR HIGH RISK HISTORICAL RECORDS

#### EDR Exclusive Records

#### EDR MGP EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used waste oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oil waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: No Update Planned

#### EDR Hist Auto EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

### EDR Hist Cleaner EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A  
Date Data Arrived at EDR: N/A  
Date Made Active in Reports: N/A  
Number of Days to Update: N/A

Source: EDR, Inc.  
Telephone: N/A  
Last EDR Contact: N/A  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

### EDR RECOVERED GOVERNMENT ARCHIVES

#### Exclusive Recovered Govt. Archives

#### RGA HWS Recovered Government Archive State Hazardous Waste Facilities List

The EDR Recovered Government Archive State Hazardous Waste database provides a list of SHWS incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/08/2014  
Number of Days to Update: 191

Source: Department of Health  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### RGA LF Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/17/2014  
Number of Days to Update: 200

Source: Department of Health  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies

#### RGA LUST Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Health in Hawaii.

Date of Government Version: N/A  
Date Data Arrived at EDR: 07/01/2013  
Date Made Active in Reports: 01/03/2014  
Number of Days to Update: 186

Source: Department of Health  
Telephone: N/A  
Last EDR Contact: 06/01/2012  
Next Scheduled EDR Contact: N/A  
Data Release Frequency: Varies



## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

#### Oil/Gas Pipelines

Source: Endeavor Business Media  
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

#### Electric Power Transmission Line Data

Source: Endeavor Business Media  
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**Sensitive Receptors** There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

#### AHA Hospitals

Source: American Hospital Association, Inc.  
Telephone: 312-280-5991  
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

#### Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services  
Telephone: 410-786-3000  
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

#### Nursing Homes

Source: National Institutes of Health  
Telephone: 301-594-6248  
Information on Medicare and Medicaid certified nursing homes in the United States.

#### Public Schools

Source: National Center for Education Statistics  
Telephone: 202-502-7300  
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

#### Private Schools

Source: National Center for Education Statistics  
Telephone: 202-502-7300  
The National Center for Education Statistics' primary database on private school locations in the United States.

**Flood Zone Data** This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA  
Telephone: 877-336-2627  
Date of Government Version: 2003, 2015

**NWI** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

#### State Wetlands Data: Wetlands Inventory

Source: Office of Planning  
Telephone: 808-587-2895

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Current USGS 7.5 Minute Topographic Map  
Source: U.S. Geological Survey

### STREET AND ADDRESS INFORMATION

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## GEOCHECK® - PHYSICAL SETTING SOURCE ADDENDUM

### TARGET PROPERTY ADDRESS

SE CORNER OF KAHEKILI HWY & WAIHEHU BEACH RD.  
SE CORNER OF KAHEKILI HWY & WAIHEHU BEACH RD.  
WAILUKU, HI 96793

### TARGET PROPERTY COORDINATES

Latitude (North): 20.914427 - 20° 54' 51.94"  
Longitude (West): 156.498627 - 156° 29' 55.06"  
Universal Transverse Mercator: Zone 4  
UTM X (Meters): 760178.7  
UTM Y (Meters): 2314568.8  
Elevation: 98 ft. above sea level

### USGS TOPOGRAPHIC MAP

Target Property Map: 5941607 WAILUKU, HI  
Version Date: 2013

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

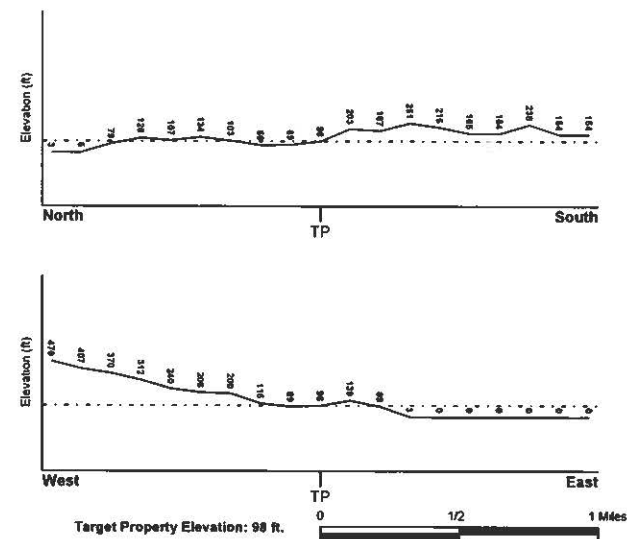
### TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NE

### SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

### FEMA FLOOD ZONE

#### Flood Plain Panel at Target Property      FEMA Source Type

1500030383E      FEMA FIRM Flood data

#### Additional Panels in search area:      FEMA Source Type

1500030381E      FEMA FIRM Flood data  
1500030384E      FEMA FIRM Flood data

### NATIONAL WETLAND INVENTORY

NWI Quad at Target Property      NWI Electronic  
NOT AVAILABLE      Data Coverage  
YES - refer to the Overview Map and Detail Map

### HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

### AQUIFLOW®

Search Radius: 1,000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION</u>	<u>GENERAL DIRECTION</u>
	<u>FROM TP</u>	<u>GROUNDWATER FLOW</u>
Not Reported		

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

### GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

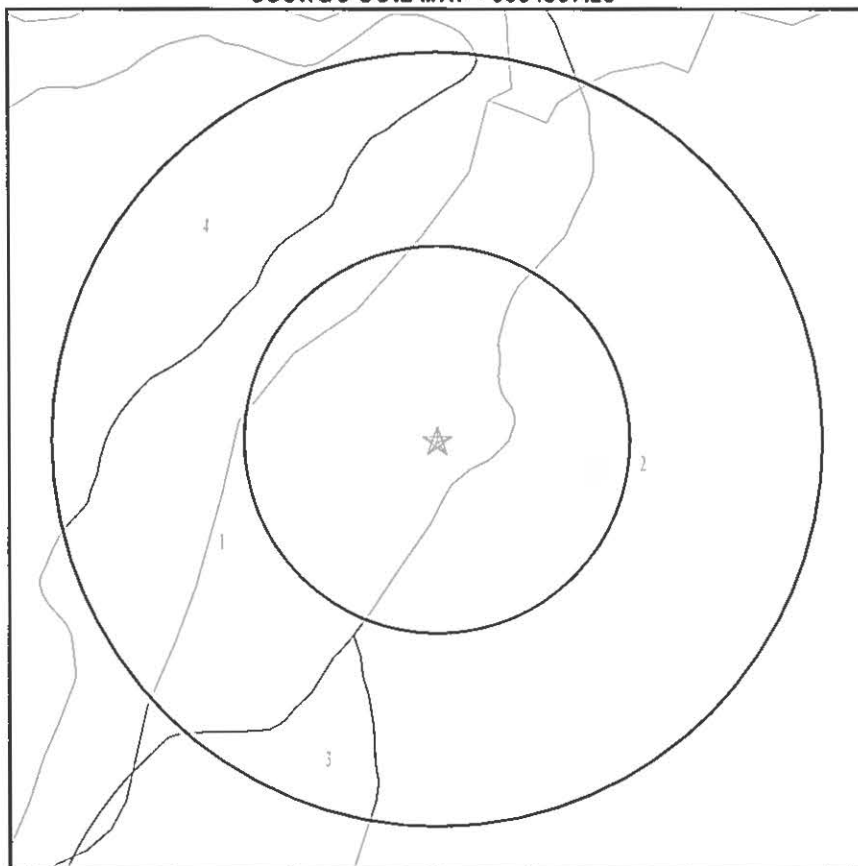
### ROCK STRATIGRAPHIC UNIT

### GEOLOGIC AGE IDENTIFICATION

Era:	-	Category:	-
System:	-		
Series:	-		
Code:	N/A (decoded above as Era, System & Series)		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

# SSURGO SOIL MAP - 6084367.2s



\* Target Property  
 \ SSURGO Soil  
 \ Water

SITE NAME: SE Corner of Kahakuli Hwy & Walehu Beach Rd.  
 ADDRESS: SE Corner of Kahakuli Hwy & Walehu Beach Rd.  
 Wailuku HI 96793  
 LAT/LONG: 20.914427 / 156.498627

CLIENT: Partner Engineering and Science, Inc.  
 CONTACT: Cindy Salter  
 INQUIRY #: 6084367.2s  
 DATE: June 05, 2020 5:17 pm

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## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

#### Soil Map ID: 1

Soil Component Name: lao  
 Soil Surface Texture: silty clay  
 Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.  
 Soil Drainage Class: Well drained  
 Hydric Status: Not hydric  
 Corrosion Potential - Uncoated Steel: Moderate  
 Depth to Bedrock Min: > 0 inches  
 Depth to Waterable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6
2	14 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6
3	48 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	ML-K (proposed)	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6



# **GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY**

Soil Map ID: 2

Soil Component Name: Puuone

Soil Surface Texture: sand

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Somewhat excessively drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	20 inches	sand	Granular materials (35 pct. or less passing No. 200), Fine Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14.11 Min: 4.23	Max: 8.5 Min: 8
2	20 inches	40 inches	cemented material	Granular materials (35 pct. or less passing No. 200), Fine Sand.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14.11 Min: 4.23	Max: 8.5 Min: 8

Soil Map ID: 3

Soil Component Name: Iao

Soil Surface Texture: cobbly silty clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

# **GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY**

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	14 inches	cobbly silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6
2	14 inches	48 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6
3	48 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand. COARSE-GRAINED SOILS, Sands, Sands with fines, Silty Sand.	Max: 14.11 Min: 1.41	Max: 7.3 Min: 6.6

Soil Map ID: 4

Soil Component Name: Wailuku

Soil Surface Texture: silty clay

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	11 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max 4.23 Min: 0.42	Max 6.5 Min: 5.6
2	11 inches	59 inches	silty clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	COARSE-GRAINED SOILS, Sands, Clean Sands, Poorly graded sand.	Max 4.23 Min 0.42	Max 6.5 Min 5.6

### LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

### WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

### FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
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## GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

### FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A3	USGS40000269211	1/4 - 1/2 Mile NNW
B6	USGS40000269214	1/2 - 1 Mile NNE
C8	USGS40000269216	1/2 - 1 Mile North
D10	USGS40000269219	1/2 - 1 Mile North
F13	USGS40000269206	1/2 - 1 Mile West
F14	USGS40000269204	1/2 - 1 Mile West
F18	USGS40000269182	1/2 - 1 Mile West
E20	USGS40000269190	1/2 - 1 Mile SW
E21	USGS40000269188	1/2 - 1 Mile SW
G22	USGS40000269194	1/2 - 1 Mile ESE

### FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
E19	HI0000212	1/2 - 1 Mile SW

Note: PWS System location is not always the same as well location.

### STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	HI1100000003619	0 - 1/8 Mile South
A2	HI1100000003685	1/4 - 1/2 Mile NNW
4	HI1100000003686	1/2 - 1 Mile North
B5	HI1100000003682	1/2 - 1 Mile NNE
7	HI1100000003684	1/2 - 1 Mile West
C9	HI1100000003687	1/2 - 1 Mile North
D11	HI1100000003683	1/2 - 1 Mile North
E12	HI1100000003621	1/2 - 1 Mile SW
F15	HI1100000003623	1/2 - 1 Mile West
F16	HI1100000003624	1/2 - 1 Mile West
E17	HI1100000003620	1/2 - 1 Mile SW
G23	HI1100000003617	1/2 - 1 Mile ESE

# PHYSICAL SETTING SOURCE MAP - 6084367.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons

- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location

SITE NAME: SE Corner of Kahakill Hwy & Walehu Beach Rd.  
 ADDRESS: SE Corner of Kahakill Hwy & Walehu Beach Rd.  
 Wailuku HI 96793  
 LAT/LONG: 20.914427 / 156.498627

CLIENT: Partner Engineering and Science, Inc.  
 CONTACT: Cindy Salas  
 INQUIRY #: 6084367.2s  
 DATE: June 05, 2020 5:17 pm

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## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
 Direction  
 Distance  
 Elevation

Database EDR ID Number

1  
 South  
 0 - 1/8 Mile  
 Higher

HI WELLS HI1100000003619

Well ID	6-5429-003	Well Name	MEO BEST Ke Kahua
Well Owner	John Min (Maui Economic Opportunity)		
Land Owner	Not Reported	Pump Rate (g/m)	59
Year Drilled	2011	Original Well Name	Not Reported
Driller	Not Reported	Well Construction Type	Rotary
Casing Diameter (in)	12	Ground Elevation (ft)	91
Well Depth (ft)	112	Solid Casing Depth	97
Perforated Casing Depth	112		
Major Well Use	Irrigation (non-domestic, non-agriculture)		
Initial Water Level (ft)	21.9	Water Level After Drilling	Not Reported
Water Level After Install	Not Reported	Chloride Content (mg/L)	20
Date Tested	12/20/2011	Test Pump Rate (g/m)	76
Test Drawdown Rate (ft)	12.4	Test Chloride Content (MG/L)	20
Test Water Temp	71	Temp Unit	F
Max Chloride Level	Not Reported	Minimum Chloride Level	Not Reported
Draft Year	Not Reported	Hole Bottom Elevation	-12
Solid Casing Bottom Elevation	-6	Year Installed	2011
Pump Capacity (MM gal/day)	0.085	Pump Intake Depth	93
Latest Head	Not Reported	Latest WCR1 Report	1/26/2012
Latest WCR2 Report	1/26/2012	Transmissivity	Not Reported
Min to pump 5 volumes	Not Reported		

A2  
 NNW  
 1/4 - 1/2 Mile  
 Lower

HI WELLS HI1100000003685

Well ID	6-5530-002	Well Name	Waiehu TH
Well Owner	Malahi Condo	Land Owner	Malahi Condo
Pump Rate (g/m)	Not Reported	Year Drilled	1933
Original Well Name	Not Reported	Driller	J Heizer
Well Construction Type	Rotary	Casing Diameter (in)	1
Ground Elevation (ft)	80	Well Depth (ft)	177
Solid Casing Depth	Not Reported	Perforated Casing Depth	Not Reported
Major Well Use	Abandoned-Lost	Initial Water Level (ft)	65
Water Level After Drilling	Not Reported	Water Level After Install	Not Reported
Chloride Content (mg/L)	0	Date Tested	Not Reported
Test Pump Rate (g/m)	Not Reported	Test Drawdown Rate (ft)	Not Reported
Test Chloride Content (MG/L)	Not Reported	Test Water Temp	Not Reported
Temp Unit	Not Reported	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	-97	Solid Casing Bottom Elevation	Not Reported
Year Installed	Not Reported	Pump Capacity (MM gal/day)	Not Reported
Pump Intake Depth	Not Reported	Latest Head	Not Reported
Latest WCR1 Report	1/1/1933	Latest WCR2 Report	Not Reported
Transmissivity	Not Reported	Min to pump 5 volumes	Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

A3  
NNW  
1/4 - 1/2 Mile  
Lower

Database EDR ID Number

FED USGS USGS40000269211

Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5530-02 WAIEHU TH103		
Type	Well. Test hole not completed as a well		
Description	Not Reported	HUC	20020000
Drainage Area	Not Reported	Drainage Area Units	Not Reported
Contrib Drainage Area	Not Reported	Contrib Drainage Area Units	Not Reported
Aquifer	Not Reported	Formation Type	Not Reported
Aquifer Type	Not Reported	Construction Date	19331201
Well Depth	177	Well Depth Units	ft
Well Hole Depth	177	Well Hole Depth Units	ft

4  
North  
1/2 - 1 Mile  
Higher

HI WELLS HI1100000003686

Well ID.	6-5530-003	Well Name	Waehu Golf Course - 15th Tee
Well Owner	Department of Parks and Recreation	Central Max. MDP	
Land Owner	Not Reported	Pump Rate (gpm)	Not Reported
Year Drilled	1995	Original Well Name	Waehu Golf Course 1
Driller	David Pico Cesspool Digging		
Well Construction Type	Rotary	Casing Diameter (in)	Not Reported
Ground Elevation (ft)	Not Reported	Well Depth (ft)	210
Solid Casing Depth	Not Reported	Perforated Casing Depth	Not Reported
Major Well Use	Unused	Initial Water Level (ft)	Not Reported
Water Level After Drilling	Not Reported	Water Level After Install.	Not Reported
Chloride Content (mg/L)	0	Date Tested	Not Reported
Test Pump Rate (gpm)	Not Reported	Test Drawdown Rate (ft)	Not Reported
Test Chloride Content (MG/L)	Not Reported	Test Water Temp	Not Reported
Temp Unit	Not Reported	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	Not Reported	Solid Casing Bottom Elevation	Not Reported
Year Installed	Not Reported	Pump Capacity (MM gal/day)	Not Reported
Pump Intake Depth	Not Reported	Latest Head	Not Reported
Latest WCR1 Report	7/1/1995	Latest WCR2 Report	Not Reported
Transmissivity	Not Reported	Min to pump 5 volumes	Not Reported

B5  
NNE  
1/2 - 1 Mile  
Lower

HI WELLS HI1100000003682

Well ID	6-5529-001	Well Name	Waehu TH
Well Owner	Pacific Islands Water Science Center	USGS, U.S. Geological Survey	
Land Owner	Not Reported	Pump Rate (gpm)	0
Year Drilled	1935	Original Well Name	Not Reported
Driller	J Heizer	Well Construction Type	Rotary
Casing Diameter (in)	1	Ground Elevation (ft)	14
Well Depth (ft)	22	Solid Casing Depth	Not Reported
Perforated Casing Depth	Not Reported	Major Well Use	Abandoned-Lost
Initial Water Level (ft)	2	Water Level After Drilling	Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Water Level After Install	Not Reported	Chloride Content (mg/L)	0
Date Tested	Not Reported	Test Pump Rate (gpm)	Not Reported
Test Drawdown Rate (ft)	Not Reported	Test Chloride Content (MG/L)	Not Reported
Test Water Temp	Not Reported	Temp Unit	Not Reported
Max Chloride Level	Not Reported	Minimum Chloride Level	Not Reported
Draft Year	Not Reported	Hole Bottom Elevation	-8
Solid Casing Bottom Elevation	Not Reported	Year Installed	Not Reported
Pump Capacity (MM gal/day)	Not Reported	Pump Intake Depth	Not Reported
Latest Head	Not Reported	Latest WCR1 Report	1/1/1935
Latest WCR2 Report	Not Reported	Transmissivity	Not Reported
Min to pump 5 volumes	Not Reported		

Chloride Content (mg/L)	0
Test Pump Rate (gpm)	Not Reported
Test Chloride Content (MG/L)	Not Reported
Temp Unit	Not Reported
Minimum Chloride Level	Not Reported
Hole Bottom Elevation	-8
Year Installed	Not Reported
Pump Intake Depth	Not Reported
Latest WCR1 Report	1/1/1935
Transmissivity	Not Reported

B6  
NNE  
1/2 - 1 Mile  
Lower

FED USGS USGS40000269214

Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5529-01 WAIEHU TH104		
Type	Well. Test hole not completed as a well		
Description	Not Reported	HUC	20020000
Drainage Area	Not Reported	Drainage Area Units	Not Reported
Contrib Drainage Area	Not Reported	Contrib Drainage Area Units	Not Reported
Aquifer	Not Reported	Formation Type	Not Reported
Aquifer Type	Not Reported	Construction Date	19351107
Well Depth	22	Well Depth Units	ft
Well Hole Depth	22	Well Hole Depth Units	ft

7  
West  
1/2 - 1 Mile  
Higher

HI WELLS HI1100000003684

Well ID	6-5530-001	Well Name	Waehu Tunnel
Well Owner	Wailuku Sugar	Land Owner	Not Reported
Pump Rate (gpm)	0	Year Drilled	1942
Original Well Name	Not Reported	Driller	Not Reported
Well Construction Type	Tunnel	Casing Diameter (in)	Not Reported
Ground Elevation (ft)	300	Well Depth (ft)	0
Solid Casing Depth	Not Reported	Perforated Casing Depth	Not Reported
Major Well Use	Observation	Initial Water Level (ft)	300
Water Level After Drilling	Not Reported	Water Level After Install	Not Reported
Chloride Content (mg/L)	0	Date Tested	Not Reported
Test Pump Rate (gpm)	Not Reported	Test Drawdown Rate (ft)	Not Reported
Test Chloride Content (MG/L)	Not Reported	Test Water Temp	Not Reported
Temp Unit	Not Reported	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	Not Reported	Solid Casing Bottom Elevation	Not Reported
Year Installed	Not Reported	Pump Capacity (MM gal/day)	Not Reported
Pump Intake Depth	Not Reported	Latest Head	Not Reported
Latest WCR1 Report	Not Reported	Latest WCR2 Report	Not Reported
Transmissivity	Not Reported	Min to pump 5 volumes	Not Reported

Well Name	Waehu Tunnel
Land Owner	Not Reported
Year Drilled	1942
Driller	Not Reported
Casing Diameter (in)	Not Reported
Well Depth (ft)	0
Perforated Casing Depth	Not Reported
Initial Water Level (ft)	300
Water Level After Install	Not Reported
Date Tested	Not Reported
Test Drawdown Rate (ft)	Not Reported
Test Water Temp	Not Reported
Max Chloride Level	Not Reported
Draft Year	Not Reported
Solid Casing Bottom Elevation	Not Reported
Pump Capacity (MM gal/day)	Not Reported
Latest Head	Not Reported
Latest WCR2 Report	Not Reported
Min to pump 5 volumes	Not Reported



# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

C8  
North  
1/2 - 1 Mile  
Lower  
FED USGS USGS40000269216

Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5530-02 Test Hole T-103, Waihee, Maui, HI		
Type	Well Test hole not completed as a well		
Description	Not Reported	HUC:	20020000
Drainage Area	Not Reported	Drainage Area Units	Not Reported
Contrib Drainage Area	Not Reported	Contrib Drainage Area Units	Not Reported
Aquifer	Not Reported	Formation Type	Not Reported
Aquifer Type	Not Reported	Construction Date	19331218
Well Depth:	Not Reported	Well Depth Units	Not Reported
Well Hole Depth	177	Well Hole Depth Units	ft

C9  
North  
1/2 - 1 Mile  
Lower  
HI WELLS HI1100000003687

Well ID	6-5530-004	Well Name	Waiehu Golf Course - 13th Fairway
Well Owner	Department of Parks and Recreation, Central Maui, MDPR		
Land Owner	Not Reported	Pump Rate (gpm)	300
Year Drilled	1995	Original Well Name	Waiehu Golf Course 2
Driller	David Pico Cesspool Digging		
Well Construction Type	Rotary	Casing Diameter (in)	12
Ground Elevation (ft)	77	Well Depth (ft)	150
Solid Casing Depth	80	Perforated Casing Depth	140
Major Well Use	Golf Course Irrigation	Instal Water Level (ft)	8.43
Water Level After Drilling	Not Reported	Water Level After Install	Not Reported
Chloride Content (mg/L)	80	Date Tested	9/20/1995
Test Pump Rate (gpm)	320	Test Drawdown Rate (ft)	22.9
Test Chloride Content (MG/L)	170	Test Water Temp	23.3
Temp Unit	C	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	-73	Solid Casing Bottom Elevation	-3
Year Installed	1997	Pump Capacity (MM gal/day)	0.432
Pump Intake Depth	119	Latest Head	Not Reported
Latest WCR1 Report	9/1/1995	Latest WCR2 Report	6/9/2014
Transmissivity	4601	Min to pump 5 volumes	Not Reported

D10  
North  
1/2 - 1 Mile  
Lower  
FED USGS USGS40000269219

Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5529-02 W451	Type	Well
Description	Not Reported	HUC:	20020000
Drainage Area	Not Reported	Drainage Area Units	Not Reported
Contrib Drainage Area	Not Reported	Contrib Drainage Area Units	Not Reported
Aquifer	Not Reported	Formation Type	Not Reported
Aquifer Type	Not Reported	Construction Date	19670706
Well Depth	76	Well Depth Units	ft
Well Hole Depth	Not Reported	Well Hole Depth Units	Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

D11  
North  
1/2 - 1 Mile  
Lower  
HI WELLS HI1100000003683

Well ID	6-5529-002	Well Name	Waiehu Golf Course - Pond
Well Owner	Department of Parks and Recreation, Central Maui, MDPR		
Land Owner	Department of Parks and Recreation, Central Maui, MDPR		
Pump Rate (gpm)	390	Year Drilled	1967
Original Well Name	Waiehu Golf Course	Driller	Ocean View Drilling Co., Ltd.
Well Construction Type	Rotary	Casing Diameter (in)	8
Ground Elevation (ft)	10	Well Depth (ft)	76
Solid Casing Depth	40	Perforated Casing Depth	Not Reported
Major Well Use	Golf Course Irrigation	Instal Water Level (ft)	3.6
Water Level After Drilling	Not Reported	Water Level After Install	Not Reported
Chloride Content (mg/L)	32	Date Tested	Not Reported
Test Pump Rate (gpm)	190	Test Drawdown Rate (ft)	0.3
Test Chloride Content (MG/L)	Not Reported	Test Water Temp	23.3
Temp Unit	C	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	-66	Solid Casing Bottom Elevation	-30
Year Installed	Not Reported	Pump Capacity (MM gal/day)	0.561
Pump Intake Depth	Not Reported	Latest Head	Not Reported
Latest WCR1 Report	1/1/1987	Latest WCR2 Report	Not Reported
Transmissivity	Not Reported	Min to pump 5 volumes	Not Reported

E12  
SW  
1/2 - 1 Mile  
Higher  
HI WELLS HI1100000003621

Well ID	6-5430-002	Well Name	Waiehu Heights 2
Well Owner	Maui Department of Water Supply, MDWS		
Land Owner	County of Maui	Pump Rate (gpm)	1250
Year Drilled	1975	Original Well Name	514
Driller	Water Resources International, Inc.		
Well Construction Type	Rotary	Casing Diameter (in)	14
Ground Elevation (ft)	337	Well Depth (ft)	543
Solid Casing Depth	337	Perforated Casing Depth	367
Major Well Use	County	Instal Water Level (ft)	18
Water Level After Drilling	Not Reported	Water Level After Install	Not Reported
Chloride Content (mg/L)	20	Date Tested	5/29/1975
Test Pump Rate (gpm)	1300	Test Drawdown Rate (ft)	21
Test Chloride Content (MG/L)	20	Test Water Temp	Not Reported
Temp Unit	Not Reported	Max Chloride Level	Not Reported
Minimum Chloride Level	Not Reported	Draft Year	Not Reported
Hole Bottom Elevation	-206	Solid Casing Bottom Elevation	0
Year Installed	1998	Pump Capacity (MM gal/day)	1.8
Pump Intake Depth	360	Latest Head	Not Reported
Latest WCR1 Report	5/18/1975	Latest WCR2 Report	10/26/2011
Transmissivity	Not Reported	Min to pump 5 volumes	Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation	Database	EDR ID Number
F13 West 1/2 - 1 Mile Higher	FED USGS	USGS40000269205
Organization ID Monitor Location Type Description Drainage Area Contrib Drainage Area Aquifer Aquifer Type Well Depth Well Hole Depth	USGS-HI 6-5530-03 WAIIEHU TH-D Well Test hole not completed as a well Not Reported Not Reported Not Reported Not Reported Not Reported 490 490	Organization Name USGS Hawaii Water Science Center HUC: 20020000 Drainage Area Units: Not Reported Contrib Drainage Area Units: Not Reported Formation Type: Not Reported Construction Date: 19750826 Well Depth Units: ft Well Hole Depth Units: ft
Ground water levels, Number of Measurements: Feet below surface: Note	1 365.53 Not Reported	Level reading date: Feet to sea level: Not Reported

F14 West 1/2 - 1 Mile Higher	FED USGS	USGS40000269204
Organization ID Monitor Location Type Description Drainage Area Contrib Drainage Area Aquifer Aquifer Type Well Depth Well Hole Depth	USGS-HI 6-5430-04 TH-D Waiehu, Maui, HI Well Test hole not completed as a well Not Reported Not Reported Not Reported Not Reported Not Reported 490 490	Organization Name USGS Hawaii Water Science Center HUC: 20020000 Drainage Area Units: Not Reported Contrib Drainage Area Units: Not Reported Formation Type: Not Reported Construction Date: 19750801 Well Depth Units: ft Well Hole Depth Units: ft
Ground water levels, Number of Measurements: Feet below surface: Note	145 Not Reported Not Reported	Level reading date: Feet to sea level: 9.85
Level reading date: Feet to sea level:	1999-03-29 10.67	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1999-03-05 11.18	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1999-02-11 11.24	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1999-01-04 11.05	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-12-04 10.82	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-09-30 10.23	Feet below surface: Note: Not Reported Not Reported

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Level reading date: Feet to sea level:	1998-08-24 9.95	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-07-01 10.44	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-05-26 10.39	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-04-02 10.54	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-02-23 10.58	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1998-01-06 11.09	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-11-25 10.58	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-10-02 9.86	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-08-25 9.36	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-08-06 9.08	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-07-02 9.28	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-05-27 9.82	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-05-08 9.88	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-04-02 10.42	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-02-24 10.41	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1997-01-06 10.83	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-11-25 10.18	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-10-02 9.02	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-09-12 9.20	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-05-29 10.32	Feet below surface: Note: Not Reported Not Reported
Level reading date: Feet to sea level:	1996-04-30 10.66	Feet below surface: Note: Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level:	1996-04-02 10.91	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1996-01-03 10.77	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-11-21 10.00	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-10-05 9.87	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-08-31 10.15	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-08-02 10.55	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-07-06 11.00	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-06-06 11.60	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-05-04 12.31	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-02-27 12.76	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1995-01-11 11.25	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-09-20 11.50	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-08-04 11.44	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-06-24 11.54	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-06-15 11.69	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-03-21 12.89	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-03-17 12.96	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-02-22 13.37	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1994-01-19 12.57	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-12-02 12.39	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-11-18 12.30	Feet below surface: Note	Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level:	1993-10-01 11.82	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-08-17 11.86	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-06-18 12.18	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-05-18 12.56	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-04-29 12.58	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-03-28 12.81	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-02-18 13.36	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-02-17 13.36	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-02-02 13.65	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1993-01-26 13.52	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-12-21 13.11	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-11-28 13.05	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-11-05 12.90	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-09-16 12.30	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-09-08 12.29	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-07-22 12.44	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-06-03 13.39	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-04-24 13.43	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-03-12 13.32	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1992-01-22 14.40	Feet below surface: Note	Not Reported Not Reported
Level reading date: Feet to sea level:	1991-12-05 14.09	Feet below surface: Note	Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level	1991-11-13 13.83	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-10-17 13.58	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-10-01 13.38	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-09-04 12.06	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-06-27 12.61	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-05-23 13.71	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-03-04 15.08	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1991-01-23 14.96	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-12-27 14.96	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-12-11 14.31	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-11-28 14.14	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-10-24 13.64	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-09-26 14.13	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-08-23 13.83	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-07-23 14.05	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-06-06 15.15	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-05-31 15.21	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-05-29 15.23	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-04-17 16.45	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-03-07 17.16	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1990-01-18 17.77	Feet below surface Note	Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level	1989-12-06 17.96	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-11-27 17.86	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-10-24 17.92	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-09-13 16.98	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-08-11 16.65	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-07-18 16.61	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-06-01 16.42	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-05-23 16.35	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-05-01 16.43	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-03-01 15.96	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1989-01-17 16.05	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-12-01 15.96	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-11-02 15.95	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-10-11 15.87	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-09-13 15.08	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-07-20 16.39	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-06-17 16.60	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-06-03 16.69	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-05-19 16.80	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-04-13 16.94	Feet below surface Note	Not Reported Not Reported
Level reading date: Feet to sea level	1988-02-23 17.02	Feet below surface Note	Not Reported Not Reported



# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date	1986-01-11	Feet below surface	Not Reported
Feet to sea level	16.52	Note	Not Reported
Level reading date	1987-12-02	Feet below surface	Not Reported
Feet to sea level	15.76	Note	Not Reported
Level reading date	1987-11-23	Feet below surface	Not Reported
Feet to sea level	15.71	Note	Not Reported
Level reading date	1987-10-15	Feet below surface	Not Reported
Feet to sea level	15.08	Note	Not Reported
Level reading date	1987-08-10	Feet below surface	Not Reported
Feet to sea level	14.52	Note	Not Reported
Level reading date	1987-08-03	Feet below surface	Not Reported
Feet to sea level	14.75	Note	Not Reported
Level reading date	1987-07-14	Feet below surface	Not Reported
Feet to sea level	14.82	Note	Not Reported
Level reading date	1987-05-20	Feet below surface	Not Reported
Feet to sea level	14.88	Note	Not Reported
Level reading date	1987-04-13	Feet below surface	Not Reported
Feet to sea level	14.38	Note	Not Reported
Level reading date	1987-03-11	Feet below surface	Not Reported
Feet to sea level	14.85	Note	Not Reported
Level reading date	1987-02-11	Feet below surface	Not Reported
Feet to sea level	14.87	Note	Not Reported
Level reading date	1987-01-21	Feet below surface	Not Reported
Feet to sea level	15.20	Note	Not Reported
Level reading date	1987-01-13	Feet below surface	Not Reported
Feet to sea level	15.06	Note	Not Reported
Level reading date	1986-12-11	Feet below surface	Not Reported
Feet to sea level	14.86	Note	Not Reported
Level reading date	1986-11-21	Feet below surface	Not Reported
Feet to sea level	14.46	Note	Not Reported
Level reading date	1986-10-01	Feet below surface	Not Reported
Feet to sea level	14.04	Note	Not Reported
Level reading date	1986-08-22	Feet below surface	Not Reported
Feet to sea level	13.64	Note	Not Reported
Level reading date	1986-07-23	Feet below surface	Not Reported
Feet to sea level	13.41	Note	Not Reported
Level reading date	1986-07-09	Feet below surface	Not Reported
Feet to sea level	13.34	Note	Not Reported
Level reading date	1986-06-24	Feet below surface	Not Reported
Feet to sea level	13.39	Note	Not Reported
Level reading date	1986-06-17	Feet below surface	Not Reported
Feet to sea level	13.39	Note	Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date	1986-05-21	Feet below surface	Not Reported
Feet to sea level	13.40	Note	Not Reported
Level reading date	1986-05-16	Feet below surface	Not Reported
Feet to sea level	13.46	Note	Not Reported
Level reading date	1986-04-22	Feet below surface	Not Reported
Feet to sea level	13.60	Note	Not Reported
Level reading date	1986-02-28	Feet below surface	Not Reported
Feet to sea level	14.00	Note	Not Reported
Level reading date	1986-01-16	Feet below surface	Not Reported
Feet to sea level	13.99	Note	Not Reported
Level reading date	1985-11-29	Feet below surface	Not Reported
Feet to sea level	13.72	Note	Not Reported
Level reading date	1985-10-11	Feet below surface	Not Reported
Feet to sea level	13.05	Note	Not Reported
Level reading date	1985-09-16	Feet below surface	Not Reported
Feet to sea level	13.16	Note	Not Reported
Level reading date	1985-08-22	Feet below surface	Not Reported
Feet to sea level	13.14	Note	Not Reported
Level reading date	1985-07-26	Feet below surface	Not Reported
Feet to sea level	13.57	Note	Not Reported
Level reading date	1983-08-26	Feet below surface	Not Reported
Feet to sea level	16.50	Note	Not Reported
Level reading date	1983-08-26	Feet below surface	Not Reported
Feet to sea level	16.41	Note	Not Reported

F15  
West  
1/2 - 1 Mile  
Higher

HI WELLS HI1100000003623

Well ID	6-5430-004	Well Name	Waehu TH-D
Well Owner	State of Hawaii, DLNR Land Division	Well Depth (ft)	490
Land Owner	Oahu, DLNR-LD	Perforated Casing Depth	Not Reported
Year Drilled	Not Reported	Initial Water Level (ft)	0
Driller	1975	Water Level After Install	Not Reported
Well Construction Type	Continental Drilling Hawaii, Inc.	Date Tested	Not Reported
Ground Elevation (ft)	Rotary	Test Drawdown Rate (ft)	Not Reported
Solid Casing Depth	382	Test Water Temp.	Not Reported
Major Well Use	Observation	Max Chloride Level	Not Reported
Water Level After Drilling	Not Reported	Draft Year	Not Reported
Chloride Content (mg/L)	0	Solid Casing Bottom Elevation	-106
Test Pump Rate (gpm)	Not Reported	Pump Capacity (MM gal/day)	Not Reported
Test Chloride Content (MG/L)	Not Reported	Latest Head	Not Reported
Temp Unit	Not Reported	Latest WCR2 Report	Not Reported
Minimum Chloride Level	Not Reported	Min to pump 5 volumes	Not Reported
Hole Bottom Elevation	-108		
Year Installed	Not Reported		
Pump Intake Depth	Not Reported		
Latest WCR1 Report	10/2/1975		
Transmissivity	Not Reported		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

F16  
West  
1/2 - 1 Mile  
Higher  
HI WELLS HI1100000003624

Well ID	6-5430-005	Well Name	Waiehu Deep Monitor
Well Owner	Commission on Water Resource Management, CWRM	Pump Rate (gpm)	0
Land Owner	Higashino-Minney LLC	Original Well Name	Not Reported
Year Drilled	1982		
Driller	Water Resources International, Inc.	Casing Diameter (in)	10
Well Construction Type	Rotary	Well Depth (ft)	1400
Ground Elevation (ft)	380	Perforated Casing Depth	Not Reported
Solid Casing Depth	400	Water Level After Drilling	Not Reported
Major Well Use	Deep (through Transition zone)	Chloride Content (mg/L)	0
Initial Water Level (ft)	Not Reported	Test Pump Rate (gpm)	Not Reported
Water Level After Install	Not Reported	Test Chloride Content (MG/L)	Not Reported
Date Tested	Not Reported	Temp Unit	Not Reported
Test Drawdown Rate (ft)	Not Reported	Minimum Chloride Level	Not Reported
Test Water Temp	Not Reported	Hole Bottom Elevation	-1020
Max Chloride Level	Not Reported	Year Installed	Not Reported
Draft Year	Not Reported	Pump Intake Depth	Not Reported
Solid Casing Bottom Elevation	-20	Latest WCR1 Report	1/1/1982
Pump Capacity (MM gal/day)	Not Reported	Transmissivity	Not Reported
Latest Head	Not Reported		
Latest WCR2 Report	Not Reported		
Min to pump 5 volumes	Not Reported		

E17  
SW  
1/2 - 1 Mile  
Higher  
HI WELLS HI1100000003620

Well ID	6-5430-001	Well Name	Waiehu Heights 1
Well Owner	Maui Department of Water Supply, MDWS	Pump Rate (gpm)	700
Land Owner	County of Maui	Original Well Name	514
Year Drilled	1975		
Driller	Water Resources International, Inc.	Casing Diameter (in)	14
Well Construction Type	Rotary	Well Depth (ft)	675
Ground Elevation (ft)	337	Perforated Casing Depth	367
Solid Casing Depth	337	Initial Water Level (ft)	18
Major Well Use	County	Water Level After Install	Not Reported
Water Level After Drilling	Not Reported	Date Tested	4/21/1975
Chloride Content (mg/L)	52	Test Drawdown Rate (ft)	6.5
Test Pump Rate (gpm)	1300	Test Water Temp	Not Reported
Test Chloride Content (MG/L)	51	Max Chloride Level	Not Reported
Temp Unit	Not Reported	Draft Year	Not Reported
Minimum Chloride Level	Not Reported	Solid Casing Bottom Elevation	0
Hole Bottom Elevation	-338	Pump Capacity (MM gal/day)	1,008
Year Installed	2007	Latest Head	Not Reported
Pump Intake Depth	359	Latest WCR2 Report	10/16/2007
Latest WCR1 Report	5/1/1975	Min to pump 5 volumes	Not Reported
Transmissivity	Not Reported		

# GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID  
Direction  
Distance  
Elevation

Database EDR ID Number

F18  
West  
1/2 - 1 Mile  
Higher  
FED USGS USGS40000269182

Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5430-05 Waiehu Deep Monitor Well, Maui, HI	Well Description	Not Reported
Type	Well	Drainage Area	Not Reported
HUC	20020000	Contrib Drainage Area	Not Reported
Drainage Area Units	Not Reported	Aquifer	Hawaii volcanic-rock aquifers
Contrib Drainage Area Units	Not Reported	Construction Date	19820101
Formation Type	Waikuku Volcanic Series, Lava Flows	Well Depth Units	ft
Aquifer Type	Unconfined single aquifer	Well Hole Depth Units	ft
Well Depth	1400		
Well Hole Depth	1400		

Ground water levels, Number of Measurements	82	Level reading date	2002-08-22
Feet below surface	Not Reported	Feet to sea level	8.45
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-08-22	Feet below surface	Not Reported
Feet to sea level	8.44		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-07-03	Feet below surface	Not Reported
Feet to sea level	9.59		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-07-03	Feet below surface	Not Reported
Feet to sea level	9.51		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-05-14	Feet below surface	Not Reported
Feet to sea level	10.68		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-04-01	Feet below surface	Not Reported
Feet to sea level	10.26		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-04-01	Feet below surface	Not Reported
Feet to sea level	10.33		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-02-21	Feet below surface	Not Reported
Feet to sea level	10.25		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-02-06	Feet below surface	Not Reported
Feet to sea level	10.33		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-01-03	Feet below surface	Not Reported
Feet to sea level	9.72		
Note	Other conditions existed that would affect the measured water level.		
Level reading date	2002-01-03	Feet below surface	Not Reported
Feet to sea level	9.86		
Note	Other conditions existed that would affect the measured water level.		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level: Note:	2001-12-04 8.82 Other conditions existed that would affect the measured water level.	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level: Note:	2001-10-01 8.27 Other conditions existed that would affect the measured water level.	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-10-01 8.25	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-08-22 8.08	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-08-22 8.06	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-07-02 8.59	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-07-02 8.54	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-05-17 8.93	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-04-04 9.19	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-04-04 9.08	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-03-08 9.49	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-01-25 9.75	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-01-25 9.74	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-01-03 10.02	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2001-01-03 9.94	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-12-07 9.80	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-10-02 9.15	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-10-02 9.12	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-08-23 8.69	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-08-23 8.70	Feet below surface: Note:	Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date: Feet to sea level: Note:	2000-07-05 8.95	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level: Note:	2000-07-05 8.96	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-05-16 9.56	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-04-27 9.65	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-04-27 9.68	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-04-03 9.72	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-02-16 10.10	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-01-20 9.88	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-01-18 9.84	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	2000-01-06 9.32	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-12-09 8.48	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-10-04 7.70	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-08-24 8.24	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-08-24 8.24	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-07-06 8.87	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-06-23 9.19	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-05-19 9.66	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-05-19 9.66	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1999-03-29 10.74	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1989-06-01 16.41	Feet below surface: Note:	Not Reported Not Reported
Level reading date: Feet to sea level:	1988-07-20 16.42	Feet below surface: Note:	Not Reported Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date	1987-12-02	Feet below surface	Not Reported
Feet to sea level	15.81	Note	Not Reported
Level reading date	1987-08-03	Feet below surface	Not Reported
Feet to sea level	14.77	Note	Not Reported
Level reading date	1987-03-11	Feet below surface	Not Reported
Feet to sea level	14.84	Note	Not Reported
Level reading date	1987-02-11	Feet below surface	Not Reported
Feet to sea level	14.91	Note	Not Reported
Level reading date	1986-12-11	Feet below surface	Not Reported
Feet to sea level	14.94	Note	Not Reported
Level reading date	1986-11-21	Feet below surface	Not Reported
Feet to sea level	14.48	Note	Not Reported
Level reading date	1986-10-01	Feet below surface	Not Reported
Feet to sea level	14.09	Note	Not Reported
Level reading date	1986-07-23	Feet below surface	Not Reported
Feet to sea level	13.41	Note	Not Reported
Level reading date	1986-05-21	Feet below surface	Not Reported
Feet to sea level	13.40	Note	Not Reported
Level reading date	1986-04-22	Feet below surface	Not Reported
Feet to sea level	13.59	Note	Not Reported
Level reading date	1985-10-11	Feet below surface	Not Reported
Feet to sea level	13.04	Note	Not Reported
Level reading date	1985-09-16	Feet below surface	Not Reported
Feet to sea level	13.16	Note	Not Reported
Level reading date	1985-05-15	Feet below surface	Not Reported
Feet to sea level	13.63	Note	Not Reported
Level reading date	1985-03-29	Feet below surface	Not Reported
Feet to sea level	14.12	Note	Not Reported
Level reading date	1985-02-11	Feet below surface	Not Reported
Feet to sea level	14.29	Note	Not Reported
Level reading date	1985-01-03	Feet below surface	Not Reported
Feet to sea level	14.25	Note	Not Reported
Level reading date	1984-11-01	Feet below surface	Not Reported
Feet to sea level	13.99	Note	Not Reported
Level reading date	1984-10-18	Feet below surface	Not Reported
Feet to sea level	14.12	Note	Not Reported
Level reading date	1984-08-14	Feet below surface	Not Reported
Feet to sea level	14.21	Note	Not Reported
Level reading date	1984-07-03	Feet below surface	Not Reported
Feet to sea level	14.59	Note	Not Reported
Level reading date	1984-05-22	Feet below surface	Not Reported
Feet to sea level	15.31	Note	Not Reported

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Level reading date	1984-04-09	Feet below surface	Not Reported
Feet to sea level	15.35	Note	Not Reported
Level reading date	1984-03-01	Feet below surface	Not Reported
Feet to sea level	15.70	Note	Not Reported
Level reading date	1984-01-16	Feet below surface	Not Reported
Feet to sea level	16.08	Note	Not Reported
Level reading date	1983-12-06	Feet below surface	Not Reported
Feet to sea level	15.93	Note	Not Reported
Level reading date	1983-10-19	Feet below surface	Not Reported
Feet to sea level	15.92	Note	Not Reported
Level reading date	1983-08-26	Feet below surface	Not Reported
Feet to sea level	16.45	Note	Not Reported
Level reading date	1983-08-24	Feet below surface	Not Reported
Feet to sea level	16.52	Note	Not Reported
Level reading date	1983-08-05	Feet below surface	Not Reported
Feet to sea level	16.68	Note	Not Reported
Level reading date	1982-01-01	Feet below surface	263.70
Feet to sea level	Not Reported	Note	Not Reported

E19  
SW  
1/2 - 1 Mile  
Higher

FRDS PWS H0000212

Epa region	09	State	HI
Pwsid	H0000212	Pwsname	WAILUKU
Cityserved	WAILUKU	Stateserved	HI
Zipsserved	Not Reported	Filecounty	Not Reported
Status	Active	Retpoparvd	68054
Pwsvconn	20016	Psource longname	Surface_water
Pwstype	CWS	Owner	Local_Govt
Contact	TAYLOR, DAVID	Contactorgname	TAYLOR, DAVID
Contactphone	808-270-7816		
Contactaddress1	DEPT. OF WATER SUPPLY, COUNTY OF MAUI		
Contactaddress2	200 SOUTH HIGH STREET	Contactcity	WAILUKU
Contactstate	HI	Contactzip	96793-2155
Pwsactivitycode	A		
Pwsid	H0000212	Facid	1080
Facname	IAO DITCH WTP	Facatype	Treatment_plant
Facactivitycode	A	Triobjective	particulate removal
Triprocess	filtration, ultrafiltration		
Facetypecode	TP		
Pwsid	H0000212	Facid	1080
Facname	IAO DITCH WTP	Facatype	Treatment_plant
Facactivitycode	A	Triobjective	disinfection
Triprocess	chlorination (frds-1.5)	Facetypecode	TP
Pwsid	H0000212	Facid	1084
Facname	KANOA WELL 2	Facatype	Treatment_plant
Facactivitycode	A	Triobjective	disinfection
Triprocess	chlorination (frds-1.5)	Facetypecode	TP



# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Pwsid	H0000212	Facid	123
Facname	WAIHEE WELLS 1,2,3 CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	organics removal	Trtprocess	gaseous chlornation, pre
Facetypecode	TP		
Pwsid	H0000212	Facid	125
Facname	NORTH WAIHEE WELL & KANOA WELL CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	disinfection	Trtprocess	hypochlorination, post
Facetypecode	TP		
Pwsid	H0000212	Facid	126
Facname	NORTH WAIHEE WELL #2	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	disinfection
Trtprocess	hypochlorination, post	Facetypecode	TP
Pwsid	H0000212	Facid	127
Facname	MOKUHAU WELLS 1, 3 CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	organics removal	Trtprocess	gaseous chlornation, pre
Facetypecode	TP		
Pwsid	H0000212	Facid	128
Facname	MOKUHAU WELL 1, 2	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	organics removal
Trtprocess	gaseous chlornation, pre	Facetypecode	TP
Pwsid	H0000212	Facid	129
Facname	IAO TUNNEL UV	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	particulate removal
Trtprocess	filtration, ultrafiltration		
Facetypecode	TP		
Pwsid	H0000212	Facid	129
Facname	IAO TUNNEL UV	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	disinfection
Trtprocess	chlornation (frds-1.5)	Facetypecode	TP
Pwsid	H0000212	Facid	130
Facname	KEPANUWAI WELL CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	organics removal	Trtprocess	gaseous chlornation, pre
Facetypecode	TP		
Pwsid	H0000212	Facid	131
Facname	WAIHEU HEIGHTS WELLS 1, 2 CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	disinfection	Trtprocess	hypochlorination, post
Facetypecode	TP		
Pwsid	H0000212	Facid	132
Facname	WAIHEU HEIGHTS 2	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	disinfection
Trtprocess	hypochlorination, post	Facetypecode	TP
Pwsid	H0000212	Facid	133
Facname	WAIHEE 1	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	organics removal
Trtprocess	gaseous chlornation, pre	Facetypecode	TP
Pwsid	H0000212	Facid	134

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Facname	WAIHEE 2	Facetype	Treatment_plant
Facactivitycode	A	Trtobjective	organics removal
Trtprocess	gaseous chlornation, pre	Facetypecode	TP
Pwsid	H0000212	Facid	937
Facname	WAILUKU AG. SHAFT 33 CHLORINATOR		
Facetype	Treatment_plant	Facactivitycode	A
Trtobjective	disinfection	Trtprocess	chlornation (frds-1.5)
Facetypecode	TP		
PWS ID	H0000212	PWS name	DWS WAILUKU
Address	Not Reported	Care of	Not Reported
City	WAILUKU, MAUI	State	HI
Zip	96793	Owner	DWS WAILUKU
Source code	Surface water	Population	41691
PWS ID	H0000212	PWS type	System Owner/Responsible Party
PWS name	MR. DAVID CRADDOCK, DIRECTOR		
PWS address	DEPARTMENT OF WATER SUPPLY		
PWS address	P.O. BOX 1109	PWS city	WAILUKU
PWS state	HI	PWS zip	96793
PWS ID	H0000212	PWS type	Laboratory
PWS name	MS. CARI CERIZO	PWS address	DEPARTMENT OF WATER SUPPLY
PWS address	614 PALAPALA DRIVE	PWS city	KAHULUI, MAUI
PWS state	HI	PWS zip	96732
PWS name	WAILUKU	PWS type code	C
Retail population served	52200	Contact	ENG. JEFFREY
Contact address	Department of Water Supply		
Contact address	200 South High Street	Contact city	WAILUKU
Contact state	HI	Contact zip	96793-2155
Contact telephone	808-270-7816		
County	MAUI	Source	Surface water
Treatment Objective	DISINFECTION	Process	GASEOUS CHLORINATION, POST
Population	41691		
PWS ID	H0000212	Activity status	Active
Date system activated	7706	Date system deactivated	Not Reported
Retail population	00041691	System name	DWS WAILUKU
System address	Not Reported	System city	WAILUKU, MAUI
System state	HI	System zip	96793
County FIPS	Not Reported	City served	WAILUKU
County FIPS	002	City served	WAILUKU
Population served	10,001 - 50,000 Persons	Treatment	Treated
Latitude	205329	Longitude	1563055
Latitude	205329	Longitude	1563055
Latitude	205330	Longitude	1563054
Latitude	205309	Longitude	1563230
Latitude	205312	Longitude	1563214
Latitude	204954	Longitude	1565512
Latitude	205444	Longitude	1563104

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Latitude	205440	Longitude	1563101
Latitude	205440	Longitude	1563102
Latitude	205432	Longitude	1563044
Latitude	205430	Longitude	1563044
State	HI	Latitude degrees	20
Latitude minutes	53	Latitude seconds	9.0000
Longitude degrees	156	Longitude minutes	32
Longitude seconds	30.0000		
State	HI	Latitude degrees	20
Latitude minutes	53	Latitude seconds	12.0000
Longitude degrees	156	Longitude minutes	32
Longitude seconds	14.0000		
State	HI	Latitude degrees	20
Latitude minutes	53	Latitude seconds	29.0000
Longitude degrees	156	Longitude minutes	30
Longitude seconds	55.0000		
State	HI	Latitude degrees	20
Latitude minutes	53	Latitude seconds	30.0000
Longitude degrees	156	Longitude minutes	30
Longitude seconds	54.0000		
State	HI	Latitude degrees	20
Latitude minutes	54	Latitude seconds	30.0000
Longitude degrees	156	Longitude minutes	30
Longitude seconds	44.0000		
State	HI	Latitude degrees	20
Latitude minutes	54	Latitude seconds	32.0000
Longitude degrees	156	Longitude minutes	30
Longitude seconds	44.0000		
State	HI	Latitude degrees	20
Latitude minutes	54	Latitude seconds	40.0000
Longitude degrees	156	Longitude minutes	31
Longitude seconds	1.0000		
State	HI	Latitude degrees	20
Latitude minutes	54	Latitude seconds	40.0000
Longitude degrees	156	Longitude minutes	31
Longitude seconds	2.0000		
State	HI	Latitude degrees	20
Latitude minutes	54	Latitude seconds	44.0000
Longitude degrees	156	Longitude minutes	31
Longitude seconds	4.0000		
Violation id	10101	Org code	S
State	HI	Violation Year	2000
Contamination code	3100	Contamination Name	Coliform (TCR)
Violation code	22	Violation name	MCL, Monthly (TCR)
Rule code	110	Rule name	TCR
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	10/01/2000
Cmp edt	10/31/2000		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Violation id	10201	Org code	S
State	HI	Violation Year	2000
Contamination code	3100	Contamination Name	Coliform (TCR)
Violation code	21	Violation name	MCL, Acute (TCR)
Rule code	110	Rule name	TCR
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	10/01/2000
Cmp edt	10/31/2000		
Violation id	10202	Org code	S
State	HI	Violation Year	2008
Contamination code	1024	Contamination Name	CYANIDE
Violation code	03	Violation name	Monitoring, Regular
Rule code	333	Rule name	Other IOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10210	Org code	S
State	HI	Violation Year	2008
Contamination code	2031	Contamination Name	Dalapon
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10211	Org code	S
State	HI	Violation Year	2008
Contamination code	2040	Contamination Name	Picloram
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10212	Org code	S
State	HI	Violation Year	2008
Contamination code	2041	Contamination Name	Dinoseb
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10213	Org code	S
State	HI	Violation Year	2008
Contamination code	2105	Contamination Name	2,4-D
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10214	Org code	S
State	HI	Violation Year	2008
Contamination code	2110	Contamination Name	2,4,5-TP
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Violation id	10215	Ong code	S
State	HI	Violation Year	2008
Contamination code	2326	Contamination Name	Pentachlorophenol
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10216	Ong code	S
State	HI	Violation Year	2008
Contamination code	2035	Contamination Name	Di(2-ethylhexyl) adipate
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10217	Ong code	S
State	HI	Violation Year	2008
Contamination code	2039	Contamination Name	Di(2-ethylhexyl) phthalate
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10218	Ong code	S
State	HI	Violation Year	2008
Contamination code	2306	Contamination Name	Benz(a)pyrene
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10222	Ong code	S
State	HI	Violation Year	2008
Contamination code	2033	Contamination Name	Endothall
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10224	Ong code	S
State	HI	Violation Year	2008
Contamination code	2032	Contamination Name	Diquat
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		
Violation id	10226	Ong code	S
State	HI	Violation Year	2008
Contamination code	2063	Contamination Name	2,3,7,8-TCDD
Violation code	03	Violation name	Monitoring, Regular
Rule code	320	Rule name	SOC
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2008
Cmp edt	12/31/2010		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Violation id	10229	Ong code	S
State	HI	Violation Year	2010
Contamination code	1040	Contamination Name	Nitrate
Violation code	03	Violation name	Monitoring, Regular
Rule code	331	Rule name	Nitrates
Violation measur	Not Reported	Unit of measure	Not Reported
State mcl	Not Reported	Cmp bdt	01/01/2010
Cmp edt	12/31/2010		
Violation ID	10101	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/16/2000
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
Violation ID	10101	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/16/2000
Enforcement Detail	St Public Notif requested	Enforcement Category	Informal
Violation ID	10101	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/19/2000
Enforcement Detail	St Public Notif issued	Enforcement Category	Informal
Violation ID	10201	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/19/2000
Enforcement Detail	St Public Notif issued	Enforcement Category	Informal
Violation ID	10201	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/16/2000
Enforcement Detail	St Public Notif requested	Enforcement Category	Informal
Violation ID	10201	Ong Code	S
Enforcement FY	2001	Enforcement Action	10/16/2000
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
Violation ID	10202	Ong Code	S
Enforcement FY	2010	Enforcement Action	06/27/2010
Enforcement Detail	St Public Notif received	Enforcement Category	Informal
Violation ID	10202	Ong Code	S
Enforcement FY	2010	Enforcement Action	05/07/2010
Enforcement Detail	St Compliance achieved	Enforcement Category	Resolving
Violation ID	10202	Ong Code	S
Enforcement FY	2010	Enforcement Action	04/28/2010
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
Violation ID	10210	Ong Code	S
Enforcement FY	2011	Enforcement Action	06/30/2011
Enforcement Detail	St Public Notif received	Enforcement Category	Informal
Violation ID	10210	Ong Code	S
Enforcement FY	2012	Enforcement Action	11/16/2011
Enforcement Detail	St Compliance achieved	Enforcement Category	Resolving
Violation ID	10210	Ong Code	S
Enforcement FY	2011	Enforcement Action	05/23/2011
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
Violation ID	10211	Ong Code	S

## GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Enforcement FY Enforcement Detail	2011 St Public Notif received	Enforcement Action: Enforcement Category	06/30/2011 Informal
Violation ID Enforcement FY Enforcement Detail	10211 2012 St Compliance achieved	Orig Code Enforcement Action: Enforcement Category	S 11/16/2011 Resolving
Violation ID Enforcement FY Enforcement Detail Enforcement Category	10211 2011 St Violation/Reminder Notice Informal	Orig Code Enforcement Action	S 05/23/2011
Violation ID Enforcement FY Enforcement Detail	10212 2011 St Public Notif received	Orig Code Enforcement Action: Enforcement Category	S 06/30/2011 Informal
Violation ID Enforcement FY Enforcement Detail Enforcement Category	10212 2011 St Violation/Reminder Notice Informal	Orig Code Enforcement Action	S 05/23/2011
Violation ID Enforcement FY Enforcement Detail	10212 2012 St Compliance achieved	Orig Code Enforcement Action Enforcement Category	S 11/16/2011 Resolving
Violation ID Enforcement FY Enforcement Detail	10213 2011 St Public Notif received	Orig Code Enforcement Action Enforcement Category	S 06/30/2011 Informal
Violation ID Enforcement FY Enforcement Detail	10213 2012 St Compliance achieved	Orig Code Enforcement Action Enforcement Category	S 11/16/2011 Resolving
Violation ID Enforcement FY Enforcement Detail Enforcement Category	10213 2011 St Violation/Reminder Notice Informal	Orig Code Enforcement Action	S 05/23/2011
Violation ID Enforcement FY Enforcement Detail Enforcement Category	10214 2011 St Violation/Reminder Notice Informal	Orig Code Enforcement Action	S 05/23/2011
Violation ID Enforcement FY Enforcement Detail	10214 2011 St Public Notif received	Orig Code Enforcement Action Enforcement Category	S 06/30/2011 Informal
Violation ID Enforcement FY Enforcement Detail	10214 2012 St Compliance achieved	Orig Code Enforcement Action Enforcement Category	S 11/16/2011 Resolving
Violation ID Enforcement FY Enforcement Detail Enforcement Category	10215 2011 St Violation/Reminder Notice Informal	Orig Code Enforcement Action	S 05/23/2011
Violation ID Enforcement FY Enforcement Detail	10215 2012 St Compliance achieved	Orig Code Enforcement Action Enforcement Category	S 11/16/2011 Resolving
Violation ID Enforcement FY	10215 2011	Orig Code Enforcement Action	S 06/30/2011

### GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Enforcement Detail	St Public Notif received	Enforcement Category	Informal
Violation ID: Enforcement FY: Enforcement Detail: Enforcement Category:	10216 2011 St Violation/Reminder Notice Informal	Org Code: Enforcement Action: Enforcement Category:	S 05/23/2011
Violation ID: Enforcement FY: Enforcement Detail:	10216 2011 St Public Notif received	Org Code: Enforcement Action: Enforcement Category:	S 06/30/2011 Informal
Violation ID: Enforcement FY: Enforcement Detail:	10216 2012 St Compliance achieved	Org Code: Enforcement Action: Enforcement Category:	S 11/16/2011 Resolving
Violation ID: Enforcement FY: Enforcement Detail: Enforcement Category:	10217 2011 St Violation/Reminder Notice Informal	Org Code: Enforcement Action:	S 05/23/2011
Violation ID: Enforcement FY: Enforcement Detail:	10217 2012 St Compliance achieved	Org Code: Enforcement Action: Enforcement Category:	S 11/16/2011 Resolving
Violation ID: Enforcement FY: Enforcement Detail:	10217 2011 St Public Notif received	Org Code: Enforcement Action: Enforcement Category:	S 06/30/2011 Informal
Violation ID: Enforcement FY: Enforcement Detail:	10218 2011 St Public Notif received	Org Code: Enforcement Action: Enforcement Category:	S 06/30/2011 Informal
Violation ID: Enforcement FY: Enforcement Detail: Enforcement Category:	10218 2011 St Violation/Reminder Notice Informal	Org Code: Enforcement Action:	S 05/23/2011
Violation ID: Enforcement FY: Enforcement Detail:	10218 2012 St Compliance achieved	Org Code: Enforcement Action: Enforcement Category:	S 11/16/2011 Resolving
Violation ID: Enforcement FY: Enforcement Detail:	10222 2012 St Compliance achieved	Org Code: Enforcement Action: Enforcement Category:	S 11/16/2011 Resolving
Violation ID: Enforcement FY: Enforcement Detail:	10222 2011 St Public Notif received	Org Code: Enforcement Action: Enforcement Category:	S 06/30/2011 Informal
Violation ID: Enforcement FY: Enforcement Detail: Enforcement Category:	10222 2011 St Violation/Reminder Notice Informal	Org Code: Enforcement Action:	S 05/23/2011
Violation ID: Enforcement FY: Enforcement Detail: Enforcement Category:	10224 2011 St Violation/Reminder Notice Informal	Org Code: Enforcement Action:	S 05/23/2011
Violation ID: Enforcement FY: Enforcement Detail:	10224 2011 St Public Notif received	Org Code: Enforcement Action: Enforcement Category:	S 06/30/2011 Informal



# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Violation ID	10224	Ong Code	S
Enforcement FY	2012	Enforcement Action	11/16/2011
Enforcement Detail	St Compliance achieved	Enforcement Category	Resolving
Violation ID	10226	Ong Code	S
Enforcement FY	2012	Enforcement Action	11/16/2011
Enforcement Detail	St Compliance achieved	Enforcement Category	Resolving
Violation ID	10226	Ong Code	S
Enforcement FY	2011	Enforcement Action	05/23/2011
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
Violation ID	10226	Ong Code	S
Enforcement FY	2011	Enforcement Action	06/30/2011
Enforcement Detail	St Public Notif received	Enforcement Category	Informal
Violation ID	10229	Ong Code	S
Enforcement FY	2011	Enforcement Action	06/30/2011
Enforcement Detail	St Public Notif received	Enforcement Category	Informal
Violation ID	10229	Ong Code	S
Enforcement FY	2012	Enforcement Action	11/14/2011
Enforcement Detail	St Compliance achieved	Enforcement Category	Resolving
Violation ID	10229	Ong Code	S
Enforcement FY	2011	Enforcement Action	06/09/2011
Enforcement Detail	St Violation/Reminder Notice		
Enforcement Category	Informal		
PWS name	WAILUKU	Population served	52200
PWS type code	C	Violation ID	10101
Contaminant	COLIFORM (TCR)		
Violation type	Max Contaminant Level, Monthly (TCR)		
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/16/2000 0 00 00	Enforcement action	State Violation/Reminder Notice
Violation measurement	Not Reported		
PWS name	WAILUKU	Population served	52200
PWS type code	C	Violation ID	10101
Contaminant	COLIFORM (TCR)		
Violation type	Max Contaminant Level, Monthly (TCR)		
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/16/2000 0 00 00	Enforcement action	State Public Notif Requested
Violation measurement	Not Reported		
PWS name	WAILUKU	Population served	52200
PWS type code	C	Violation ID	10101
Contaminant	COLIFORM (TCR)		
Violation type	Max Contaminant Level, Monthly (TCR)		
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/16/2000 0 00 00	Enforcement action	State Public Notif Issued
Violation measurement	Not Reported		
PWS name	WAILUKU	Population served	52200
PWS type code	C	Violation ID	10201
Contaminant	COLIFORM (TCR)	Violation type	Max Contaminant Level, Acute (TCR)
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/16/2000 0 00 00	Enforcement action	State Violation/Reminder Notice
Violation measurement	Not Reported		
PWS name	WAILUKU	Population served	52200

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

PWS type code	C	Violation ID	10201
Contaminant	COLIFORM (TCR)	Violation type	Max Contaminant Level, Acute (TCR)
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/16/2000 0 00 00	Enforcement action	State Public Notif Requested
Violation measurement	Not Reported		
PWS name	WAILUKU	Population served	52200
PWS type code	C	Violation ID	10201
Contaminant	COLIFORM (TCR)	Violation type	Max Contaminant Level, Acute (TCR)
Compliance start date	10/1/2000 0 00 00	Compliance end date	10/31/2000 0 00 00
Enforcement date	10/19/2000 0 00 00	Enforcement action	State Public Notif Issued
Violation measurement	Not Reported		
<hr/>			
E20 SW 1/2 - 1 Mile Higher		FED USGS	USGS40000269190
Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5430-02 Waiehu Heights 2, Maui, HI	Description	Not Reported
Type	Well	Drainage Area	Not Reported
HUC	20020000	Contrib Drainage Area	Not Reported
Drainage Area Units	Not Reported	Aquifer	Not Reported
Contrib Drainage Area Units	Not Reported	Aquifer Type	Not Reported
Formation Type	Not Reported	Well Depth	543
Construction Date	19750425	Well Hole Depth	543
Well Depth Units	ft		
Well Hole Depth Units	ft		
<hr/>			
E21 SW 1/2 - 1 Mile Higher		FED USGS	USGS40000269188
Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5430-01 Waiehu Heights 1, Maui, HI	Description	Not Reported
Type	Well	Drainage Area	Not Reported
HUC	20020000	Contrib Drainage Area	Not Reported
Drainage Area Units	Not Reported	Aquifer	Not Reported
Contrib Drainage Area Units	Not Reported	Aquifer Type	Not Reported
Formation Type	Not Reported	Well Depth	675
Construction Date	19750416	Well Hole Depth	675
Well Depth Units	ft		
Well Hole Depth Units	ft		
Ground water levels, Number of Measurements	1	Level reading date	1975-06-24
Feet below surface	319.64	Feet to sea level	Not Reported
Note	Not Reported		
<hr/>			
G22 ESE 1/2 - 1 Mile Lower		FED USGS	USGS40000269194
Organization ID	USGS-HI	Organization Name	USGS Hawaii Water Science Center
Monitor Location	6-5429-01 W18	Type	Well
Description	Not Reported	HUC	20020000

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS**

Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Units:	Not Reported
Aquifer:	Not Reported	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	1947/01/01
Well Depth:	31	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

G23		HI WELLS	HI1100000003617
ESE			
1/2 - 1 Mile			
Lower			
Well ID:	6-5429-001	Well Name:	De Lara
Well Owner:	Susan Kuwada	Land Owner:	Susan Kuwada
Pump Rate (gpm):	Not Reported	Year Drilled:	1947
Original Well Name:	Not Reported	Driller:	J. Ventura
Well Construction Type:	Not Reported	Casing Diameter (in):	8
Ground Elevation (ft):	Not Reported	Well Depth (ft):	31
Solid Casing Depth:	22	Perforated Casing Depth:	Not Reported
Major Well Use:	Irigation (non-domestic, non-agriculture)		
Initial Water Level (ft):	Not Reported	Water Level After Drilling:	Not Reported
Water Level After Install:	Not Reported	Chloride Content (mg/L):	528
Date Tested:	Not Reported	Test Pump Rate (gpm):	Not Reported
Test Drawdown Rate (ft):	3	Test Chloride Content (MG/L):	Not Reported
Test Water Temp:	Not Reported	Temp Unit:	Not Reported
Max Chloride Level:	Not Reported	Minimum Chloride Level:	Not Reported
Drift Year:	Not Reported	Hole Bottom Elevation:	Not Reported
Solid Casing Bottom Elevation:	Not Reported	Year Installed:	Not Reported
Pump Capacity (MM gal/day):	Not Reported	Pump Intake Depth:	Not Reported
Latest Head:	Not Reported	Latest WCR 1 Report:	1/1/1947
Latest WCR2 Report:	Not Reported	Transmissivity:	Not Reported
Min to pump 5 volumes:	Not Reported		

# **GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON**

## **AREA RADON INFORMATION**

Federal EPA Radon Zone for MAUI County: 3

Note: Zone 1 indoor average level > 4 pCi/L  
Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L  
Zone 3 indoor average level < 2 pCi/L

Federal Area Radon Information for Zip Code: 96793

Number of sites tested: 11

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.291 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### TOPOGRAPHIC INFORMATION

#### USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geological Survey  
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

#### Current USGS 7.5 Minute Topographic Map

Source: U.S. Geological Survey

### HYDROLOGIC INFORMATION

**Flood Zone Data** This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.

Source: FEMA

Telephone: 877-336-2627

Date of Government Version: 2003, 2015

**NWI** National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

#### State Wetlands Data Wetlands Inventory

Source: Office of Planning

Telephone: 808-587-2895

### HYDROGEOLOGIC INFORMATION

#### AQUIFLOW<sup>®</sup> Information System

Source: EDR proprietary database of groundwater flow information  
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

### GEOLOGIC INFORMATION

#### Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

#### STATSGO State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)  
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

#### SSURGO Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### LOCAL / REGIONAL WATER AGENCY RECORDS

#### FEDERAL WATER WELLS

##### PWS Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

##### PWS ENF Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

##### USGS Water Wells USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

#### STATE RECORDS

##### Well Index Database

Source: Commission on Water Resource Management

Telephone: 808-587-0214

CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii.

### OTHER STATE DATABASE INFORMATION

#### RADON

##### Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

##### EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 308 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

#### OTHER

##### Airport Landing Facilities Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

##### Episcenters World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

**Earthquake Fault Lines** The fault lines displayed on EDR's Topographic map are digitized quaternary faultlines, prepared in 1975 by the United States Geological Survey

## PHYSICAL SETTING SOURCE RECORDS SEARCHED

### STREET AND ADDRESS INFORMATION

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## APPENDIX D: QUALIFICATIONS

**PARTNER**



## Education

Bachelor of Science, Biology and Science Education, Southeastern Oklahoma State University

## Registrations and Training

MBA multi-family Property Inspection Workshop  
Asbestos Inspector

## Highlights

8 years of experience performing engineering and environmental due diligence assessments  
8 years of experience performing environmental assessments for agencies such as HUD, Fannie Mae, SBA  
7 years completing Property Condition Assessments and HUD Project Capital Needs Assessments  
2 years of completing construction progress monitoring assessments

## Experience Summary

Mr. Barton currently holds the role of a Project Manager and Assessor and his responsibilities include thorough site assessment and technical report writing in line with the American Society of Testing and Materials (ASTM) standard and US Environmental Protection Agency's All Appropriate Inquiry (AAI) as well as customized client formats. In addition, Mr. Barton performs limited asbestos surveys, lead-based paint surveys and radon testing as required per scope of work. Mr. Barton also serves as a project manager for various scopes of work. He is responsible for ensuring consistency, quality, and on-time delivery of all projects. Mr. Barton works directly with clients to discuss and manage the specific needs and scopes of work necessary for each transaction.

Mr. Barton has completed over 750 projects located throughout Texas and Hawaii as well as 25 other states, Guam, and Puerto Rico. Mr. Barton works closely with state and local regulatory agencies to obtain environmentally significant documents regarding tank removal and subsurface investigations performed onsite. Mr. Barton has worked for large financial institutions as well as private investors and has also performed work for the Federal Deposit Insurance Corporation, HUD, Fannie Mae, Freddie Mac, and SBA. Mr. Barton has also completed Property Condition Assessments for seven years for various commercial, industrial, medical, and multi-family properties.

Mr. Barton has worked on numerous sites occupied by machine shops, auto repair facilities, printing facilities, manufacturing plants, distribution facilities, bio-diesel facilities, multi-family, high-rise office towers and hotels, dry cleaners, gas stations, historical military bases, casino/hotel resorts, and downtown metropolitan properties. Mr. Barton has completed numerous Naturally Occurring Radioactive Material (NORM) surveys for oil and gas exploration companies. His eight years of expertise in the research industry is a proven asset in identifying potential environmental hazards.

## Project Experience

Mr. Barton has experience performing due diligence assessments for a variety of property types including multi-family residences, commercial office buildings, retail shopping centers, manufacturing plants, machine shops, auto repair facilities, agriculture properties, distribution facilities, historical properties, airports, dry cleaners, and gas stations. For each assessment he performs he reviews the condition of the building structure and systems and develops a thorough report.

## Josh Barton

*Historical Fort McClellan Military Base, Anniston, Alabama* Mr. Barton performed a Phase I Environmental Assessment according to HUD guidelines at the former Fort McClellan Military Base.

*Airport, Jacksonville, Florida.* Mr. Barton performed a Phase I Environmental Assessment for an airport consisting of fuel storage tanks, hangars, and mechanical and service areas.

*Oil and Gas exploration yard, Midland/Odessa, Texas.* Mr. Barton has performed several NORM surveys and Phase I Environmental Assessments for oil and gas exploration properties that include fracking equipment, active wells, machine maintenance, and fuel storage.

*Industrial Property, Mesquite, Texas.* Mr. Barton performed a Phase I Environmental Assessment for 1,000,000 square foot manufacturing facility.

*Gas Station ADA Survey, Seattle, Washington.* Mr. Barton performed ADA surveys for multiple gas station properties in the Seattle area.

*Multi-family, Las Vegas, Nevada.* Mr. Barton performed a Phase I Environmental Assessment for three apartment complexes consisting of over 1,700 units and including radon testing at over 100 units.

*Industrial, Kapolei, Hawaii.* Mr. Barton has performed Environmental Assessments on several properties in the Campbell Industrial Park.

*Office Building, Tamuning, Guam.* Mr. Barton performed a Property Condition Assessment and Phase I Environmental Assessment for a telecommunications building.

*Casino Resort, Gulfport, Mississippi.* Mr. Barton performed a Phase I Environmental Assessment for a casino/hotel resort consisting of over 1,000 guest units in two hotel towers, casino, restaurants, and parking areas.

*Multi-family, Ponce, Puerto Rico.* Mr. Barton performed a HUD Physical Capital Needs Assessment for a seven story apartment complex.

*Hotel Resort, Kapalua, Maui.* Mr. Barton performed an indoor air quality assessment for a notable hotel property.

*Hotel, Honolulu, Hawaii.* Mr. Barton performed a Property Condition Assessment for a 496-room hotel property located in Waikiki.

*Hotel Resort and Golf Course, Princeville, Kauai.* Mr. Barton performed a Property Condition Assessment and Phase I Environmental Assessment for a 252-room hotel and 27-hole golf course situated on 324 acres.

## Josh Barton

*Resort, Kona, Hawaii.* Mr. Barton performed construction progress monitoring for the construction of a large resort property.

### Contact

jbarton@partneresi.com

# PARTNER

**Jared Eudell**  
Project Scientist

### Education

M.S., Systems Science; B.S., Environmental Studies; B.S., Marine Biology, Fairleigh Dickinson University

### Registrations

Certified Recycling Professional, Rutgers University (expired)  
Sustainable Resource Management Professional, Rutgers University (expired)  
Wetlands Delineator, Rutgers University

### Training

OSHA 40-Hour Hazardous Waste Operations & Emergency Responder (HAZWOPER)  
AHERA Building Inspector

### Highlights

5 years completing Phase I Environmental Site Assessments (ESAs) and related due diligence projects  
5 years conducting subsurface activities including site remediation, Phase II, and geotechnical investigations  
5 years providing regulatory compliance assistance for Underground Storage Tanks (USTs), stormwater, Spill Prevention Control and Countermeasures (SPCC), solid and hazardous waste, and recycling  
1 year monitoring construction progress as part of fund control responsibilities  
9 years performing watershed education, environmental advocacy, and government partnerships

### Experience Summary

Mr. Eudell currently holds the title of Project Scientist with responsibilities including the practice of thorough site assessments and technical report writing in line with the American Society of Testing and Materials (ASTM) standards and US Environmental Protection Agency's All Appropriate Inquiry (AAI) requirements, as well as customized client formats. To date, Mr. Eudell has completed over 550 assessments.

Mr. Eudell also assists the Geotechnical and Subsurface Investigation disciplines with logistical and technical field services, conducts Construction Progress Monitoring (CPM) for fund control purposes, and consults on projects that require knowledge of SPCC Plans, environmental regulatory or permit compliance, and Geographic Information Systems (GIS).

Mr. Eudell formerly supported the Site Mitigation and Phase II Site Investigation teams with the monitoring and remediation of contaminated soil, groundwater and soil vapor from a variety of sites throughout the Mid-Atlantic region, including large colleges, hospitals and landfills. Mr. Eudell has extensive experience with low-flow purging techniques and managed the Quality Assurance and NJ Laboratory Accreditation program to maintain the operations. In addition to the field work and reporting, Mr. Eudell provided GIS and other analytical services to perform sensitive human and environmental receptor evaluations, groundwater flow and cross section diagrams and related analyses.

As part of the former Environmental Regulatory Compliance and Permitting group, Mr. Eudell was also responsible for providing consulting services to municipal, county, and state agencies, utility authorities, and other public and private clientele. These services spanned a wide array of regulatory programs and required comprehensive knowledge of NJPDES and stormwater permitting, underground storage tank



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## Jared Eudell

identification, maintenance and compliance requirements, air emission limits and reporting requirements, solid waste issues and recycling enhancement, and hazardous waste identification and training.

Mr. Eudell previously spent nine years as an environmental advocate and educator in northeast New Jersey, where, in cooperation with local, state, and federal governments and agencies helped local stakeholders, non-profit organizations, and academic and scientific institutions secure the preservation and restoration of wetlands, watersheds, and wildlife habitat.

Mr. Eudell has presented hundreds of presentations to schools, organizations, government bodies and the general public, and was a guest lecturer at Fairleigh Dickinson University for ten years.

### Project Experience

*Environmental Site Assessments, Multiple Property Types, Nationally.* Mr. Eudell has performed hundreds of due diligence assessments (Phase I ESAs, Transaction Screens and Environmental Database Reviews) for a variety of property types including multi-family residences, commercial office buildings, retail shopping centers, dry-cleaners, colleges, manufacturing plants, machine shops, auto repair facilities, gasoline service stations and distribution facilities.

*Subsurface Investigations, Multiple Property Types, San Diego.* Mr. Eudell has conducted both geotechnical and environmental sampling for a variety of existing and proposed property types including multi-family residences, commercial buildings, retail shopping centers, hospitals, and potentially contaminated sites.

*Construction Progress Monitoring, Multiple Property Types, San Diego.* Mr. Eudell has monitored construction progress for both ground-up builds and renovations, including office buildings in Encinitas, multi-family residences in Oceanside and San Diego, and a mixed-use building in San Diego.

*Site Mitigation, Multiple Sites, NJ, NY and PA.* Mr. Eudell has assisted with over 50 remediation projects, including Preliminary Assessments, Receptor Evaluations, and ongoing soil, soil vapor and groundwater monitoring. For example, Mr. Eudell has assisted with identification and delineation of unauthorized releases from USTs, dry cleaners, and other on- and off-site sources at a restaurant in Clayton, NJ, a car dealership in Edison, NJ an amusement park in Freehold, NJ, a hospital in Wayne, NJ, colleges in Hoboken, NJ, and Jersey City, NJ, a dry cleaner in Whitehouse, PA and numerous industrial sites and landfills.

*Regulatory Compliance/Risk Management, NJ Municipal Environmental Risk Management Fund, 370 Entities, NJ.* Mr. Eudell helped coordinate environmental Loss Control/Loss Prevention Programs for over 370 municipal and utility authority members of the New Jersey Environmental Risk Management Fund (EJRF). Major responsibilities included conducting environmental audits of publically-owned properties to evaluate both applicability and compliance with various regulations (USTs, SPCC, stormwater, air emissions, solid waste/recycling, etc.), and providing assistance and resources during and after environmental emergencies.

*USEPA Spill Prevention, Control and Countermeasure Plan (SPCC), Multiple Clients, Nationally.* Mr. Eudell has worked with multiple health care systems (Meridian Health Village, Jackson, NJ and Trinitas Medical Center, Elizabeth, NJ) and dozens of municipalities and businesses to evaluate oil storage facilities and procedures, and implement plans to achieve at least minimal compliance with the SPCC Rule.

---

## Jared Eudell

*Solid Waste and Recycling, Multiple Clients, NJ.* Mr. Eudell has worked with Union County, the Essex County Utilities Authority, and dozens of municipalities to enhance municipal solid waste (MSW) recycling rates by developing new programs and providing assistance to municipal recycling coordinators. Responsibilities have included: communicating with regulatory agencies and representing clients and their interests at meetings and seminars; preparing updates to Solid Waste Management Plans; auditing solid waste collection programs and generating budget analyses; permitting Class A (MSW), Class B (bulky debris), and Class C (compost) facilities; providing oversight and analysis for household hazardous waste collection events; auditing commercial buildings and multi-family dwellings to assess recycling compliance; reviewing ordinances and tonnage reports; and grant writing and implementation.

*NJPDES/Municipal Stormwater Regulation Program, Multiple Clients, NJ.* Mr. Eudell has provided stormwater planning, permitting, and compliance services, including the development and implementation of Stormwater Pollution Prevention Plans (SPPP) for such clients as Freehold Cartage, Inc. (Freehold, NJ), Linden Landfill (Linden, NJ) and Bayshore Recycling Corporation (Kearney, NJ) as well as Monmouth County and the municipalities of Belmar, East Hanover, Emerson, North Plainfield, Ramsey, Secaucus. Services have included desk audits, stormwater mapping and pipe/discharge evaluations, stormwater discharge sampling, trainings/presentations to officials and public audiences; development of educational and outreach programs and materials; review of ordinances; and completion of annual reports.

### Affiliations

Association of New Jersey Recycling Professionals (ANJR)  
New Jersey WasteWise Business Network

### Speaking

*Seven Generations, "The Human Environment," Fairleigh Dickinson University, Hackensack, NJ (2005-2015).* Discussed the contextual history of the environmental movement over the previous 2500 years; the interaction, influences and costs of modern life on our environment and the connection between our choices and our future.

*Regulatory Training, NJ Municipal Environmental Risk Management Fund Training Seminars, Multiple Venues, NJ (2006, 2007, 2009, 2010, 2011, 2012).* Discussed the many Federal and State regulatory programs that affect the operations, equipment and personnel of municipal and utility authority entities. Problems, solutions and discussion were provided.

*Developing and Implementing a New Monitoring Program, NJDEP Volunteer Monitoring Summit, Edison, NJ (2004).* Detailed the basis and pitfalls of establishing a volunteer water monitoring program and the interconnectivity of the many pieces of the puzzle, including funding, materials, volunteers, logistics, data quality, etc.

### Contact

[jeudell@partneresi.com](mailto:jeudell@partneresi.com)

## Education

M.A. Environmental Studies, Brown University  
B.S. Biology, University of California, Los Angeles, Emphasis in Ecology, Behavior and Evolution

## Registrations

EPA Accredited Asbestos Inspector  
National Registry of Environmental Professionals: Registered Environmental Property Assessor (REPA)

## Training

California Underground Storage Tank Inspector

## Highlights

15 years in environmental service industry  
14 years performing Phase I Environmental Site Assessments (ESAs), Environmental Transaction Screens, radon screening, asbestos inspections, and lead-based paint inspection  
13 years of experience with multi-family properties, commercial properties, retail shopping centers, municipal and private airports, oil well properties, oil refineries, gas stations, dry cleaners, aerospace manufacturers, dry cleaning plants, hotels, auto dealership and repair facilities, and various manufacturing operations throughout the US  
8 years of project management experience in Environmental Assessments, Property Condition Assessments, Physical Needs Assessments, seismic evaluations, and ALTA Surveys, compliance reports  
5 years of project management experience in ESAs and PCAs for properties located in Mexico, Canada, the Caribbean, Southeast Asia and South Pacific

## Experience Summary

Ms. Churchill has served as an environmental scientist, project manager, senior author, or client manager for projects associated with thousands of real estate transactions. Ms. Churchill is familiar with the due diligence requirements of a varied number of reporting standards, including ASTM, EPA's All Appropriate Inquiry (AAI), Freddie Mac, Fannie Mae DUS, and U.S. Small Business Administration's (SBA) SOP 50 10. She also has experience with fulfilling numerous customized client scopes of work. Furthermore, Ms. Churchill has working experience in performing biological and noise assessments, and in preparing and reviewing environmental documentation in support of CEPA and NEPA.

While in graduate school, Ms. Churchill's Masters Thesis research focused on evaluating the potential of Japanese Knotweed (an invasive plant species) as an effective phytoremediator of heavy metal contaminated soils along a historically polluted river in Rhode Island. Phytoremediation refers to the natural ability of certain plants called hyperaccumulators to bioaccumulate contaminants in soil. Hyperaccumulators can be grown and harvested economically, leaving the soil with a greatly reduced level of toxic contamination. This cost-effective approach to remediation has gained increasing popularity in both academic and practical circles.

Ms. Churchill previously worked for the City of El Segundo, where she regularly collaborated with other local CUPAs to ensure compliance with State and Federal regulations. Ms. Churchill's responsibilities included implementing and enforcing elements of the CUPA program including the following: hazardous waste generator program; underground storage tank program; Hazardous Material Release Response Plan

## Lyly Churchill, MA

(Business Plan) Program and the California Accidental Release Response Plan (CalARP) Programs. Ms. Churchill also worked on enforcing city specific environmental programs such as Stormwater Pollution Prevention and Industrial Wastewater Discharge. As the Principal Environmental Specialist for the City, Ms. Churchill worked with large industries such as Chevron, Northrop Grumman, Boeing and International Rectifier to ensure regulatory compliance pertaining to business operations and remedial activities.

## Project Experience

**International Airport Portfolio.** Project Manager and Senior Reviewer for Phase I ESAs and PCAs of a confidential acquisition of airport facilities throughout the South Pacific and Southeast Asia. The project involved working with many foreign agencies and coordinating dual scope site visits at all facilities within a 2-week time frame.

**West Coast Gas Station Portfolio.** Project Manager for limited PCAs of an acquisition of gas station/car wash facilities throughout California, Oregon and Washington.

**Mexico Industrial Site Portfolio.** Project Manager and Senior Reviewer for Phase I ESAs of an acquisition of industrial/warehouse facilities throughout Northern Mexico. The project involved coordinating site inspections of multiple industrial facilities with private security in high risk danger areas.

**Office Tower Portfolio, Los Angeles.** Project Manager and Senior Reviewer for Phase I ESAs of a \$1.34 Billion acquisition of Class A office buildings in Los Angeles.

**Freddie Mac Multi-Scope Portfolio.** Project Manager and Senior Reviewer for Phase I ESAs, PCAs and PMLs of an acquisition of multifamily apartment complexes throughout Southern California. The project involved coordinating three different scopes of specially qualified assessors to conduct site visits with radon and ACM sampling.

## Contact

lchurchill@partneresi.com



# PARTNER

## PHASE II SUBSURFACE INVESTIGATION REPORT

**Southeast Corner of Kahekili Highway and Waiehu Beach Road**  
Maui Island, Hawaii 96793

November 24, 2020  
Partner Project Number: 20-283903.2

Prepared for:  
**Highridge Costa Development Company, LLC**  
330 West Victoria Street  
Gardena, California 90248



Engineers who understand your business

# PARTNER

November 24, 2020

Mohhanad Mohanna  
Highridge Costa Development Company, LLC  
330 West Victoria Street  
Gardena, California 90248

Subject: Phase II Subsurface Investigation Report  
Southeast Corner of Kahekili Highway and Waiehu Beach Road  
Maui Island, Hawaii 96793  
Partner Project Number: 20-283903.2

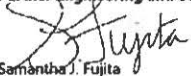
Partner Engineering and Science, Inc. (Partner) is pleased to provide the results of the assessment performed at the above-referenced property. The following report describes the field activities, methods, and findings of the Phase II Subsurface Investigation conducted at the above-referenced property.

This assessment was performed consistent with acceptable industry standards. The independent conclusions represent Partner's best professional judgment based upon existing conditions and the information and data available to us during the course of this assignment.

We appreciate the opportunity to provide these services. If you have any questions concerning this report, or if we can assist you in any other matter, please contact Lyly Churchill at 310-765-7271.

Sincerely,

Partner Engineering and Science, Inc.

  
Samantha J. Fujita

Regional Manager - Subsurface Investigation

  
Lyly Churchill  
National Client Manager

800-419-4923

[www.PARTNEResi.com](http://www.PARTNEResi.com)

EXHIBIT 45

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### ATTACHMENTS

Tables	1. Summary of Investigation Scope 2. Soil Sample OCPs Laboratory Results 3. Comparison of Arsenic Laboratory Results and Regulatory Guidelines
Figures	1. Site Vicinity Map 2. Sample Location Map
Appendix	A. Laboratory Analytical Report

## 1.0 INTRODUCTION

### 1.1 Purpose

The purpose of the investigation was to evaluate the potential impact of organochlorine pesticides (OCPs) and/or arsenic to soil as a consequence of a release or releases from the former on-site agricultural use Highridge Costa Development Company, LLC provided project authorization of Partner Proposal Number P20-283903.2.

### 1.2 Limitations

This report presents a summary of work conducted by Partner. The work includes observations of site conditions encountered and the analytical results provided by an independent third-party laboratory of samples collected during the course of the project. The number and location of samples were selected to provide the required information. It cannot be assumed that the limited available data are representative of subsurface conditions in areas not sampled.

Conclusions and/or recommendations are based on the observations, laboratory analyses, and the governing regulations. Conclusions and/or recommendations beyond those stated and reported herein should not be inferred from this document.

Partner warrants that the environmental consulting services contained herein were accomplished in accordance with generally-accepted practices in the environmental engineering, geology, and hydrogeology fields that existed at the time and location of work. No other warranties are implied or expressed.

### 1.3 User Reliance

Partner was engaged by Highridge Costa Development Company, LLC (the Addressee), or their authorized representative, to perform this investigation. The engagement agreement specifically states the scope and purpose of the investigation, as well as the contractual obligations and limitations of both parties. This report and the information therein, are for the exclusive use of the Addressee. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, the Addressee and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this report shall constitute acceptance of, and commitment to, these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted Partner's standard Terms and Conditions, a copy of which can be found at <http://www.partneresi.com/terms-and-conditions.php>.

## 2.0 SITE BACKGROUND

### 2.1 Site Description

The subject property consists of one parcel of land comprising 13.248 acres located on the southeast corner of the Kahekili Highway and Waiehu Beach Road intersection within a residential area of Maui Island, Maui County, Hawaii. The subject property is currently undeveloped land with water storage tanks, sheds, a water well pump, and planter boxes throughout the property.

The subject property is bound by residential properties and a cemetery to the north across Waiehu Beach Road, residential properties to the east, undeveloped land to the south, and undeveloped land to the west across Kahekili Highway. Refer to Figure 1 for a site vicinity map showing site features and surrounding properties.

### 2.2 Site History

Partner completed a *Phase I Environmental Site Assessment Report* (Phase I) for the subject property, dated July 2, 2020, on behalf of Highridge Costa Development Company, LLC. According to the reviewed historical sources, the subject property was previously agricultural by 1922 and developed with an orchard between 2010 and 2019.

The following recognized environmental condition (REC) was identified in the Phase I:

- The subject property was historically used for agricultural purposes. There is a potential that typical agricultural chemicals such as pesticides, herbicides, and fertilizers may have been used and stored on-site. Because residential development is proposed, the possible historical use of agricultural chemicals use is a REC.

## 3.0 FIELD ACTIVITIES

The Phase II Subsurface Investigation scope included collection of 14 multi-increment surficial soil samples (SS-1 through SS-14). Refer to Table 1 for a summary of the samples, sampling schedule and laboratory analyses for this investigation.

### 3.1 Preparatory Activities

Prior to the initiation of fieldwork, Partner completed the following activities.

#### 3.1.1 Health and Safety Plan

Partner prepared a site-specific Health and Safety Plan, which was reviewed with on-site personnel involved in the project prior to the commencement of drilling activities.

### 3.2 Sample Locations

The subject property was divided into approximately 14 ¼-acre subareas (Decision Units) and a multi-increment agricultural soil sample was collected from each Decision Unit (SS-1 through SS-14).

Refer to Figure 2 for a map indicating sample locations.

### 3.3 Soil Sampling

#### Soil Sampling Methodology

Soil sampling was conducted on November 12, 2020. Agricultural soil sampling locations were prepared for sample collection by removing any surficial vegetation and the upper approximately 6 inches of soil with a trowel or shovel. At the desired sampling depth, soil was transferred with a trowel into a gallon-size plastic bag with a seal; labeled for identification; and stored in an iced cooler. Soil was collected from up to five locations in each Decision Unit and placed into the plastic bag. Sampling equipment was decontaminated between samples to prevent cross-contamination.

The sample locations were backfilled with surrounding soil upon completion of soil sampling. No significant amounts of derived wastes were generated during this investigation.



## 4.0 DATA ANALYSIS

### 4.1 Laboratory Analysis

Partner collected 14 soil samples on November 12, 2020, which were transported in an iced cooler under chain-of-custody protocol to ESN Northwest, Inc., in the City of Olympia, Washington, who subcontracted with Fremont Analytical in the City of Seattle, Washington for analysis. Each of the soil samples was prepared for analysis using the Hawai'i Department of Health (HDOH) multi-increment preparation and analyzed for OCPs via United States Environmental Protection Agency (EPA) Method 8081 and arsenic via EPA Method 6020B.

Laboratory analytical results are included in Appendix A and discussed below.

### 4.2 Regulatory Agency Comparison Criteria

#### *Environmental Action Levels*

For sites where releases of hazardous materials have occurred, the HDOH has developed conservative Environmental Action Levels (EALs) to aid in assessing the potential threats to human health and/or the environment due to contaminants in soil, soil gas, and/or groundwater. The EALs take into consideration potential impacts to human health, terrestrial/aquatic habitats, and/or drinking water resources. Under most circumstances, the presence of contamination below applicable EALs can be assumed to not pose a significant, chronic (i.e., long-term) adverse risk to the applicable receptor of concern. Conversely, sites that exceed EALs generally require further evaluation and/or remediation. Please note that the EALs were developed using default assumptions (e.g., standard exposure factors) and, consequently, are only meant for screening level assessments. The EALs should not be considered enforceable regulatory standards. Cleanup levels ultimately dependent on site-specific factors and are established by the regulatory agencies on a case-by-case basis.

### 4.3 Soil Sample Data Analysis

Various OCPs were detected in two of the analyzed soil samples (SS-7 and SS-11) above laboratory reporting limits (RLs). None of the detected OCPs exceeded the applicable Tier 1 EAL. In addition, none of the remaining soil samples contained OCPs above the laboratory RLs and the RLs did not exceed the Tier 1 EALs.

Arsenic was detected in each of the analyzed soil samples above the laboratory RL. None of the detected concentrations of arsenic exceeded the Tier 1 EAL and typical background concentrations for Hawai'i soil as based on the HDOH Hazard Evaluation and Emergency Response 2012 report *Hawaiian Islands Soil Metal Background Evaluation Report*.

Refer to Tables 2 and 3 for a summary of the soil sample OCPs and arsenic laboratory analysis results, respectively.

### 4.4 Discussion

There were no detections of OCPs or arsenic in soil above applicable Tier 1 EALs. There does not appear to be a release on site as a result of the former on-site agricultural use at this time.

## 5.0 SUMMARY AND CONCLUSIONS

Partner conducted a Phase II Subsurface Investigation at the subject property to evaluate the potential impact of OCPs and/or arsenic to soil as a consequence of a release or releases from the former on-site agricultural use. The scope of the Phase II Subsurface Investigation included 14 multi-increment soil samples. Fourteen soil samples were analyzed for OCPs and arsenic.

There were no detections of OCPs or arsenic in soil above applicable Tier 1 EALs. There does not appear to be a release on site as a result of the former on-site agricultural use. Partner recommends no further investigation with respect to the former on-site agricultural use at this time.



## TABLES

**PARTNER**

Table 1: Summary of Investigation Scope  
Southeast Corner of Kahekili Highway and Waiehu Beach Road  
Maui Island, Hawaii 96793  
Partner Project Number 20-283903.2  
November 12, 2020

Boring Identification	Location	Terminal Depth (feet bgs)	Matrix Sampled	Sampling Depths* (feet bgs)	Target Analytes
SS-1	Decision Unit 1	0.5	Soil	0.5	OCs, Arsenic
SS-2	Decision Unit 2	0.5	Soil	0.5	OCs, Arsenic
SS-3	Decision Unit 3	0.5	Soil	0.5	OCs, Arsenic
SS-4	Decision Unit 4	0.5	Soil	0.5	OCs, Arsenic
SS-5	Decision Unit 5	0.5	Soil	0.5	OCs, Arsenic
SS-6	Decision Unit 6	0.5	Soil	0.5	OCs, Arsenic
SS-7	Decision Unit 7	0.5	Soil	0.5	OCs, Arsenic
SS-8	Decision Unit 8	0.5	Soil	0.5	OCs, Arsenic
SS-9	Decision Unit 9	0.5	Soil	0.5	OCs, Arsenic
SS-10	Decision Unit 10	0.5	Soil	0.5	OCs, Arsenic
SS-11	Decision Unit 11	0.5	Soil	0.5	OCs, Arsenic
SS-12	Decision Unit 12	0.5	Soil	0.5	OCs, Arsenic
SS-13	Decision Unit 13	0.5	Soil	0.5	OCs, Arsenic
SS-14	Decision Unit 14	0.5	Soil	0.5	OCs, Arsenic

Notes:

\*All samples analyzed for organochlorine pesticides (OCs) via United States Environmental Protection Agency (EPA) Method 8081 and arsenic via EPA Method 6020B

bgs = below ground surface

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Sample	Total Aromatic Concentration (mg/kg)
SS-1	4.37
SS-2	13.7
SS-3	14.8
SS-4	12.4
SS-5	13.1
SS-6	12.4
SS-7	11.7
SS-8	9.50
SS-9	12.6
SS-10	15.0
SS-11	9.65
SS-12	13.4
SS-13	10.3
SS-14	11.1
<b>Total 1 SAL</b>	<b>24</b>

mg/kg = milligrams per kilogram

The background concentration of arsenic is below 50 mg/kg. From the Hawaii Department of Health Hazard Evaluation and Emergency Response 2012 report *Hawaiian Islands Soil Metal Background Evaluation Report*

< = not detected above indicated laboratory Reporting Limit (RL)

EAL = Environmental Action Level (Hawaii Department of Health Environmental Management Division Hazard Evaluation and Emergency Response (HEER) office - Fall 2017)

## PARTNER

F.R. - In Phase Data			OEM vs. Adm.																	
Sample Number	delta BHC	deltat BHC	Hepatitis vaccine	gamma- globulin	Endosulfan	alpha- chlorotol	Beta m	L.T.D.P.	Hepatitis Injection	Inactivated Polio	L.T.D.P.	Amoxicillin	Endosulfan	L.T.D.P.	Hepatitis Injection	Methicillin	Dexam			
S5-1	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	<0.00963	ND			
S5-2	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	<0.00967	ND			
S5-3	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	<0.00996	ND			
S5-4	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	<0.00985	ND			
S5-5	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	<0.00943	ND			
S5-6	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	<0.00975	ND			
S5-7	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	<0.0104	ND			
S5-8	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	<0.0102	ND			
S5-9	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	<0.00920	ND			
S5-10	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	<0.0103	ND			
S5-11	0.0190	0.0227	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	0.0222	ND			
S5-12	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	ND			
S5-13	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	<0.00979	ND			
S5-14	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	<0.0101	ND			
Time I EAL	0.079	0.079	0.2	17	13	17	2.5	2	3.8	13	2.3	3.8	13	1.8	3.8	16	Variance			

None

OCPs = organochlorine pesticides

EPA = United States Environmental Protection Agency

nigdy = no/more per telegram

DOE = dichlorodiphenyldichloroethylene

DDO = dichlorodiphenyldichloroethane

DDT = dichlorodiphenylchloroethane

EAL = Environmental Action Level [FBI's] Department of Health Environmental Management Division Hazard Evaluation and Emergency Response [46 EOCs - Fall 2017]

N = not detected above indicated laboratory reporting limit (RL)

ND = not detected above laboratory RLs

Values in **bold** recent laboratory RLs

**PARTNER**

## FIGURES

**PARTNER**







**PARTNER**  
 2154 Torrance Boulevard, Suite 200  
 Torrance, California 90501  
 Project Number: 20-283903.2

Subject Property

Legend

Undeveloped

Sample Location Map

Figure	Prepared By	Date
2	S. Fujita	November 2006

Southeast Corner of Kahakuli Highway and  
 Waiehu Beach Road  
 Waiehu, Hawaii 96731

## APPENDIX A: LABORATORY ANALYTICAL REPORT

**PARTNER**





## Fremont Analytical

3600 Fremont Ave. N.  
Seattle, WA 98103  
T (206) 352-3790  
F (206) 352-7178  
info@fremontanalytical.com

ESN Northwest  
Lab  
1210 Eastside Street SE, Suite 200  
Olympia, WA 98501

RE: 283903.2  
Work Order Number: 2011353

November 24, 2020

### Attention Lab:

Fremont Analytical, Inc. received 14 sample(s) on 11/18/2020 for the analyses presented in the following report.

*Organochlorine Pesticides by EPA Method 8081*

*Sample Moisture (Percent Moisture)*

*Total Metals by EPA Method 6020B*

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Brianna Barnes  
Project Manager

DoD-ELAP Accreditation #79636 by P/LA, ISO/IEC 17025:2017 and QSM 5.3 for Environmental Testing  
ORELAP Certification: WA 100009 (NELAP Recognized) for Environmental Testing  
Washington State Department of Ecology Accredited for Environmental Testing, Lab ID C910

Original

[www.fremontanalytical.com](http://www.fremontanalytical.com)



## Fremont Analytical

Date: 11/24/2020

CLIENT: ESN Northwest  
Project: 283903.2  
Work Order: 2011353

### Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
2011353-001	SS-1	11/12/2020 8:45 AM	11/18/2020 9:33 AM
2011353-002	SS-2	11/12/2020 8:55 AM	11/18/2020 9:33 AM
2011353-003	SS-3	11/12/2020 9:05 AM	11/18/2020 9:33 AM
2011353-004	SS-4	11/12/2020 9:15 AM	11/18/2020 9:33 AM
2011353-005	SS-5	11/12/2020 9:25 AM	11/18/2020 9:33 AM
2011353-006	SS-6	11/12/2020 9:35 AM	11/18/2020 9:33 AM
2011353-007	SS-7	11/12/2020 9:45 AM	11/18/2020 9:33 AM
2011353-008	SS-8	11/12/2020 9:55 AM	11/18/2020 9:33 AM
2011353-009	SS-9	11/12/2020 10:05 AM	11/18/2020 9:33 AM
2011353-010	SS-10	11/12/2020 10:15 AM	11/18/2020 9:33 AM
2011353-011	SS-11	11/12/2020 10:25 AM	11/18/2020 9:33 AM
2011353-012	SS-12	11/12/2020 10:35 AM	11/18/2020 9:33 AM
2011353-013	SS-13	11/12/2020 10:45 AM	11/18/2020 9:33 AM
2011353-014	SS-14	11/12/2020 10:55 AM	11/18/2020 9:33 AM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned

Original



## Case Narrative

WO#: 2011353

Date: 11/24/2020

CLIENT: ESN Northwest  
Project: 283903.2

### I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

### II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

### III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Original



## Qualifiers & Acronyms

WO#: 2011353

Date Reported: 11/24/2020

### Qualifiers:

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

### Acronyms:

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- DUP - Sample Duplicate
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- REP - Sample Replicate
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate

Original

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## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-001

Client Sample ID: SS-1

Collection Date: 11/12/2020 8:45:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.492	0.0434	mg/Kg-dry	1	11/20/20 22 10 59
Alpha BHC	ND	0.00983	0.000599	mg/Kg-dry	1	11/20/20 22 10 59
Beta BHC	ND	0.00983	0.00102	mg/Kg-dry	1	11/20/20 22 10 59
Gamma BHC (Lindane)	ND	0.00983	0.000782	mg/Kg-dry	1	11/20/20 22 10 59
Delta BHC	ND	0.00983	0.000665	mg/Kg-dry	1	11/20/20 22 10 59
Heptachlor	ND	0.00983	0.000674	mg/Kg-dry	1	11/20/20 22 10 59
Aldrin	ND	0.00983	0.000667	mg/Kg-dry	1	11/20/20 22 10 59
Heptachlor epoxide	ND	0.00983	0.00105	mg/Kg-dry	1	11/20/20 22 10 59
gamma-Chlordane	ND	0.00983	0.000988	mg/Kg-dry	1	11/20/20 22 10 59
Endosulfan I	ND	0.00983	0.00112	mg/Kg-dry	1	11/20/20 22 10 59
alpha-Chlordane	ND	0.00983	0.00106	mg/Kg-dry	1	11/20/20 22 10 59
Dieldrin	ND	0.00983	0.000795	mg/Kg-dry	1	11/20/20 22 10 59
4,4'-DDE	ND	0.00983	0.000943	mg/Kg-dry	1	11/20/20 22 10 59
Endrin	ND	0.00983	0.000899	mg/Kg-dry	1	11/20/20 22 10 59
Endosulfan II	ND	0.00983	0.000998	mg/Kg-dry	1	11/20/20 22 10 59
4,4'-DDD	ND	0.00983	0.000785	mg/Kg-dry	1	11/20/20 22 10 59
Endrin aldehyde	ND	0.00983	0.00111	mg/Kg-dry	1	11/20/20 22 10 59
Endosulfan sulfate	ND	0.00983	0.00102	mg/Kg-dry	1	11/20/20 22 10 59
4,4'-DDT	ND	0.00983	0.000531	mg/Kg-dry	1	11/20/20 22 10 59
Endrin ketone	ND	0.00983	0.000833	mg/Kg-dry	1	11/20/20 22 10 59
Methoxychlor	ND	0.00983	0.000861	mg/Kg-dry	1	11/20/20 22 10 59
Surr. Decachlorobiphenyl	84.2	27 - 166		%Rec	1	11/20/20 22 10 59
Surr. Tetrachloro-m-xylene	74.7	28.1 - 171		%Rec	1	11/20/20 22 10 59

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	4.37	0.205	0.0644	mg/Kg-dry	1	11/20/20 21 04 12
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	6.36	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-002

Client Sample ID: SS-2

Collection Date: 11/12/2020 8:55:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.454	0.0400	mg/Kg-dry	1	11/20/20 22 20 32
Alpha BHC	ND	0.00907	0.000545	mg/Kg-dry	1	11/20/20 22 20 32
Beta BHC	ND	0.00907	0.000938	mg/Kg-dry	1	11/20/20 22 20 32
Gamma BHC (Lindane)	ND	0.00907	0.000721	mg/Kg-dry	1	11/20/20 22 20 32
Delta BHC	ND	0.00907	0.000614	mg/Kg-dry	1	11/20/20 22 20 32
Heptachlor	ND	0.00907	0.000806	mg/Kg-dry	1	11/20/20 22 20 32
Aldrin	ND	0.00907	0.000800	mg/Kg-dry	1	11/20/20 22 20 32
Heptachlor epoxide	ND	0.00907	0.000964	mg/Kg-dry	1	11/20/20 22 20 32
gamma-Chlordane	ND	0.00907	0.000911	mg/Kg-dry	1	11/20/20 22 20 32
Endosulfan I	ND	0.00907	0.00103	mg/Kg-dry	1	11/20/20 22 20 32
alpha-Chlordane	ND	0.00907	0.000975	mg/Kg-dry	1	11/20/20 22 20 32
Dieldrin	ND	0.00907	0.000734	mg/Kg-dry	1	11/20/20 22 20 32
4,4'-DDE	ND	0.00907	0.000870	mg/Kg-dry	1	11/20/20 22 20 32
Endrin	ND	0.00907	0.000630	mg/Kg-dry	1	11/20/20 22 20 32
Endosulfan II	ND	0.00907	0.000921	mg/Kg-dry	1	11/20/20 22 20 32
4,4'-DDD	ND	0.00907	0.000724	mg/Kg-dry	1	11/20/20 22 20 32
Endrin aldehyde	ND	0.00907	0.00102	mg/Kg-dry	1	11/20/20 22 20 32
Endosulfan sulfate	ND	0.00907	0.000942	mg/Kg-dry	1	11/20/20 22 20 32
4,4'-DDT	ND	0.00907	0.000490	mg/Kg-dry	1	11/20/20 22 20 32
Endrin ketone	ND	0.00907	0.000769	mg/Kg-dry	1	11/20/20 22 20 32
Methoxychlor	ND	0.00907	0.000794	mg/Kg-dry	1	11/20/20 22 20 32
Surr. Decachlorobiphenyl	69.1	27 - 166		%Rec	1	11/20/20 22 20 32
Surr. Tetrachloro-m-xylene	66.3	28.1 - 171		%Rec	1	11/20/20 22 20 32

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	13.7	0.198	0.0620	mg/Kg-dry	1	11/20/20 21 20 55
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	3.57	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-003  
Client Sample ID: SS-3

Collection Date: 11/12/2020 9:05:00 AM

Matrix: Soil

Analyses Result RL MDL Qual Units DF Date Analyzed

### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.498	0.0439	mg/Kg-dry	1	11/20/20 22 30 08
Alpha BHC	ND	0.00996	0.000708	mg/Kg-dry	1	11/20/20 22 30 08
Beta BHC	ND	0.00996	0.00103	mg/Kg-dry	1	11/20/20 22 30 08
Gamma BHC (Lindane)	ND	0.00996	0.000792	mg/Kg-dry	1	11/20/20 22 30 08
Delta BHC	ND	0.00996	0.000674	mg/Kg-dry	1	11/20/20 22 30 08
Heptachlor	ND	0.00996	0.000885	mg/Kg-dry	1	11/20/20 22 30 08
Aldrin	ND	0.00996	0.000878	mg/Kg-dry	1	11/20/20 22 30 08
Heptachlor epoxide	ND	0.00996	0.00106	mg/Kg-dry	1	11/20/20 22 30 08
gamma-Chlordane	ND	0.00996	0.00100	mg/Kg-dry	1	11/20/20 22 30 08
Endosulfan I	ND	0.00996	0.00114	mg/Kg-dry	1	11/20/20 22 30 08
alpha-Chlordane	ND	0.00996	0.00107	mg/Kg-dry	1	11/20/20 22 30 08
Dieldrin	ND	0.00996	0.000806	mg/Kg-dry	1	11/20/20 22 30 08
4,4'-DDE	ND	0.00996	0.000955	mg/Kg-dry	1	11/20/20 22 30 08
Endrin	ND	0.00996	0.000910	mg/Kg-dry	1	11/20/20 22 30 08
Endosulfan II	ND	0.00996	0.00101	mg/Kg-dry	1	11/20/20 22 30 08
4,4'-DDD	ND	0.00996	0.000795	mg/Kg-dry	1	11/20/20 22 30 08
Endrin aldehyde	ND	0.00996	0.00112	mg/Kg-dry	1	11/20/20 22 30 08
Endosulfan sulfate	ND	0.00996	0.00103	mg/Kg-dry	1	11/20/20 22 30 08
4,4'-DDT	ND	0.00996	0.000538	mg/Kg-dry	1	11/20/20 22 30 08
Endrin ketone	ND	0.00996	0.000844	mg/Kg-dry	1	11/20/20 22 30 08
Methoxychlor	ND	0.00996	0.000872	mg/Kg-dry	1	11/20/20 22 30 08
Surr Decachlorobiphenyl	76.3	27 - 166		%Rec	1	11/20/20 22 30 08
Surr Tetrachloro-m-xylene	73.6	28.1 - 171		%Rec	1	11/20/20 22 30 08

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	14.8	0.205	0.0641	mg/Kg-dry	1	11/20/20 21 26 28
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	6.68	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-004  
Client Sample ID: SS-4

Collection Date: 11/12/2020 9:15:00 AM

Matrix: Soil

Analyses Result RL MDL Qual Units DF Date Analyzed

### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.492	0.0434	mg/Kg-dry	1	11/20/20 22 39 50
Alpha BHC	ND	0.00985	0.000700	mg/Kg-dry	1	11/20/20 22 39 50
Beta BHC	ND	0.00985	0.00102	mg/Kg-dry	1	11/20/20 22 39 50
Gamma BHC (Lindane)	ND	0.00985	0.000783	mg/Kg-dry	1	11/20/20 22 39 50
Delta BHC	ND	0.00985	0.000666	mg/Kg-dry	1	11/20/20 22 39 50
Heptachlor	ND	0.00985	0.000875	mg/Kg-dry	1	11/20/20 22 39 50
Aldrin	ND	0.00985	0.000869	mg/Kg-dry	1	11/20/20 22 39 50
Heptachlor epoxide	ND	0.00985	0.00105	mg/Kg-dry	1	11/20/20 22 39 50
gamma-Chlordane	ND	0.00985	0.000989	mg/Kg-dry	1	11/20/20 22 39 50
Endosulfan I	ND	0.00985	0.00112	mg/Kg-dry	1	11/20/20 22 39 50
alpha-Chlordane	ND	0.00985	0.00106	mg/Kg-dry	1	11/20/20 22 39 50
Dieldrin	ND	0.00985	0.000796	mg/Kg-dry	1	11/20/20 22 39 50
4,4'-DDE	ND	0.00985	0.000944	mg/Kg-dry	1	11/20/20 22 39 50
Endrin	ND	0.00985	0.000900	mg/Kg-dry	1	11/20/20 22 39 50
Endosulfan II	ND	0.00985	0.00100	mg/Kg-dry	1	11/20/20 22 39 50
4,4'-DDD	ND	0.00985	0.000786	mg/Kg-dry	1	11/20/20 22 39 50
Endrin aldehyde	ND	0.00985	0.00111	mg/Kg-dry	1	11/20/20 22 39 50
Endosulfan sulfate	ND	0.00985	0.00102	mg/Kg-dry	1	11/20/20 22 39 50
4,4'-DDT	ND	0.00985	0.000532	mg/Kg-dry	1	11/20/20 22 39 50
Endrin ketone	ND	0.00985	0.000834	mg/Kg-dry	1	11/20/20 22 39 50
Methoxychlor	ND	0.00985	0.000862	mg/Kg-dry	1	11/20/20 22 39 50
Surr Decachlorobiphenyl	70.8	27 - 166		%Rec	1	11/20/20 22 39 50
Surr Tetrachloro-m-xylene	67.0	28.1 - 171		%Rec	1	11/20/20 22 39 50

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	12.4	0.212	0.0663	mg/Kg-dry	1	11/20/20 21 32 01
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	6.23	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original





## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-005

Client Sample ID: SS-6

Collection Date: 11/12/2020 9:25:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.474	0.0419	mg/Kg-dry	1	11/20/20 23 08 31
Alpha BHC	ND	0.00949	0.000675	mg/Kg-dry	1	11/20/20 23 08 31
Beta BHC	ND	0.00949	0.000981	mg/Kg-dry	1	11/20/20 23 08 31
Gamma BHC (Lindane)	ND	0.00949	0.000755	mg/Kg-dry	1	11/20/20 23 08 31
Delta BHC	ND	0.00949	0.000642	mg/Kg-dry	1	11/20/20 23 08 31
Heptachlor	ND	0.00949	0.000843	mg/Kg-dry	1	11/20/20 23 08 31
Aldrin	ND	0.00949	0.000837	mg/Kg-dry	1	11/20/20 23 08 31
Heptachlor epoxide	ND	0.00949	0.00101	mg/Kg-dry	1	11/20/20 23 08 31
gamma-Chlordane	ND	0.00949	0.000953	mg/Kg-dry	1	11/20/20 23 08 31
Endosulfan I	ND	0.00949	0.00108	mg/Kg-dry	1	11/20/20 23 08 31
alpha-Chlordane	ND	0.00949	0.00102	mg/Kg-dry	1	11/20/20 23 08 31
Dieldrin	ND	0.00949	0.000768	mg/Kg-dry	1	11/20/20 23 08 31
4,4'-DDE	ND	0.00949	0.000910	mg/Kg-dry	1	11/20/20 23 08 31
Endrin	ND	0.00949	0.000868	mg/Kg-dry	1	11/20/20 23 08 31
Endosulfan II	ND	0.00949	0.000963	mg/Kg-dry	1	11/20/20 23 08 31
4,4'-DDD	ND	0.00949	0.000757	mg/Kg-dry	1	11/20/20 23 08 31
Endrin aldehyde	ND	0.00949	0.00107	mg/Kg-dry	1	11/20/20 23 08 31
Endosulfan sulfate	ND	0.00949	0.000985	mg/Kg-dry	1	11/20/20 23 08 31
4,4'-DDT	ND	0.00949	0.000513	mg/Kg-dry	1	11/20/20 23 08 31
Endrin ketone	ND	0.00949	0.000804	mg/Kg-dry	1	11/20/20 23 08 31
Methoxychlor	ND	0.00949	0.000831	mg/Kg-dry	1	11/20/20 23 08 31
Surr Decachlorobiphenyl	57.1	27 - 166		%Rec	1	11/20/20 23 08 31
Surr Tetrachloro-m-xylene	60.1	28.1 - 171		%Rec	1	11/20/20 23 08 31

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	13.1	0.198	0.0621	mg/Kg-dry	1	11/20/20 21 37 34
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	5.83	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-006

Client Sample ID: SS-6

Collection Date: 11/12/2020 9:35:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	0.487	0.0430	mg/Kg-dry	1	11/20/20 23 18 06
Alpha BHC	ND	0.00975	0.000693	mg/Kg-dry	1	11/20/20 23 18 06
Beta BHC	ND	0.00975	0.00101	mg/Kg-dry	1	11/20/20 23 18 06
Gamma BHC (Lindane)	ND	0.00975	0.000775	mg/Kg-dry	1	11/20/20 23 18 06
Delta BHC	ND	0.00975	0.000660	mg/Kg-dry	1	11/20/20 23 18 06
Heptachlor	ND	0.00975	0.000866	mg/Kg-dry	1	11/20/20 23 18 06
Aldrin	ND	0.00975	0.000860	mg/Kg-dry	1	11/20/20 23 18 06
Heptachlor epoxide	ND	0.00975	0.00104	mg/Kg-dry	1	11/20/20 23 18 06
gamma-Chlordane	ND	0.00975	0.000979	mg/Kg-dry	1	11/20/20 23 18 06
Endosulfan I	ND	0.00975	0.00111	mg/Kg-dry	1	11/20/20 23 18 06
alpha-Chlordane	ND	0.00975	0.00105	mg/Kg-dry	1	11/20/20 23 18 06
Dieldrin	ND	0.00975	0.000788	mg/Kg-dry	1	11/20/20 23 18 06
4,4'-DDE	ND	0.00975	0.000935	mg/Kg-dry	1	11/20/20 23 18 06
Endrin	ND	0.00975	0.000891	mg/Kg-dry	1	11/20/20 23 18 06
Endosulfan II	ND	0.00975	0.000990	mg/Kg-dry	1	11/20/20 23 18 06
4,4'-DDD	ND	0.00975	0.000778	mg/Kg-dry	1	11/20/20 23 18 06
Endrin aldehyde	ND	0.00975	0.00110	mg/Kg-dry	1	11/20/20 23 18 06
Endosulfan sulfate	ND	0.00975	0.00101	mg/Kg-dry	1	11/20/20 23 18 06
4,4'-DDT	ND	0.00975	0.000527	mg/Kg-dry	1	11/20/20 23 18 06
Endrin ketone	ND	0.00975	0.000825	mg/Kg-dry	1	11/20/20 23 18 06
Methoxychlor	ND	0.00975	0.000853	mg/Kg-dry	1	11/20/20 23 18 06
Surr Decachlorobiphenyl	78.0	27 - 166		%Rec	1	11/20/20 23 18 06
Surr Tetrachloro-m-xylene	64.0	28.1 - 171		%Rec	1	11/20/20 23 18 06

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	12.4	0.198	0.0620	mg/Kg-dry	1	11/20/20 21 43 08
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	4.92	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-007

Client Sample ID: SS-7

Collection Date: 11/12/2020 9:45:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	5.31	0.468	D	mg/Kg-dry	10	11/23/20 18 30 34
Alpha BHC	ND	0.106	0.00755	D	mg/Kg-dry	10	11/23/20 18 30 34
Beta BHC	ND	0.106	0.0110	D	mg/Kg-dry	10	11/23/20 18 30 34
Gamma BHC (Lindane)	ND	0.106	0.00844	D	mg/Kg-dry	10	11/23/20 18 30 34
Delta BHC	ND	0.106	0.00719	D	mg/Kg-dry	10	11/23/20 18 30 34
Heptachlor	ND	0.106	0.00944	D	mg/Kg-dry	10	11/23/20 18 30 34
Aldrin	ND	0.106	0.00937	D	mg/Kg-dry	10	11/23/20 18 30 34
Heptachlor epoxide	ND	0.106	0.0113	D	mg/Kg-dry	10	11/23/20 18 30 34
gamma-Chlordane	ND	0.106	0.0107	D	mg/Kg-dry	10	11/23/20 18 30 34
Endosulfan I	ND	0.106	0.0121	D	mg/Kg-dry	10	11/23/20 18 30 34
alpha-Chlordane	ND	0.106	0.0114	D	mg/Kg-dry	10	11/23/20 18 30 34
Dieldrin	ND	0.106	0.00859	D	mg/Kg-dry	10	11/23/20 18 30 34
4,4'-DDE	ND	0.106	0.0102	D	mg/Kg-dry	10	11/23/20 18 30 34
Endrin	ND	0.106	0.00971	D	mg/Kg-dry	10	11/23/20 18 30 34
Endosulfan II	ND	0.106	0.0108	D	mg/Kg-dry	10	11/23/20 18 30 34
4,4'-DDD	ND	0.106	0.00847	D	mg/Kg-dry	10	11/23/20 18 30 34
Endrin aldehyde	ND	0.106	0.0120	D	mg/Kg-dry	10	11/23/20 18 30 34
Endosulfan sulfate	ND	0.106	0.0110	D	mg/Kg-dry	10	11/23/20 18 30 34
4,4'-DDT	ND	0.106	0.00574	D	mg/Kg-dry	10	11/23/20 18 30 34
Endrin ketone	ND	0.106	0.00900	D	mg/Kg-dry	10	11/23/20 18 30 34
Methoxychlor	ND	0.106	0.00930	D	mg/Kg-dry	10	11/23/20 18 30 34
Surr: Decachlorobiphenyl	130	27 - 166		D	%Rec	10	11/23/20 18 30 34
Surr: Tetrachloro-m-xylene	94.5	28.1 - 171		D	%Rec	10	11/23/20 18 30 34

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	11.7	0.215	0.0674	mg/Kg-dry	1	11/20/20 21 48 41
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	6.31	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest

Project: 283903.2

Lab ID: 2011353-008

Client Sample ID: SS-8

Collection Date: 11/12/2020 9:55:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	5.06	0.448	D	mg/Kg-dry	10	11/23/20 18 40 10
Alpha BHC	ND	0.102	0.00722	D	mg/Kg-dry	10	11/23/20 18 40 10
Beta BHC	ND	0.102	0.0105	D	mg/Kg-dry	10	11/23/20 18 40 10
Gamma BHC (Lindane)	ND	0.102	0.00807	D	mg/Kg-dry	10	11/23/20 18 40 10
Delta BHC	ND	0.102	0.00687	D	mg/Kg-dry	10	11/23/20 18 40 10
Heptachlor	ND	0.102	0.00902	D	mg/Kg-dry	10	11/23/20 18 40 10
Aldrin	ND	0.102	0.00896	D	mg/Kg-dry	10	11/23/20 18 40 10
Heptachlor epoxide	ND	0.102	0.0108	D	mg/Kg-dry	10	11/23/20 18 40 10
gamma-Chlordane	ND	0.102	0.0102	D	mg/Kg-dry	10	11/23/20 18 40 10
Endosulfan I	ND	0.102	0.0116	D	mg/Kg-dry	10	11/23/20 18 40 10
alpha-Chlordane	ND	0.102	0.0109	D	mg/Kg-dry	10	11/23/20 18 40 10
Dieldrin	ND	0.102	0.00821	D	mg/Kg-dry	10	11/23/20 18 40 10
4,4'-DDE	ND	0.102	0.00874	D	mg/Kg-dry	10	11/23/20 18 40 10
Endrin	ND	0.102	0.00928	D	mg/Kg-dry	10	11/23/20 18 40 10
Endosulfan II	ND	0.102	0.0103	D	mg/Kg-dry	10	11/23/20 18 40 10
4,4'-DDD	ND	0.102	0.00810	D	mg/Kg-dry	10	11/23/20 18 40 10
Endrin aldehyde	ND	0.102	0.0114	D	mg/Kg-dry	10	11/23/20 18 40 10
Endosulfan sulfate	ND	0.102	0.0105	D	mg/Kg-dry	10	11/23/20 18 40 10
4,4'-DDT	ND	0.102	0.00549	D	mg/Kg-dry	10	11/23/20 18 40 10
Endrin ketone	ND	0.102	0.00860	D	mg/Kg-dry	10	11/23/20 18 40 10
Methoxychlor	ND	0.102	0.00889	D	mg/Kg-dry	10	11/23/20 18 40 10
Surr: Decachlorobiphenyl	115	27 - 166		D	%Rec	10	11/23/20 18 40 10
Surr: Tetrachloro-m-xylene	85.1	28.1 - 171		D	%Rec	10	11/23/20 18 40 10

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	9.50	0.204	0.0640	mg/Kg-dry	1	11/20/20 21 54 15
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	2.77	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-009  
Client Sample ID: SS-9

Collection Date: 11/12/2020 10:05:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	4.60	0.406	D	mg/Kg-dry	10	11/24/20 10 28 09
Alpha BHC	ND	0.0920	0.00655	D	mg/Kg-dry	10	11/23/20 14 39 26
Beta BHC	ND	0.0920	0.00951	D	mg/Kg-dry	10	11/23/20 14 39 26
Gamma BHC (Lindane)	ND	0.0920	0.00732	D	mg/Kg-dry	10	11/23/20 14 39 26
Delta BHC	ND	0.0920	0.00623	D	mg/Kg-dry	10	11/23/20 14 39 26
Heptachlor	ND	0.0920	0.00618	D	mg/Kg-dry	10	11/23/20 14 39 26
Aldrin	ND	0.0920	0.00612	D	mg/Kg-dry	10	11/23/20 14 39 26
Heptachlor epoxide	ND	0.0920	0.00978	D	mg/Kg-dry	10	11/23/20 14 39 26
gamma-Chlordane	ND	0.0920	0.00924	D	mg/Kg-dry	10	11/23/20 14 39 26
Endosulfan I	ND	0.0920	0.0105	D	mg/Kg-dry	10	11/23/20 14 39 26
alpha-Chlordane	ND	0.0920	0.00989	D	mg/Kg-dry	10	11/23/20 14 39 26
Dechlorin	ND	0.0920	0.00744	D	mg/Kg-dry	10	11/23/20 14 39 26
4,4'-DDE	ND	0.0920	0.00882	D	mg/Kg-dry	10	11/23/20 14 39 26
Endrin	ND	0.0920	0.00641	D	mg/Kg-dry	10	11/23/20 14 39 26
Endosulfan II	ND	0.0920	0.00934	D	mg/Kg-dry	10	11/23/20 14 39 26
4,4'-DDD	ND	0.0920	0.00734	D	mg/Kg-dry	10	11/23/20 14 39 26
Endrin aldehyde	ND	0.0920	0.0104	D	mg/Kg-dry	10	11/23/20 14 39 26
Endosulfan sulfate	ND	0.0920	0.00955	D	mg/Kg-dry	10	11/23/20 14 39 26
4,4'-DDT	ND	0.0920	0.00497	D	mg/Kg-dry	10	11/23/20 14 39 26
Endrin ketone	ND	0.0920	0.00780	D	mg/Kg-dry	10	11/23/20 14 39 26
Methoxychlor	ND	0.0920	0.00806	D	mg/Kg-dry	10	11/23/20 14 39 26
Surr Decachlorobiphenyl	104	27 - 166		D	%Rec	10	11/23/20 14 39 26
Surr Tetrachloro-m-xylene	82.7	28.1 - 171		D	%Rec	10	11/23/20 14 39 26

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	12.6	0.196	0.0613	mg/Kg-dry	1	11/20/20 21 59 48
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	3.92	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original



## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-010  
Client Sample ID: SS-10

Collection Date: 11/12/2020 10:15:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	5.16	0.455	D	mg/Kg-dry	10	11/24/20 10 37 55
Alpha BHC	ND	0.103	0.00734	D	mg/Kg-dry	10	11/23/20 14 49 01
Beta BHC	ND	0.103	0.0107	D	mg/Kg-dry	10	11/23/20 14 49 01
Gamma BHC (Lindane)	ND	0.103	0.00821	D	mg/Kg-dry	10	11/23/20 14 49 01
Delta BHC	ND	0.103	0.00698	D	mg/Kg-dry	10	11/23/20 14 49 01
Heptachlor	ND	0.103	0.00917	D	mg/Kg-dry	10	11/23/20 14 49 01
Aldrin	ND	0.103	0.00910	D	mg/Kg-dry	10	11/23/20 14 49 01
Heptachlor epoxide	ND	0.103	0.0110	D	mg/Kg-dry	10	11/23/20 14 49 01
gamma-Chlordane	ND	0.103	0.0104	D	mg/Kg-dry	10	11/23/20 14 49 01
Endosulfan I	ND	0.103	0.0118	D	mg/Kg-dry	10	11/23/20 14 49 01
alpha-Chlordane	ND	0.103	0.0111	D	mg/Kg-dry	10	11/23/20 14 49 01
Dechlorin	ND	0.103	0.00835	D	mg/Kg-dry	10	11/23/20 14 49 01
4,4'-DDE	ND	0.103	0.00990	D	mg/Kg-dry	10	11/23/20 14 49 01
Endrin	ND	0.103	0.00943	D	mg/Kg-dry	10	11/23/20 14 49 01
Endosulfan II	ND	0.103	0.0105	D	mg/Kg-dry	10	11/23/20 14 49 01
4,4'-DDD	ND	0.103	0.00823	D	mg/Kg-dry	10	11/23/20 14 49 01
Endrin aldehyde	ND	0.103	0.0116	D	mg/Kg-dry	10	11/23/20 14 49 01
Endosulfan sulfate	ND	0.103	0.0107	D	mg/Kg-dry	10	11/23/20 14 49 01
4,4'-DDT	ND	0.103	0.00558	D	mg/Kg-dry	10	11/23/20 14 49 01
Endrin ketone	ND	0.103	0.00874	D	mg/Kg-dry	10	11/23/20 14 49 01
Methoxychlor	ND	0.103	0.00903	D	mg/Kg-dry	10	11/23/20 14 49 01
Surr Decachlorobiphenyl	124	27 - 166		D	%Rec	10	11/23/20 14 49 01
Surr Tetrachloro-m-xylene	89.9	28.1 - 171		D	%Rec	10	11/23/20 14 49 01

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	15.0	0.206	0.0646	mg/Kg-dry	1	11/20/20 22 05 21
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	6.65	0.500	0.100	wt%	1	11/20/20 10 02 43
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Original





## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-011  
Client Sample ID: SS-11

Collection Date: 11/12/2020 10:25:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	4.90	0.432	D	mg/Kg-dry	10	11/24/20 10:47:34
Alpha BHC	ND	0.0980	0.00697	D	mg/Kg-dry	10	11/23/20 14:58:37
Beta BHC	ND	0.0980	0.0101	D	mg/Kg-dry	10	11/23/20 14:58:37
Gamma BHC (Lindane)	ND	0.0980	0.00780	D	mg/Kg-dry	10	11/23/20 14:58:37
Delta BHC	ND	0.0980	0.00664	D	mg/Kg-dry	10	11/23/20 14:58:37
Heptachlor	ND	0.0980	0.00871	D	mg/Kg-dry	10	11/23/20 14:58:37
Aldrin	ND	0.0980	0.00865	D	mg/Kg-dry	10	11/23/20 14:58:37
Heptachlor epoxide	ND	0.0980	0.0104	D	mg/Kg-dry	10	11/23/20 14:58:37
gamma-Chlordane	ND	0.0980	0.00985	D	mg/Kg-dry	10	11/23/20 14:58:37
Endosulfen I	ND	0.0980	0.0112	D	mg/Kg-dry	10	11/23/20 14:58:37
alpha-Chlordane	ND	0.0980	0.0105	D	mg/Kg-dry	10	11/23/20 14:58:37
Dieldrin	ND	0.0980	0.00793	D	mg/Kg-dry	10	11/23/20 14:58:37
4,4'-DDE	ND	0.0980	0.00940	D	mg/Kg-dry	10	11/23/20 14:58:37
Endrin	ND	0.0980	0.00896	D	mg/Kg-dry	10	11/23/20 14:58:37
Endosulfen II	ND	0.0980	0.00995	D	mg/Kg-dry	10	11/23/20 14:58:37
4,4'-DDD	ND	0.0980	0.00782	D	mg/Kg-dry	10	11/23/20 14:58:37
Endrin aldehyde	ND	0.0980	0.0110	D	mg/Kg-dry	10	11/23/20 14:58:37
Endosulfan sulfate	ND	0.0980	0.0102	D	mg/Kg-dry	10	11/23/20 14:58:37
4,4'-DDT	ND	0.0980	0.00530	D	mg/Kg-dry	10	11/23/20 14:58:37
Endrin ketone	ND	0.0980	0.00831	D	mg/Kg-dry	10	11/23/20 14:58:37
Methoxychlor	ND	0.0980	0.00858	D	mg/Kg-dry	10	11/23/20 14:58:37
Surr Decachlorobiphenyl	159	27 - 166		D	%Rec	10	11/23/20 14:58:37
Surr Tetrachloro-m-xylene	102	28.1 - 171		D	%Rec	10	11/23/20 14:58:37

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	9.65	0.196	0.0613	mg/Kg-dry	1	11/20/20 22:10:55
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	7.45	0.500	0.100	wt%	1	11/20/20 10:02:43
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Original



## Analytical Report

Work Order: 2011353

Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-012  
Client Sample ID: SS-12

Collection Date: 11/12/2020 10:35:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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**Organochlorine Pesticides by EPA Method 8081**

Batch ID: 30493

Analyst: DW

Toxaphene	ND	5.01	0.442	D	mg/Kg-dry	10	11/24/20 10:57:14
Alpha BHC	ND	0.100	0.00712	D	mg/Kg-dry	10	11/23/20 15:08:16
Beta BHC	ND	0.100	0.0103	D	mg/Kg-dry	10	11/23/20 15:08:16
Gamma BHC (Lindane)	ND	0.100	0.00796	D	mg/Kg-dry	10	11/23/20 15:08:16
Delta BHC	ND	0.100	0.00678	D	mg/Kg-dry	10	11/23/20 15:08:16
Heptachlor	ND	0.100	0.00890	D	mg/Kg-dry	10	11/23/20 15:08:16
Aldrin	ND	0.100	0.00883	D	mg/Kg-dry	10	11/23/20 15:08:16
Heptachlor epoxide	ND	0.100	0.0106	D	mg/Kg-dry	10	11/23/20 15:08:16
gamma-Chlordane	ND	0.100	0.0101	D	mg/Kg-dry	10	11/23/20 15:08:16
Endosulfen I	ND	0.100	0.0114	D	mg/Kg-dry	10	11/23/20 15:08:16
alpha-Chlordane	ND	0.100	0.0108	D	mg/Kg-dry	10	11/23/20 15:08:16
Dieldrin	ND	0.100	0.00810	D	mg/Kg-dry	10	11/23/20 15:08:16
4,4'-DDE	ND	0.100	0.00960	D	mg/Kg-dry	10	11/23/20 15:08:16
Endrin	ND	0.100	0.00915	D	mg/Kg-dry	10	11/23/20 15:08:16
Endosulfan II	ND	0.100	0.0102	D	mg/Kg-dry	10	11/23/20 15:08:16
4,4'-DDD	ND	0.100	0.00799	D	mg/Kg-dry	10	11/23/20 15:08:16
Endrin aldehyde	ND	0.100	0.0113	D	mg/Kg-dry	10	11/23/20 15:08:16
Endosulfan sulfate	ND	0.100	0.0104	D	mg/Kg-dry	10	11/23/20 15:08:16
4,4'-DDT	ND	0.100	0.00541	D	mg/Kg-dry	10	11/23/20 15:08:16
Endrin ketone	ND	0.100	0.00848	D	mg/Kg-dry	10	11/23/20 15:08:16
Methoxychlor	ND	0.100	0.00876	D	mg/Kg-dry	10	11/23/20 15:08:16
Surr Decachlorobiphenyl	163	27 - 166		D	%Rec	10	11/23/20 15:08:16
Surr Tetrachloro-m-xylene	108	28.1 - 171		D	%Rec	10	11/23/20 15:08:16

**Total Metals by EPA Method 6020B**

Batch ID: 30485

Analyst: CO

Arsenic	13.4	0.206	0.0646	mg/Kg-dry	1	11/20/20 22:27:38
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**Sample Moisture (Percent Moisture)**

Batch ID: R63548

Analyst: LB

Percent Moisture	10.1	0.500	0.100	wt%	1	11/20/20 10:02:43
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Original





## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-013  
Client Sample ID: SS-13

Collection Date: 11/12/2020 10:45:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	4.89	0.432	D	mg/Kg-dry	10	11/24/20 11:06:54
Alpha BHC	ND	0.0979	0.00696	D	mg/Kg-dry	10	11/23/20 15:17:56
Beta BHC	ND	0.0979	0.0101	D	mg/Kg-dry	10	11/23/20 15:17:56
Gamma BHC (Lindane)	ND	0.0979	0.00778	D	mg/Kg-dry	10	11/23/20 15:17:56
Delta BHC	ND	0.0979	0.00662	D	mg/Kg-dry	10	11/23/20 15:17:56
Heptachlor	ND	0.0979	0.00870	D	mg/Kg-dry	10	11/23/20 15:17:56
Aldrin	ND	0.0979	0.00863	D	mg/Kg-dry	10	11/23/20 15:17:56
Heptachlor epoxide	ND	0.0979	0.0104	D	mg/Kg-dry	10	11/23/20 15:17:56
gamma-Chlordane	ND	0.0979	0.00983	D	mg/Kg-dry	10	11/23/20 15:17:56
Endosulfan I	ND	0.0979	0.0112	D	mg/Kg-dry	10	11/23/20 15:17:56
alpha-Chlordane	ND	0.0979	0.0105	D	mg/Kg-dry	10	11/23/20 15:17:56
Dieldrin	ND	0.0979	0.00792	D	mg/Kg-dry	10	11/23/20 15:17:56
4,4'-DDE	ND	0.0979	0.00938	D	mg/Kg-dry	10	11/23/20 15:17:56
Endrin	ND	0.0979	0.00895	D	mg/Kg-dry	10	11/23/20 15:17:56
Endosulfan II	ND	0.0979	0.00994	D	mg/Kg-dry	10	11/23/20 15:17:56
4,4'-DDD	ND	0.0979	0.00781	D	mg/Kg-dry	10	11/23/20 15:17:56
Endrin aldehyde	ND	0.0979	0.0110	D	mg/Kg-dry	10	11/23/20 15:17:56
Endosulfan sulfate	ND	0.0979	0.0102	D	mg/Kg-dry	10	11/23/20 15:17:56
4,4'-DDT	ND	0.0979	0.00529	D	mg/Kg-dry	10	11/23/20 15:17:56
Endrin ketone	ND	0.0979	0.00829	D	mg/Kg-dry	10	11/23/20 15:17:56
Methoxychlor	ND	0.0979	0.00857	D	mg/Kg-dry	10	11/23/20 15:17:56
Surr Decachlorobiphenyl	124	27 - 166		D	%Rec	10	11/23/20 15:17:56
Surr Tetrachloro-m-xylene	89.7	28.1 - 171		D	%Rec	10	11/23/20 15:17:56

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	10.3	0.201	0.0629	mg/Kg-dry	1	11/20/20 22:33:12
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	4.95	0.500	0.100	wt%	1	11/20/20 10:02:43
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Original



## Analytical Report

Work Order: 2011353  
Date Reported: 11/24/2020

Client: ESN Northwest  
Project: 283903.2  
Lab ID: 2011353-014  
Client Sample ID: SS-14

Collection Date: 11/12/2020 10:55:00 AM

Matrix: Soil

Analyses	Result	RL	MDL	Qual	Units	DF	Date Analyzed
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### Organochlorine Pesticides by EPA Method 8081

Batch ID: 30493

Analyst: DW

Toxaphene	ND	5.03	0.444	D	mg/Kg-dry	10	11/24/20 11:16:34
Alpha BHC	ND	0.101	0.00716	D	mg/Kg-dry	10	11/23/20 15:27:32
Beta BHC	ND	0.101	0.0104	D	mg/Kg-dry	10	11/23/20 15:27:32
Gamma BHC (Lindane)	ND	0.101	0.00800	D	mg/Kg-dry	10	11/23/20 15:27:32
Delta BHC	ND	0.101	0.00881	D	mg/Kg-dry	10	11/23/20 15:27:32
Heptachlor	ND	0.101	0.00894	D	mg/Kg-dry	10	11/23/20 15:27:32
Aldrin	ND	0.101	0.00887	D	mg/Kg-dry	10	11/23/20 15:27:32
Heptachlor epoxide	ND	0.101	0.0107	D	mg/Kg-dry	10	11/23/20 15:27:32
gamma-Chlordane	ND	0.101	0.0101	D	mg/Kg-dry	10	11/23/20 15:27:32
Endosulfan I	ND	0.101	0.0115	D	mg/Kg-dry	10	11/23/20 15:27:32
alpha-Chlordane	ND	0.101	0.0108	D	mg/Kg-dry	10	11/23/20 15:27:32
Dieldrin	ND	0.101	0.00814	D	mg/Kg-dry	10	11/23/20 15:27:32
4,4'-DDE	ND	0.101	0.00965	D	mg/Kg-dry	10	11/23/20 15:27:32
Endrin	ND	0.101	0.00820	D	mg/Kg-dry	10	11/23/20 15:27:32
Endosulfan II	ND	0.101	0.0102	D	mg/Kg-dry	10	11/23/20 15:27:32
4,4'-DDD	ND	0.101	0.00803	D	mg/Kg-dry	10	11/23/20 15:27:32
Endrin aldehyde	ND	0.101	0.0113	D	mg/Kg-dry	10	11/23/20 15:27:32
Endosulfan sulfate	ND	0.101	0.0104	D	mg/Kg-dry	10	11/23/20 15:27:32
4,4'-DDT	ND	0.101	0.00544	D	mg/Kg-dry	10	11/23/20 15:27:32
Endrin ketone	ND	0.101	0.00852	D	mg/Kg-dry	10	11/23/20 15:27:32
Methoxychlor	ND	0.101	0.00881	D	mg/Kg-dry	10	11/23/20 15:27:32
Surr Decachlorobiphenyl	119	27 - 166		D	%Rec	10	11/23/20 15:27:32
Surr Tetrachloro-m-xylene	93.5	28.1 - 171		D	%Rec	10	11/23/20 15:27:32

### Total Metals by EPA Method 6020B

Batch ID: 30485

Analyst: CO

Arsenic	11.1	0.195	0.0611	mg/Kg-dry	1	11/20/20 22:38:46
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### Sample Moisture (Percent Moisture)

Batch ID: R63548

Analyst: LB

Percent Moisture	7.71	0.500	0.100	wt%	1	11/20/20 10:02:43
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Original



Date: 11/24/2020

Work Order: 2011353  
CLIENT: ESN Northwest  
Project: 283903.2QC SUMMARY REPORT  
Organochlorine Pesticides by EPA Method 8081

Sample ID	MB-30483	Sample Type	MBLK	Units	mg/Kg	Prep Date	11/20/2020	RunNo	63883
Client ID	MBLKS	Batch ID	30483	Analysis Date	11/20/2020	SealNo	1276664		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Toxaphene	ND	0.500							
Alpha BHC	ND	0.0100							
Beta BHC	ND	0.0100							
Gamma BHC (Lindane)	ND	0.0100							
Delta BHC	ND	0.0100							
Heptachlor	ND	0.0100							
Aldrin	ND	0.0100							
Heptachlor epoxide	ND	0.0100							
gamma-Chlordane	ND	0.0100							
Endosulfan I	ND	0.0100							
alpha-Chlordane	ND	0.0100							
Dieldrin	ND	0.0100							
4,4'-DDE	ND	0.0100							
Endrin	ND	0.0100							
Endosulfan II	ND	0.0100							
4,4'-DDD	ND	0.0100							
Endrin aldehyde	ND	0.0100							
Endosulfan sulfate	ND	0.0100							
4,4'-DDT	ND	0.0100							
Endrin ketone	ND	0.0100							
Methoxychlor	ND	0.0100							
Surr. Decachlorobiphenyl	0.0825		0.05000		125	27	106		
Surr. Tetrachloro-m-xylene	0.0454		0.05000		90.9	28.1	171		

Sample ID	LC52-30493	Sample Type	LC5	Units	mg/Kg	Prep Date	11/20/2020	RunNo	63883
Client ID	LC55	Batch ID	30493	Analysis Date	11/20/2020	SealNo	1276666		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Toxaphene	0.888	0.500	1.000	0	88.9	57.3	134		
Surr. Decachlorobiphenyl	0.0801		0.05000		120	27	106		

Original

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Date: 11/24/2020

Work Order: 2011353  
CLIENT: ESN Northwest  
Project: 283903.2QC SUMMARY REPORT  
Total Metals by EPA Method 8020B

Sample ID	MB-30486	Sample Type	MBLK	Units	mg/Kg	Prep Date	11/20/2020	RunNo	63688
Client ID	MBLKS	Batch ID	30486	Analysis Date	11/20/2020	SealNo	1276485		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic	ND	0.195							

Sample ID	LC5-30486	Sample Type	LC5	Units	mg/Kg	Prep Date	11/20/2020	RunNo	63688
Client ID	LC55	Batch ID	30486	Analysis Date	11/20/2020	SealNo	1276484		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic	40.9	0.200	40.85	0	101	80	120		

Sample ID	2011354-004A85	Sample Type	MS	Units	mg/Kg-dry	Prep Date	11/20/2020	RunNo	63688
Client ID	BATCH	Batch ID	30486	Analysis Date	11/20/2020	SealNo	1276488		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic	67.1	0.290	57.88	4.979	107	75	125		

Sample ID	2011354-004A85D	Sample Type	MSD	Units	mg/Kg-dry	Prep Date	11/20/2020	RunNo	63688
Client ID	BATCH	Batch ID	30486	Analysis Date	11/20/2020	SealNo	1276480		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic	66.9	0.290	57.88	4.979	105	75	125	67.15	1.88 20

Original

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Date: 11/24/2020

Work Order: 2011353  
CLIENT: ESN Northwest  
Project: 263903.2QC SUMMARY REPORT  
Organochlorine Pesticides by EPA Method 8081

Sample ID: 2011353-004MMS	Sample Type: MS	Units: mg/Kg-dry	Prep Date: 11/20/2020	RunNo: 83619							
Client ID: SS-4	Batch ID: 30483	Analysis Date: 11/23/2020	SealNo: 1277217								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alpha BHC	0.201	0.0028	0.1856	0	108	76.1	143				D
Beta BHC	0.194	0.0028	0.1856	0	104	70.1	143				D
Gamma BHC (Lindane)	0.202	0.0028	0.1856	0	109	76.1	145				D
Delta BHC	0.181	0.0028	0.1856	0	97.3	61.1	142				D
Heptachlor	0.224	0.0028	0.1856	0	121	76.3	157				D
Aldrin	0.206	0.0028	0.1856	0	112	73.9	152				D
Heptachlor epoxide	0.206	0.0028	0.1856	0	111	75.1	154				D
gamma-Chlordane	0.206	0.0028	0.1856	0	111	69.4	152				D
Endosulfan I	0.208	0.0028	0.1856	0	112	75.3	153				D
alpha-Chlordane	0.208	0.0028	0.1856	0	112	68.7	155				D
Dieldrin	0.210	0.0028	0.1856	0	113	74	152				D
4,4'-DDE	0.210	0.0028	0.1856	0	113	70.7	152				D
Endrin	0.223	0.0028	0.1856	0	120	80.4	152				D
Endosulfan II	0.210	0.0028	0.1856	0	113	67.2	144				D
4,4'-DDD	0.226	0.0028	0.1856	0	122	71.1	155				D
Endrin aldehyde	0.187	0.0028	0.1856	0	101	22.5	147				D
Endosulfan sulfate	0.204	0.0028	0.1856	0	110	49.5	145				D
4,4'-DDT	0.247	0.0028	0.1856	0	133	61.5	169				D
Endrin ketone	0.221	0.0028	0.1856	0	119	67.1	144				D
Methoxychlor	0.235	0.0028	0.1856	0	128	58	170				D
Sum: Decachlorobiphenyl	0.0739		0.04641		159	27	166				D
Sum: Tetrachloro-m-xylene	0.0535		0.04641		115	28.1	171				D

Sample ID: 2011353-004MMSD	Sample Type: MSD	Units: mg/Kg-dry	Prep Date: 11/20/2020	RunNo: 63619							
Client ID: SS-4	Batch ID: 30483		Analysis Date: 11/23/2020	SealNo: 1277218							
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alpha BHC	0.172	0.0086	0.1797	0	95.5	76.1	143	0.2012	15.9	30	D
Beta BHC	0.161	0.0086	0.1797	0	89.4	70.1	143	0.1909	18.8	30	D
Gamma BHC (Lindane)	0.173	0.0086	0.1797	0	96.1	78.1	145	0.2021	15.7	30	D

Original

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Date: 11/24/2020

Work Order: 2011353  
CLIENT: ESN Northwest  
Project: 263903.2QC SUMMARY REPORT  
Organochlorine Pesticides by EPA Method 8081

Sample ID: LC53-30483	Sample Type: LCS	Units: mg/Kg	Prep Date: 11/20/2020	RunNo: 63619							
Client ID: LCSS	Batch ID: 30483	Analysis Date: 11/20/2020	SealNo: 1276666								
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sum: Tetrachloro-m-xylene	0.0464		0.05000		92.8	28.1	171				

Sample ID:	LC51-30483	Sample Type:	LCS	Units:	mg/Kg	Prep Date:	11/20/2020	RunNo:	63619		
Client ID:	LCSS	Batch ID:	30483	Analysis Date:	11/23/2020	SealNo:	1277209				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alpha BHC	0.200	0.0100	0.2000	0	100	70.8	143				
Beta BHC	0.200	0.0100	0.2000	0	102	70.5	143				
Gamma BHC (Lindane)	0.203	0.0100	0.2000	0	101	70.8	144				
Delta BHC	0.203	0.0100	0.2000	0	101	67.8	143				
Heptachlor	0.208	0.0100	0.2000	0	105	70.7	151				
Aldrin	0.203	0.0100	0.2000	0	101	68.5	148				
Heptachlor epoxide	0.211	0.0100	0.2000	0	106	67.8	152				
gamma-Chlordane	0.203	0.0100	0.2000	0	101	63.8	150				
Endosulfan I	0.206	0.0100	0.2000	0	103	73.3	151				
alpha-Chlordane	0.203	0.0100	0.2000	0	101	63.5	150				
Dieldrin	0.209	0.0100	0.2000	0	105	72.8	149				
4,4'-DDE	0.203	0.0100	0.2000	0	101	71.1	148				
Endrin	0.219	0.0100	0.2000	0	109	62.7	158				
Endosulfan II	0.218	0.0100	0.2000	0	108	53.5	154				
4,4'-DDD	0.212	0.0100	0.2000	0	106	66.3	154				
Endrin aldehyde	0.229	0.0100	0.2000	0	114	43.8	133				
Endosulfan sulfate	0.227	0.0100	0.2000	0	114	59.5	148				
4,4'-DDT	0.219	0.0100	0.2000	0	109	70.5	149				
Endrin ketone	0.224	0.0100	0.2000	0	112	58	157				
Methoxychlor	0.222	0.0100	0.2000	0	111	52	159				
Sum: Decachlorobiphenyl	0.0487		0.05000		96.5	27	166				
Sum: Tetrachloro-m-xylene	0.0386		0.05000		79.5	28.1	171				

Original

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# Sample Log-In Check List

Client Name: ESN  
Logged by: Clare Griggs  
Work Order Number: 2011353  
Date Received: 11/18/2020 9:33:00 AM

## Chain of Custody

1. Is Chain of Custody complete?
2. How was the sample delivered?

Yes ☐ No ☒ Not Present ☐  
EscalEx

## Log In

3. Coolers are present?

Yes ☒ No ☐ NA ☐

4. Shipping container/cooler in good condition?
5. Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)
6. Was an attempt made to cool the samples?

Yes ☒ No ☐ Not Present ☒  
Yes ☒ No ☐ NA ☐  
Yes ☒ No ☐ NA ☐

7. Were all items received at a temperature of >2°C to 6°C?

Yes ☒ No ☐ NA ☐

8. Sample(s) in proper container(s)?

Yes ☒ No ☐

9. Sufficient sample volume for indicated test(s)?

Yes ☒ No ☐

10. Are samples properly preserved?

Yes ☒ No ☐

11. Was preservative added to bottles?

Yes ☒ No ☐ NA ☐

12. Is there headspace in the VOA vials?

Yes ☒ No ☐ NA ☒

13. Did all samples containers arrive in good condition(unbroken)?

Yes ☒ No ☐

14. Does paperwork match bottle labels?

Yes ☒ No ☐

15. Are matrices correctly identified on Chain of Custody?

Yes ☐ No ☒

16. Is it clear what analytes were requested?

Yes ☒ No ☐

17. Were all holding times able to be met?

Yes ☒ No ☐

## Special Handling (if applicable)

18. Was client notified of all discrepancies with this order?

Yes ☒ No ☐ NA ☐

Person Notified: ESN Date: 11/19/2020  
By Whom: Clare Griggs Via: ☒ Email ☐ Phone ☐ In Person  
Regarding: Requesting sampling dates/times.  
Client Instructions: See revised COC.

## Item Information

Sample Item # Temp °C  
5.9

## Additional remarks

\* Note: DoDELAP and TNI require items to be received at 4°C +/- 2°C

Original



Date: 11/24/2020

Work Order: 2011353  
CLIENT: ESN Northwest  
Project: 283903.2

## QC SUMMARY REPORT Organochlorine Pesticides by EPA Method 8081

Sample ID	2011353-004AMSD	SampType	MSD	Units	mg/Kg-dry	Prep Date	11/20/2020	RunNo:	63619		
Client ID	SS-4	Batch ID	30493			Analysis Date	11/23/2020	SeqNo	1277218		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Delta BHC	0.151	0.0898	0.1797	0	84.0	61.1	142	0.1806	17.9	30	D
Heptachlor	0.191	0.0898	0.1797	0	107	76.3	157	0.2240	15.7	30	D
Aldrin	0.177	0.0898	0.1797	0	98.5	73.9	152	0.2079	16.1	30	D
Heptachlor epoxide	0.173	0.0898	0.1797	0	96.1	75.1	154	0.2055	17.3	30	D
gamma-Chlordane	0.173	0.0898	0.1797	0	96.1	69.4	152	0.2055	17.4	30	D
Endosulfan I	0.176	0.0898	0.1797	0	97.9	75.3	153	0.2076	16.6	30	D
alpha-Chlordane	0.176	0.0898	0.1797	0	97.9	68.7	155	0.2078	16.6	30	D
Dieldrin	0.178	0.0898	0.1797	0	99.3	74	152	0.2104	16.5	30	D
4,4'-DDE	0.179	0.0898	0.1797	0	99.9	70.7	152	0.2103	15.9	30	D
Endrin	0.190	0.0898	0.1797	0	106	80.4	152	0.2234	16.0	30	D
Endosulfan II	0.174	0.0898	0.1797	0	98.8	67.2	144	0.2096	18.7	30	D
4,4'-DDD	0.193	0.0898	0.1797	0	108	71.1	155	0.2264	15.7	30	D
Endrin aldehyde	0.154	0.0898	0.1797	0	85.6	22.5	147	0.1872	19.6	30	D
Endosulfan sulfate	0.168	0.0898	0.1797	0	93.4	49.5	145	0.2043	19.7	30	D
4,4'-DDT	0.213	0.0898	0.1797	0	118	61.5	169	0.2473	15.0	30	D
Endrin ketone	0.196	0.0898	0.1797	0	103	67.1	144	0.2212	17.5	30	D
Methoxychlor	0.200	0.0898	0.1797	0	111	58	170	0.2376	17.2	30	D
Surr: Decachlorobiphenyl	0.0624		0.04492		139	27	166		0		D
Surr: Tetrachloro-m-xylene	0.0472		0.04492		105	28.1	171		0		D



[illegible][illegible]

[illegible]

<b>Fremont</b> <small>ANALYTICAL</small>		<b>Chain of Custody Record &amp; Laboratory Services Agreement</b>	
		<b>2000 Fremont Ave. E.</b> <b>Seattle, WA 98135</b> <b>Toll-Free 800-828-1700</b> <b>Fax 206-351-7170</b>	
<b>Date:</b> 11-12-2020 <b>Page:</b> 1 of 2		<b>Laboratory Project No. (Required):</b> 2011353 <b>Sender Remarks:</b> <b>NOEL 11/19/20 - GC</b>	
<b>Client:</b> ESU NW <b>Address:</b> 1210 Eastside St. SE 200 <b>City, State, Zip:</b> Olympia, WA 98502 <b>Telephone:</b> 360 459 4670		<b>Project Name:</b> 283903.2 <b>Project Ref:</b> 283903.2 <b>Collected by:</b> <b>Location:</b> Waikiki Beach, Hawaii <b>Report to (Name):</b> Jennifer Arnold <b>Mail Label:</b> labt esuwa.com	
<b>Agree:</b>		<b>Sample Dispatch:</b> <input type="checkbox"/> Not in use <input checked="" type="checkbox"/> Shipped to lab before 10 days	

Sample Name	Sample Bottle	Sample Date	Sample Time	Sample Matrix	# of Cont.	Analysis Method / Instrument	Comments
SS 1	11/12/20	6:45	S			GC/MS (GC/MSD 6890N)	
SS 2	11/12/20	8:55	S			GC/MS (GC/MSD 6890N)	
SS 3	11/12/20	9:05	S			GC/MS (GC/MSD 6890N)	
SS 4	11/12/20	9:15	S			GC/MS (GC/MSD 6890N)	
SS 5	11/12/20	9:25	S			GC/MS (GC/MSD 6890N)	
SS 6	11/12/20	9:35	S			GC/MS (GC/MSD 6890N)	
SS 7	11/12/20	9:45	S			GC/MS (GC/MSD 6890N)	
SS 8	11/12/20	9:55	S			GC/MS (GC/MSD 6890N)	
SS 9	11/12/20	10:05	S			GC/MS (GC/MSD 6890N)	
SS 10	11/12/20	10:15	S			GC/MS (GC/MSD 6890N)	

\*Matrix: S = Soil; A = Air; W = Water; P = Product; L = Liquid; H = Hair; D = Drinking Water; G = Groundwater; T = Tissue; M = Marine Water; S = Seawater; B = Blood; U = Urine; F = Feces; O = Other; N = Not Determined.

\*\*\*Materials (Matrix): MTC-1 = MTC-1; MTC-2 = MTC-2; MTC-3 = MTC-3; MTC-4 = MTC-4; MTC-5 = MTC-5; MTC-6 = MTC-6; MTC-7 = MTC-7; MTC-8 = MTC-8; MTC-9 = MTC-9; MTC-10 = MTC-10; MTC-11 = MTC-11; MTC-12 = MTC-12; MTC-13 = MTC-13; MTC-14 = MTC-14; MTC-15 = MTC-15; MTC-16 = MTC-16; MTC-17 = MTC-17; MTC-18 = MTC-18; MTC-19 = MTC-19; MTC-20 = MTC-20; MTC-21 = MTC-21; MTC-22 = MTC-22; MTC-23 = MTC-23; MTC-24 = MTC-24; MTC-25 = MTC-25; MTC-26 = MTC-26; MTC-27 = MTC-27; MTC-28 = MTC-28; MTC-29 = MTC-29; MTC-30 = MTC-30; MTC-31 = MTC-31; MTC-32 = MTC-32; MTC-33 = MTC-33; MTC-34 = MTC-34; MTC-35 = MTC-35; MTC-36 = MTC-36; MTC-37 = MTC-37; MTC-38 = MTC-38; MTC-39 = MTC-39; MTC-40 = MTC-40; MTC-41 = MTC-41; MTC-42 = MTC-42; MTC-43 = MTC-43; MTC-44 = MTC-44; MTC-45 = MTC-45; MTC-46 = MTC-46; MTC-47 = MTC-47; MTC-48 = MTC-48; MTC-49 = MTC-49; MTC-50 = MTC-50; MTC-51 = MTC-51; MTC-52 = MTC-52; MTC-53 = MTC-53; MTC-54 = MTC-54; MTC-55 = MTC-55; MTC-56 = MTC-56; MTC-57 = MTC-57; MTC-58 = MTC-58; MTC-59 = MTC-59; MTC-60 = MTC-60; MTC-61 = MTC-61; MTC-62 = MTC-62; MTC-63 = MTC-63; MTC-64 = MTC-64; MTC-65 = MTC-65; MTC-66 = MTC-66; MTC-67 = MTC-67; MTC-68 = MTC-68; MTC-69 = MTC-69; MTC-70 = MTC-70; MTC-71 = MTC-71; MTC-72 = MTC-72; MTC-73 = MTC-73; MTC-74 = MTC-74; MTC-75 = MTC-75; MTC-76 = MTC-76; MTC-77 = MTC-77; MTC-78 = MTC-78; MTC-79 = MTC-79; MTC-80 = MTC-80; MTC-81 = MTC-81; MTC-82 = MTC-82; MTC-83 = MTC-83; MTC-84 = MTC-84; MTC-85 = MTC-85; MTC-86 = MTC-86; MTC-87 = MTC-87; MTC-88 = MTC-88; MTC-89 = MTC-89; MTC-90 = MTC-90; MTC-91 = MTC-91; MTC-92 = MTC-92; MTC-93 = MTC-93; MTC-94 = MTC-94; MTC-95 = MTC-95; MTC-96 = MTC-96; MTC-97 = MTC-97; MTC-98 = MTC-98; MTC-99 = MTC-99; MTC-100 = MTC-100; MTC-101 = MTC-101; MTC-102 = MTC-102; MTC-103 = MTC-103; MTC-104 = MTC-104; MTC-105 = MTC-105; MTC-106 = MTC-106; MTC-107 = MTC-107; MTC-108 = MTC-108; MTC-109 = MTC-109; MTC-110 = MTC-110; MTC-111 = MTC-111; MTC-112 = MTC-112; MTC-113 = MTC-113; MTC-114 = MTC-114; MTC-115 = MTC-115; MTC-116 = MTC-116; MTC-117 = MTC-117; MTC-118 = MTC-118; MTC-119 = MTC-119; MTC-120 = MTC-120; MTC-121 = MTC-121; MTC-122 = MTC-122; MTC-123 = MTC-123; MTC-124 = MTC-124; MTC-125 = MTC-125; MTC-126 = MTC-126; MTC-127 = MTC-127; MTC-128 = MTC-128; MTC-129 = MTC-129; MTC-130 = MTC-130; MTC-131 = MTC-131; MTC-132 = MTC-132; MTC-133 = MTC-133; MTC-134 = MTC-134; MTC-135 = MTC-135; MTC-136 = MTC-136; MTC-137 = MTC-137; MTC-138 = MTC-138; MTC-139 = MTC-139; MTC-140 = MTC-140; MTC-141 = MTC-141; MTC-142 = MTC-142; MTC-143 = MTC-143; MTC-144 = MTC-144; MTC-145 = MTC-145; MTC-146 = MTC-146; MTC-147 = MTC-147; MTC-148 = MTC-148; MTC-149 = MTC-149; MTC-150 = MTC-150; MTC-151 = MTC-151; MTC-152 = MTC-152; MTC-153 = MTC-153; MTC-154 = MTC-154; MTC-155 = MTC-155; MTC-156 = MTC-156; MTC-157 = MTC-157; MTC-158 = MTC-158; MTC-159 = MTC-159; MTC-160 = MTC-160; MTC-161 = MTC-161; MTC-162 = MTC-162; MTC-163 = MTC-163; MTC-164 = MTC-164; MTC-165 = MTC-165; MTC-166 = MTC-166; MTC-167 = MTC-167; MTC-168 = MTC-168; MTC-169 = MTC-169; MTC-170 = MTC-170; MTC-171 = MTC-171; MTC-172 = MTC-172; MTC-173 = MTC-173; MTC-174 = MTC-174; MTC-175 = MTC-175; MTC-176 = MTC-176; MTC-177 = MTC-177; MTC-178 = MTC-178; MTC-179 = MTC-179; MTC-180 = MTC-180; MTC-181 = MTC-181; MTC-182 = MTC-182; MTC-183 = MTC-183; MTC-184 = MTC-184; MTC-185 = MTC-185; M

**BOTANICAL AND FAUNA SURVEY**

for the

**HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY**

**WAIIEHU, MAUI, HAWAII**

by

**ROBERT W. HOBODY  
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Kokomo, Maui  
April 2020**

**Prepared for:  
Highridge Costa Development Company**

**HALE MAHAOLU KE KAHUA AFFORDABLE HOUSING COMMUNITY**

**BOTANICAL AND FAUNA SURVEY**

**INTRODUCTION**

The Hale Mahaolu Ke Kahua Affordable Housing Community project lies on 13.248 acres of old agricultural land TMK (2) 3-3-001 016 in Waiehu, West Maui along Kahekili Highway. The project area is a narrow strip of land stretching 0.5 miles between the east side of Kahekili Highway and the base of the sand dune on the west side of Waiehu Heights Subdivision (see Figure 1). This biological resource study was initiated in compliance with environmental requirements of the planning process.

**SITE DESCRIPTION**

The entire project area lies in the lee of a hundred foot tall lithified sand dune just south of Waiehu Stream at an elevation of about 160 feet above sea level. The area is on old agricultural land that was under sugar cultivation for over 100 years, and for the next 25 years the area has been a macadamia nut orchard. Today these mature trees cover the property. The soils are entirely of the loamy silty clay series, 0-3% slopes which are deep, well-drained alluvial soils (Foote et al, 1972). Rainfall averages 25 to 30 inches per year with the bulk falling during the winter months (Armstrong, 1983).

**SURVEY OBJECTIVES**

This report summarizes the findings of a flora and fauna survey of the Hale Mahaolu Ke Kahua Affordable Housing Community Project which was conducted in April 2020.

The objectives of the survey were to:

1. Document what plant and animal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

## BOTANICAL SURVEY REPORT

### SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure that all parts of the project area were covered. Areas most likely to harbor native or rare plants such as gullies were more intensively examined. Notes were made on plant species, distribution and abundance as well as on terrain and substrate.

### DESCRIPTION OF THE VEGETATION

The vegetation on the property consists of a forest of macadamia nut trees (*Macadamia integrifolia*) with dense stands of Guinea grass (*Megathyrsus maximus*) along the margins. Other common species were koa haole (*Leucaena leucocephala*) and straggler daisy (*Calypocarpus vialis*).

A total of 56 plant species were recorded during two site visits to the property. Of these only popolo (*Solanum americanum*) was a naturally occurring native Hawaiian plant, while an additional 3 native species: hao (*Rauvolfia sandwicensis*), 'a'ali'i (*Dodonaea viscosa*) and keahi (*Sideroxylum polynesicum*) had been recently planted as part of a landscape plan on the northern end of the property. Also planted were 5 species of Polynesian introductions: 'ulu (*Artocarpus altilis*), niu (*Cocos nucifera*), noni, (*Morinda citrifolia*), kukui (*Aleurites moluccana*) and milo (*Thespesia populnea*). The remaining 48 plant species were a mix of non-native former crop plants, ornamentals and weed species.

### DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project area consists primarily of non-native species. One common and widespread indigenous species, pōpolo occurs naturally on forest margins, and three additional native species have been planted in the landscape. None of these species are federally listed as Threatened or Endangered under the Endangered Species Act (USFWS, 1999), nor are any of them candidates for such status.

An Endangered plant, the creeping naupaka (*Scaevola coriacea*), is known to inhabit road cuts along Waiehu Beach Road on lithified sand dunes about 1,000 feet to the east of the northern tip of this property with a larger population occurring about 3,000 feet to the north on another sand dune. None of this preferred habitat occurs within the project area and no creeping naupaka were found during the survey within the project area. No special plant habitats were identified here either.

Because of the above existing conditions there is little of botanical concern on this property, and the proposed project is not expected to have a significant negative impact on the botanical resources in this part of Maui.

The only recommendation that is offered, is that there are a number of native plant species that might be incorporated into the landscape design that would lend a distinctive accent to the project. Ideas for appropriate species for this habitat can be found in the Maui County Planting Plan or can be obtained from nursery growers who specialize in native plants.



## PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the plants are in accordance with Wagner et al. (1999) and Staples & Herbst (2005).

For each species, the following information is provided:

1. Scientific name with author citation

2. Common English or Hawaiian name.

3. Bio-geographical status. The following symbols are used:

endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and, also to one or more other geographic area(s).

Polynesian = those plants brought to the islands by the Polynesians in the course of their migrations.

non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

abundant = forming a major part of the vegetation within the project area.

common = widely scattered throughout the area or locally abundant within a portion of it.

uncommon = scattered sparsely throughout the area or occurring in a few small patches.

rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
<b>MONOCOTS</b>			
<b>ARECACEAE (Palm Family)</b>			
<i>Cocos nucifera</i> L.	niu, coconut palm	Polynesian	rare
<b>CYPERACEAE (Sedge Family)</b>			
<i>Cyperus gracilis</i> R.Br.	McCoy sedge	non-native	uncommon
<b>MUSACEAE (Banana Family)</b>			
<i>Musa acuminata x balbisiana</i> Colla	banana	non-native	uncommon
<b>POACEAE (Grass Family)</b>			
<i>Axonopus compressus</i> (Sw.) P. Beauv.	broad-leaved carpetgrass	non-native	rare
<i>Cenchrus purpureus</i> (Schum.) Morrone	Napier grass	non-native	rare
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	non-native	rare
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	non-native	rare
<i>Digitaria ciliaris</i> (Retz.) Koeler	Henry's crabgrass	non-native	uncommon
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	non-native	rare
<i>Megathyrsus maximus</i> (Jacq.) Simon & Jacobs	Guinea grass	non-native	abundant
<b>DICOTS</b>			
<b>ACANTHACEAE (Acanthus Family)</b>			
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	non-native	uncommon
<b>ANACARDIACEAE (Mango Family)</b>			
<i>Schinus terebinthifolius</i> Raddi	Christmas berry	non-native	rare
<b>APOCYNACEAE (Dogbane Family)</b>			
<i>Rauvolfia sandwicensis</i> A. DC.	hao	endemic	rare
<b>ASTERACEAE (Sunflower Family)</b>			
<i>Ageratum conyzoides</i> L.	maile hohono	non-native	uncommon
<i>Calyptocarpus vialis</i> Less.	straggler daisy	non-native	common
<i>Gamochaeta purpurea</i> (L.) Cabrera	purple cudweed	non-native	rare
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	non-native	uncommon
<i>Synedrella nodiflora</i> (L.) Gaertn.	nodeweed	non-native	uncommon
<i>Tridax procumbens</i> L.	coat buttons	non-native	rare
<b>BIGNONIACEAE (Bignonia Family)</b>			
<i>Spathodea campanulata</i> P. Beauv.	African tulip tree	non-native	rare
<b>BORAGINACEAE (Borage Family)</b>			
<i>Carmona retusa</i> (Vahl) Masam.	Fukien tea	non-native	rare
<b>BRASSICACEAE (Mustard Family)</b>			
<i>Lepidium virginicum</i> L.	pepperwort	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
CARICACEAE (Papaya Family)			
<i>Carica papaya</i> L.	papaya	non-native	rare
CONVOLVULACEAE (Morning Glory Family)			
<i>Ipomoea obscura</i> (L.) Ker Gawl.	obscure morning glory	non-native	rare
CUCURBITACEAE (Gourd Family)			
<i>Momordica charantia</i> L.	bitter melon	non-native	rare
EUPHORBIACEAE (Spurge Family)			
<i>Aleurites moluccana</i> (L.) Willd.	kukui	Polynesian	rare
<i>Codiaeum variegatum</i> (L.) Blume	croton	non-native	rare
<i>Euphorbia hirta</i> L.	hairy spurge	non-native	rare
<i>Ricinus communis</i> L.	castor bean	non-native	uncommon
FABACEAE (Pea Family)			
<i>Caesalpinia pulcherrima</i> (L.) Sw.	'ōhai ali'i	non-native	uncommon
<i>Canavalia cathartica</i> Thouars	maunaloa	non-native	uncommon
<i>Desmodium triflorum</i> (L.) DC.	three-flowered beggarweed	non-native	rare
<i>Leucaena leucocephala</i> (Lam.) de Wit	koa haole	non-native	common
<i>Macroptilium atropurpureum</i>	siratro	non-native	uncommon
<i>Neonotonia wightii</i> (Wight & Arnott) Lackey	glycine	non-native	uncommon
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod	non-native	rare
LOGANIACEAE (Logania Family)			
<i>Fagraea berteriana</i> Benth.	puakenikeni	non-native	rare
MALVACEAE (Mallow Family)			
<i>Hibiscus rosa-sinensis</i> L.	Chinese hibiscus	non-native	rare
<i>Malvastrum coromandelianum</i> (L.) Garcke	false mallow	non-native	uncommon
<i>Thespesia populnea</i> (L.) Sol. ex Correa	nilo	Polynesian	rare
MORACEAE (Mulberry Family)			
<i>Artocarpus altilis</i> (L.) Fosberg	'ulu, breadfruit	Polynesian	rare
<i>Ficus microcarpus</i> L. fil.	Chinese banyan	non-native	rare
MORINGACEAE (Drumstick Family)			
<i>Moringa oleifera</i> Lamarck	horseradish tree	non-native	rare
MYRTACEAE (Myrtle Family)			
<i>Psidium guajava</i> L.	common guava	non-native	uncommon
<i>Syzygium cumini</i> (L.) Skeels	Java plum	non-native	rare
NYCTAGINACEAE (Four-o'clock Family)			
<i>Boerhavia coccinea</i> Mill.	scarlet spiderling	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
PAPAVERACEAE (Poppy Family)			
<i>Argemone mexicana</i> L.	Mexican poppy	non-native	rare
PHYLLANTHACEAE (Phyllanthus Family)			
<i>Phyllanthus debilis</i> Klein ex Willd.	niruri	non-native	rare
<i>Phyllanthus tenella</i> Roxb.	long-stalked phyllanthus	non-native	rare
PROTEACEAE (Protea Family)			
<i>Macadamia integrifolia</i> Maiden & Betche	macadamia nut	non-native	common
RUBIACEAE (Coffee Family)			
<i>Gardenia taitensis</i> A. P. DeCandolle	Tahitian gardenia	non-native	rare
<i>Morinda citrifolia</i> L.	noni	Polynesian	rare
SAPINDACEAE (Soapberry Family)			
<i>Dodonaea viscosa</i> Jacq.	'a'ali'i	indigenous	rare
SAPOTACEAE (Sapodilla Family)			
<i>Sideroxylum polyneisicum</i> (Hillebr.) Anderb.	keahi	indigenous	rare
SCROPHULARIACEAE (Snapdragon Family)			
<i>Buddleia asiatica</i> Lour.	dogtail	non-native	rare
SOLANACEAE (Nightshade Family)			
<i>Solanum americanum</i> Mill.	pōpolo	indigenous	rare

## FAUNA SURVEY REPORT

### SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition, an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

### RESULTS

#### Mammals

No mammal species were observed during two site visits to the property.

While not seen during the survey, rats (*Rattus* spp.), mice (*Mus domesticus*), Mongoose (*Herpestes auropunctatus*), feral cats (*Felis catus*) and domestic dogs (*Canis familiaris*) would be expected to occur within this type of habitat. Rats and mice feed on seeds, fruits and fallen macadamia nuts, while mongoose and cats are predators of these rodents and birds.

A special effort was made to look for any occurrence of the native Hawaiian hoary bat by making an evening survey on the property. When present in an area these bats can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. No evidence of such activity was observed though visibility was excellent. In addition, a bat detection device (Batbox IIID) was employed set to the frequency of 27,000 hertz which this bat species uses for echolocation when searching for nocturnal flying insect prey. No bats were detected.

#### BIRDS

Birdlife was moderate in species diversity in this mostly forested habitat. Eleven species were observed during two site visits. Taxonomy and nomenclature follow American Ornithologists' Union (2020). Two species were common. The zebra dove (*Geopelia striata*) and the common chicken (*Gallus gallus*). Less common were the northern cardinal (*Cardinalis cardinalis*), spotted dove (*Streptopelia chinensis*), house finch (*Carpodacus mexicanus*) and common myna (*Acridotheres tristis*). Five species were of rare occurrence. One indigenous native bird was seen, kōlea or Pacific golden plover (*Pluvialis fulva*), which is a common migratory species that breeds in the arctic and overwinters in Hawaii and other Pacific islands.

#### INSECTS

Insect life was moderate in diversity. Just eight species were observed during two site visits. Taxonomy and nomenclature follow Nishida et al (1992). Two species were common, the beet webworm moth (*Spoladea recurvalis*) and the southern house mosquito (*Culex quinquefasciatus*). Three insects were less common, the Asian spiny-backed spider (*Gasteracantha mammosa*), the dung fly (*Musca sorbens*) and the cabbage butterfly (*Pieris rapae*). Three others were of rare occurrence. One indigenous native dragonfly was seen, the pinao or globe skimmer (*Pantala flavescens*), which is a common species in Hawaii and in many other tropical parts of the world.

### DISCUSSION AND RECOMMENDATIONS

Most of the fauna observed are common and widespread non-native species. Just two common native species were observed here, the kōlea bird and the pinao dragonfly. Neither of these are of any particular environmental interest or concern. No federally listed Threatened or Endangered mammal, birds or insect species were recorded during the course of the survey and no special fauna habitats were identified.

While no protected seabirds, the 'ua'u (*Pterodroma sandwichensis*) and 'a'o (*Puffinus newelli*), were found on the property. They are known to overfly the area at dawn and dusk to their burrows high in the mountains between the months of March and November. In late fall the young birds fledge from their burrows to take their first tentative flight out to sea. These inexperienced birds are easily confused and distracted by bright lights and often crash to the ground where they are particularly vulnerable to being run over by vehicles or killed by predators. It is recommended that any significant outdoor lighting such as streetlights or flood lights that are incorporated into the project design be shielded to direct the light downward so that it is not visible from above.

As a result of the above findings, the proposed changes in land use are not expected to have a significant negative impact on the fauna resources in this part of Maui.

## ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within three groups: Mammals, Birds and Insects. For each species the following information is provided:

1. Common name

2. Scientific name

3. Bio-geographical status. The following symbols are used:

endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

non-native = all those animals brought to Hawaii intentionally or accidentally after western contact

migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

abundant = many flocks or individuals seen throughout the area at all times of day

common = a few flocks or well scattered individuals throughout the area.

uncommon = only one flock or several individuals seen within the project area.

rare = only one or two seen within the project area.

## SCIENTIFIC NAME

### MAMMALS

none seen

### BIRDS

#### ARDEIDAE (Heron Family)

*Bubulcus ibis* L.

cattle egret

non-native rare

#### CARDINALIDAE (Cardinal Family)

*Cardinalis cardinalis* L.

northern cardinal

non-native uncommon

#### CHARADRIIDAE (Plover Family)

*Pluvialis fulva* Gmelin

Pacific golden-plover

indigenous rare

#### COLUMBIDAE (Dove Family)

*Geopelia striata* L.

zebra dove

non-native common

*Streptopelia chinensis* Scopoli

spotted dove

non-native uncommon

#### ESTRILDIDAE (Estrildid Finch Family)

*Lonchura malacca* L.

chestnut mannikin

non-native rare

*Padda oryzivora* L.

Java sparrow

non-native rare

#### FRINGILIDAE (Cardueline Finch Family)

*Carpodacus mexicanus* Muller

house finch

non-native uncommon

#### PHASIANIDAE (Pheasant Family)

*Francolinus pondicerianus* Gmelin

gray francolin

non-native rare

*Gallus gallus* L.

common chicken

non-native common

#### STURNIDAE (Starling Family)

*Acridotheres tristis* L.

common myna

non-native uncommon



SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
<b>INSECTS</b>			
Order ARANAE - true spiders			
ARANEIDAE (Orb Weaver Family)			
<i>Gasteracantha mammosa</i> Koch	Asian spiny-backed spider	non-native	uncommon
Order DIPTERA - flies			
CULICIDAE (Mosquito Family)			
<i>Culex albopictus</i> Skuse	day mosquito	non-native	rare
<i>Culex quinquefasciatus</i> Say	southern house mosquito	non-native	common
MUSCIDAE (Housefly Family)			
<i>Musca sorbens</i> Wiedemann	dung fly	non-native	uncommon
Order HEMIPTERA - true bugs			
CIXIIDAE (Cixiid Planthopper Family)			
<i>Pentastiridius leporinus</i> L.	lacewing planthopper	non-native	rare
Order LEPIDOPTERA - butterflies, moths			
CRAMBIDAE (Grass Moth Family)			
<i>Spoladea recurvalis</i> Fabricius	beet webworm moth	non-native	common
PIERIDAE (White & Sulfer Butterfly Family)			
<i>Pieris rapae</i> L.	cabbage butterfly	non-native	uncommon
Order ODONATA - dragonflies, damselflies			
LIBELLULIDAE (Skipper Dragonfly Family)			
<i>Pantala flavescens</i> Fabricius	globe skimmer	non-native	rare

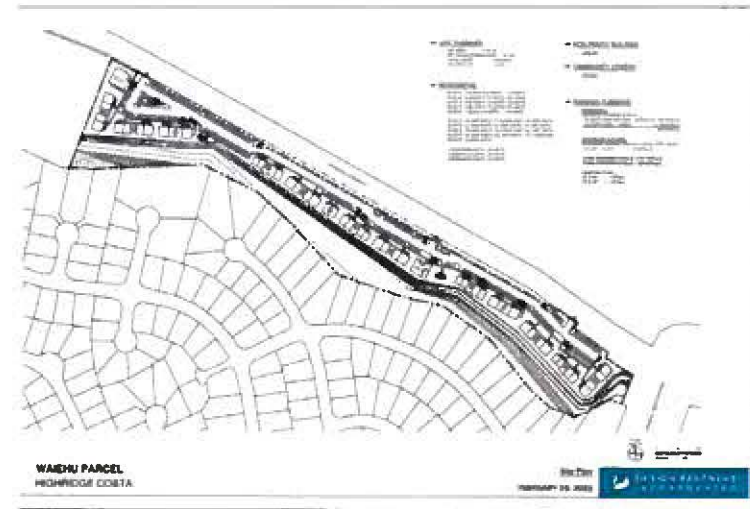


FIGURE 1. Project Map

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AUDIO TRANSCRIPTION

MAUI PLANNING COMMISSION

REGULAR REMOTE PUBLIC MEETING

TUESDAY, OCTOBER 24, 2023

9:00 A.M.

**Certified Transcript**

Report of proceedings of the Maui Planning Commission public meeting, held at the County of Maui Service Center, 101 'Ala'ihi Street, Suite 212A Conference Room, Kahului, Maui, Hawaii, and remotely via BlueJeans on the 24th day of October, 2023, commencing at the hour of 9:00 a.m.

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1 APPEARANCES:

3 COMMISSIONERS:

4 KELLIE PALI, Chair

5 KIM THAYER, Vice-Chair

6 DALE THOMPSON

7 ASHLEY LINDSEY (Appeared remotely)

8 MARK DEAKOS (Appeared remotely)

9 ANDREA KEALOHA (Appeared remotely)

10 FAWN SHERIE HELEKAHI-BURNS (Appeared remotely)

12 STAFF:

13 KATHLEEN ROSS AOKI, Planning Director

14 MICHAEL JASON HOPPER, ESQ.  
15 Deputy Corporation Counsel  
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1 APPEARANCES (continued):

2 PAGE:

3 PRESENTERS:

4 JACKY TAKAKURA, Long Range Planning Division

5 TARA FURUKAWA, County of Maui

6 LORI TSUHAKO, Department of Housing and Human  
7 Concerns

8  
9 HALE MAHAOLU KE KAHUA TEAM:

10 GRANT CHUN, Hale Mahaolu

11 PETER HOROVITZ, Esq., Horovitz Tilley, LLLC

12 TREVOR YUCHA, Cultural Surveys Hawaii

13 MARK ROY, Munekiyo Hiraga

14 KELCEE MIRA, Austin, Tsutsumi & Associates, Inc.

15 STACY OTOMO, Otomo Engineering, Inc.

16 DEBBIE CABEBE, Maui Economic Opportunity

17 DAVID SEREDA, CHP Maui

18 MONTE HEATON, Highridge Costa  
19  
20  
21  
22  
23  
24  
25

1 APPEARANCES (continued):

3 TESTIFIERS:

4 ROBIN KNOX

5 JOCELYN COSTA

6 KANELOA KAMAUNU

7 DAVID HOFFMAN

8 GEORGE PARESA, JR.

9 LALA JOHNSON

10 ALYSON BARROWS

11 DESMOND CABILIS

12 KAHALA JOHNSON

13 CHRIS DELAUNAY

14 BRUCE UU

15 RYAN HURLEY

16 JOHANNA KAMAUNU

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KAHULUI, MAUI, HAWAII

TUESDAY, OCTOBER 24, 2023

9:00 A.M.

-o0o-

UNIDENTIFIED FEMALE SPEAKER: Commissioner,  
can you hear us?

CHAIR PALI: I can. Can I get a thumbs up?  
Oh, can you hear us? Oh, there we go. Okay. We'll  
start from the beginning. Perfect timing.

Go ahead, Director.

DIRECTOR AOKI: All right. We're taking  
role call. Start with Commissioner Thompson again,  
please.

COMMISSIONER THOMPSON: Aloha and good  
morning.

DIRECTOR AOKI: Kim, you're right there.  
Commissioner Lindsey?

COMMISSIONER LINDSEY: Aloha kakahiaka  
kakou. I'm at home in my office in Wailuku.

DIRECTOR AOKI: Anyone in the room with  
you?

COMMISSIONER LINDSEY: There's no one in  
the room with me.

DIRECTOR AOKI: Okay. Thank you.



1 Commissioner Deakos?

2 COMMISSIONER DEAKOS: Good morning,  
3 Director. Good morning, Planning Commission. I'm  
4 alone in my office in Napili.

5 DIRECTOR AOKI: Mahalo.

6 Commissioner Kealoha?

7 COMMISSIONER KEALOHA: Aloha, good morning.  
8 I'm at my home in Paia . I'm in the room alone.

9 DIRECTOR AOKI: Mahalo.

10 Commissioner Helekahi-Burns?

11 COMMISSIONER HELEKAHI-BURNS: Aloha. Good  
12 morning, commissioners. I am alone at home in Hana,  
13 and no one's here.

14 DIRECTOR AOKI: Mahalo.

15 Commissioner Thayer, welcome.

16 VICE CHAIR THAYER: Thank you.

17 DIRECTOR AOKI: Or vice chair, I'm sorry.  
18 Vice Chair Thayer.

19 VICE CHAIR THAYER: Aloha.

20 DIRECTOR AOKI: You got to bring it, like,  
21 right into your mouth.

22 VICE CHAIR THAYER: Oh, yes. Hi. Aloha  
23 kakahiaka, everybody. E kala mai. I apologize. I  
24 went on autopilot this morning. This is my first  
25 time here. It's really nice.

1 DIRECTOR AOKI: And Chair Pali?

2 CHAIR PALI: Yes, good morning. Thank you.

3 DIRECTOR AOKI: And absent today is  
4 Commissioner Hipolito. I don't know the status of  
5 Commissioner Apo.

6 CHAIR PALI: Oh, off island.

7 DIRECTOR AOKI: He's off island. He'll be  
8 joining later possibly? Okay. All right.

9 CHAIR PALI: Great. Okay, thank you. So  
10 again, I mentioned testimony. We will be able to get  
11 to testimony.

12 First, we have a B1 public hearing. I'm  
13 going to let Director introduce the item, and then  
14 we'll open for public testimony.

15 DIRECTOR AOKI: Thank you. So your first  
16 public hearing this morning, we have, referring to  
17 the Maui Planning Commission, a proposed bill to  
18 amend Maui County Code Chapter 19.47, Wetlands  
19 Overlay District, to extend the deadline for the  
20 completion of the overlay map.

21 And presenting today we have planning  
22 program administrator from the Long Range Division,  
23 Jacky Takakura.

24 CHAIR PALI: You know what, Jacky? I'm  
25 going to interrupt you. Thank you.

1           We were doing -- loving her secretly, but I  
2 do want to just publicly take this opportunity to  
3 show our immense gratitude for Carolyn. She has been  
4 a blessing to this commission, a blessing to staff,  
5 and definitely a blessing to me in keeping me in  
6 line. So thank you.

7           Your years -- how many years? Do you want  
8 to say? Lots of, lots of years. 39 years. Let's  
9 all give her a round of applause.

10           (Applause.)

11           CHAIR PALI: Whoever's going to attempt to  
12 fill her shoes, good luck. Okay.

13           Please proceed, Jacky.

14           MS. TAKAKURA: Okay, thank you. So this is  
15 regarding the wetlands overlay. So last year, the  
16 County of Maui adopted an ordinance that requires the  
17 creation of a wetlands overlay map.

18           I'm going to go over the project background  
19 and the details of the ordinance to explain the basis  
20 for the time extension request. Before I get into  
21 that, though, I want to start by going over the  
22 planning department's missions and goals to provide a  
23 better understanding of what we, the planning  
24 department, will be using the wetlands overlay map  
25 for.

1           So you can see our mission: manage growth;  
2     preserve land equitably, sustainably; and balancing  
3     cultural, environmental, and economic needs. And we  
4     do a wide variety of tasks including land use  
5     permits, zoning, long-range community plans, cultural  
6     resources over -- review, and a lot of other things,  
7     but all related to land use.

8           Wetlands are an important subject for the  
9     land use planning, but up until last year, we're not  
10    addressed in Title 19 which is the comprehensive  
11    zoning code (no audio) county or in Title 20 which is  
12    the chapter on environmental protection.

13          Wetlands are more important than most  
14    people realize; I think we tend to take them for  
15    granted. I think you are aware of this, but they do  
16    provide certain ecosystem services like mitigating  
17    flood hazards, cleaning the air, regulating  
18    greenhouse gases, helping with erosion control and  
19    drought recovery, and so forth.

20          In addition to that, there's a lot of them  
21    that are of cultural significance or historical  
22    significance or are places for people to enjoy like  
23    the Kealia Boardwalk you see there in Maalaea.

24          So wetlands are all over the islands from  
25    mauka to makai, and there's a wide variety of



1 wetlands. Some are saltwater, some are fresh. There  
2 are estuaries near the ocean, up in the mountains,  
3 all over the islands.

4 There's different types of wetlands and  
5 different agencies, from state to federal and now  
6 county, that define them. And so if you -- depending  
7 on which agency you ask and which maps you look at,  
8 you might see them in different places, and that kind  
9 of can run into problems. And that's kind of the  
10 basis of this ordinance which some of you may recall  
11 because this was not that long ago when we had this  
12 come through and it came to the planning commission.

13 So wetlands -- this chapter is now  
14 Chapter 19.47 of the Maui County Code, but it was  
15 first initiated by the county council in 2021 when  
16 some of you were here, transmitted to the department.  
17 We reviewed it. We sought agency comment from  
18 county, state, and federal agencies, and we held  
19 public hearings with the Maui, Molokai, and Lanai  
20 planning commissions.

21 We made a lot of revisions to the bill, and  
22 we sent it back to the county council, and they  
23 reviewed it again. And they ultimately approved the  
24 bill which took effect October 4th, 2022.

25 Now the bill that the planning department

1 sent back to the county council included a time frame  
2 of five years for the map preparation, but this was  
3 dropped to one year in the bill that was approved.  
4 So Ordinance 5421 states that the planning department  
5 will create a wetlands map within one year of the  
6 approval date of the ordinance which meant  
7 October 3rd, 2023.

8 Now it's not that simple to create one of  
9 these maps especially the first time around because  
10 of the things that are going (no audio) throughout  
11 the county, likely migration areas reflected by  
12 passive flooding data. It's going to be determined  
13 by two out of three indicators of vegetation, soils,  
14 or hydrology. And for flowing systems, the boundary  
15 has to extend to the ordinary high-water mark.

16 Also, this map is to be updated every five  
17 years and when new information is available. So this  
18 is a really big project especially for, like I said,  
19 putting the very first one together. So we do have a  
20 consultant to help us with that.

21 So like I mentioned, the ordinance requires  
22 the department to create a wetlands map one within  
23 year of the approval date of the ordinance, but there  
24 was no funding attached to this bill. And so we had  
25 to request a budget amendment from the county council

1 to fund this project, and then we had to follow the  
2 strict rules for procurement, put out a request for  
3 proposals and all that, review the submittals, and  
4 select a consultant.

5 The contract was initiated in March, giving  
6 us barely six months to create a brand-new overlay  
7 for the entire county. So far, we've held community  
8 scoping meetings on Maui -- I mean, excuse me, on  
9 Molokai and Lanai this past summer.

10 We were going to have the scoping meeting  
11 on Maui in August, but we did have to cancel that.  
12 We plan to have that -- it's been rescheduled for  
13 November 8th.

14 After this meeting with -- on Maui, the  
15 draft map Number 1 will be posted only online for a  
16 30-day comment period. And then there's going to be  
17 another round of community meetings on the three  
18 islands and any further ground truthing, revisions  
19 and corrections, et cetera, and then the final  
20 product is going to be the overlay map that will be  
21 transmitted to you, the planning commission -- all  
22 three commissions actually -- the county council, the  
23 conservation planning committee, and the director of  
24 public works.

25 So to complete all of this, we are

1 requesting an extension to the end of this fiscal  
2 year, June 30th, 2024. And that is the only change  
3 we are proposing in this bill for ordinance, and that  
4 is what we are asking the planning commission to  
5 recommend approval for is an extension to June 30th,  
6 2024, in Section 19.47.07 of the Maui County Code.

7 So that's my presentation. I can answer  
8 any questions or anything for you. Thank you. I'm  
9 going to stop sharing.

10 CHAIR PALI: Okay, thank you. We'll get  
11 back to our questions -- yes, please -- after, and  
12 then we'll do testimony first. Okay.

13 So we are going to take public testimony  
14 for Item B1. And so if you're interested in  
15 testifying, please hit the chat function and type  
16 your name and let Carolyn know that you want to  
17 testify.

18 Right now, we have Robin Knox. So, Robin,  
19 if you can unmute your video if you would like and  
20 unmute your phone, and I need you to state your name  
21 for the record and then you will have three minutes  
22 to testify.

23  
24 Robin Knox testified as follows:

25 MS. KNOX: Mahalo. My name is Robin Knox.



1 I'm testifying on behalf of the Save the Wetlands  
2 Hui. I want to thank the planning department for  
3 that really good introduction. It was very thorough  
4 and consistent with my understanding.

5 I was involved with the, you know, prep --  
6 drafting and crafting of that ordinance and had met  
7 with the consultants that the planning department  
8 hired. And we were expecting, as was said, to do  
9 meetings in August.

10 I think the time frame was short and  
11 obviously more time is required. If I were a  
12 commissioner, I would be considering asking for some  
13 milestones that maybe could be added as an amendment  
14 because what we don't want is to come up to June and  
15 still needing more time extensions.

16 So, for instance, if you're having the  
17 scoping meetings in November on Maui, you know, what  
18 are the milestones between there and the thing being  
19 finalized? And can the planning department and the  
20 consultant be held to some interim schedule dates  
21 just to make sure that the whole thing does get  
22 completed in time?

23 This ordinance was passed because of a  
24 sense of urgency because the -- Maui has lost  
25 between, you know -- depends on the estimate, there

1 was no good baseline -- but between 30 to 90 percent  
2 of our wetlands has been lost.

3 And as the planning department presented  
4 it, they're very important, and they're being lost to  
5 development. So every time you're considering a  
6 development before this wetlands overlay happens,  
7 you're potentially losing those valuable wetlands.

8 So in addition to considering possibly some  
9 milestone dates, I would ask that the commissioners  
10 be aware of the fact of how -- how much loss is  
11 potentially happening just because of this delay and  
12 give a lot of scrutiny and understand that just  
13 because the Corps of Engineers does not think that a  
14 permit is needed, that that does not mean that the  
15 property is not a wetland.

16 Ironically, the other item on your agenda  
17 today is one of the areas where the local people with  
18 generational knowledge believe the area to be a  
19 wetland. And it's been presented to this commission  
20 that, oh, the Corps of Engineers says it's not a  
21 wetland, but it might well be a wetland under the  
22 county ordinance, but we don't know yet because the  
23 mapping hasn't been done in order to have the zoning  
24 overlay.

25 So, you know, please hold the planning

1 department and the consultant to a tight schedule of  
2 accountability, and also please consider in all of  
3 your decisions on potential wetlands, until this  
4 mapping is done, the fact that just because the Corps  
5 says it's not a wetland --

6 DIRECTOR AOKI: Three minutes.

7 MS. KNOX: -- doesn't mean it's not a  
8 wetland. Thank you.

9 CHAIR PALI: Thank you. Thank you, Robin.

10 Anybody have any questions, commissioners,  
11 for the testifier?

12 Commissioner Deakos, if you want to ask a  
13 clarifying question, please proceed.

14 COMMISSIONER DEAKOS: Thank you, Chair.

15 Thank you, Ms. Knox, for your testimony.  
16 You mentioned some milestones. What sort of  
17 milestones would you recommend?

18 MS. KNOX: I would think a date by which  
19 all of the scoping meetings and public review of the  
20 maps, those are the two milestones that come to mind.

21 You know, there will be some work after  
22 getting that public input to revise the maps if  
23 revisions are needed. And then I assume -- you know,  
24 Planning could advise you more on this, but I assume  
25 there are some steps after the mapping's complete

1 that have to be done to bring it back to the council  
2 and to the planning commission.

3 So, you know, if you back it up, you got to  
4 do that public scoping and get that public input  
5 early on in order to meet that June deadline. And I  
6 just don't want to see it drug out further and us  
7 potentially lose even more wetlands because of the  
8 schedule not being met, the new schedule.

9 COMMISSIONER DEAKOS: Okay, thank you. And  
10 the scoping meeting, you mentioned November, is that  
11 2024?

12 MS. KNOX: They said -- I think she just  
13 said November 8th, 2023, which was a surprise to me,  
14 and I've been tracking this pretty closely. So maybe  
15 the planning department needs to get the word out to  
16 people about that because that's coming up pretty  
17 soon.

18 So my understanding based on past  
19 discussions with the consultant is that they would do  
20 that scoping meeting, they would put some maps out  
21 for public review, they would get that public input,  
22 and then they would put a revised set of maps out.

23 So that's why I'm saying there's a lot of  
24 steps. And so if there could be some milestone  
25 scheduled dates, you know, to hold them to that



1 schedule and not let them get behind on that  
2 schedule, that's what I think would be helpful.

3 COMMISSIONER DEAKOS: Thank you, Ms. Knox.

4 Thank you, Chair.

5 CHAIR PALI: Any other questions for our  
6 testifier? Great. Seeing none, thank you, Robin.

7 We are on Item B1, and that was the only  
8 testifier so far that signed up.

9 Is there anybody here in the room that  
10 would like to testify on this item? Please come to  
11 the podium and state your name for the record,  
12 please, and you have three minutes.

13  
14 Jocelyn Costa testified as follows:

15 MS. COSTA: Good morning. My name is  
16 Jocelyn Costa. I belong to Aha Moku, and I like this  
17 presentation. Is it public where we can get a copy  
18 of it? I'd like a copy.

19 This consultation, I'm not sure if Aha Moku  
20 is also involved. I believe, and I would advocate  
21 that generational knowledge (no audio) having an  
22 outside entity trying to figure it out, but when they  
23 partnership and have a relationship to understand the  
24 place already, then their theories and data will make  
25 more sense quicker.

1           If I'm hearing the urgency from Ms. Knox, I  
2 think you would be able to achieve that better and  
3 then have a better understanding of the lay of the  
4 land. And then you don't have so much liability  
5 happening which we seem to have from the get-go once  
6 we send out permits and people start breaking the  
7 ground, and then they find out there's other things  
8 that are going to be, you know, challenging for the  
9 project.

10           And then it becomes costly, and then the  
11 people who thought that they were going to get a  
12 piece of property for X amount now has to bear that  
13 cost, you know? But for a cultural perspective, the  
14 wetland sends protection for the inland, and so we  
15 have to be mindful of what we adjust, what we  
16 manipulate and mitigate, and what the ramifications  
17 are, and not so much what the profits are going to be  
18 or what the achievement of affordable homes versus,  
19 you know, someone losing that house like what we see  
20 nowadays.

21           So I would strongly advise for the Aha Moku  
22 representative to be contacted so you can integrate  
23 generational knowledge to have a better, clean,  
24 transparent, and informative process. Mahalo.

25           CHAIR PALI: Wait. Don't go anywhere.

1 Commissioners, do you have any questions?

2 I have one, and I just want to introduce  
3 it. It's a very sensitive question, but I think in a  
4 day where we all just have mistrust, mistrust with  
5 others, mistrust with the government, mistrust with  
6 even people here on the commission, mistrust is just  
7 a culture now that we live in, and we want to think  
8 the best. We were raised where we could trust our  
9 neighbor, you could trust your uncle.

10 So just having said that, I think I'm  
11 struggling with -- when I hear my dad's stories, when  
12 I hear -- when I used to hear my tutu, his mom's  
13 stories about the old Hawaii and the way they were  
14 raised and in the camps, and I also would hear them  
15 teasing about, "Oh, that's not really how it was" to  
16 each other. And then all of a sudden, you start to  
17 notice that these stories potentially -- you know,  
18 just like the fish started this way; now the fish is  
19 that way.

20 So having that same accord of, like,  
21 mistrust, I think, in my opinion, it's -- like you  
22 said, it's wise to integrate both scientific evidence  
23 of soil testing and science and professionals, you  
24 know, scoping the land, and then also the stories,  
25 because then you have a way to sort of integrate

1 maybe something that might have been a little bit  
2 more not as accurate.

3           Would you -- is that also what you're -- to  
4 clarify, is that what you were saying, that "in  
5 partnership with"?

6           MS. COSTA: You hit it on the head, except,  
7 you know, part of me -- because I called it  
8 generation knowledge, it's scientific because it was  
9 years of study that they did to perfect what they  
10 know.

11           And so we can take our scientists and teach  
12 the new scientists of today what the lay of the land  
13 is, what its intention is, because some of it might  
14 have been already created, not necessarily natural,  
15 but created for a reason. And there's an intention  
16 there, and once you break that intention, you have  
17 consequences.

18           So, yeah, that's exactly what I was saying.  
19 Thank you. And I brought my 87-year-old father with  
20 me to witness this as well. So I respect his mana'o,  
21 and that's what I bring to this body today.

22           CHAIR PALI: I appreciate that. Okay.  
23 Commissioners, any questions? Other questions?  
24 Okay.

25           Thank you so much, Jocelyn.



1                   Yeah, okay. We'll have another. I know  
2 who you are, but state the name for the record and  
3 everyone else, please, and then you have three  
4 minutes.

5  
6 Kaneloa Kamaunu testified as follows:

7                   MR. KAMAUNU: Aloha mai kakou. Kaneloa  
8 Kamaunu ko'u inoa. So today, to be clear, I don't  
9 come to you as a Native Hawaiian which is under the  
10 guise of U.S. Code 42. I come under here, as was  
11 afforded me, codified in 1839 of kohoi (phonetic) Pae  
12 'Aina.

13                   I'm kanaka maoli; I'm not a Native Hawaiian  
14 as it is distinguished. They're two different  
15 entities. Kanaka maoli is a true, original person.  
16 Native Hawaiian is a made-up entity by the United  
17 States government which allows it to take advantage  
18 of us.

19                   If you do not understand it, you should  
20 read it. There's several codes that distinct us.  
21 And in those codes, you do not see "kanaka maoli."  
22 So I do not use them because they do not identify me.  
23 And all my rights come from 1839 and still present as  
24 according to Public Law 103-150 Res. 29. We give up  
25 nothing.

1           So with that being said, you know how many  
2 times, how many years we have to come forward to say  
3 the same things over and over? We reiterate that the  
4 danger of what has happened to our aina is because of  
5 this continuous development.

6           This commission -- and I'm not saying  
7 particularly this commission itself, but previous --  
8 much abuse has come from this because a lot of things  
9 have been allowed to be done, such as the wetlands.

10           In Kihei, that is all wetlands. Today, we  
11 see the aftereffects of what has happened throughout  
12 the years, things that have never happened throughout  
13 its history.

14           Mankind likes to say "climate change." I  
15 say "climate interference" or "influence." Influence  
16 comes from the man. The man comes in here, thinks  
17 that he knows better than nature and that this place  
18 should be able to support certain things when it  
19 doesn't have it there.

20           Animals are (no audio), insects have been  
21 brought into our country, and look at the effects  
22 such as the mongoose. It was here to hunt the rats.  
23 But funny, the rats run around during the night; the  
24 mongoose sleep at night.

25           So did it work? These are the things that

1 need to be looked at. All we look at is profit  
2 margins, economic.

3 I go to all these county meetings. The  
4 first thing on the agenda is economics where  
5 economics is not going to save the disappearance of  
6 our beaches, the disappearance of our watershed, the  
7 disappearance of our aquifers which are coming. The  
8 people that are the ones that made it this way need  
9 to correct (no audio).

10 Our kupuna, when they was dealing with the  
11 haoles, they realized one thing. And what they  
12 talked about was that our constitution and our  
13 government -- our constitution was not put into play  
14 for our people. It was put in play for the  
15 foreigners because they did not know how to behave.  
16 They come here, and they do things which have hurt  
17 us, and we can see that today. Mahalo.

18 CHAIR PALI: Okay. One second.

19 Commissioners, do you have any questions  
20 for Kaneloa? I see none. Thank you.

21 Anyone else in the room that would like to  
22 testify? Anyone online or on the phone? We are on  
23 Item B1 taking testimony. If you would like to  
24 testify, please unmute yourself and introduce  
25 yourself, please.

1           Okay. We will close public testimony on  
2 Item B1.

3           Jacky, I'll have you come back up.

4           Commissioners, you've heard testimony.  
5 You've heard the presentation. It's time for you to  
6 ask questions.

7           And I do just want to remind you that today  
8 we are just giving a recommendation. We are not  
9 taking action per se, but we are just taking -- we're  
10 just giving recommendation. And so please ask  
11 whatever questions you feel like you need, and then  
12 we can deliberate and put together a group  
13 recommendation.

14           MS. TAKAKURA: Chair Pali, excuse me. I  
15 can address a couple of issues if that might help?

16           CHAIR PALI: I would like it to come  
17 through the commission because I do just want to make  
18 sure we don't step out of protocol and then become  
19 the wild, wild west.

20           So, commissioners, we've talked about this  
21 before especially for the new ones, testimony from  
22 the public is (no audio) information that we may not  
23 be able to see within the staff report. We can get  
24 knowledge from the public in areas that they might  
25 have a better perspective or a closer eye in.



1           And then if they bring up something that  
2 you are curious about or it strikes a chord with you,  
3 you're going to then write that question down. And  
4 then you get to answer -- you get to ask those  
5 questions and then have staff or, in some cases, if  
6 there is an applicant, in this case -- I guess the  
7 applicant is the planning department, and then you  
8 would ask those questions. And so that's how this  
9 process works, and I would like to just stick with  
10 that process so we don't veer off.

11           And so since I don't see any questions,  
12 I'll ask a few. Now I see the benefit of having  
13 dates and goals, like small goals to reach the bigger  
14 goal. I get that.

15           I think where I disagree with the testifier  
16 is if the purpose of -- to do that is to make sure we  
17 hit the mark, but we miss the first deadline, then  
18 we're still having to come back for the extension.  
19 So I don't know if the reason why she wanted that  
20 makes any sense because if you still miss the first  
21 mark, then you still need the extension.

22           So whether you miss the three marks or the  
23 last mark, I also understand why maybe not doing the  
24 small dates is helpful because if you miss -- because  
25 I'm sure -- first question, do you have internal

1 processes where you've already sort of mapped out  
2 dates internally, yes or no?

3 MS. TAKAKURA: We have internal processes  
4 that are mapped out in the contract with the  
5 consultant. They're not necessarily tied to dates,  
6 but they're tied to time frames --

7 CHAIR PALI: Like six week (no audio) think  
8 I would almost be fearful of mandating dates is  
9 because if you do miss a mark on one, you might be  
10 able to internally then save some time on the second  
11 mark all the while not having to come back here three  
12 or four times. So I do like the idea of "we want  
13 accountability, tell us what you're going to do." I  
14 do like that.

15 I love that, but I also want to give you  
16 the leeway to be able to move and shake because we  
17 didn't anticipate the fires in August; so that delay  
18 is not on you. You can't control that. And so,  
19 yeah, that's -- so that's how I feel about that --  
20 you can chime in. If somebody wants to see dates, we  
21 can talk about that when we deliberate.

22 Can you also talk about -- I think it was  
23 Robin as well -- the term "losing wetlands." I think  
24 the testifier believed that without this overlay map  
25 we would just be losing wetlands. I know from this

1 process that we don't disregard processes that are  
2 already in place to properly mitigate what it is.

3 So it's not that this map is the only  
4 avenue to where we can recognize a wetland or not. I  
5 can definitely see if it's already been established  
6 like, boom, a helpful, quicker resource. Can you  
7 just address if I have an accurate picture of that or  
8 not?

9 MS. TAKAKURA: Thank you, Chair. I will  
10 try. I might need to ask the director who has a  
11 wealth of experience in permit review to assist, but  
12 currently, the process is you have to get the federal  
13 approvals, the U.S. Army Corps of Engineers, you  
14 know, they make a determination. They have their  
15 rules that -- you know, in terms of what's a wetland  
16 and what's not and any mitigating actions you may  
17 have to implement in an area that they determine to  
18 be a wetland.

19 I know that the state also has some  
20 definitions, and it kind of ties back to both federal  
21 and state. They have the Clean Water Act and their  
22 definitions of wetlands, but they are different. And  
23 so, you know, it's been kind of subject to  
24 interpretation depending on which agency you ask. I  
25 think that's kind of been a problem.

1 But as the county, we're going to -- we  
2 have our own definition now, and I can't speak to  
3 exactly what the federal or the state rules are.

4 I don't know if, Kathleen, you want to  
5 chime in about --

6 CHAIR PALI: Well, I think the question  
7 specifically, though, was without having this overlay  
8 map which you're working on now which I think is  
9 fabulous, is there a process to still identifying  
10 wetlands and how we can proceed once that's happened?

11 Because I think the word, like, oh, this  
12 map -- without the map, and we look at other  
13 applicants, we're going to be just forgetting about  
14 the wetlands. But, to my understanding, we have a  
15 very intense process in place to still make sure  
16 we're recognizing that --

17 MS. TAKAKURA: You are correct.

18 CHAIR PALI: -- even without the map. You  
19 are (no audio) clean that up a little bit --

20 MS. TAKAKURA: Yes. Yes.

21 CHAIR PALI: -- on my understanding based  
22 off of your --

23 MS. TAKAKURA: Correct.

24 CHAIR PALI: Okay.

25 MS. TAKAKURA: You are correct, Chair.



1 CHAIR PALI: Okay. And let's see -- okay.  
2 This is a valid question. This is a valid question.

3 So we get scientists -- looks like you say  
4 it's got to be from the U.S. Army Corps of Engineers.  
5 Do they get it wrong? Like is there an avenue where  
6 they get it wrong?

7 MS. TAKAKURA: So, Chair Pali, that's a  
8 very good question. As part of the process that  
9 we've been working on is we've been consulting  
10 with -- we've had so many meetings with federal  
11 agencies, state agencies, nonprofits, the different  
12 hui like on Molokai, property owners to gather all  
13 these different layers of information to see, you  
14 know, how they all define wetlands. And they have  
15 different purposes, like for some it's for, you know,  
16 wildlife, and for others it's for water conservation.

17 But to get all the information from these  
18 different agencies and put it together, and part of  
19 the outcome of this contract is a gap analysis which  
20 will identify shortcomings or discrepancies in the  
21 information, so that will be included in the final  
22 report.

23 And, you know, that -- like the ordinance  
24 says, you know, that the map has to be updated every  
25 five years or as new information comes about. So it

1 is a living document or a living thing that -- you  
2 know, it's going to be more and more accurate as time  
3 goes by and as we get more information.

4 CHAIR PALI: Okay. Commissioners, if my  
5 questions raise questions for you, just write them  
6 down and then flag me, but I got a couple more.

7 So another testifier mentioned -- and it's  
8 great -- so let's say we think that the U.S. Army  
9 Corps has it right. There's enough evidence,  
10 projects move forward. And then as they're in this  
11 construction phase, they start to reveal more  
12 information, like you said.

13 Is there anything in the application that  
14 then says if this -- if you discover that we deemed  
15 it not a wetland and now you're starting to find  
16 evidence that it was a wetland, does construction  
17 stop?

18 Is there anything that says, we gave you  
19 permission because we thought it wasn't a wetland.  
20 You're now moving the ground around, and now we think  
21 it is a wetland. Is there any repercussion, any  
22 safety net?

23 What's the current -- what does the current  
24 code say about something like that or does it even  
25 address it?

1 MS. TAKAKURA: Thank you, Chair Pali. So  
2 the bill -- there's criteria for some of the larger  
3 discretionary permits, and those would be changes of  
4 zoning, district boundary amendment, and community  
5 plan amendments. And if any of these type of  
6 discretionary permits are coming before the  
7 department and it's on a parcel that is found to have  
8 wetlands, they have to address, you know, and show  
9 what actions they're going to take to protect the  
10 wetland.

11 It's already in the ordinance for those  
12 types of permits. And those permit types are  
13 specifically called out already in the ordinance, so  
14 it should be identified before they start.

15 CHAIR PALI: Right. Ideally, which is the  
16 best case scenario, but we realize sometimes we get  
17 it wrong.

18 MS. TAKAKURA: Yeah. So we'll have that  
19 overlay map which will have information, and then the  
20 applicant's going to be working with the consultant  
21 who can provide further information to address all of  
22 those things that are spelled out in the ordinance.

23 CHAIR PALI: My last question is -- which I  
24 already made five years on the commission because I  
25 filled another spot. I came in, was just a temp

1 thinking, yeah, I can do eight months, we're good.

2 And then I re-up for five. So I made my five years.

3 I get really confused with how do you know  
4 which groups to consult with, especially the people  
5 of each place? I mean, this is -- I'm asking a dumb  
6 question on purpose, but is there some special list  
7 that goes, here are all the families and the  
8 generations of this, you know, place, and these are  
9 the people? Or do they have to present themselves to  
10 you, because then how would you know?

11 And do you create this list? Because  
12 you've already mentioned that you're already sort of  
13 in discussions with different groups and nonprofits,  
14 so then how does one get on that list to be part of  
15 that conversation?

16 What does it look like? Because I can't  
17 imagine if these different peoples are coming up and  
18 you did know about them, you didn't know about  
19 them -- can you just walk me through what that  
20 process looks like?

21 So when you say we have, as the department,  
22 consulted with 32 different groups, but then these  
23 people are over here saying, well, you missed us, how  
24 can we bridge that gap so that everyone has  
25 participation one way or the other or at least



1 opportunity?

2 Now I know public testimony gives everyone  
3 that we've missed an opportunity; I do know that.  
4 But sometimes certain people, groups should have more  
5 involvement, especially if it's generational family  
6 from the land. So can you just help explain that to  
7 me?

8 MS. TAKAKURA: Thank you, Chair Pali.  
9 That's a very good question because I had that same  
10 question when we had to execute this contract. I'm  
11 like, who are we going to ask?

12 So we started out with -- when I say "we,"  
13 I mean the consultant who has extensive experience  
14 with wetlands, UH Sea Grant which is very involved in  
15 environmental issues and has a wealth of knowledge  
16 also, and then from the department just the groups  
17 that we're aware of.

18 For example, like I'm on the south -- I  
19 attend the South Maui Community Plan Advisory  
20 Committee meetings, and I know of a couple of members  
21 who are actively involved in wetlands so, of course,  
22 we're going to include those from people -- you know,  
23 just because I know what they do, you know, I guess,  
24 their day jobs when they're not at these meetings,  
25 but just kind of brainstorming all the different

1 agencies.

2 And then whenever we've had a meeting, we  
3 ask the groups, you know, can you think of other  
4 people that we can talk to? So it's kind of been  
5 this growing list of people we've reached out to  
6 every time we have a meeting.

7 And even I've thought, like, oh, my  
8 goodness, another meeting with more people? But it's  
9 always been good to get more information rather than  
10 less, and that's also part of the scoping meetings  
11 for the very first draft is to, you know, get more  
12 contacts that we can reach out to.

13 And so it's been a growing list, and it's  
14 just been people that we are aware of or people that  
15 have participated when the first round came around  
16 when this ordinance was created, so -- and then  
17 asking other department staff who they know. So it's  
18 just kind of been evolving as we learn more.

19 CHAIR PALI: Would it be advantageous,  
20 Director, to maybe consider an open space where we  
21 sort of accumulate a list of people groups within the  
22 different parts of the island just as a resource  
23 after they're vetted or do you feel like you already  
24 have one?

25 I just -- I know that anyone can come here

1 and anyone can obtain the information on the website.  
2 You can pull all the recordings, you can pull the  
3 minutes.

4 I like to go back and watch videos because  
5 I tend to have extra time on my hands. But it's all  
6 there, the resource is there (no audio) seat at the  
7 table maybe a little earlier, especially if it's  
8 specifically their area.

9 Is that something that the department would  
10 ever consider or would find helpful or are we just  
11 taking what should be done in a public place and  
12 we're trying to advance it too soon? Is there pros  
13 and cons there? I don't know.

14 DIRECTOR AOKI: Let me just -- a lot of  
15 these groups can change over time, too, so it's  
16 difficult. You can put a group down and then they  
17 dissipate or they change. So I would not suggest  
18 having that list, per se.

19 I can say that we do a lot of public  
20 outreach for a lot of the things that we do. And so  
21 like Jacky said -- like she came to me with the  
22 Title 19, who was on that list, and we go around. We  
23 have Sea Grant. We are involved with a lot of the  
24 different people that are involved on boards and  
25 commissions. We do public announcements in the

1 newspapers. We can put it on the county website. I  
2 mean --

3 CHAIR PALI: So you're kind of giving  
4 everyone an equal shot at it.

5 DIRECTOR AOKI: Yeah. And everybody is  
6 more than welcome to contact Jacky at the Long Range  
7 Division if they're interested in this project.

8 CHAIR PALI: It's good to know, sort of.  
9 Okay. It's good. Okay. All right. I just want to  
10 just look at all those things. Okay. Yeah, I don't  
11 have any more questions. We can deliberate unless  
12 anyone else -- yeah, Vice Chair Thayer. Go for it.

13 VICE CHAIR THAYER: Thank you. And I had  
14 some of these written down from before which you  
15 asked some of them, but one I was wondering -- you  
16 stood up and said you had some other (no audio)  
17 testifier said.

18 Did you share all of that already through  
19 these questions or do you have more?

20 MS. TAKAKURA: Thank you, Vice Chair  
21 Thayer. So in terms of milestones, yes, I kind of  
22 shared that with Chair Pali that the contract already  
23 includes milestones.

24 And then we just decided on the Maui  
25 scoping meeting, so we're working on the public



1 information announcement on that one. And that is  
2 Wednesday, November 8, at the Maui Ocean Center at  
3 6:00 p.m., and we are working with the mayor's office  
4 to get the word out on that one. That one we had to  
5 delay just because of, you know.

6 VICE CHAIR THAYER: And is that the only  
7 meeting that's going to happen on Maui or are you  
8 planning others?

9 MS. TAKAKURA: So, Vice Chair Thayer, so in  
10 preparation for -- with Draft Map 1 comes the first  
11 scoping meeting on the three islands, and then we  
12 take -- or the consultant takes the feedback from  
13 those meetings and creates a map that is going to be  
14 published for 30 days for public comment.

15 And then after we get all of those -- or  
16 all the comments come in, there will be a second  
17 round to show -- to share the changes with the  
18 community. And so there's actually going to be two  
19 meetings on each island.

20 And I can't tell you -- I'm thinking maybe  
21 February for the second meeting on Maui; I'm not  
22 sure. It's going to really depend on, you know, how  
23 many changes they have to make and then the 30-day  
24 public notification period and how many revisions are  
25 going to have to be made after that.

1 VICE CHAIR THAYER: So just to make sure I  
2 got this right, so there's first scoping meeting, the  
3 draft map is published, there's 30 days of public  
4 comment -- and that is the only public comment  
5 period?

6 MS. TAKAKURA: That is correct.

7 CHAIR PALI: Okay. And let's see. On the  
8 other islands, was this the same process that you did  
9 on Lanai and Molokai?

10 MS. TAKAKURA: So from Molokai and Lanai,  
11 we had community input meetings in the summer, and we  
12 just kind of -- I gave an overview similar to what  
13 you saw from me this morning and then the consultants  
14 came and went over the process of how they're putting  
15 together the overlay. And then we just kind of  
16 answered questions, and there was a big map out and  
17 (no audio) talk or whatever and so, yeah, just real  
18 informal. But, yeah, we've had those.

19 VICE CHAIR THAYER: It seems like for  
20 everybody to know how to get involved, maybe like a  
21 flowchart of this time line to say, we're going to  
22 have this draft, there's going to be a meeting,  
23 there's going to be this public comment period,  
24 something else, just so people know how and when they  
25 can get into the process?

1 MS. TAKAKURA: Vice Chair Thayer, we do  
2 share a time line, a flowchart with -- at the  
3 community meetings. I actually have it on my laptop  
4 if you want to see it.

5 CHAIR PALI: Is that public? Will that be  
6 made public?

7 MS. TAKAKURA: Yeah. Yes. It's actually  
8 on our website, too.

9 CHAIR PALI: Wonderful. If you don't mind.

10 MS. TAKAKURA: So can everyone see that? I  
11 know it looks very -- it looks microscopic on this  
12 screen. But on the left, you just see the tasks:  
13 data gathering, going to Draft Map 1, Draft Map 2,  
14 Draft Map 3, and Final. And then on the -- oh, thank  
15 you. Thank you, Iggy.

16 So does that help? Everyone can see that?  
17 So you can see the consultation with agencies and  
18 organizations. The star's on there because we were  
19 using this (no audio) months ago. But -- and then  
20 consultations with community groups, and there were  
21 dates on there, but they had to change due to, you  
22 know, circumstances. So that's kind of the process.

23 And so Draft Map 2 will be done once we  
24 have the community meeting, the last one on Maui.  
25 And then it'll be posted for 30-day review, provide

1 comments on Draft Map 2, and then we'll have 3 which  
2 kind of fixes it up and any errors or corrections we  
3 need to make. And then it gets transmitted to the  
4 commissions and the county council and that  
5 conservation planning committee (no audio) works.

6 And this flowchart is on our website on our  
7 wetlands page.

8 CHAIR PALI: Thank you.

9 VICE CHAIR THAYER: Yeah. And so, sorry,  
10 on this flowchart, you are exactly at which point?

11 MS. TAKAKURA: Can you scroll up a little  
12 bit? So that's good.

13 So you can see on the right, consultations  
14 with community groups, we've been doing that. Let's  
15 see, Draft Map 1 and the consultations -- they've  
16 been doing the ground truthing. So they need to do  
17 the last community or the scoping meeting for Maui  
18 before publishing the 30-day (no audio) between Draft  
19 Map 1 and 2.

20 VICE CHAIR THAYER: Okay. And then so just  
21 thinking about this June 30th new time horizon, you  
22 are confident you will be able to complete this scope  
23 of work by then?

24 MS. TAKAKURA: Oh, Vice Chair Thayer, I  
25 asked the consultant about five times, are you sure?



1 And they said, yes. So I'm confident in them.  
2 They're very, very good. They're excellent, and they  
3 know what they're doing.

4 VICE CHAIR THAYER: Okay. Yeah, because I  
5 just want to make sure we're not going to get to,  
6 like, May and be like...

7 MS. TAKAKURA: So, Vice Chair Thayer, if  
8 you would like to extend it further, that's totally  
9 fine with me.

10 VICE CHAIR THAYER: No, but at the same  
11 time, you know, we need like --

12 MS. TAKAKURA: Yes, I agree.

13 VICE CHAIR THAYER: -- set goals. Just  
14 making sure that this is achievable.

15 MS. TAKAKURA: I think this is a safe date,  
16 yes.

17 VICE CHAIR THAYER: Okay. And, oh, the  
18 definitions that you are going by -- because there's  
19 the Army Corps, there's the biological definitions,  
20 are you going -- trying to encompass all of these  
21 or -- like are you going more broad or more strict?

22 MS. TAKAKURA: So, Vice Chair Thayer, the  
23 ordinance includes its own definition which is  
24 slightly different from the state and federal, and  
25 there are specific criteria for what is going to go

1 into this map that's already spelled out in the  
2 ordinance.

3 And it is based on U.S. Army Corps of  
4 Engineer information. It's -- and they've even got  
5 the year of what version of the U.S. Army Corps  
6 reports that it has to be based on. But like I said,  
7 we're looking -- you know, reaching out to state and  
8 all the different federal agencies, not just U.S.  
9 Army Corps of Engineers, to gather information and  
10 put it all into these overlays.

11 And I can share with you, it's super  
12 interesting if you listen to the GIS staff. They're  
13 looking at soil layers and vegetation layers and  
14 historic layers and visual layers of what's actually  
15 on the ground. And then they're putting it all  
16 together and weighing it, and then with this  
17 likelihood of what's going to be on the ground of  
18 over -- what's most likely to be wetlands.

19 And then they're -- for ones that are not  
20 obvious, they're doing ground truthing where you go  
21 out and you look -- and what plants are there?  
22 Because some you might see, like kiawe, are in  
23 wetlands, but they're not necessarily indicators. Or  
24 there's -- you may not see water there, but there's  
25 indicators of that there was water there or there

1 could be water there.

2 So it's actually very, very interesting  
3 what the consultant is doing. So I've learned a lot,  
4 too, by participating and watching them. But it's  
5 complicated; there's a lot going on.

6 VICE CHAIR THAYER: Yeah. And, like, that  
7 ties into, you know, like the generational knowledge  
8 that you have --

9 MS. TAKAKURA: Yes, yes.

10 VICE CHAIR THAYER: -- of these plants  
11 always grow in wetlands. So even if there's no  
12 water, you know, if all these mea kanu are here, then  
13 you're going to have a wetland. Yeah. So good work  
14 on this.

15 I -- my main hope is that, you know, all of  
16 these people who have all this, you know, knowledge  
17 from their tutu and everything are able to contribute  
18 to the process because more and more in the  
19 environmental fields, there's a, like, recognition  
20 that there's a lot of, like, scientific knowledge  
21 from everyone who came before us. Thank you.

22 CHAIR PALI: Okay. Any other commissioners  
23 have questions? Commissioner Deakos?

24 COMMISSIONER DEAKOS: Thank you, Chair.  
25 And most of my questions were asked, so I appreciate

1 that. I appreciate the presentation. I think we  
2 often forget how important wetlands are.

3 I am struggling a bit with the definitions.  
4 I know it sounds like Army Corps was the dominant one  
5 but was insufficient, and that's why the county came  
6 up with their own definition. And I'm just -- but  
7 I'm confused as to is that -- is that what we're  
8 using now until these maps are created?

9 We're relying on the Army Corps? You also  
10 mentioned the state definition.

11 CHAIR PALI: I'll have Director clarify,  
12 Commissioner Deakos.

13 DIRECTOR AOKI: So I think it's important  
14 to understand that the ordinance was passed by  
15 council, so we're not at liberty right now to be  
16 making changes to the ordinance. It is what it is.

17 And until we have a map that goes along,  
18 which is required as part of that ordinance, we are  
19 still using the Army Corps of Engineers and Fish and  
20 Wildlife and all those agencies that we reach out to  
21 to get comments on projects.

22 So that's why we need this map to go along  
23 with the ordinance and the language that was adopted  
24 as part of that ordinance.

25 COMMISSIONER DEAKOS: Okay. Thank you.



1 And one of the testifiers mentioned possibly  
2 90 percent loss of wetlands. I assume that -- I  
3 don't know if you guys have -- if the department has  
4 their assessment of how much has been lost? I'd be  
5 curious to know; it may be a tough question.

6 And that was based on the Army Corps  
7 definition, so we obviously have lost a lot. And is  
8 that because the Army Corps definition doesn't  
9 include what we now consider a lot of wetlands,  
10 especially in South Maui?

11 CHAIR PALI: Yeah. So we're out of scope  
12 right now, and they've already mentioned,  
13 Commissioner Deakos, they don't know. They can't  
14 validate the 90 percent loss.

15 So do you have any other questions?

16 COMMISSIONER DEAKOS: Well, I guess I'm  
17 just trying to clarify. So until the maps are done,  
18 we're relying on the Army Corps definition. So if  
19 there's concern that a project comes up that may be  
20 on a wetland under the county definition but not the  
21 Army Corps, how do we deal with that?

22 CHAIR PALI: Okay. So you're asking what  
23 current code process requires? Okay.

24 Director?

25 DIRECTOR AOKI: So just as you would for

1 any development project that comes before this body  
2 for approval, or if it went before the county council  
3 for approval, it's up to the body to take the  
4 information (no audio) that it meets the satisfaction  
5 of the members who are making that decision, and if  
6 you're going to add on any kind of mitigation if you  
7 don't agree with the information that's been provided  
8 to you.

9 So that's how I would say you would address  
10 if you felt that there was any discrepancy in the  
11 information that's being given. This has happened.

12 I have seen projects where the Army Corps  
13 of Engineers and the Fish and Wildlife have come out  
14 and said that a certain area was not a wetland, and  
15 they -- the body didn't agree and denied an  
16 application. So I've seen it happen.

17 COMMISSIONER DEAKOS: Okay. But the  
18 department's recommendation will be based on -- under  
19 their assessment will be based on the existing  
20 definition until the maps are made, and then  
21 recommendations will take on the new definition?

22 DIRECTOR AOKI: I think that -- frankly, I  
23 think what might happen is we're going to end up with  
24 three or four different informations and  
25 recommendations because you're going to have three or

1 four different ways of viewing and doing your  
2 analysis.

3 So it could be that the department would  
4 provide information, say, Army Corps of Engineers  
5 said this; U.S. Fish and Wildlife said this; based on  
6 the county ordinance, the consultant is saying this.

7 And then when it comes before the body,  
8 you're going to have to put all of that together and  
9 just make a recommendation. And if it's an  
10 administrative decision, then the administration's  
11 going to have to do the same thing. I mean,  
12 that's --

13 CHAIR PALI: Yes. I'll have Mr. Hopper  
14 chime in.

15 MR. HOPPER: Is this on? Okay. Just to  
16 note, again, a reminder, this might be an interesting  
17 conversation.

18 The thing that's before you today is a  
19 one-line change in 19.47.070 on whether to provide an  
20 extra time, you know, on the 365 days after the  
21 effective date of the ordinance and instead have the  
22 time frame for providing a map to be within at  
23 least -- or to be no later than 365 days after the  
24 notice to proceed for any contract for personal --  
25 professional services. That's what's before you now.

1           You can, I think, attach milestones or  
2 other things if you're looking at that, but  
3 amendments to the overall ordinance generally  
4 wouldn't be something you'd be looking at. So this  
5 might be an interesting conversation to have, and if  
6 you want to look at amendments to the ordinance, you  
7 could perhaps agendize that separately.

8           CHAIR PALI: Yeah. Sorry, I let you go too  
9 far, Deakos. Those are all great questions, but  
10 that's not on our agenda today. Our agenda is the  
11 time extension, so we have to stick to the time  
12 extension.

13           So do you have any other questions  
14 regarding being able to either grant or deny the time  
15 extension that's in front of you? Do you have any  
16 other questions pertaining to that?

17           COMMISSIONER DEAKOS: Yeah. Just to  
18 clarify the time, how we're processing -- the  
19 director answered my question, that was very  
20 helpful -- but the time before -- that we provide the  
21 extension will determine how many projects go before  
22 us without the new definition. So it is relevant,  
23 but my question was answered, so I appreciate it.  
24 Thank you, Chair.

25           CHAIR PALI: Okay. Great.



1 MS. TAKAKURA: Excuse me, Chair Pali. May  
2 I make a correction?

3 CHAIR PALI: Yes. Yes, please.

4 MS. TAKAKURA: So when we initially put  
5 forward this request, we were requesting a one-year  
6 from the notice to proceed but then, you know, we had  
7 the fires and realized that we couldn't have the  
8 scoping meeting on Maui. So we changed that to say  
9 to June 30th, 2024, and that is what is in your  
10 packet.

11 CHAIR PALI: That's right.

12 MS. TAKAKURA: So initially, we were --  
13 like as corporation counsel mentioned, we were  
14 thinking March but --

15 CHAIR PALI: It's now June, the end of the  
16 fiscal year.

17 MS. TAKAKURA: Correct. Thank you.

18 CHAIR PALI: That's right. We got that,  
19 yeah. Just a correction on that. Okay.

20 MR. HOPPER: Because the ordinance language  
21 itself still says -- that I see it attached -- I  
22 mean, so you're going to be changing that ordinance  
23 language, I guess, or asking the commission to do  
24 that? Okay.

25 CHAIR PALI: Yeah.

1 MR. HOPPER: So just to note that the  
2 ordinance that's attached is a bit different, so you  
3 make your recommendation, you'll have to be really  
4 clear it's not this exact ordinance language.

5 CHAIR PALI: Correct.

6 MR. HOPPER: It would be different.

7 DIRECTOR AOKI: If I may, the draft  
8 ordinance strikes "within 365 days after the  
9 effective date of the ordinance establishing this  
10 chapter." So we are striking that language out so  
11 that there's no reference to it.

12 CHAIR PALI: Okay. Great. Thanks,  
13 Director.

14 Commissioner Lindsey?

15 COMMISSIONER LINDSEY: My question is  
16 around staffing within the -- within the department.  
17 I saw on the -- on the presentation that we didn't  
18 get any additional funding, but you had a time  
19 deadline.

20 Is that within our purview to recommend  
21 money for additional staffing within the department?

22 CHAIR PALI: I love your question.

23 Oh, do you want to -- I was going to have  
24 director, but if you want to tackle that, you can.

25 MS. TAKAKURA: So, Commissioner Lindsey,

1 thank you for the question. At this time, the  
2 consultants are doing the bulk of the work, and  
3 that's what we needed the budget amendment for was  
4 for professional services.

5 The GIS staff person and myself are  
6 actively involved in the project and UH Sea Grant  
7 staff. I don't know at this time if we would need  
8 more staff. But that's certainly something that we  
9 are thinking about, you know, for future budget  
10 requests. Thank you.

11 COMMISSIONER LINDSEY: Thank you for your  
12 answer. That's helpful.

13 CHAIR PALI: Anything else? So just to  
14 remind the commissioners that although we would love  
15 to discuss the (no audio) the request simply is grant  
16 the extension or not. This is not scheduled for  
17 changing the scope of what has already been approved  
18 by council. This is just -- it's our purview to  
19 recommend if we would like to extend it or not.

20 The merits have been discussed already and  
21 already approved through another ordinance which is  
22 what's causing this action now. So that was before;  
23 it's not up in front of us today.

24 Anyone else have a question about  
25 extension? Yes, Vice Chair Kim Thayer?

1 VICE CHAIR THAYER: Thank you. Just one  
2 small question, the draft map, is this available  
3 online?

4 MS. TAKAKURA: Vice Chair Thayer, not yet.  
5 We're going to wait until after the Maui scoping  
6 meeting and then post all three at once.

7 VICE CHAIR THAYER: Okay. And the map will  
8 be presented at the scoping meeting?

9 MS. TAKAKURA: At the scoping meeting, I'll  
10 go over the background of why we're meeting and then  
11 the consultant will show the process. And they  
12 probably already have a rough draft for Maui because  
13 they did everything they could up until that meeting.

14 And even though we haven't had the meeting  
15 yet, they've been doing, you know, as much ground  
16 truthing and research and updates, you know, fixing  
17 what they can. So they probably have -- I'll make  
18 sure that they have a draft of Maui. I know they had  
19 one for Molokai, so I'll see what they have.

20 VICE CHAIR THAYER: Okay, thank you.

21 CHAIR PALI: Okay. Any other questions?  
22 Okay. Seeing none, this is the time now we're going  
23 to put together a recommendation.

24 And how should we handle this, Director?  
25 Just if you -- yeah. So do we handle it like a



1 regular vote? Okay. So we'll just take a vote, but  
2 do we have any (no audio) discuss anything? Is  
3 there -- oh, you have to make a motion? That's  
4 right. All right.

5 So do I have a motion for recommendation?  
6 Commissioner Thompson.

7 COMMISSIONER THOMPSON: Thank you, Chair.  
8 I'd like to recommend approval of the proposed bill  
9 to Maui Council -- the recommendation to the Maui  
10 Council.

11 CHAIR PALI: So your recommendation is to  
12 approve the time extension?

13 COMMISSIONER THOMPSON: Yes. Thank you.

14 MR. HOPPER: Chair, just for clarification.  
15 This is the version attached to the -- the Planning  
16 Department's report rather than the version attached  
17 on the second link which is a different one that says  
18 the entire text of the proposed bill for the  
19 ordinance is available. It's just the one attached  
20 to the report that just has the date of June 30th,  
21 2024, as the date.

22 CHAIR PALI: Is that what you're  
23 recommending to approve, the one attached to our  
24 staff report?

25 COMMISSIONER THOMPSON: Yes.

1 CHAIR PALI: Okay, great. And then Vice  
2 Chair Thayer has second. Okay. Any discussion?  
3 Move on. They need time, we need it, it's important;  
4 right? You agree? All right.

5 COMMISSIONER THOMPSON: Well said.

6 CHAIR PALI: Wait, I'm not supposed to talk  
7 on your behalf. Okay.

8 Vice Chair Thayer, do you have anything to  
9 add?

10 VICE CHAIR THAYER: I would say we fleshed  
11 out the time line. It's going to be publicly  
12 available. The county's planning on doing lots of  
13 outreach so everybody knows how to get involved, and  
14 I think that's the main thing.

15 CHAIR PALI: Great. Okay. Any other  
16 discussion before we take a vote for recommendation?

17 Seeing none, Director, please?

18 DIRECTOR AOKI: Commissioner Thompson?

19 COMMISSIONER THOMPSON: Aye.

20 DIRECTOR AOKI: Commissioner Lindsey?

21 COMMISSIONER LINDSEY: Aye.

22 DIRECTOR AOKI: Commissioner Deakos?

23 COMMISSIONER DEAKOS: Aye.

24 DIRECTOR AOKI: Commissioner Kealoha?

25 COMMISSIONER KEALOHA: Aye.

1                   DIRECTOR AOKI: Commissioner  
2 Helekahi-Burns?

3                   COMMISSIONER HELEKAHI-BURNS: Aye.

4                   DIRECTOR AOKI: Vice Chair Thayer?

5                   VICE CHAIR THAYER: Aye.

6                   DIRECTOR AOKI: Motion passes.

7                   CHAIR PALI: Awesome. All right.

8                   MS. TAKAKURA: Thank you.

9                   CHAIR PALI: Good work. Thank you. Thank  
10 you, Jacky.

11                   We're going to -- we're going to take a  
12 ten-minute break, and we're going to get set up for  
13 the next item. So we'll be right back.

14                   COMMISSIONER LINDSEY: Chair, can you give  
15 us a time, please, to return?

16                   CHAIR PALI: Yeah, it is 10 -- almost  
17 10:20. Let's just come back at 10:30. 10:30.

18                   COMMISSIONER LINDSEY: Thank you.

19                   (Whereupon, a recess was held  
20 from 10:19 p.m. to 10:31 p.m.)

21                   CHAIR PALI: Welcome back to the Maui  
22 Planning Commission. It is October 24th, and it is  
23 10:31.

24                   We are going to go to public hearing B2.  
25 And Director is going to introduce the next

1 applicant, and then we'll let the applicant do their  
2 presentation.

3 DIRECTOR AOKI: Thank you, Chair. On behalf  
4 of Waiehu Housing, LP, they are initiating a district  
5 boundary amendment from state agricultural district  
6 to state urban district for the proposed Hale Mahaolu  
7 Ke Kahua Affordable Housing Community.

8 The project will consist of 120 rental  
9 units in 13 two-story buildings, a 3,477 square-foot  
10 nonprofit building, a 3,231 square-foot clubhouse,  
11 parking, landscaping, and related improvements. The  
12 project is located on approximately 11.476 acres of  
13 land in Waiehu. TMK is 3-3-001:106.

14 We have from the department Tara Furukawa  
15 who is assigned planner for the project. I believe  
16 we -- oh, we do; I see them. We have the consultant  
17 online.

18 And we also are blessed today to have  
19 Director Lori (no audio) just for the members'  
20 information, Director Tsuhako does have to leave by  
21 11 o'clock. So we are going to ask for her to be  
22 allowed to present first and any questions, and then  
23 we'll go on with the applicant thereafter.

24 CHAIR PALI: Great. Sounds good.

25 MS. FURUKAWA: Good morning. So this item



1 is director-initiated and brought because the  
2 applicant was seeking Chapter 2.97 fast-track housing  
3 approval and received an exemption from a community  
4 plan amendment and change of zoning but not a  
5 district boundary amendment.

6 The district boundary amendment being  
7 sought today is from agricultural to urban. If  
8 approved, this will result in land use consistency  
9 with the community plan and zoning designations. The  
10 recommendation will be forwarded to the county  
11 council for final approval.

12 CHAIR PALI: Okay. So we're going to go  
13 ahead, and, Lori, you're going to present. If you  
14 can, just for the record, introduce yourself.

15 DIRECTOR TSUHAKEO: Thank you. Good  
16 morning, commission members. I'm Lori Tsuhako, and  
17 I'm the director of the Department of Housing and  
18 Human Concerns.

19 I'm here today to support the Ke Kahua  
20 Affordable Housing Project that is on your agenda for  
21 a district boundary amendment today. This affordable  
22 housing project was accepted by my department under  
23 Maui County Code 2.97 which is for 100 percent  
24 affordable housing, and it enables the developer to  
25 ask for certain exemptions.

1           Ke Kahua application was forwarded to the  
2 Maui County Council on February 21st, 2023. And  
3 pursuant to the aforementioned Maui County Code, the  
4 council was required to approve, approve with  
5 modifications, or disapprove the application via  
6 resolution within 60 days of receipt.

7           Due to some recusals of certain  
8 councilmembers, the council failed to take any action  
9 within the prescribed time period. And the law  
10 provides that in the event that the council fails to  
11 take action, the DHHC director is then given the  
12 authority to approve, approve with modifications, or  
13 disprove -- disapprove the application within 14 days  
14 of the expiration of the council's 60-day time limit.

15           After full consideration of the merits of  
16 the project and an acknowledgment of the need to  
17 provide suitable housing for Maui County residents,  
18 the department also considered concerns regarding  
19 traffic impact, infrastructure, and historic  
20 preservation. The project met all requirements for  
21 consideration under the law. Relevant county  
22 departments were consulted and potential concerns  
23 discussed thoroughly.

24           After substantive review, it was determined  
25 that the project team, through its application, their

1 representations to the council, and department  
2 meetings, that the -- excuse me -- that the developer  
3 had satisfactorily addressed the aforementioned  
4 concerns.

5 So Ke Kahua was approved with modifications  
6 on May 4th, 2023. I come before you to ask for your  
7 support in granting the project the requested  
8 district boundary amendment that will allow  
9 120 affordable rental units to be constructed.

10 Obviously, those of us who have lived past  
11 the following -- the last nine weeks or so realize  
12 that our housing situation has become even more dire  
13 after the fires. We need affordable housing.

14 This proposed project will provide  
15 120 units for people who earn, a family of four,  
16 roughly below \$70,000, which is much of our  
17 workforce. It's centrally located, and I think that  
18 in a larger context of advocating for more options  
19 for affordable housing, the department stands in  
20 strong support of the applicant and this project. I  
21 thank you.

22 CHAIR PALI: Great. Did you want to add  
23 anything, Tara, or is that -- would that conclude the  
24 applicant's presentation?

25 MS. FURUKAWA: That will conclude our

1 presentation. I'm not sure if the consultant has a  
2 presentation that they plan on sharing with everyone.

3 MR. CHUN: Yes, we do.

4 CHAIR PALI: I can't hear you. Can you  
5 speak up?

6 MR. CHUN: Yes, we have a presentation  
7 prepared.

8 CHAIR PALI: Okay. Yeah, so are you going  
9 to present that? Great. Okay, I see it online.  
10 Okay.

11 How long is your presentation?

12 MR. CHUN: About ten to 12 minutes.

13 CHAIR PALI: Okay. Lori, do you want --  
14 okay. All right. Please proceed.

15 MR. CHUN: Thank you, Madam Chair. Good  
16 morning, everyone, and aloha. Thank you very much  
17 for taking the time to meet with us today.

18 It is our pleasure to be here today to  
19 share information concerning the plans for Hale  
20 Mahaolu Ke Kahua, a new family affordable rental  
21 housing project in Waiehu, Maui.

22 I am Grant Chun, executive director of Hale  
23 Mahaolu which, as you are probably aware, owns and  
24 manages affordable rental housing sites on Maui,  
25 Molokai, and Lanai.



1           Today we are here to respectfully request  
2 the Maui Planning Commission's favorable  
3 recommendation on the direct boundary amendment for  
4 the proposed affordable housing project wherein all  
5 units will be rented at prices affordable to families  
6 earning 60 percent or below area median income. This  
7 request is to change a portion of the parcel upon  
8 which the project will be located from agricultural  
9 to urban, bringing it into the state land use urban  
10 district.

11           This project has already received  
12 significant review over the course of the past three  
13 years. As you can see from this time line, the  
14 project has been presented to numerous groups and  
15 organizations. And most pertinent to you all,  
16 although it was not required, the project was brought  
17 before the Urban Design Review Board on October 5th,  
18 2021, and before this commission on October 26th,  
19 2021.

20           The project met with unanimous support  
21 before both bodies in favor of recommending the  
22 project for Chapter 2.97 approval. In that regard,  
23 the Maui Planning Commission provided 15 comments  
24 that the applicant responded to in the final  
25 environmental assessment.

1           The project received its Chapter 2.97  
2 approval with exemptions and modifications by the  
3 County of Maui on May 4th -- I'm sorry, May 5th,  
4 2023. This approval allows the planning director to  
5 refer the district boundary amendment request  
6 directly to the Maui Planning Commission for  
7 recommendation. This commission's recommendation  
8 will be forwarded to the Maui County Council for  
9 consideration and approval.

10           This slide covers our project team. Hale  
11 Mahaolu is partnered with Maui Economic Opportunity  
12 on this initiative. MEO is the owner of the project  
13 site, and we're, of course, very excited to be  
14 working with Debbie Cabebe and her team who are  
15 always great to work with.

16           We'd be remiss if we didn't recognize how  
17 altruistic MEO has been in making this asset  
18 available to our community for our critical needs in  
19 terms of affordable housing.

20           Our development partner in this initiative  
21 is Highridge Costa, a very well-established provider  
22 of affordable housing which is also partnering with  
23 us on a project in Kihei called Liloa Hale.  
24 Highridge Costa's Senior Project Manager Monte Heaton  
25 is with us today.

1           The rest of the project team are also  
2 referenced on this slide, including Bryan Fujiwara  
3 from Design Partners; David Sereda from CHP Maui, our  
4 landscape designer; Stacy Otomo of Otomo Engineering  
5 for civil; Kelcee Mira (phonetic) from Austin  
6 Tsutsumi, traffic; Trevor Yucha, Cultural Surveys  
7 Hawaii, archaeology; and Mark Roy of Munekiyo Hiraga.

8           To open up our presentation, we thought it  
9 would be helpful to provide everyone with a good  
10 point of reference as far as the project's site  
11 location. The site is situated on Kahekili Highway  
12 near the intersection of Kahekili Highway and Waiehu  
13 Beach Road in Waiehu, Maui. It has been referred to  
14 as Ke Kahua for many years.

15           You can get a pretty good idea of where the  
16 property is situated from this project location map.  
17 It is noteworthy that the project site is already  
18 adjacent to an existing residential neighborhood and  
19 that it is situated within the urban growth boundary  
20 of the Maui Island Plan.

21           We're very excited to be able to propose to  
22 bring this affordable community to this area of our  
23 island which has not seen new housing in many years.  
24 With the severe shortage of affordable housing we  
25 have in our community, the proposed location provides

1 a great opportunity to provide homes for families in  
2 close proximity to jobs, services, and surrounding  
3 neighborhoods.

4 The application before you today will amend  
5 about 9.8 acres of the total 11.5-acre site from the  
6 state agricultural district to the urban district.  
7 The remaining 1.7 acre is already situated within the  
8 urban district.

9 Here are some site photos looking at the  
10 site from various directions, as noted on the slide.  
11 The proposed project will be situated on this --  
12 which will be situated on this site will contain  
13 120 apartment units situated in 13 low-rise,  
14 two-story buildings.

15 Again, they will comprise a 100 percent  
16 affordable housing rental community restricted to  
17 households earning 60 percent or less of area median  
18 income. The amenities for the project will include a  
19 building which MEO will have available for use for  
20 programming as it determines is appropriate for the  
21 community once the project has been established and  
22 needs are ascertained.

23 There will also be a clubhouse for  
24 residents' use. There will be keiki play areas for  
25 playground equipment, laundry facilities, a



1 maintenance room, 274 parking stalls, and two loading  
2 stalls.

3           This is the breakdown of the unit types and  
4 floor areas. There will be 28 one-bedroom units, 60  
5 two-bedroom units, and 32 three-bedroom units. All  
6 are designed so that they can be retrofitted ADA  
7 needs as they may arise.

8           Here are the affordable housing rental  
9 guidelines for 2023. Of course, the project must  
10 still go through the funding process, so the  
11 guidelines will be adjusted to coincide with  
12 standards at the time of occupancy.

13           The residents of our facilities who fall  
14 within these guidelines generally all have jobs and  
15 go to work. They include preschool teachers, retail  
16 and restaurant workers, entry-level firefighters,  
17 hotel workers, folks that work at the rent-a-car  
18 companies, government office workers, nurse's aides at  
19 the hospital, important people who make our community  
20 function and make our lives better than they might  
21 otherwise be, and folks we want to be able to keep in  
22 our community rather than having them leave us.

23           This is a site plan of the property showing  
24 the location of the various buildings. As you can  
25 see, the property runs along Kahekili Highway and is

1 relatively long and narrow.

2 And here's a rendering of the typical  
3 elevation of a building in the project. These are  
4 two-story buildings which will not obstruct any views  
5 enjoyed by neighboring properties. It is noteworthy  
6 that the Urban Design Review Board found these to be  
7 very attractive buildings, befitting of the location  
8 and setting.

9 Here are renderings of the resident  
10 clubhouse building, as well as the nonprofit building  
11 which will be utilized by MEO, and a landscape plan  
12 for the project. The landscape plan will have the  
13 project blending into the setting, and it will  
14 utilize many native plants and trees.

15 I'll now turn the next slides over to Peter  
16 Horovitz, an attorney who serves on the MEO board, to  
17 share information concerning claims that have been  
18 made and subsequently resolved pertaining to the  
19 property. Peter?

20 MR. HOROVITZ: Thank you. Good morning,  
21 Chair and members of the commission. My name is  
22 Peter Horovitz. I've been a board member of MEO for  
23 the past nine years, and I'm a practicing attorney in  
24 Wailuku. I've been practicing for about 27 years  
25 now.

1 MEO received the property about 16 years  
2 ago. And then in February of 2021, after the project  
3 was announced, some individuals moved onto the  
4 property and posted the sign that you see on the  
5 screen here claiming that the property or portion of  
6 it was part of Land Commission Award 3386 to Pehuino  
7 and that they were heirs of Pehuino.

8 Go to the next slide, please.

9 In my work, I do a lot of land use and real  
10 estate development. I'm fairly familiar or very  
11 familiar with land commission awards and property  
12 titles in general in Hawaii.

13 I did research on our property which you  
14 can see the picture in the upper left as well as the  
15 land commission awards -- award to Pehuino. Those  
16 are identified in the picture on the lower right.

17 They're about a mile and a half or two  
18 miles away from each other, not contiguous at all. I  
19 researched and found the original awards which are  
20 available -- the OHA website, or they have a very  
21 good database that they maintain that I actually  
22 obtained the original awards themselves.

23 I reached out to the persons who were  
24 claiming to be heirs of Pehuino and wrote them a  
25 letter, provided them with all the research as to our

1 title -- which if you can go to the next slide,  
2 please -- which dates all the way back to  
3 King Lunalilo on our portion. And I provided them  
4 with the research to our land as well to where the  
5 actual awards to Pehuino were.

6 We made no claim as to whether or not they  
7 were actually deed heirs to Pehuino. They may well  
8 have a claim to the three parcels of land that are  
9 closer down to the ocean. But in my research, there  
10 was clearly no claim to -- to our property. And we  
11 asked them to please vacate the property, which,  
12 unfortunately, they did not.

13 Go to the next slide.

14 So what then occurred is, unfortunately,  
15 MEO had to bring a suit to -- to remove the persons  
16 from the property.

17 At issue -- what they claimed in the case  
18 was, okay, there were three awards, apanas, that were  
19 issued to Pehuino that were indeed where we said they  
20 were, but there was a lost fourth apana to Pehuino  
21 that no one had written about.

22 So that was really the issue in the case.  
23 They made various counterclaims to that effect.

24 You can go to the next slide, please.

25 So what happened in the court case? There



1 were evidentiary hearings. The court took evidence  
2 from us. The court took evidence from the claimants  
3 who were represented by counsel, and the court found  
4 definitively that there was no evidence of any lost  
5 apana to Pehuino and that no such apana or awards to  
6 Pehuino existed within the MEO property.

7 The court then issued orders allowing us to  
8 remove persons who were claiming through Pehuino from  
9 the property which -- which we did.

10 There were remaining counterclaims of  
11 ownership through Pehuino that the claimants had  
12 brought on their own through counsel. And through  
13 counsel they dismissed -- they agreed to dismiss  
14 those claims with prejudice which means that they  
15 cannot bring those claims again in court.

16 Again, this does not impact their potential  
17 claims to the three apana that are closer to the  
18 ocean which we never took any position on, nor would  
19 we. But they cannot -- the issue of whether or not  
20 there is an award to Pehuino within the MEO property  
21 has been definitively decided by the court. The  
22 appeals period has run, and the claims that they  
23 brought as counterclaims, they agreed -- by  
24 agreement, dismissed with prejudice and cannot refile  
25 them. Thank you.

1 MR. CHUN: Thank you, Peter.

2 Madam Chair, we have Trevor Yucha from  
3 Cultural Surveys Hawaii who will just briefly share  
4 some archaeological and cultural background  
5 concerning the property.

6 Trevor?

7 MR. YUCHA: As part of the project's  
8 environmental review process, Cultural Surveys  
9 assisted with the SHPD archaeological review process  
10 and reviewed potential impacts to ongoing cultural  
11 practices.

12 We started by reviewing past land use of  
13 the parcel which included commercial sugar cane  
14 cultivation, a plantation railroad corridor, and a  
15 large mac nut -- macadamia nut farm. The  
16 agricultural use of the project site through the  
17 years would have included widespread plowing and  
18 excavation.

19 During the construction of the adjacent  
20 Waiehu Heights neighborhood, the project site was  
21 used as a construction baseyard. The construction of  
22 Waiehu Heights did expose several historic burials  
23 within the adjacent sand dune. Therefore, the  
24 current project was designed to avoid excavation into  
25 the sand dune.

1           To address potential cultural impacts to  
2 the project, we conducted a cultural impact  
3 assessment that relied on -- heavily on community  
4 input. The consultation process included five months  
5 of outreach to 73 individuals in groups. Through  
6 this process, no ongoing cultural practices or  
7 cultural impacts were identified.

8           Recommendations in the study included  
9 protocols for contacting the state and recognized  
10 descendants in the event of significant findings  
11 during construction. The project was subject to an  
12 archaeological inventory survey in 2008 with no  
13 findings.

14           In 2020, as part of the HRS 6E consultation  
15 process between the county and SHPD, the SHPD again  
16 agreed with archaeological monitoring as the next  
17 step in the process. And in 2021, the SHPD accepted  
18 the project's archaeological monitoring plan which  
19 includes the protocols for contacting SHPD and Maui  
20 police in the event of any significant findings.

21           I would like to hand the presentation back  
22 to Grant.

23           MR. CHUN: Thank you, Trevor.

24           So to close, I'd just like to share that,  
25 as we all can see, the project has been in the works

1 for quite some time now, and so it has been the  
2 subject of quite a few community and agency meetings.

3 It has already received its Chapter 2.97  
4 approval so, to a certain extent, this request is a  
5 housekeeping request that would bring the state land  
6 use map into conformity with an already-approved use  
7 as well as into conformity with the Maui Island  
8 Plan's urban growth boundary.

9 It is noteworthy that the project has  
10 received recommendations for approval from the Urban  
11 Design Review Board, the Maui Planning Commission, as  
12 well as from the county Commission on Healing  
13 Solutions for Homelessness.

14 Our goal today is to move this application  
15 towards what we hope will be the council's  
16 affirmative action on the district boundary amendment  
17 request.

18 We appreciate your thoughtful and favorable  
19 consideration of this request. Thank you for your  
20 time.

21 CHAIR PALI: Okay. Thank you. So we just  
22 have a few minutes with our director of housing, and  
23 I just want to -- I'm sorry, executive -- what's your  
24 official title? I'm so sorry.

25 DIRECTOR TSUHAKE: Director.



1 CHAIR PALI: Director, okay. So,  
2 commissioners, I want to give you an opportunity not  
3 to (no audio) public testimony but to answer -- ask  
4 any clarifying questions that you might need from her  
5 before she leaves at 11:00. So, specifically, I just  
6 want to open up questions from commissioners for our  
7 director of housing while she's here.

8 Any questions for her? I've got a couple.

9 Can you give us an idea -- and you may or  
10 may not have this at the top of your head here --  
11 this is one of how many projects in the next couple  
12 years that could potentially come to fruition?

13 Do we have a ton of them coming up in this  
14 range, in this affordability for these categories?  
15 Because I do see we're -- this build is for the lower  
16 AMI, 60 percent and below.

17 Off the top of your head, would you know  
18 how many other projects that could be coming to  
19 fruition in the next couple years?

20 DIRECTOR TSUHAKEO: Thank you, Madam Chair.  
21 The answer is not many. I can think of one project  
22 that is being led by Catholic Charities which is on  
23 the site of the old swap meet across the street from  
24 McDonald's. That's still pending some review within  
25 the county.

1           And that would, I think, add approximately  
2   300 housing units for families at the same area  
3   median income level as this, but there's not the  
4   multitude of projects, especially those that would  
5   address 60-percent-and-below AMI populations.

6           CHAIR PALI: Okay. I feel like -- now,  
7   commissioners, as I'm giving you an opportunity to  
8   ask questions, please remember that council -- this  
9   has been an approved project, and we don't have any  
10   real teeth today other than just recommendations  
11   because we are not the final authority on this  
12   boundary amendment. We are just giving a  
13   recommendation, and council will make the final.

14           So I want to make sure we're all in the  
15   right headspace as to what our purview is today. But  
16   you can still ask questions if you need more  
17   clarification on whether you want to recommend  
18   approving this boundary amendment or not approving as  
19   far as a recommendation only. But either way, we do  
20   not have the final authority on this. Okay. So  
21   sorry, I'll continue.

22           My only other question is -- you did  
23   mention in your presentation the traffic. And, you  
24   know, I suspect -- I think I remember seeing traffic  
25   studies and different things, but I do know it's a

1 real thing.

2 And can you just briefly summarize, like,  
3 what you believe -- was there a particular mitigation  
4 or is there going to be improvements? Is there going  
5 to be more awareness as far as like crosswalks and  
6 stop signs to help with the traffic issue?

7 Because my son lives over there, Malaihi --  
8 he lives up Malaihi. And so he has to take baby to  
9 the school; now he has to go further in and then out.  
10 So he goes further in deeper and then comes out. So  
11 we often have already some traffic on that lower  
12 road.

13 Can you just address real quickly?

14 DIRECTOR TSUHAKE: Thank you, Madam Chair.  
15 I'm not an expert on traffic mitigation --

16 CHAIR PALI: Okay.

17 DIRECTOR TSUHAKE: -- but I can say that  
18 the resulting impact to traffic was one topic that  
19 was discussed extensively, both during the 2.97  
20 hearing at the council and afterward within the  
21 county administration.

22 I think Mr. Chun's consultant may be able  
23 to give you a more --

24 CHAIR PALI: Okay. I'll go get him later  
25 then. I'll table that for him later.

1 Any other questions for the director of  
2 housing? Commissioner Lindsey.

3 COMMISSIONER LINDSEY: Aloha, Director. I  
4 had questions regarding the 60 percent AMI.

5 Do you -- in your expertise, do you feel  
6 that is the most -- is that a more-needed category?  
7 Is this appropriate for the area and the need in that  
8 category?

9 Would it be better used for a different  
10 category? What are your thoughts on that?

11 DIRECTOR TSUHAKEO: Thank you, Commissioner.  
12 I appreciate the question.

13 The need is definitely there at 60 percent  
14 AMI. These -- as Mr. Chun noted in the presentation,  
15 the people who potentially can be housed at Ke Kahua  
16 include people who work at Jack in the Box as their  
17 sole source of income or perhaps even seniors who are  
18 living on fixed income.

19 So in terms of a larger housing spectrum,  
20 the real answer is that we need housing at every  
21 level of that AMI scale in order to really meet the  
22 needs of our community.

23 So we cannot -- for example, we cannot just  
24 build at 60 percent AMI. We need to build, you know,  
25 between actually even lower than 60 percent AMI and



1 then all the way up to 140 percent of area median  
2 income in order to really meet the need that exists  
3 in the community for housing.

4 COMMISSIONER LINDSEY: I agree with you in  
5 that we probably are at a huge deficit -- we are at a  
6 huge deficit in housing, and housing at any -- will  
7 alleviate the others. Thank you for your answer.

8 CHAIR PALI: Great. Any other questions,  
9 commissioners? Okay.

10 COMMISSIONER HELEKAHI-BURNS: I do.

11 CHAIR PALI: Oh, okay.

12 COMMISSIONER HELEKAHI-BURNS: You know, I  
13 just kind of want to get more clarification on what  
14 really the title -- so I can be able to address the  
15 right questions to the -- to you, whether or not  
16 you're just housing which is the housing shortage  
17 that we have or is this housing in -- in a way  
18 that -- in a way of the development of housing, you  
19 know what I mean? More of the construction, the  
20 policies, the things that you look at before housing  
21 is considered or if a place is considered a good fit  
22 for housing.

23 And this is the reason why. You know,  
24 there was a -- one of these letters that was sent in,  
25 one of the written testimonies -- and, you know, I'm

1 not familiar with the Waiehu area. Like I do go out  
2 to the Hawaiian Homes area out there, so I do know  
3 you need to take that beach road and then eventually  
4 it goes up to -- I guess that's Kahekili that goes  
5 down towards where the Hawaiian Homes is.

6 But, you know, I realize that's like a  
7 major bottleneck in that area. There's a lot of  
8 housing. There's a lot of houses. There's a lot of  
9 neighborhoods in that area.

10 And some things that we need to really  
11 consider right now which I'm thinking -- I'm  
12 surprised that we're not considering it because we  
13 had just got one nice wild, you know, reality check  
14 on the way that we have developed our lands here in  
15 Maui. And we cannot contribute to the same way we  
16 have done it before.

17 So let's look at the -- you know, I'm  
18 weighing this. I know our island need housing. I  
19 know that with the new upcoming situation that's  
20 coming.

21 But what is, like, the evacuation route?  
22 Is that something that we as -- we as the  
23 commissioners would address this person who is the  
24 director of housing? Is this something that she  
25 would answer?

1 CHAIR PALI: Okay. All right. I'm going  
2 to interrupt you --

3 COMMISSIONER HELEKAHI-BURNS: Okay. Go  
4 ahead.

5 CHAIR PALI: -- because there's a lot of  
6 different questions, and you made a lot of different  
7 statements. And I just want to, for the record,  
8 state -- and you can agree, please, that you're not  
9 deliberating in your assessments because we cannot  
10 deliberate. That would be out of our --

11 COMMISSIONER HELEKAHI-BURNS: Yes.

12 CHAIR PALI: Yeah, because we have not  
13 heard full record yet. But in your thoughts, you  
14 posed several questions. I don't know that any of  
15 them fall under the housing purview, but I'll just  
16 make sure that Lori can chime in on that.

17 And then what you can do is after we hear  
18 the full record, take testimony, then you can write  
19 those questions down, and we can have Mr. Chun and  
20 his team answer those if that falls under his  
21 purview. Okay?

22 COMMISSIONER HELEKAHI-BURNS: Okay.

23 CHAIR PALI: Do you want to just validate  
24 if there's anything there that you think you would be  
25 able to answer?

1                   DIRECTOR TSUHAKE: Thank you, Madam Chair.  
2 I don't think there is. I think those questions are  
3 kind of more global and then more specific to  
4 emergency management.

5                   CHAIR PALI: Okay. Yeah, that's right. So  
6 we'll table those and have those -- we'll come back  
7 to those questions.

8                   Any other questions? I think she's got to  
9 leave here. Any final questions for housing  
10 specifically?

11                   One last question, do you have -- do you  
12 keep a list -- do people that need affordable  
13 housing -- do they come to you and say, hey, I am in  
14 desperate need of affordable housing, and do you keep  
15 this, like, rolling list or do you just -- with all  
16 the data you collect, you know that X amount of  
17 families are in need right now?

18                   DIRECTOR TSUHAKE: Thank you, Madam Chair.  
19 The department is currently working on an electronic  
20 platform, a data collection platform --

21                   CHAIR PALI: Nice.

22                   DIRECTOR TSUHAKE: -- that will allow for  
23 people who are interested in looking for affordable  
24 rentals or for-sale homes to actually put their names  
25 on a list. We're working through some of the



1 confidentiality issues and the actual sheer number of  
2 potential projects; right?

3 So we don't want to put a project on that  
4 list and say, hey, this might be available, sign up,  
5 until all of the boxes are checked, then we can vet  
6 those projects. But I believe it's Bill 111 that was  
7 passed by the county council that actually makes that  
8 a requirement for the department --

9 CHAIR PALI: Wonderful.

10 DIRECTOR TSUHAKE: -- to create that venue  
11 for that information.

12 CHAIR PALI: I know we've seen numbers of  
13 people on the west side that are now needing housing  
14 even before all that happened.

15 What would your best guess be of how many  
16 housing -- affordable housing units are needed to  
17 service Maui County right now?

18 DIRECTOR TSUHAKE: I'm not exactly certain,  
19 but I have heard figures tossed around that we  
20 potentially may have lost 2,000 housing units in  
21 Lahaina due to the fire. And so there would be at  
22 least 2,000 households then who would need to be --  
23 who are actually displaced by the fire.

24 If you layer that on top of an already  
25 challenged housing market, it just exacerbates

1 everything. So the housing units that are available  
2 on the west side are in higher demand, and even the  
3 housing market, Central and South Maui and even  
4 Upcountry actually have been challenged.

5 So it's going to be really hard for us to  
6 work on interim housing and long term, but the  
7 mayor's Office of Recovery has actually a working  
8 group that's working on that being led by my Deputy  
9 Director Saumalu Mataafa and Wendy Taomoto from the  
10 Department of Public Works. So they have a very  
11 heavy lift.

12 CHAIR PALI: Okay, great. Thank you so  
13 much. Thank you for your time.

14 DIRECTOR TSUHAKEO: Thank you very much,  
15 Commissioner.

16 CHAIR PALI: So we will proceed with public  
17 testimony. And so if you are listening online or you  
18 can hear my voice, we are on Item B2, and we're going  
19 to open for public testimony. And we're not going to  
20 just close public testimony, so if you didn't get to  
21 put your name in or you didn't get to chime in, I'm  
22 going to give an opportunity at the end for anyone  
23 else that hadn't had a chance to sign up.

24 And, again, please, testifiers, you'll have  
25 three minutes. Director will help us with that

1 timing, and Carolyn. And once you hear the buzzer  
2 and are notified that your three minutes are up,  
3 please finish your sentence respectfully and then  
4 hold to see if there is any other questions for  
5 clarification.

6 Commissioners, I want you to put your  
7 listening ears on and gather data, write questions  
8 that you also might feel if a testifier brings  
9 information to you that you realize that you would  
10 like to know the answer, write down your questions.  
11 And then we'll be able to continue after public  
12 testimony to ask more questions on the applicant.

13 And keep in mind all of this with the  
14 intent that after we deliberate and after public  
15 testimony, that we would simply send a recommendation  
16 up to council who will be the final authority on this  
17 already-approved project, specifically it's a  
18 district boundary amendment.

19 MR. HOPPER: Chair, just to clarify, while  
20 the 2.97 has been approved, the district boundary  
21 amendment has not been --

22 CHAIR PALI: That's right, has not.

23 MR. HOPPER: -- and that is required to  
24 move forward with the project. So just to keep that  
25 in mind.

1 CHAIR PALI: Thank you.

2 MR. HOPPER: You're making recommendation  
3 on that, so the commission's not approving that. But  
4 just for the record, that's still a --

5 CHAIR PALI: Okay. So project's approved,  
6 but they need this amendment to continue forward?

7 MR. HOPPER: Yes, to be consistent with the  
8 state district classification.

9 CHAIR PALI: Okay. And we're going to be  
10 recommending that to council for final approval?

11 MR. HOPPER: That's correct.

12 CHAIR PALI: Okay. We're all square on  
13 what our role is.

14 So we will go -- and this is online --  
15 well, actually, these guys were here first. Let me  
16 go with the people who have been waiting so  
17 patiently. So we're going to go to the gallery.

18 And, David Hoffman, if you can state your  
19 name so we can get you on record, and then your three  
20 minutes will start.

21  
22 David Hoffman testified as follows:

23 MR. HOFFMAN: Thank you, Chair. Thank you,  
24 Planning Commission. Thank you, my friends at MEO.

25 My name is David Hoffman. I've been living



1 in Waiehu for 25 years.

2 The Maui plan has clearly identified this  
3 area as protected prime ag land. Ignoring that plan  
4 is planning to fail those who put that much time into  
5 those studies. They took years to do.

6 The rainfall studies used for this project  
7 and other projects in the area do not address the new  
8 reality of climate influence and rain bombs. This  
9 property has a history of flooding. The building  
10 proposed at the bottom of the property sits right  
11 where it floods.

12 The single culvert under the highway would  
13 not be able to handle it, either undermining or  
14 overtopping the highway. The repair costs could  
15 exceed the tax revenues generated. Roadways are at  
16 or near failure already.

17 My understanding of the traffic studies for  
18 this project and the WRC property across the highway  
19 are either dated or may have been conducted during  
20 COVID, yet LOSF (phonetic) and overcapacity are  
21 clearly identified. Turning a blind eye to a  
22 conclusive overview of all issues and all input under  
23 the guise of dotting i's and crossing t's is not good  
24 stewardship. Roadway improvements have little  
25 options or are cost prohibitive.

1           The Imi Kala extension which was promised  
2 prior to Wailuku Country Estates being approved, yet  
3 it went through along with four Waiehu Kous. The Imi  
4 Kala extension would require signals at Mill Street,  
5 yet the county says there's no room. Imi Kala  
6 extended to Lower Main requires land acquisitions  
7 from St. Anthony's. Bridge estimates run from 30 to  
8 40 million dollars up to \$80 million all told.

9           I've been told some areas of Central Maui  
10 have no sewage transmission lines to Kahului so they  
11 don't want a land swap and move these kind of  
12 properties into Central Maui. Well, it would cost a  
13 lot less to put a sewage transmission line for  
14 somewhere in Central Maui than \$80 million.

15           Civil Beat article of September 17th of  
16 this year outlines cries of housing, crises (sic)  
17 going back over 50 years. Housing has always been in  
18 crisis, so "the sky is falling" is no excuse for  
19 proper urban planning.

20           A final note on overcapacity, theaters,  
21 restaurants, and the Lanai Ferry cannot exceed  
22 capacity for the safety and well-being of everyone.  
23 Urban planning should be no different.

24           Stop all development north of the  
25 Iao Stream until these issues are fully resolved.

1 There's no other option, or you're endangering the  
2 lives of everyone there. If you approve this project  
3 without resolving these issues, you will be planning  
4 to fail.

5 Thank you very much for your time.

6 CHAIR PALI: Okay. Hold still.

7 Commissioners, any questions for David?

8 Very clear testimony. Thank you.

9 MR. HOFFMAN: Thank you very much.

10 CHAIR PALI: Oh, well --

11 COMMISSIONER HELEKAHI-BURNS: Yes, Fawn.

12 CHAIR PALI: Oh, Helekahi -- okay. Hold on  
13 one second. Helekahi-Burns, go for it.

14 COMMISSIONER HELEKAHI-BURNS: Thank you,  
15 David, for your testimony. As I could see from the  
16 map, I seen that is quite urban and quite developed,  
17 and I know that place.

18 So in times of -- and you obviously, you  
19 know, reside in that area. At times of emergency,  
20 especially like when we have -- we've had tsunami --  
21 tsunami threats couple time within, like, the last  
22 ten years, and did you or have you ever been in a  
23 situation where evacuation of, like, Waiehu Kou and  
24 all of Paukukalo had taken up the streets?

25 CHAIR PALI: Before you answer,

1 Helekahi-Burns, I'm going to help you restructure the  
2 question so that we follow format because I don't  
3 want new questions answered.

4 So, David, you mentioned that there could  
5 be a safety issue in regards to the location and the  
6 population of people.

7 Can you further clarify what you meant by  
8 that and if there's any reference to emergencies in  
9 the past that may have caused you to believe that  
10 putting more people in this particular area would be  
11 a danger for all people? Can you clarify that,  
12 please?

13 MR. HOFFMAN: There's two answers to that  
14 question. The first is the worst part of the traffic  
15 backups and the failing of the intersections leading  
16 out. There's only two outlets out of that area over  
17 the Iao Stream. Both of those will back up to  
18 intersection -- to LOSF on a regular basis during the  
19 morning commute hours and sometimes on the evening  
20 commute hours.

21 Regarding emergencies, the only times I've  
22 seen it impossible to get out of there has been when  
23 there's an accident. And since -- because the  
24 tsunami experience, you get four or five hours'  
25 notice. A fire or something like that, it would be



1 gridlock.

2 And I don't see any other option. People  
3 from Lahaina recommended I buy myself an electric  
4 bicycle because you won't be able to get out with a  
5 car.

6 The bottom line is these intersections are  
7 already failing. There is no alternative; and until  
8 you have one, you're just piling more and more people  
9 on.

10 Think of the Lanai Ferry. If there's only  
11 100 people allowed on it, would you throw another 30,  
12 40, 50 people on it?

13 It's not just this project. There's  
14 numerous projects scheduled for north of the  
15 Iao Stream. You must look at the entire area in its  
16 entirety when you're making recommendations for  
17 zoning changes.

18 CHAIR PALI: Thank you. Did that answer  
19 your question, Helekahi-Burns?

20 COMMISSIONER HELEKAHI-BURNS: Yes. Thank  
21 you so much.

22 CHAIR PALI: Commissioners, any other  
23 questions for the testifier?

24 COMMISSIONER KEALOHA: I have a question.  
25 This is Andrea.

1 CHAIR PALI: Yes. Go ahead, Ms. Kealoha.

2 COMMISSIONER KEALOHA: I think you may have  
3 gone by this quickly or I missed it, David.

4 Did you say that you believe the traffic  
5 study was conducted during COVID?

6 MR. HOFFMAN: I'm not very good at reading  
7 the EAs. I only read this particular project's EA  
8 yesterday, and I saw the dates on the traffic studies  
9 as '20 or '21. The WRC property across the street  
10 was done in 2015, so it's fairly dated.

11 COMMISSIONER KEALOHA: Okay, thank you.

12 CHAIR PALI: Thank you for clarifying.

13 MR. HOFFMAN: I may be wrong about when  
14 that was done. I'm sure they could clarify. Thank  
15 you very much.

16 CHAIR PALI: Commissioners, any questions  
17 for this testifier? Seeing none, thank you, David.

18 MR. HOFFMAN: Thank you.

19 CHAIR PALI: We'll go to George here in the  
20 galley. You can state your name for the record, and  
21 you have three minutes.

22

23 George Paresa, Jr. testified as follows:

24 MR. PARESA: Good morning. My name is  
25 George Paresa, Jr. I'm president of the Waihee

1 Community Association. We've met with the developing  
2 group for this project one, two, three times, I  
3 believe, and it was interesting. A lot of things  
4 were exchanged.

5 People in our community do not want more  
6 housing. It's a give and take; we all understand  
7 that.

8 The big issue we have is through past  
9 experiences because there's lack of infrastructure,  
10 the choice of prime land over housing. I think the  
11 most recent thing about this development was the fact  
12 that the county did propose an exchange for the  
13 properties with a subdivision that already has  
14 infrastructure in Puunene. If I'm wrong, I stand  
15 corrected.

16 We go back to smart planning. We go back  
17 to what's happened to Maui County the past year, and  
18 are we doing a right choice to go ahead with this  
19 project?

20 It's unfortunate when you look and you read  
21 the studies -- a good example was the so-called  
22 traffic study that they did for this development.  
23 Well, it was funny because the people say -- well,  
24 let me rephrase that. The engineer said, well, we  
25 did a study. We sat so many hours during the day

1 trying to calculate traffic.

2 Well, traffic volume is up in the morning  
3 and in the evenings. To the midday, no. It doesn't  
4 take a rocket scientist to figure out, hey, why are  
5 the public questioning their methodology of collecting  
6 the information? You understand what I'm saying?  
7 And it's unfortunate, but the residents of the area  
8 that we're in -- we're now -- we're from, we  
9 experienced all these things.

10 I remember three years ago, four years ago  
11 when they redid the bridge by Sack N Save, the  
12 Iao-Wailuku Stream and the Honolulu, Oahu -- Honolulu  
13 engineers, the state, whatever, come to Maui,  
14 approach the community and says, boom, boom, boom,  
15 boom, boom. And we try to interject and say, no, you  
16 can't do this because, well, this is not Oahu.

17 That's the impression we have as Maui  
18 residents. I mean, on Oahu, they work 24/7, get the  
19 job done, and not interfere with traffic. But we're  
20 on a neighbor island. Sorry, but this is going to  
21 take me a while, but anyway.

22 In reality, what happened? They started  
23 the plan. They shut down the bridge. They ended up  
24 rerouting everything, and it was a big fiasco for  
25 about two, three days.



1           They finally -- I guess the light came on,  
2 and they said, okay, we got to change our methodology  
3 of doing this. They created a --

4           CHAIR PALI: I'll have you just finish your  
5 sentence since your time is up.

6           MR. PARESA: I'm sorry?

7           CHAIR PALI: You had your three minutes, so  
8 I'll have you just finish your sentence. I  
9 apologize.

10          MR. PARESA: Okay. I just want to conclude  
11 was that they didn't listen to what we wanted because  
12 of our experience (no audio) that was offered by the  
13 county for a swap with infrastructure, and it was  
14 turned down. I rest my case.

15          CHAIR PALI: Okay. Stay there. Stay  
16 there. Thanks for your testimony, George.

17          Commissioners, any questions? Commissioner  
18 Lindsey.

19          COMMISSIONER LINDSEY: You said you  
20 represent the Waihee Community Association? Is that  
21 what you --

22          MR. PARESA: Yes.

23          COMMISSIONER LINDSEY: About how many  
24 members is represented with you?

25          MR. PARESA: Say that again?

1 COMMISSIONER LINDSEY: About how many  
2 members are you representing through your Waihee  
3 Community Association?

4 MR. PARESA: Membership has fluctuated.  
5 We -- are you asking me the active membership or the  
6 passive membership? Because there's a big  
7 difference.

8 COMMISSIONER LINDSEY: I'm asking you how  
9 many members are you representing today? You can --

10 MR. PARESA: Association, top of my head,  
11 between 90 and 100 members.

12 COMMISSIONER LINDSEY: Thank you.

13 MR. PARESA: You're welcome.

14 CHAIR PALI: Any other questions? Vice  
15 Chair? Thank you.

16 VICE CHAIR THAYER: Follow-up question to  
17 that, where in Waihee do all your members live? Is  
18 it all the way (no audio) community?

19 MR. PARESA: Are you --

20 VICE CHAIR THAYER: I guess it's just all  
21 scattered around Waihee is where your community  
22 association members --

23 MR. PARESA: The community association  
24 boundaries is from Lower Waiehu up to Maluhia.

25 VICE CHAIR THAYER: Okay. Got it. Thank

1 you.

2 CHAIR PALI: Does it include Maluhia? Does  
3 it include Maluhia?

4 MR. PARESA: I still cannot understand you.  
5 I'm sorry.

6 CHAIR PALI: That boundary, can you just  
7 repeat the boundary?

8 MR. PARESA: Yes. The boundary is  
9 approximately from where Waiehu Kou 1 starts and it  
10 goes north towards -- from Maluhia down to the  
11 shoreline.

12 CHAIR PALI: Got it. Any other questions,  
13 commissioners? Okay. Seeing none, thank you.

14 MR. PARESA: Thank you.

15 CHAIR PALI: I think the next person is  
16 Johnson, last name Johnson? Okay. Lala?

17 MS. JOHNSON: Yes.

18 CHAIR PALI: Okay. State your name for the  
19 record, and then you have three minutes.

20  
21 Lala Johnson testified as follows:

22 MS. JOHNSON: Okay. Aloha, my name is Lala  
23 Johnson of Waiehu. I'm a lineal descendant.

24 I oppose this action that Kathleen  
25 Ross Aoki is initiating, a DBA, district boundary

1 amendment, from the state agricultural district to  
2 state of urban district for the proposed Hale Mahaolu  
3 Ke Kahua Affordable Housing Community that consists  
4 of 120 rental units in 13 two-story buildings, and  
5 these are my reasons.

6 One, there's -- there is a title issue that  
7 has not been solidified. The case where we were in,  
8 as you saw with MEO, was a trespassing issue and not  
9 land issue which should have been done in the land  
10 court and not in the criminal court.

11 As Lance Collins, who has represented  
12 kanaka maoli clients in disputes and reviewed the  
13 court documents and proceedings, said, this was an  
14 unusual case for it did not legally affirm the  
15 organization's title to the land and did not include  
16 the potentially dozens of other family members who  
17 could not yet -- who could yet be challenged to their  
18 claim.

19 So one -- for one thing, he says I was  
20 deemed to have a trespass non-criminally, and they  
21 did not prove that their entitlement to the  
22 possession was superior to us. So in order to do  
23 this, either side would need to seek what is known as  
24 a quiet title action, a legal proceeding to determine  
25 ultimate, enforceable, legal title to a property.



1           If this action to rezone to urban -- and  
2 they begin construction, it would leave them  
3 vulnerable to some point challenging their claims to  
4 ownership. So if they don't have a quiet title,  
5 there's a risk of liability.

6           So I also wanted to mention -- I urge the  
7 planning committee to turn their attention to the  
8 archaeological, historic, and cultural resources  
9 section that's located on Page 20 of the report  
10 regarding the cultural impact statement.

11           The CIA made an effort to reach 73 Hawaiian  
12 organization agencies and community members as well  
13 as culture and lineal descendants, but only four  
14 responded. This is an insubstantial and unacceptable  
15 amount of community feedback. As a lineal  
16 descendant, I expect and request that the team to  
17 prioritize networking with the Waiehu lineal  
18 descendants and community members.

19           Also, secondly, as a lineal descendant of  
20 the ahupua'a of Waiehu, I urge the county to defer  
21 all monies for the Hale Mahaolu Ke Kahua Affordable  
22 Housing Project directly toward assisting the people  
23 of Lahaina in this dire times. Efforts should and  
24 will be made to create solidarity within the  
25 Hawaiian, Filipino, and Pacific Islander communities

1 who are now houseless.

2 Lastly, the surrounding communities will  
3 eventually run into issues regarding water as it is a  
4 scarce source in the modern times due to  
5 overdevelopment and water mismanagement. According  
6 to the report, the average daily demand for water for  
7 the project is approximately --

8 (Timer ringing.)

9 MS. JOHNSON: -- 70,000 gallons per day  
10 which would equal 25 million gallons a year. The  
11 concoction of the water -- water management and  
12 intensified urbanization will lead to catastrophic  
13 and everlasting irreparable damages as we have seen  
14 in the Lahaina --

15 CHAIR PALI: I'm going to have you finish  
16 your sentence, please.

17 MS. JOHNSON: -- and Kula fires in August  
18 of 2023.

19 CHAIR PALI: Okay.

20 MS. JOHNSON: You do not want to risk  
21 putting more lives in danger with this urbanization.  
22 And I'm going to say this: I work -- I work --

23 CHAIR PALI: I'm sorry, but your time is  
24 up --

25 MS. JOHNSON: Okay. I'm going to -- but

1 may I say something real quick?

2 CHAIR PALI: -- so I would like you to  
3 actually stop speaking. No, you cannot. I -- you've  
4 been well over three minutes, and I would like you to  
5 end your sentence.

6 Now, there might be a question for you  
7 where you might have an opportunity to do so, but I  
8 can't allow you to continue.

9 MS. JOHNSON: Okay. It was just a due  
10 respect that I work also, and I sat there waiting.

11 CHAIR PALI: So respect comes in many  
12 levels --

13 MS. JOHNSON: Yeah. So --

14 CHAIR PALI: -- and it's given and taken  
15 from each of us. So I would like to give you that  
16 respect; that's why I let you go over. But when you  
17 go over the over, then there is no mutual respect.

18 So I would also challenge you, if you can  
19 just stop for a minute, let me see if there's other  
20 commissioners with questions, and you might be able  
21 to finish, but I can't let you proceed. Thank you.

22 Commissioners, do you have any questions?  
23 Seeing none, thank you.

24 MS. JOHNSON: So can I just say something?  
25 Because I had the grace of waiting for a period of

1 time for the commissioner. So I just wanted to have  
2 that --

3 CHAIR PALI: I respect that. It's just  
4 that everyone else is going to then need that same  
5 time. And as volunteers five years later, it's  
6 everyone gets the same amount. So if I give that to  
7 you, then I almost have to go back and give everyone  
8 else today that needed more time, and future, and  
9 it's just not fair.

10 That's why we give you the opportunity to  
11 know that you have three minutes, and that's been a  
12 consistent policy for -- for years. Everyone  
13 knows -- testifiers know you get three minutes. So  
14 you had an opportunity to dwindle down your testimony  
15 within three minutes prior to even getting here  
16 today.

17 And I really want you to be able to speak  
18 for another ten minutes. I actually appreciate what  
19 you have to say, but I have to keep order.

20 MS. JOHNSON: So ask me questions, because  
21 I have a lot to say, is what I'm trying -- you said  
22 that I would be able to say more if they asked  
23 questions.

24 CHAIR PALI: Yes, but they did not, which  
25 also sends a message. They didn't. So I'm so sorry,



1 but your time is up, and I have to be firm on that.

2 Thank you.

3 MS. JOHNSON: Thank you.

4 CHAIR PALI: Okay. Next testifier we have  
5 is Jocelyn Costa. You can state your name for the  
6 record. Your three minutes will start when you start  
7 talking.

8  
9 Jocelyn Costa testified as follows:

10 MS. COSTA: Mahalo. My name is Jocelyn  
11 Costa. I belong to a group called Hui Pono 'Ike  
12 Kanawai that studies the laws of the Hawaiian  
13 Kingdom.

14 So such as yourselves, we were never really  
15 exposed to the true Hawaiian history. And my  
16 understanding of several presentations on the council  
17 floor, they have been well-informed through Dr. Keanu  
18 Sai, a gal named -- her name escapes me -- Kaleikoa  
19 Kaeo, Kahele Dukelow, to name a few.

20 My journey began learning in depth in about  
21 2004. Ironically, as an alumni of Kamehameha School,  
22 I didn't learn it. It took me that long to figure it  
23 out.

24 So I wanted to inform you that in 2005, I  
25 started to, as I was understanding it, challenge

1 certain landholdings. And in 2006, I was arrested  
2 for criminal trespass on the property just across the  
3 street from this project which also holds the title  
4 of Lunalilo 8559B.

5 The result of that case reduced to simple  
6 trespass which was the old Hale Moa (phonetic)  
7 project that is no longer in existence since our  
8 stand there in 2004. The case was dismissed with  
9 prejudice for all 16 of us who were arrested, for a  
10 simple trespass could not even stick.

11 So when the developer -- it was interesting  
12 that this developer is saying that they own this  
13 property that is from Lunalilo 8559B because I have  
14 done extensive research on Lunalilo's title.

15 And the title that came from Wailuku Sugar  
16 to Lunalilo was then adjudicated in court that their  
17 title through Lunalilo's father was a life estate  
18 which then extinguished when his father passed away  
19 and went back to the trustees of Lunalilo. So how  
20 they have gotten this title since, I'm not sure  
21 because it has to go through the Supreme Court.

22 I'd also like to -- I would be remiss to  
23 not mention that because of the fires -- and I have  
24 also testified to this several times in front of the  
25 land commission, the LUC, when it was the Hale Moa

1 project, and it didn't pass. The land commission  
2 would not pass it.

3           Beside the fact that traffic is -- wait  
4 now -- but, of course, you already learn through  
5 that -- sorry, I'm skipping -- based on the fact that  
6 traffic is a problem, the schools are already to  
7 capacity, and as learned in August, our response  
8 agencies are already maxed out, we must rethink  
9 creating more clutter.

10           Water is also a major issue given there are  
11 several Kuleana families and Hawaiian homes in the  
12 immediate area that have first rights to water. So  
13 again, I would -- my suggestion is to recommend not  
14 to pass this project. There is really a lot of  
15 questions. Mahalo.

16           CHAIR PALI: Thank you. Commissioners, any  
17 questions? Okay. Commissioner Deakos?

18           COMMISSIONER DEAKOS: Thank you, Chair.

19           And thank you for your testimony today.

20           Can you just clarify -- I think you  
21 mentioned a quiet title. Is there a quiet title  
22 action that's in process now? You mentioned  
23 something about Supreme Court has to decide.

24           MS. COSTA: So when you -- when you open  
25 the door to say that you own a title such as

1 Lunalilo 8559B, it comes with the laws of the  
2 Hawaiian Kingdom. And so within the Hawaiian  
3 Kingdom, that particular title cannot be adjudicated  
4 actually through these courts.

5 And it is -- it is a legal matter  
6 because -- well, actually it's a political matter  
7 because now you're taking a country's title, from the  
8 Hawaiian Kingdom, Lunalilo, and now meshing it into  
9 another country, United States. And so no longer is  
10 it a legal matter, but it's a political matter. It's  
11 called the doctrine of political question.

12 So MEO claiming to own a title from the  
13 Hawaiian Kingdom now is in question. They had it in  
14 their presentation. You really need to consider that  
15 because it becomes a war crime.

16 COMMISSIONER DEAKOS: Okay. Thank you very  
17 much. Thank you for your testimony.

18 That's all, Chair.

19 CHAIR PALI: I have a clarifying question.  
20 (No audio) properly so it can be a clarifying  
21 question.

22 Okay. You're talking about title, so can  
23 you just clarify is it your desire that the applicant  
24 prove that there is a quiet title?

25 MS. COSTA: In the Hawaiian Kingdom, once a

1 title is quieted, which 8559B is, it can no longer be  
2 quieted. What they're trying to do is take a quieted  
3 title and quiet it again. It's impossible.

4 CHAIR PALI: I see. I see. Okay. So then  
5 going along that same vein, because your testimony  
6 validates that you believe they do -- they still do  
7 not have title, there is no proof of title, so  
8 what -- in your opinion, what would be required for  
9 them to finally prove that, hey, we do have title?

10 What does that look like? Because I think  
11 we're just seeing all these different things, and we  
12 (no audio) you know, so what would be the proof? Is  
13 there proof? Is there -- can you get to the proof,  
14 and how do you do that? In your clarification.

15 MS. COSTA: Thank you for the question. So  
16 I am testifying to you under penalty of perjury. I  
17 know that 8559B is the title to Lunailo, not to MEO  
18 or this project. I can -- I have done extensive  
19 research. I have all of the paperwork. I have his  
20 title. I have his will. That's what I -- my studies  
21 started with that.

22 So in my beginning testimony, I spoke about  
23 understanding our history. And because we've been  
24 separated from that true history, it's almost  
25 unbelievable to think that the -- the people of today



1 with TMKs own land when -- if they're going to bring  
2 the statement out that they own 8559B, then they have  
3 to open it up to all.

4 I have all the documents. If you'd like me  
5 to share it with you, I can provide it for you.

6 CHAIR PALI: Well, let me reword it this  
7 way. So you have your documents that you do say this  
8 is truth in the original system. It sounds like  
9 you -- you said that in your testimony. And then  
10 they have their documents which is then validated by,  
11 I guess, our new government; right? And then you  
12 said that there's -- seems like there's not a system  
13 that allowed them to merge.

14 So then what -- so then there's yours and  
15 theirs, and so I guess my question, again, is just  
16 going back to, like, then what proof from them, since  
17 they're the applicant, would we question them?

18 Like -- so what's helpful for testimony is that you  
19 guys give us good questions so then we can turn  
20 around and ask those questions to the applicant for  
21 clarification if we feel the burden of that question.

22 That is the best tool as a testifier,  
23 because we don't necessarily have the insight you  
24 have, but our job is to question the applicant and  
25 get that information from the testifiers. So it's

1 good to hear the concerns, that's first and foremost,  
2 but to translate them into good questions for us,  
3 that's what makes a good testifier for us. No matter  
4 where we lie, that helps us gather more data and  
5 clear things up.

6 So what could I ask to clear things up,  
7 other -- because your documents aren't part of this  
8 record today, I don't believe. And so what are good  
9 questions in regards to title that would be helpful  
10 to clarify or substantiate your testimony?

11 MS. COSTA: Thank you for that question.  
12 So because I know, and I've heard it in their  
13 presentation through Wailuku Sugar, I guess the  
14 question would be in what manner was Wailuku Sugar  
15 held to title, and was it through Lunaliilo's father,  
16 Kana'ina? Because if that is so, then I can show you  
17 that he only had a life estate and Wailuku Sugar then  
18 lost possession of that title.

19 CHAIR PALI: When he passed?

20 MS. COSTA: Correct.

21 CHAIR PALI: Got it. That's so helpful.  
22 Thank you.

23 Commissioners, any other questions? Okay.  
24 Great. Thank you so much. Okay.

25 Kaneloa, please proceed to the podium.

1 State your name for the record. And I know it's  
2 going to be tough, but you have three minutes.

3  
4 Kaneloa Kamaunu testified as follows:

5 MR. KAMAUNU: Aloha mai kakou. Kaneloa  
6 Kamaunu ko'u inoa. I am a lineal descendant, kuleana  
7 of Waihee Na Poko.

8 So with this incident, one, I agree that  
9 this project, as far as the designation that you want  
10 to do, is not a wise one because of the elements that  
11 haven't been taken care of which mainly is the  
12 traffic.

13 I grew up there my whole life. I know what  
14 it's like. I know all the variables. And the thing  
15 with the traffic, they tried to mitigate it years  
16 ago.

17 They were shut down because of land titles,  
18 and this is why they're stuck today. Because those  
19 two bridges are historical, they cannot do anything  
20 with them. So what is -- you have to address that.

21 Come down to the titles -- so I was one of  
22 them that they actually arrested that day. It was  
23 not the Maui Police Department, even though they took  
24 the action. It was a citizen's arrest done by the  
25 security company hired by Maui Economic Opportunity.

1           To be clear, the police officers that were  
2 there were in violation. It was a civil matter of  
3 the day. They blocked us from retrieving our  
4 personal items. They did not allow us on the  
5 property.

6           I asked them for a court writ; they had  
7 none present. They were taking direct orders from  
8 the security company. They were incorporated by Maui  
9 Economic Opportunity -- because I asked them -- I  
10 said, where is your court writ? And if you don't  
11 have one, I am allowed to take my property.

12           I had property that I was loaning to the  
13 family. They rejected me. They actually assaulted  
14 me that day. Then they ended up having me arrested  
15 on the false presences.

16           My case was not even heard. It was  
17 dismissed when I went to court. And all the things  
18 that he's saying that they had quiet title, there is  
19 none. It was a possessory case. There was nothing  
20 on title because that court cannot do title cases.

21           It is all about money. If they want a  
22 title case, they have to go to land court. That's  
23 state. If they are sure of their title, why haven't  
24 they taken that step?

25           But yet, twice they have used law

1 enforcement. Once before, they tried to use the  
2 sheriffs to mitigate and take us off the property.  
3 When I spoke to the sheriffs, I also asked them for  
4 their court writ. They had none.

5 They had a paper that was written by the  
6 attorney that's in MEO's board. They actually drew  
7 up some false papers. No court order was given, no  
8 stamp from the court, no judge's signature.

9 On this event, same thing. No court order  
10 writ, no judgment. And to let you know, because I  
11 work in law enforcement, the people that actually  
12 would evict us would be the sheriffs. But as you can  
13 see, because I talked to the sheriffs the year prior,  
14 they never came back.

15 The relationship between the security  
16 company that Maui Economic Opportunity hired was a  
17 retired -- was a retired ex-policeman. He hires  
18 police officers for his work at security. They were  
19 the ones present there.

20 I have an outstanding case with the Maui  
21 Police Department --

22 DIRECTOR AOKI: Three minutes.

23 CHAIR PALI: Finish your sentence. Finish  
24 your sentence.

25 MR. KAMAUNU: So I have an ongoing case



1 with the Maui Police Department, and so the thing is  
2 what this man was referring to is all lies. Thank  
3 you.

4 CHAIR PALI: Commissioners, any questions?  
5 Question for you. The definition of a  
6 court writ?

7 MR. KAMAUNU: Court writ is what is issued  
8 by the judge to take action. So if they actually had  
9 authority to take action, that letter of writ has to  
10 be produced.

11 CHAIR PALI: Kind of like a warrant?

12 MR. KAMAUNU: Yes. They would have to have  
13 the authority. It has to have -- they can't just act  
14 upon their own. They have to have the court --  
15 because he referred to the court said that they had  
16 full title.

17 CHAIR PALI: He did in his presentation.

18 MR. KAMAUNU: He did in his presentation.

19 If that was so, why was my court case  
20 dismissed?

21 CHAIR PALI: Thank you. Thank you for your  
22 time. Okay.

23 Looks like Alyson Barrows.

24 ///

25 ///

1 Alyson Barrows testified as follows:

2 MS. BARROWS: I'm Alyson Barrows, and I'm  
3 also a lineal descent of Waiehu-Waihee. And I'm here  
4 today to share a point and also to kind of clarify, I  
5 know MEO mentioned something about the cultural --  
6 that there was no cultural activity or sign of any  
7 kind of practice going on at that time.

8 And I do want to bring up something that I  
9 was involved in helping -- or actually invited to do  
10 a program with Maui -- MEO to -- to provide cultural  
11 activities at one time. And at that time, I was  
12 in -- e kala mai, I feel so nervous.

13 CHAIR PALI: It's okay.

14 MS. BARROWS: They were -- had asked as to  
15 what I was bringing to the table, and my expertise  
16 was with the ocean. At that time, the person then  
17 says, well, they're not connected to the ocean so  
18 thereby they couldn't see my purpose in being there,  
19 and I have to correct that.

20 So I want to recommend that they look into  
21 what cultural practices are; and it's not just having  
22 a structure of lo'is or haies or native plants and --  
23 they do have those things over there -- but it's also  
24 the connection to the ocean, and I have to clarify  
25 that with them that just because you're not connected

1 doesn't mean that you're not responsible for what's  
2 going on.

3           So when they want to go and look at it as  
4 part of a wetland, this is very essential. How can  
5 they say that they're not connected and yet still be  
6 part of a wetland? So that's the main point I wanted  
7 to bring up there.

8           And I am with the Waihee Limu Restoration,  
9 so I do the limu restoration down at Waihee and  
10 Waiehu as well. So these areas are very important,  
11 especially the streams.

12           And the streams at one time used to come  
13 down when there're big waters at MEO's site and which  
14 they also closed up one of the outlets that used to  
15 go down to there and made it smaller, forcing the  
16 water to now go through the main stream of Waiehu.

17           And that water, when they had big water  
18 coming down, that flooded Kahekili Highway, and that  
19 impacted the traffic and everything there. So I do  
20 support a lot those who spoke about evacuation; that  
21 is very essential, emergency evacuation and traffic.

22           MEO is aware of that because when they  
23 first started to bring the project, that was the two  
24 things that was brought up at that time. And to not  
25 have addressed it even at this time show that they

1 were not really looking into resolving this part. So  
2 I recommend that as well. Okay.

3 I also want to make a comment about  
4 affordable housing. I am supportive of affordable  
5 housing. We all know that we do need affordable  
6 housing, and so I'm a benefactor of that.

7 And I just want to say that it's important  
8 but not necessary where we are at right now. We have  
9 to deal with everything else and how it's going to  
10 impact the area. Thank you for your time.

11 CHAIR PALI: Thank you. One second.

12 Commissioners, any questions? We got a  
13 couple so you're going to be here for a minute.  
14 Looks like everybody's got a question for you.

15 We'll start with Commissioner Lindsey since  
16 she was quick on the draw.

17 COMMISSIONER LINDSEY: Aloha. You  
18 mentioned a flooding of Kahekili Highway. Do you  
19 remember when that was, about what year and/or how  
20 many times that has happened?

21 MS. BARROWS: Oh, gosh. I can't estimate  
22 exactly what year, probably about in the '80s to  
23 '90s, around that time period, because there was a  
24 couple, but that was one of the main one. And it  
25 really happened after they had plugged up -- made the

1 outlet smaller that was in MEO's place. So it was  
2 after that time, and that was the first one.

3 After that, they made sure they always had  
4 big equipment there in case of a flooding after that,  
5 but that doesn't resolve the problem. It's going to  
6 happen because we do get flooding, and that area is  
7 noted for our streams and the abundant water that  
8 comes down and the lo'is that used to be farmed  
9 there. And now there's only few lo'is over there,  
10 few families who are doing that.

11 So cultural practice doesn't go away just  
12 because you don't see people actively doing things.  
13 The water still comes down, the land is still used to  
14 that water flow, so you can redirect it and hopefully  
15 everything goes in there, but when you get those big  
16 floodwaters come, those water is going to go where it  
17 normally goes.

18 COMMISSIONER LINDSEY: Are you also saying  
19 that this is an important area for aquifer recharge?

20 MS. BARROWS: Can you repeat that again?

21 COMMISSIONER LINDSEY: Are you also saying  
22 that this is an important for aquifer recharge?

23 MS. BARROWS: Yes, it is. That area there,  
24 not only -- I'm only talking about the mauka side of  
25 our highway and stuff. I'm not even talking about



1 the ocean side.

2 So the water that comes down from there,  
3 it's so important for the shoreline because it fills  
4 our shoreline with the nutrients it needs to continue  
5 the life on our reef. Without that, you start  
6 cutting it off or limiting or redirecting, you start  
7 losing what's on our reef. And so that's a cultural  
8 practice.

9 COMMISSIONER LINDSEY: So to clarify,  
10 you're talking about that area including the parcel  
11 that this plan is on?

12 MS. BARROWS: So you're talking about  
13 Kahekili Highway and that river that comes down is  
14 part of Waiehu stream, and that stream goes directly  
15 into the ocean.

16 COMMISSIONER LINDSEY: Okay, thank you.

17 CHAIR PALI: Okay. Commissioner Kealoha,  
18 did you have a question?

19 COMMISSIONER KEALOHA: Yeah. And maybe  
20 this kind of follows Commissioner Lindsey's question,  
21 but you mentioned a wetland. And I'm just wondering  
22 from your view or definition or from you know about  
23 this place, do you see this place as a wetland?

24 CHAIR PALI: The question was do you see  
25 this place as a wetland?

1 COMMISSIONER KEALOHA: Yeah.

2 MS. BARROWS: Up where the property is,  
3 it's not the wetland after -- if you define the  
4 wetland as being where there's abundance of water  
5 coming through there and it's always there. Then I  
6 wouldn't consider that, but it is part of the  
7 connection that feeds our wetland which is also  
8 essential.

9 So this is the part where we have to define  
10 what is the wetland and how is that working. And is  
11 it still working? Because you're connecting MEO to  
12 that as part of the wetland, then MEO needs to be  
13 responsible for what's happening and how they're  
14 impacting that wetland as well.

15 COMMISSIONER KEALOHA: Thank you. And I  
16 have one more question. I'm trying to look at the  
17 map, but maybe you can help me understand water flow.  
18 You mentioned that the water flew through this --  
19 flew -- flowed through this area and then it was  
20 redirected.

21 Is there water that still flows through  
22 here or did Waiehu Stream at one point flow through  
23 here or what is the history?

24 MS. BARROWS: That's a good question,  
25 because Waiehu Stream splits into --

1 CHAIR PALI: I'll have you come closer to  
2 the mic.

3 MS. BARROWS: -- south stream. Our family  
4 aina is on the south stream side.

5 CHAIR PALI: Alyson, come closer to the mic  
6 so we can get you on record. Sorry.

7 MS. BARROWS: Sorry.

8 CHAIR PALI: I know you speaking to the TV,  
9 but talk inside the mic.

10 MS. BARROWS: So again, I was saying how  
11 there's two streams of Waiehu. And what's happening  
12 when it comes down on that south side stream, it  
13 flows, and it actually can flow over the land area  
14 that is not -- that was used by cane.

15 And when cane was still there, that  
16 floodwater would come down like a river covering that  
17 whole wide area at the gap just before the river  
18 itself, where it would fall in and then head out to  
19 the ocean. So now they closed up that one side of  
20 MEO and that -- thinking that the stream was one  
21 flow. When there's big water, that stream still  
22 comes.

23 So now we don't have cane anymore, but we  
24 have (indiscernible). And so that water still comes  
25 down when there's big water. Unless they subdivide

1 it, diverting more of that water out, that would be  
2 the other question as to what's going on with the  
3 water.

4 So when the water was coming down, because  
5 other things were blocking it, it started to go onto  
6 the road. Because it wasn't coming down the normal  
7 way that would come down by Waiehu -- I mean the MEO  
8 property, it overflowed the roadway, brought debris  
9 and everything. And then some of it would go into  
10 MEO property to go out, but it would only build up  
11 over there.

12 COMMISSIONER KEALOHA: Thank you.

13 CHAIR PALI: Okay. Commissioner Deakos,  
14 did you have questions? I think I saw your hand; I  
15 wasn't sure.

16 COMMISSIONER DEAKOS: They got answered.  
17 Thank you, Chair.

18 CHAIR PALI: Okay. Any other questions?  
19 Thank you so much.

20 MS. BARROWS: Thank you.

21 CHAIR PALI: All right. Okay. I think  
22 that we're going to go out to -- let's just say go  
23 into online testifiers. So if you are still  
24 online -- hopefully you still are -- thank you for  
25 your patience. We have Desmond.

1 Desmond, I see that you've registered  
2 online. If you hear my voice, if you can unmute your  
3 video if you have one and unmute your (no audio).

4  
5  
6 Desmond Cabilis testified as follows:

7 MR. CABILIS: Aloha, commissioners.

8 CHAIR PALI: Great. Please state your name  
9 for the record, and you have three minutes.

10 MR. CABILIS: My name is Desmond Cabilis.  
11 I'm a service representative for the Hawaii Regional  
12 Council of Carpenters.

13 I'm in support of the Hale Mahaolu Ke Kahua  
14 rental housing project. This project addresses the  
15 need of affordable rentals and housing for people of  
16 Maui. Projects like Ke Kahua assures that 120  
17 families don't need to compete in today's high rental  
18 market, so I ask of you commissioners please  
19 recommend to move this project forward to help our  
20 people of Maui to stay on Maui.

21 Also, MEO's mission has always been to  
22 strengthen the community and help people in need,  
23 especially now during Maui housing crisis. Thank  
24 you.

25 CHAIR PALI: Okay. Hold the line, Desmond.



1 Anybody have any questions for Desmond?

2 Seeing none, thank you, Desmond.

3 Kahala Johnson, are you online? If so,  
4 please unmute yourself and introduce yourself.

5 MR. JOHNSON: Hi. Can you folks hear me?

6 CHAIR PALI: Yes.

7

8 Kahala Johnson testified as follows:

9 MR. JOHNSON: Okay, perfect. I do -- I  
10 won't able to stay for questions, just a heads up. I  
11 have a labor union meeting right after this, but  
12 (speaking Hawaiian).

13 My name is Kahala Johnson, kanaka maoli  
14 Filipino speaking in opposition to Agenda Item B2,  
15 district boundary amendment transitioning from state  
16 agriculture district to state urban district for the  
17 proposed Hale Mahaolu project by Maui Economic  
18 Opportunity.

19 I want to say that -- begin by saying that  
20 if housing is such a concern to MEO, then immediate  
21 priority should be given to people affected by the  
22 recent wildfires in Lahaina by redirecting funding  
23 for this project to them, not towards the  
24 redistricting amendment which would see an increased  
25 urban gentrification of Waiehu and the further

1 destruction of our wetlands.

2           So our local wai and muliwai in Waiehu are  
3 natural barriers to wildfires in Na Wai 'Eha, just  
4 like Moku'ula and Mokuhinia served as a natural  
5 barrier to wildfires in Lahaina prior to them being  
6 destroyed by the plantations.

7           Waiehu wetland features are recorded as  
8 generational knowledge in the Hawaiian newspapers and  
9 stories like (speaking Hawaiian), and they're also  
10 contained in their descendants who are speaking to  
11 you and testifying to you today.

12           So we don't need redistricting amendments  
13 which would harm the local wai and muliwai in Waiehu.  
14 What we need is funding for projects like Hale  
15 Mahaolu to be redirected toward helping the displaced  
16 houseless Hawaiians, Filipinx, and Pacific Islander  
17 survivors of the fires which destroyed Lahaina.

18           The ongoing emergency affecting Hawaiian --  
19 these communities in Lahaina is a human and housing  
20 crisis that MEO cannot afford to ignore. If MEO is  
21 so concerned about houseless people, they shouldn't  
22 have called police to help remove houseless Hawaiians  
23 from their lands.

24           Moreover, if MEO truly cares about  
25 houselessness, they should redirect the project

1 funding to the 2,000 displaced folks from Lahaina. I  
2 also want to note that MEO was offered an alternative  
3 site for their project in the area of Puunene, but  
4 MEO denied this offer despite the concerns of  
5 Hawaiian and houseless people.

6 In conclusion, I implore the county and  
7 this commission to reassess the needs of our  
8 community. As articulated by the people of Lahaina,  
9 not MEO, the families affected by the wildfires  
10 deserve financial support now, support that can be  
11 provided by redirecting funding for this project to  
12 them.

13 Rather than approving these amendments for  
14 housing projects located far from the epicenter of  
15 the disasters, we must stand in solidarity with the  
16 displaced Hawaiian, Filipinx, and Pacific Islander  
17 families who are now houseless and who are urgently  
18 in need of funds for sustaining and restoring their  
19 community in Lahaina, not in Waiehu.

20 And I just want to conclude by saying how  
21 to be a good ally to Hawaiian and houseless people.  
22 The consultant MEO was given ten minutes to speak; we  
23 were only given three. This is a power disparity.  
24 I'm a political scientist; this is my -- my  
25 expertise.

1           So it's important that we all challenge  
2   this power disparity by asking marginalized  
3   Hawaiians, houseless, working-class women like my mom  
4   who was shut down just recently, give them questions  
5   to allow them more time to speak. That's a kuleana  
6   I'm giving to this commission. Mahalo.

7           CHAIR PALI: All right. Well, thank you  
8   for your testimony, and I'm sorry you cannot stay for  
9   questions. Okay.

10          Christopher Delaunay, are you online?

11  
12   Chris Delaunay testified as follows:

13          MR. DELAUNAY: Yes, I am. Aloha, Chair and  
14   commissioners. Chris Delaunay with Pacific Resource  
15   Partnership. And --

16          CHAIR PALI: And I need you to speak up,  
17   Christopher, please. Sorry.

18          MR. DELAUNAY: Can you hear me okay?

19          CHAIR PALI: That's much better. Thank  
20   you. Your three minutes (inaudible).

21          MR. DELAUNAY: Okay. Sorry about that. So  
22   Chris Delaunay with Pacific Resource Partnership. We  
23   represent approximately 7,000 men and women who are  
24   members of the Hawaii Regional Counsel of Carpenters  
25   and 240 large and small contractors. So Pacific

1 Resource Partnership is in strong support of the  
2 district boundary amendment for the Hale Mahaolu Ke  
3 Kahua affordable housing community.

4 Prior to the Maui wildfires, there was a  
5 housing crisis. In 2019, the state had a housing  
6 planning study, and it found that Maui County needed  
7 about 4,605 ownership units and more rental units at  
8 5,779.

9 Maui County affordable housing plan then  
10 came up in 2021 and provided a road map to create  
11 5,000 affordable homes for residents below the 120  
12 percent AMI over the next five years. Maui's crisis  
13 only got worse when the wildfires destroyed  
14 approximately 2,000 housing units.

15 Today, we need housing more than ever, and  
16 that is why this project is important. This project  
17 will provide much needed housing and job  
18 opportunities for Maui residents.

19 This project will provide 120 multifamily  
20 rental units for families earning 60 percent or less  
21 of the AMI. This project will create construction  
22 jobs, providing residents -- Maui residents with an  
23 opportunity to afford Maui's high cost of living,  
24 keep residents off of government assistance,  
25 stimulate the economy, and provide economic stability



1 for workers and their families.

2 So we respectfully request that the Maui  
3 Planning Commission provide a favorable  
4 recommendation on the district boundary amendment for  
5 this project. Thank you.

6 CHAIR PALI: Okay. Commissioners, any  
7 questions? All right. Seeing none, thank you so  
8 much. All right.

9 Next on the list is Bruce Uu. If you hear  
10 my voice, unmute yourself and please...

11  
12 Bruce Uu testified as follows:

13 MR. UU: Aloha, everyone. My name is Bruce  
14 Uu. Can you guys hear me? Thank you. Bruce Uu  
15 testifying on behalf of Maui Nui Empowered. And one  
16 of our mission statements is to support causes that  
17 directly impact our local residents, not just  
18 promoting affordable housing, enhancing quality of  
19 life, and expanding employment opportunities.

20 With all due respect of everything I  
21 heard -- and, again, with all the respect in the  
22 world about land ownership, traffic, drainage, prime  
23 ag, emergency exits, and water, there are -- I'm not  
24 a professional, far from it, yeah.

25 So we had land issues on our land in Paia

1 and, you know, again -- then we went to court. I was  
2 8th grade, so I don't understand the legal jargon.  
3 So my -- my parents, my mom went, our family went.  
4 And fortunately for us, it sided towards us, so we  
5 still have that land.

6 But having seen the process -- again,  
7 layman's -- I'm a layman person -- there's a process  
8 that we went through. There's also a process that  
9 the applicants need to go through, so I give them  
10 some respect to going through the process.

11 They only here because they're going  
12 through the process and the land ownership process.  
13 They went through the traffic studies, the 3.5  
14 traffic studies, the drainage issues. I'm not an  
15 expert; there's engineers. I heard about ag. We  
16 have way more ag land than we have residential lands.  
17 This is a sliver of land abutting a massive --  
18 massive residential area. We need it.

19 And for people who say, oh -- and I get  
20 it -- we should help people directly in Lahaina, I  
21 met people renting in Waiehu and Paia who moved out  
22 of Lahaina. So this potentially still could help  
23 people.

24 My kids are beneficiaries of Hale Mahaolu  
25 Upcountry, that Kulamalu project. They're from Paia;

1 they went up there.

2 One of our mission statements was quality  
3 of life. You know how nice it is that I know my  
4 grandkids have a place to call home because, prior to  
5 that, with their mom they found places that were  
6 extremely unsafe or unfit for anyone to live because  
7 when you are below the 60 percent AMI, you not going  
8 get legal rental opportunities, guys. You going be  
9 fitting into holes that is not accommodating for any  
10 of our people. In 2020, we had 20 families leaving  
11 every day who leave outside of our island. I'll end  
12 with that.

13 Please support housing, and, again, with  
14 all respect to those opposed, this is where we can  
15 have the talk and discussion. Thank you for the  
16 opportunity. Aloha.

17 CHAIR PALI: Commissioners, any questions?  
18 Seeing none, thanks, Bruce.

19 MR. UU: Thank you.

20 CHAIR PALI: Okay.

21 Mr. Ryan Hurley, you're up next. If you  
22 can unmute yourself, state your name for the record,  
23 and your three minutes will begin when you start  
24 speaking. Thank you.

25 MR. HURLEY: Hi, folks. Can everyone hear

1 me?

2 CHAIR PALI: Yes. I can hear you loud and  
3 clear.

4  
5 Ryan Hurley testified as follows:

6 MR. HURLEY: Great. Aloha. My name is  
7 Ryan Hurley. I'm testifying today on behalf of  
8 myself as an individual, or at least that was my  
9 initial plan. But I will note for the record that  
10 I -- I was the attorney that represented both Kahala  
11 and Lala Johnson in the action that was pretty much  
12 extensively talked about earlier today by MEO.

13 I have grave concerns about some of the  
14 representations that were made by MEO. And I -- I'll  
15 address some of those now, but I will, you know, say  
16 I haven't had a chance to talk to my former clients  
17 in this matter, the Johnsons. The matter has been  
18 settled, so I am, once again, talking on my own  
19 behalf, but I -- you know, I was a party to the  
20 record, and so this will be that.

21 And this is all public record, I'm happy to  
22 share, Chair -- some of the things I'm going to be  
23 talking about are from the proposed -- I -- I see --  
24 I see you, Chair, I'm sorry.

25 CHAIR PALI: I just want you

1 (indiscernible) three minutes in, so just go for it.

2 MR. HURLEY: Yeah, yeah, no. So, okay. So  
3 this is from the Court's findings of facts,  
4 conclusions of law decision order that was issued in  
5 this matter, signed by Judge Cahill. It's extremely  
6 important to note that this matter was brought only  
7 against two people, Kahala Johnson and Lala Johnson.

8 We actually raised this matter in a motion  
9 to dismiss, and they had the opportunity to bring a  
10 quiet title case. They did not, and it was  
11 extensively discussed throughout this matter about  
12 that, and Judge Cahill repeatedly noted that.

13 And, in fact, the court concludes that MEO  
14 has not established a sufficient basis by clear and  
15 convincing evidence for injunctive relief. The court  
16 also determined that they -- that -- the records  
17 presented by MEO to assert or possess the interest,  
18 however, are not sufficient to entitle MEO to quiet  
19 title against all potential claimants even if that --  
20 even if they had been named parties in this case.

21 Now this case -- this was a three-day  
22 evidentiary hearing. It was extensive -- extensively  
23 went through some of the genealogy.

24 And in that genealogy, the court actually  
25 found, after we had an expert genealogist, that



1 Kahala and Lala Johnson, two people that testified  
2 here today, have direct -- are direct descendants of  
3 the heir Pehuino who was born between, I believe,  
4 1792 and 1796, and was the kupuna of -- iwi kupuna of  
5 the entire area including the MEO parcel.

6 All this information is found in the  
7 court's findings of facts, conclusions of law that  
8 were signed by Judge Cahill. It also notes that this  
9 only applies to them. And so the idea that this is  
10 binding on anybody else other than Kahala and Lala  
11 Johnson is just not true.

12 They had the opportunity to bring a quiet  
13 title case; they did not. And in that case, it was  
14 actually proven that the people that spoke here today  
15 are lineal descendants and have rights to it. And,  
16 in fact, the court actually found that they are --  
17 they have specific rights relating to any iwi kupuna  
18 that are found on the property.

19 So I apologize. I only have three minutes,  
20 and I was not here to testify today on this, but I  
21 felt like it was appropriate.

22 I'd also note -- and I have to note now  
23 that there appears to be a little bit of a due  
24 process issue because MEO talked pretty extensively  
25 about this with their attorney and then the two

1 defendants in this matter were forced to have limited  
2 discussion. So I just would note that for the record  
3 on that matter.

4 CHAIR PALI: I'm so sorry. Your time is  
5 up. So if you just want to finish your sentence, I'd  
6 be happy to let you do that.

7 MR. HURLEY: I'm sorry. Was -- are you  
8 calling the time or did the bell ring? I didn't hear  
9 the bell.

10 CHAIR PALI: No, the bell rang. You were  
11 talking through it, so you probably didn't hear it.  
12 I apologize.

13 MR. HURLEY: That's no problem. I'm here  
14 to answer questions. If we had known that there was  
15 going to be this extensive discussion, we would have  
16 filed a request for a contested case on this matter.  
17 But the lineal descendants in this matter are here,  
18 and I would please encourage you folks to look at the  
19 record in this matter and see what Judge Cahill  
20 signed because it does not say what MEO is saying it  
21 is.

22 And on a final note, personally I just want  
23 to note, I support this project housingwise. It's  
24 just in the wrong location. It should be somewhere  
25 else.

1 CHAIR PALI: Okay. Thank you for that.  
2 Questions, commissioners? Commissioner  
3 Deakos and then Commissioner Lindsey.

4 COMMISSIONER DEAKOS: Thank you, Chair.  
5 Thank you, Mr. Hurley, for your testimony.  
6 And I apologize if I'm ignorant on this. So quiet  
7 title action is -- the persons disputing the current  
8 title, are they the ones that can file an action? It  
9 sounds like you were saying the MEO should be filing  
10 a quiet title. I'm a little confused.

11 MR. HURLEY: So, you know, I think the -- I  
12 believe both sides can file quiet title action, both  
13 sides can file a quiet title action. It's also of  
14 note that there's been two kind of fairly well-known  
15 cases in Maui -- West Maui, in fact, where a  
16 gentleman won back his land through a quiet title  
17 process.

18 Keeaumoku Kapu had a very successful -- won  
19 a piece of his land back. Also, Carol Lee Kamekona,  
20 just through a quiet title action that was initiated  
21 by the possessor of the land to clear title on that  
22 land, she was awarded a portion of her land as well.

23 So there is a process that either side can  
24 initiate. It's an expensive process is the problem  
25 because it requires filing a whole bunch of documents

1 and doing a whole bunch of research; right? And you  
2 have to hire attorneys to do that, and they post a  
3 whole bunch of notices, and basically it's saying,  
4 anybody who has a claim, kind of come and let's sort  
5 it out. It takes a long time.

6 We brought it up. They had the option to  
7 do it; they didn't do it. They focused their  
8 litigation on the trespass claim for two individuals,  
9 right, and this was extensively litigated about what  
10 that meant. And that meant that anybody else, any  
11 other heir of Pehuino can bring another claim if they  
12 want and try to prove their interest.

13 So there's some issues that should probably  
14 be worked out.

15 COMMISSIONER DEAKOS: Okay, thank you. I  
16 appreciate that. I have no questions.

17 CHAIR PALI: Commissioner Lindsey, did you  
18 have a question?

19 COMMISSIONER LINDSEY: For your personal  
20 testimony, is it -- is that all you wanted to mention  
21 was that you were in support of housing not here?

22 MR. HURLEY: No.

23 COMMISSIONER LINDSEY: Can you do this in  
24 30 seconds, please?

25 MR. HURLEY: Yeah. I'll give you just a

1 quick brief. I'm from Oahu. I'm an Oahu boy. I  
2 represent communities wherever I can.

3 That piece of land represents so much more  
4 than just that tiny strip of land. It represents all  
5 the sand dunes from before that were taken and all  
6 the iwi that was in those sand dunes and got brought  
7 over to Oahu to build our condos and our roads. And  
8 I think acknowledging that -- and no one's ever  
9 really done that.

10 And, you know, through this case,  
11 Cahill and the judge kind of acknowledged the  
12 descendancy and Pehuino (indiscernible) great things,  
13 but we know that that whole area was filled with iwi  
14 in the sand dunes, and it's gone now. And there's a  
15 little tiny strip on the upper portion of that  
16 property, we believe.

17 And so I just think it's a special place,  
18 and I know -- I represent a whole bunch of people in  
19 West Maui, and I know that this is the time for  
20 affordable housing, and I really support MEO.  
21 They're a great organization.

22 This is just a bad location for this  
23 project. I would love to see it turned into a  
24 cultural preserve to acknowledge all of the  
25 desecration for iwis and others that have happened



1 before. That's my personal opinion. Thank you so  
2 much for the opportunity.

3 COMMISSIONER LINDSEY: Thank you.

4 CHAIR PALI: Commissioners, any other  
5 questions? Great. Thanks, Ryan. Appreciate your  
6 testimony. Okay.

7 So right now we have just one more  
8 testifier on the list. And this would be also a  
9 warning for a last call, so if you had not had a  
10 chance to put your name on the list, after this next  
11 testifier, we'll give you an opportunity to chime in.

12 Robin Knox, are you still online? If you  
13 are, please unmute yourself, and why don't you state  
14 your name for the record. You have three minutes.

15  
16 Robin Knox testified as follows:

17 MS. KNOX: Mahalo, Chair. My name is Robin  
18 Knox. I'm testifying on my own behalf.

19 I oppose this boundary amendment from ag to  
20 urban. If anything, I would say it should be from ag  
21 to conservation.

22 I support the proponents in wanting to  
23 build housing for less than 60 percent AMI but not at  
24 this location. I take issue with putting affordable  
25 housing for low-income people in dangerous and

1 unsuitable areas.

2 This site is part of a freshwater system  
3 that includes the watersheds, streams, groundwater,  
4 and wetlands. They feed the ocean. I've read the  
5 wetlands report for this project, and I question its  
6 thoroughness, completeness, and conclusions.

7 If you look at the map, you will see a  
8 right-angle turn in Waiehu Stream. This is not  
9 something that nature does. This is a diversion of  
10 the stream and the drainage to try to address some of  
11 the flooding.

12 The flooding has been such an issue in the  
13 area that the culvert on the property in question  
14 often needs maintenance, and it's been an ongoing  
15 issue to maintain it. The flooding of the area will  
16 worsen if the wetlands and the mauka ag lands are  
17 developed. This is a dangerous place to put housing.

18 In fact, in 2002 -- and I know this because  
19 I used to live up on Malaihi Road -- in 2002, there  
20 was a flood in which three people died because they  
21 were washed out to sea, and their bodies were found a  
22 mile offshore.

23 So this area -- big water does come through  
24 here, and it is a system that nature created for  
25 handling that water. And the more we develop in

1 those areas, the more we disturb that system and the  
2 more we put people at risk.

3 So, again, I'm opposed to this boundary  
4 amendment change, and I ask you not to put people in  
5 harm's way by allowing this project to go forward at  
6 that location. Mahalo.

7 CHAIR PALI: Great. Thanks, Robin.

8 Commissioners, any questions? Seeing none,  
9 thank you. Okay.

10 Anyone else left in the room or online --  
11 oh, yes, please. Do you mind if you -- so we've got  
12 someone here in the galley that wants to testify, but  
13 if you're online and you hadn't had a chance to, go  
14 in the chat function -- please go ahead and do that  
15 now because we will be closing testimony. Okay.

16 Please state your name for the record, and  
17 when you speak, then your three minutes will start.

18  
19 Johanna Kamaunu testified as follows:

20 MS. KAMAUNU: Aloha. My name is Johanna  
21 Kamaunu. I live in Waihee Valley. I am also a  
22 lineal descendant from Waiehu through a land  
23 commission award in that area.

24 I'd like to start with MEO's presentation  
25 of their proposed project. I have concerns that that

1 presentation may not be complete. As you noticed,  
2 they had a time line. And on the time line, it  
3 showed these events that took place, and the blue  
4 circles more or less told you that there were events  
5 where they had meetings, hearings, public hearings.  
6 And one circle I believe was another color, yellow,  
7 and that showed where it was finally approved -- the  
8 proposal was approved.

9           However, what that doesn't show you is what  
10 the outcome of those meetings were, and you already  
11 heard from George Paresa from Waihee that they were  
12 not in favor of that. That's not noted in that --  
13 that time line. None of the outcomes from those  
14 public meetings are noted in that time line, and I  
15 think you will find almost all of them were against  
16 the project.

17           The second thing on the item is something  
18 regarding, again, the Royal Patent and the land  
19 commission award. According to their information on  
20 the presentation, it says William Lunailo has the  
21 land commission award and the Royal Patent is to  
22 Claus Spreckels.

23           I don't know in whose book that that would  
24 be a valid land commission award, Royal Patent  
25 project. In order for that land commission award to

1 stand, the Royal Patent has to be in the name of the  
2 awardee and definitely that is not a match.

3 And what Jocelyn mentioned to you about the  
4 differences in the will is true. There are problems  
5 with the sale of property that MEO is claiming to  
6 have procured, and already the documentation is  
7 faulty. They listed on their presentation that one  
8 is for William Lunalilo, the land commission award,  
9 and the Royal Patent is to Claus Spreckels. That is  
10 not a valid award. Okay?

11 And then the last thing I noticed on there  
12 was -- you know, it's maybe not a big thing to most  
13 people, but I have a concern when you start to  
14 profile the people that are intended to benefit from  
15 this project. And on their presentation, they  
16 profiled.

17 They have pictures, three pictures that  
18 would make you assume that it's for people from the  
19 fire department or first responders, people in the  
20 teaching profession. You know, this is highly  
21 irregular and prejudicial. That is not fair. That  
22 is definitely not fair.

23 And if you considered that, that's where  
24 their mindset is. You're going to have to ask  
25 yourself the question, what else is on their agenda?



1 Because what they're telling you and what they're  
2 doing is two different things. So I would take issue  
3 with those things and --

4 CHAIR PALI: If you can finish your  
5 sentence.

6 MS. KAMAUNU: Anyway, those were the three  
7 important things, and that was mainly to do with that  
8 document. The last thing, if I have a few minutes or  
9 a few seconds --

10 CHAIR PALI: Stand by, stand by.  
11 Commissioners, any questions? Commissioner Thayer.

12 VICE CHAIR THAYER: Over here. Thank you  
13 for your testimony.

14 MS. KAMAUNU: Oh, sorry.

15 VICE CHAIR THAYER: No, no. I have a  
16 question.

17 CHAIR PALI: And speak closely to the mic  
18 because I think her hear -- yeah. You can hear okay?  
19 You can hear okay?

20 MS. KAMAUNU: I'm sorry, I can't hear her.

21 CHAIR PALI: See, you got to talk loud.

22 VICE CHAIR THAYER: The public meetings you  
23 mentioned that were held, were you at those meetings?

24 MS. KAMAUNU: Not all of them. I went to  
25 one of the meetings.

1 VICE CHAIR THAYER: Okay.

2 CHAIR PALI: It was intense. Yeah, it was  
3 intense. Sorry. Go ahead.

4 VICE CHAIR THAYER: Can you -- because you  
5 said the outcomes, the actual outcomes in the meeting  
6 you didn't think were accurately represented, can you  
7 say how they went from your perspective?

8 MS. KAMAUNU: I don't think it was  
9 represented at all. Right? According to their  
10 presentation, there was no representation of what the  
11 community thought about it.

12 VICE CHAIR THAYER: And I guess what was  
13 the representation of the community at those  
14 meetings?

15 MS. KAMAUNU: I'm sorry?

16 VICE CHAIR THAYER: Like in your  
17 perspective, what did the community represent?

18 MS. KAMAUNU: Well, from the signs that  
19 were out on the road during protests to that, I would  
20 say that's 90 percent. You know, that's my guess,  
21 but for people to come out on the road to hold signs,  
22 that's saying something. And they were out there  
23 several times to show that they're not in accordance  
24 with that project, but that's not shown anywhere in  
25 the presentation.

1 VICE CHAIR THAYER: Thank you. That was my  
2 question.

3 CHAIR PALI: Any other questions?  
4 Commissioner Deakos?

5 COMMISSIONER DEAKOS: Thank you, Chair.  
6 Thank you for your testimony today. Could  
7 you clarify -- you mentioned the images they showed  
8 of firemen was a misrepresentation of the people that  
9 would move into these homes.

10 What did you mean by that?

11 CHAIR PALI: The question is can you just  
12 clarify what you meant by profiling and the use of  
13 pictures of families and firefighters and things like  
14 that.

15 MS. KAMAUNU: Sure. In that particular  
16 section, they say that (no audio). Now if you're  
17 only showing pictures of these people and yet your  
18 mouth is saying "but it's for everybody," that's  
19 not -- that's not true to form. Does that make  
20 sense?

21 COMMISSIONER DEAKOS: Okay. So firemen and  
22 teachers would potentially be tenants in these  
23 buildings, but they don't represent all the potential  
24 folks that would have an opportunity for the homes.  
25 Is that --

1 MS. KAMAUNU: They are saying that -- I  
2 believe they are saying that, and I believe that's  
3 MEO's mission, but that section right there tells me  
4 they have other things on their mind. If not, change  
5 it.

6 COMMISSIONER DEAKOS: Okay. Thank you.

7 Thank you, Chair.

8 CHAIR PALI: Okay. Any other questions?  
9 Is that you, Commissioner Lindsey? I don't know if  
10 that's a hand --

11 COMMISSIONER LINDSEY: (Shaking head side  
12 to side.)

13 CHAIR PALI: -- or, like, something weirdly  
14 pink on the side. Do you guys see that? Okay. All  
15 right. All right.

16 Thank you for your time and your testimony.  
17 Thank you so much. Okay.

18 Anyone else here that did not get a chance  
19 to testify on B2 or online, this is your chance to  
20 unmute yourself or come to the podium. We are  
21 wrapping up Item B2 public testimony, and I do want  
22 to make sure everybody has a opportunity to speak.

23 So if you can hear my voice and you would  
24 like to testify, you can come up to the podium or  
25 unmute yourself online.

1 All right. Let the record show that public  
2 testimony is closed.

3 Commissioners, we're going to go to you so  
4 that you can ask questions of the applicant or the  
5 planning department.

6 And before we do that, I do just want to  
7 publicly apologize to Lala. I feel like if I was  
8 forceful, I do not want to come across that way. I  
9 do still have to manage time line, but I do not need  
10 to be forceful. And so please accept my apology on  
11 that. We still need to learn to be kind and  
12 supportive to each other, so I do want to do that.  
13 Okay.

14 So, commissioners, time for your questions.  
15 Everything that you've heard and gathered, this is  
16 the time to ask questions.

17 I do want to put some stipulations around  
18 this because I do not want to get too far off of your  
19 task today. Your task is to recommend a boundary  
20 amendment -- so state land use district boundary  
21 amendment from agricultural to urban for the Hale  
22 Mahaolu Ke Kahua Affordable Housing Community.

23 And then I'm just going to have Mr. Hopper  
24 also address -- because there's been a lot of talk  
25 about title, and so I need you guys to be clear on



1 your role and preview when it comes to that subject  
2 matter because that is not on our agenda, but I do  
3 understand that those questions could impact how you  
4 recommend. And so I'm going to have Michael Hopper  
5 just talk about that for a second.

6 MR. HOPPER: Chair, the only points I think  
7 I'd make is that the -- neither the commission nor  
8 the county council has the authority to adjudicate  
9 title disputes. That would have to be done by the  
10 Circuit Court of the State of Hawaii.

11 As far as your application criteria, you're  
12 going to determine if the -- what to recommend to the  
13 council as to whether or not -- the staff report went  
14 over this -- they meet the criteria for a district  
15 boundary amendment from ag to urban.

16 The application -- this is in 19.68.020B --  
17 the application is required to show that -- where the  
18 applicant is the legal owner or lessee, evidence  
19 that, A, the applicant is the legal owner or lessee  
20 of record of the property for which the application  
21 is being submitted; and, B, the applicant is the fee  
22 owner or holds the subject property for an unexpired  
23 term which is more than five years from the date of  
24 the application -- the date the application was  
25 accepted by the planning department.

1           So if there's questions to the applicant on  
2 what they submitted and if you have any comments to  
3 the council about recommending on those -- that  
4 application criteria, you can ask.

5           But, again, neither the council nor the  
6 commission has the authority to adjudicate or make  
7 final decisions on the title to the property. So I  
8 wanted to have --

9           CHAIR PALI: Okay. So, commissioners, do  
10 you have question on that specific thing? Can you  
11 just repeat that last two sentences because I need my  
12 commissioners to understand that before we go into  
13 questioning.

14           MR. HOPPER: Just the submission of the  
15 application is required to show evidence that the  
16 applicant is the legal owner or lessee of record for  
17 the property which the application is being submitted  
18 and that the applicant is the fee owner of the  
19 property.

20           And so if there's questions to the  
21 applicant about what they have submitted to show that  
22 and why they believe it's sufficient, that's  
23 something that you can -- can ask them about.

24           But, again, that's for the sufficiency for  
25 the application being submitted and your

1 determination whether you -- whether you approve this  
2 project or the council approves the district boundary  
3 amendment, that doesn't necessarily adjudicate a  
4 title dispute. That has to be done in circuit court.

5 CHAIR PALI: So your last sentence was that  
6 county council or planning commission do not have  
7 authority to adjudicate -- that was --

8 MR. HOPPER: To adjudicate title.

9 CHAIR PALI: To adjudicate title.

10 MR. HOPPER: That's a fancy word for  
11 "decide," essentially.

12 CHAIR PALI: So are you guys understanding  
13 that? We don't have the authority to adjudicate  
14 that, although it is an important thing to consider  
15 as we're recommending approval for the district  
16 boundary. Okay?

17 Commissioner Deakos?

18 COMMISSIONER DEAKOS: Thank you. So just  
19 to clarify, so if the department -- if the planning  
20 department is recommending -- they've already decided  
21 that they think the title is clean. Is that a fair  
22 statement? Or --

23 MR. HOPPER: Well, I mean the planning  
24 department can speak for themselves, but they've  
25 presumably decided that there was evidence provided

1 that met B2A and B for those criteria, that they've  
2 shown sufficiently that this is -- the applicant is  
3 the owner of the property.

4 And, again, the applicant can be asked  
5 about the evidence they have provided and why it's  
6 sufficient, but that's one of the -- in 19.68.020B,  
7 there are ten criteria that have to be submitted for  
8 a district boundary amendment application, so that's  
9 part of the application requirements.

10 COMMISSIONER DEAKOS: Okay. Thank you.

11 CHAIR PALI: Okay. So now that we have our  
12 marching orders and we understand what we'll be  
13 recommending and the issue on which we will offer our  
14 recommendation, this is the time where,  
15 commissioners, you can have questions either for  
16 Applicant, Department, or Mr. Michael Hopper here so  
17 that you can have more information. So that way when  
18 you deliberate, you have all that you need.

19 So the floor is open for questions, and if  
20 you can just raise your hand. If you're online and I  
21 don't see your hand, please do help me by speaking  
22 up.

23 Commissioner Kealoha?

24 COMMISSIONER KEALOHA: Sorry. Are we  
25 asking all questions or just questions related to the

1 title?

2 CHAIR PALI: No.

3 COMMISSIONER KEALOHA: Can you ask that  
4 question again?

5 CHAIR PALI: So you can ask any question  
6 you need that would help you determine how you're  
7 going to shape your recommendation specifically for  
8 the boundary -- district boundary amendment. We do  
9 not have jurisdiction on the title issue, but if  
10 those testimonies raise questions and you just want  
11 to make sure, even though it sounds like planning  
12 department has already made potential determination  
13 at least for the application portion that they're all  
14 set, you can still ask those questions, but that is  
15 not the subject of today's recommendation. But you  
16 can go ahead and tease that out if you need it to --  
17 in order to shape your recommendation. I hope that  
18 sort of --

19 COMMISSIONER KEALOHA: Yeah, got it. I  
20 don't have questions. I just have general questions,  
21 not questions related to the title.

22 MR. HOPPER: I think, Chair, you're saying  
23 the potential questions would be -- there's the  
24 planning department, there's the applicant and their  
25 individuals. I can answer legal questions as well;



1 right?

2 CHAIR PALI: Yes, that's right.

3 MR. HOPPER: I think those are the --

4 CHAIR PALI: Okay. Go ahead, Ms. Kealoha.

5 COMMISSIONER KEALOHA: I have a question  
6 for the Ke Kahua project team. I just have been  
7 hearing a lot about the traffic, and I keep going (no  
8 audio) the traffic study conducted? Can you provide  
9 the dates for the traffic study just so we can see if  
10 that was conducted within the COVID quarantine or  
11 within the COVID period?

12 MR. CHUN: Mark, go ahead.

13 MR. ROY: Thank you, commissioner, for the  
14 question. My name is Mark Roy. I work with Munekiyo  
15 Hiraga. We were the -- or we are the planning firm  
16 that has been assisting with the environmental  
17 assessment and the 2.97 approval process.

18 We do have the project team with us today  
19 and a representative of the traffic engineering team.  
20 So if it's okay, I would like to invite Kelcee Mira  
21 from ATA to address your question.

22 MS. MIRA: Hi. My name is Kelcee Mira.  
23 I'm with Austin, Tsutsumi & Associates, and we did  
24 the traffic study. So, yes, that's correct. The  
25 traffic study was done during COVID. However, it was

1 during the time when, you know, there was lockdown so  
2 traffic was obviously very abnormal, and we  
3 acknowledged that.

4 So we used counts that we previously  
5 recorded between 2016 and 2019 as a basis for our  
6 traffic volumes and then we applied a growth rate on  
7 top of that to constitute what we considered to be  
8 existing conditions.

9 COMMISSIONER KEALOHA: So to clarify, you  
10 conducted a study during the COVID quarantine,  
11 realized that that was not representative of normal  
12 traffic conditions and then took numbers from a 2015  
13 to 2019 study and applied a population growth rate to  
14 the 2015 to 2019 traffic study?

15 MS. MIRA: Yeah, basically that's correct.  
16 We do want to obviously represent what is the  
17 existing condition. And because, at that time, we  
18 weren't able to take traffic counts and, at that  
19 time, we didn't know, you know, when traffic would  
20 return to normal, we used counts that we previously  
21 had just for, you know, distributions.

22 And, yes, we applied a growth rate on top  
23 of that, so we do believe that the existing  
24 conditions that we have are reflective of the  
25 conditions at that time. We also have counts that we

1 have taken in 2023, and those counts are actually  
2 lower than what we projected. So now we know that we  
3 were conservative in our analysis.

4 COMMISSIONER KEALOHA: And then the counts  
5 were done during peak travel times, morning and  
6 afternoon?

7 MS. MIRA: Yes, that's correct. That's  
8 just generally the standard during the a.m. and p.m.  
9 peak hours.

10 COMMISSIONER KEALOHA: Okay. And then I  
11 have one more question, and maybe it would be helpful  
12 if you could -- I don't know if we can do this, if  
13 you can pull up your map, but I'm just trying to  
14 understand where Waiehu Stream flows mauka of Waiehu  
15 Beach Road. Because I know where it goes into the  
16 ocean, but from my map it's looking like Waiehu  
17 Stream is right behind the property; is that correct?  
18 Waiehu Stream right behind it?

19 MR. ROY: Thanks, commissioner, for the  
20 question. The Waiehu Stream is on the north side of  
21 the project site, just on the other side of the  
22 Waiehu Beach Road intersection according to the map  
23 that shows the alignment of the stream. So it's  
24 not -- it's not part of the --

25 (Recording interruption.)

1 MR. ROY: -- to the north of the parcel  
2 itself across the intersection.

3 COMMISSIONER KEALOHA: So it's not adjacent  
4 to the parcel? It's not this part right behind the  
5 parcel that borders, I guess, the existing  
6 subdivision and the parcel that we're talking about  
7 today? That's not -- there's no water flowing there?

8 MR. ROY: Correct. And, actually, we  
9 have -- we have the civil engineer with us today,  
10 Stacy Otomo from Otomo Engineering. I think the  
11 question is maybe about the existing drainage  
12 conditions on the project site itself. There is a  
13 drainage swale that I think is maybe in the location  
14 that you're thinking of.

15 So maybe, Stacy -- if you're still on the  
16 line, Stacy Otomo, would you mind maybe giving the  
17 commission a brief description of the existing  
18 drainage conditions within the project site itself?

19 MR. OTOMO: Good morning, Chair, members of  
20 the commission. My name is Stacy Otomo from Otomo  
21 Engineering.

22 Waiehu Stream actually is not part of the  
23 parcel. It's parallel to -- in general, parallel to  
24 Malaihi Street, and it crosses Kahekili Highway to  
25 the north of the Waiehu Beach Road-Kahekili Highway

1 intersection. So it does not cross the property.

2 There is a swale that you were thinking  
3 about that is not part of the major stream system,  
4 and it crosses -- it traverses through the property  
5 and crosses Waiehu Beach Road near the intersection  
6 of Kahekili Highway. But Waiehu Stream is not within  
7 the property.

8 COMMISSIONER KEALOHA: What is a swale?

9 MR. OTOMO: It's a drainage way. It's not  
10 a stream, but it's a depression in the ground that  
11 carries water. There's not a major drainage feature  
12 in the area.

13 COMMISSIONER KEALOHA: So it's like a  
14 tributary or it branches off the stream?

15 MR. OTOMO: Yes, but it eventually joins  
16 Waiehu Stream as it crosses Waiehu Beach Road, then  
17 it heads toward the ocean from there.

18 COMMISSIONER KEALOHA: Thank you. I don't  
19 have any more questions.

20 CHAIR PALI: Great. I'm just going to go  
21 around and let everybody have a shot at it.  
22 Commissioner Lindsey, any questions?

23 COMMISSIONER LINDSEY: Do you have a map?  
24 Mine is on that other question. Can you -- can  
25 anyone from the Ke Kahua project team pull up a map



1 and clarify that for us with a picture?

2 CHAIR PALI: I'll see if they have time.

3 Do you have other questions while they look for that  
4 map?

5 COMMISSIONER LINDSEY: I have a list of  
6 questions, but can I pass for now?

7 CHAIR PALI: Okay, yeah. We'll pass, and  
8 then we'll have you -- give you time to pull up some  
9 kind of map that you can help us use for referencing  
10 on waters.

11 Commissioner Deakos, any questions?

12 COMMISSIONER DEAKOS: Yes. Thank you,  
13 Chair. And I think Page 85 (indiscernible). I did  
14 have -- yeah, looks like we'll talk about the stream.

15 CHAIR PALI: Okay. Hold on one second. I  
16 think she's looking for a map that -- Commissioner  
17 Lindsey, are you looking for a map that shows where  
18 the current water flows are? Or --

19 COMMISSIONER LINDSEY: Well, I mean, they  
20 can use it -- they can use that map if they can kind  
21 of point in the direction of where it is.

22 CHAIR PALI: Yeah, I don't know that that  
23 map would help. We'll let the team talk through that  
24 map.

25 COMMISSIONER HELEKAHI-BURNS: I think that

1 first map that they used in their presentation that  
2 had the whole community and the bay road and the  
3 Kahekili Road would be more useful.

4 CHAIR PALI: There, yeah.

5 MR. ROY: Stacy, maybe if you wouldn't mind  
6 addressing the existing conditions of the Waiehu  
7 Stream again in relation to this aerial photo?

8 MR. HOROVITZ: I don't know if he heard  
9 you.

10 MR. ROY: Stacy, are you still on? Stacy  
11 Otomo?

12 MR. OTOMO: Yes, Mark, I'm still on.

13 MR. ROY: Okay. We just got a project  
14 location map on the screen. It shows the project  
15 site outlined for this DBA request.

16 And maybe if you wouldn't mind just  
17 describing the location of the swale in relation to  
18 the Waiehu Stream alignment in relation to this map?

19 MR. OTOMO: Can you see the cursor on the  
20 screen, my cursor?

21 CHAIR PALI: Yes, I see the little hand.

22 MR. HOROVITZ: Oh, that's ours.

23 CHAIR PALI: Oh.

24 MR. OTOMO: Okay. Let me start by -- the  
25 swale that we're talking about is on the right-hand

1 side of the red line on the Ke Kahua parcel. That's  
2 where the swale run just generally along that  
3 property line.

4 The Waiehu Stream actually runs where the  
5 word "Project Site" is. It comes down in that area,  
6 and it crosses on the north side of the Waiehu Beach  
7 Road intersection.

8 That's where it crosses Kekaulike (sic)  
9 Highway. Right there, yes. That's where Waiehu  
10 Stream runs, so the Waiehu Stream does not cross the  
11 parcel.

12 CHAIR PALI: Ashley, you want to proceed  
13 with your questions?

14 COMMISSIONER LINDSEY: Okay. So one of the  
15 testimonies said a smaller pipe was installed near  
16 there? Could that be near the property? And  
17 there's --

18 MR. OTOMO: I'm not sure about the smaller  
19 pipe, but there is a culvert system for Waiehu -- the  
20 Waiehu Stream crossing Kahekili Highway. I'm not  
21 sure what the sizing is, but the swale from the Ke  
22 Kahua property crosses Waiehu Beach Road by a 48-inch  
23 culvert there.

24 So I'm not sure what the discussion was  
25 that a smaller pipe was installed. There's a 48-inch

1 pipe that goes across Waiehu Beach Road.

2 I'd also like to mention that part of the  
3 flooding that have occurred in the past has been  
4 because of debris clogging the inlet of the culvert  
5 system from the Ke Kahua property and not by the lack  
6 of a system there.

7 COMMISSIONER LINDSEY: And that would be  
8 maintained throughout the time line of the project?

9 MR. OTOMO: I'm sorry. What was the  
10 question again?

11 COMMISSIONER LINDSEY: 48-inch pipe -- a  
12 pipe that was installed, and it -- the flooding  
13 occurred because of clogging of the drainage, that  
14 48-inch pipe?

15 MR. OTOMO: At the inlet of the pipe, yes.

16 COMMISSIONER LINDSEY: That 48-inch pipe  
17 will be maintained -- like, the life cycle of people  
18 living there?

19 MR. OTOMO: I think the project would  
20 improve the debris situation in a sense that all the  
21 vegetation is going to be cleared. There is going to  
22 be a drainage system on the Ke Kahua site that  
23 maintains the increase in the runoff from a 50-year  
24 storm on-site.

25 So at the end of the day, there'll actually

1 be less water flowing from the project site to the  
2 culvert. And with the clearing of the mac nut trees  
3 and other vegetation to construct the project, that  
4 would lessen the amount of potential debris that can  
5 clog that inlet.

6 COMMISSIONER LINDSEY: Okay, thank you.  
7 That helps.

8 Do I continue, Chair, or are you --

9 CHAIR PALI: Go ahead and get all your  
10 questions out.

11 COMMISSIONER LINDSEY: Okay. So the Waihee  
12 Community Association testimony said something about  
13 a lack of infrastructure in the area.

14 Can you quickly let us know how you are  
15 improving the infrastructure nearby?

16 MR. OTOMO: The drain is already there, so  
17 there's going to be an on-site drainage system that  
18 meets the county standards. There's going to be  
19 water improvements that's going to have to be done  
20 along Kekaulike Highway as well as connecting to the  
21 county sewer system.

22 It's going to be done by this project that  
23 would run a -- probably a force main along Waiehu  
24 Beach Road and connect to an existing manhole in the  
25 neighborhood of the entrance to Waiehu Heights. But



1 other than that, the general backbone infrastructure  
2 is there.

3 COMMISSIONER LINDSEY: Okay. Thank you.  
4 I'm not sure this if this question is for you, Stacy;  
5 it might be for the team.

6 Because we are converting this from  
7 agricultural use into urban and this is Grade B prime  
8 agricultural land, is there some sort of, like, swap  
9 or some sort of -- like in your agricultural plan to  
10 include ag things on the property or help with  
11 recharge?

12 MR. ROY: Thanks for the questions. This  
13 is Mark Roy with Munekiyo Hiraga. I can maybe offer  
14 a response to that question.

15 And actually this -- this slide is maybe  
16 somewhat appropriate to that question in that, you  
17 know, it notes that the Maui Island Plan specifically  
18 located this parcel within the open growth boundary  
19 of the Maui Island Plan.

20 So there was a process -- multiyear process  
21 that went forward. And I think it was in 2012 that  
22 the Maui County Council, including Planning  
23 Commission Review, adopted the Maui Island Plan and  
24 that -- the open growth boundaries.

25 So I think it's fair to maybe state that

1 this is considered to be an appropriate location for  
2 conversion of, in this case, a small portion of  
3 agricultural lands for the purpose of affordable --  
4 affordable housing.

5 I think the commissioner's question may be  
6 somewhat related to important agricultural lands.  
7 This project site is not designated important  
8 agricultural lands. Where you do have an IAL  
9 designation, typically there is mitigation that is  
10 required to remove the IAL designation, but that is  
11 not the case for this particular project site.

12 So hopefully that answers the question.

13 COMMISSIONER LINDSEY: Thank you. That was  
14 very helpful. I'm okay, Chair. Next.

15 CHAIR PALI: Great. Okay. Helekahi-Burns,  
16 any questions?

17 COMMISSIONER HELEKAHI-BURNS: Yes. Thank  
18 you, Applicant, for being here. I think I kind of  
19 want to get more insight on the community's reaction  
20 when the project was introduced to the community.  
21 You know, from your perspective, did you feel that  
22 the community was in support of it? Because we  
23 definitely seen the other end of it.

24 But, you know, from your expert position,  
25 do you think the community and their concerns were

1 viable and in support of the project?

2 MR. ROY: Thank you, Commissioner, for the  
3 question. (Indiscernible) part of this project as it  
4 started up back in 2020 -- end of 2020, I think the  
5 process started, the planning process; we had  
6 initiated the environmental assessment process.

7 So we've been in the process -- you know,  
8 someone talked about the process earlier, the  
9 applicant following the requirements. We've been in  
10 this process for several years now, and part of an  
11 early commitment on the part of the applicant was to,  
12 as best it could, engage key community organizations  
13 along the way.

14 And so there were a number of -- as was  
15 mentioned by Waihee Community Association, there were  
16 several meetings with that association that were  
17 conducted along the way. There was also a community  
18 meeting that was noticed with -- I think it was  
19 landowners within 500 feet of the project site limits  
20 were invited to a community meeting, and that  
21 community meeting was held back in October of 2021.

22 And so to your question, there has been  
23 quite diligent, I would say, outreach to key  
24 community organizations as part of the project  
25 planning process. There were comments shared along

1 the way. Mostly, I would say, it was questions about  
2 the project itself, what was proposed,  
3 infrastructure-type questions.

4 I don't have all of the memos in front of  
5 me today, but I do recall that there may have been  
6 some concerns about infrastructure shared along the  
7 way of having those meetings. And the applicant, I  
8 think, tried its best to respond to the concerns that  
9 were identified through that outreach process.

10 But, hopefully, that kind of summarizes at  
11 a high level the outreach process that went forward  
12 for this project.

13 COMMISSIONER HELEKAHI-BURNS: Thank you for  
14 that answer. However, I didn't get the answer that I  
15 really -- I don't think you answered the question.

16 The question is was the community in that  
17 area supportive of the project? Yes or no?

18 MR. ROY: I don't think it's fair to say  
19 that the community was fully supportive of the  
20 project. Like all community meetings, there are  
21 individual perspectives that are shared and comments  
22 that are offered as part of the meeting process.  
23 But, certainly, there were questions asked, and the  
24 applicant tried its best to respond to the concerns  
25 that were raised.

1 COMMISSIONER HELEKAHI-BURNS: Okay. I'll  
2 take that -- that answer.

3 But these concerns of infrastructure, how  
4 are you guys being able to, like, resolve some of  
5 these concerns, especially for infrastructure?

6 You know, it just seems like you guys came  
7 in late in the game, if you know what I mean, because  
8 the place is really developed and because there's  
9 already strain on some of the really important  
10 infrastructure in that area. How are you -- because  
11 now you late in the game, you got to do more give  
12 back, right, to be able to justify a project is a  
13 benefit to the community, you know? So what is some  
14 solution -- so maybe some giveback.

15 You probably didn't foresee that there have  
16 to be a give-and-take kind of situation, especially  
17 with a project like this and on a very condensed and  
18 compacted area, infrastructure are becoming a  
19 concern. So what is your -- you know, have you guys  
20 even considered any kind of resolve to some of these  
21 concerns that the community had brought up?

22 Let's -- let's say infrastructure. What is  
23 your case scenario of a solution that would resolve  
24 some of the infrastructure strain?

25 MR. ROY: Thank you for the question.



1 Maybe just a clarification request in regards to  
2 infrastructure. Were you touching upon some of the  
3 traffic-related comments more than other aspects? We  
4 can kind of go one by one if that would help.

5 COMMISSIONER HELEKAHI-BURNS: Okay.  
6 Perfect. Yeah, let's work on traffic. Let's hit  
7 traffic. What is some of your solutions on the  
8 concerns on traffic?

9 MR. ROY: Okay. Yeah. Thank you for the  
10 question. We have Kelcee Mira here from ATA, the  
11 traffic engineer.

12 Kelcee, maybe if you wouldn't mind kind of  
13 giving an overview of the traffic impact assessment  
14 process for this project?

15 MS. MIRA: Yeah, sure. So our mission  
16 basically is to mitigate the traffic that's caused as  
17 a result of the project. And our traffic study found  
18 that we're going to be adding about 3 percent of  
19 traffic -- the project traffic will make up about  
20 percent of the a.m. and p.m. peak hours of traffic.  
21 So that's what the project's impact will be.

22 And the corresponding fair share, I guess,  
23 in dollars that the project has spoken to state and  
24 the county regarding, we found it to be \$12,480 would  
25 be the corresponding fair share which the state has

1 agreed to. And the state's request for the way that  
2 we would provide this fair share is to provide a  
3 one-time subsidy of \$104 toward the first month's  
4 rent to the first tenant occupying each of the  
5 120 units.

6 And John (phonetic) from State DOT has  
7 expressed that this is, you know, the State of Hawaii  
8 Department of Transportation partnering with local  
9 agencies to provide benefit not only for access but  
10 for affordable housing for the community.

11 COMMISSIONER HELEKAHI-BURNS: Fair share,  
12 okay. Thank you for that. That's very -- really  
13 interesting to know that there's a fair share in all  
14 of that. I'm going to need to get a little more  
15 informed about what specifically -- fair share and  
16 the State, which I'll do later.

17 One more. So -- so the other one is water.  
18 You know, that has been brought up, like how -- how  
19 and where are you -- this project site and the people  
20 who will be at this affordable housing will be  
21 getting their water? Where is their source?

22 MR. ROY: Mark Roy with Munekiyo Hiraga.

23 Stacy, did you want to go over how the  
24 water supply was going to be serviced by this  
25 project, recognizing that this is an affordable

1 housing project?

2 MR. OTOMO: There's -- part of the  
3 ordinance is 100 percent affordable housing projects  
4 qualifies for an exemption. So they have water,  
5 provided the county has water.

6 There's existing infrastructure, water  
7 infrastructure that comes from Waihee, and it  
8 currently comes down Kahekili Highway and goes up on  
9 Waiehu Beach Road. So the connection point for this  
10 project would be at that location, regarding the  
11 water. I wanted --

12 COMMISSIONER HELEKAHI-BURNS: I -- okay.  
13 Go ahead, Stacy. Finish up.

14 MR. OTOMO: One giveback is like  
15 potentially this project, wherever they extend the  
16 water line along the Kahekili Highway frontage, you  
17 know, fire hydrants could be installed which would  
18 provide fire protection that is not existent in the  
19 area right now.

20 COMMISSIONER HELEKAHI-BURNS: Good one.  
21 You know, is it -- I don't know how far you are in  
22 your guys' -- your architectural design -- being that  
23 water is a major issue, right, and any kind of  
24 housing and development pretty much on the island we  
25 should always consider the water abilities, is there

1 anywhere in your guys' design where you have designed  
2 it where it has more of a green type of usage?

3 You know, we need to start to develop  
4 developments that are conscious to our resources. So  
5 just looking at the water -- like water is something  
6 that we should really, really consider.

7 And what I want to know is whether or not  
8 your units are water friendly, you know, like how's  
9 the toilets?

10 What kind of water usage kind of practices  
11 that will -- that you guys have included in your  
12 design and in the whole project that will help to be  
13 able to alleviate so much water usage?

14 Because that's a lot of water, 70,000 a day  
15 of gallons. You know, I see that if we consider the  
16 120 times two -- a couple people in each unit -- and  
17 most going be definitely better, that's just me  
18 estimating on just a couple people in a unit, you  
19 know, that's a couple hundred people a day. So, you  
20 know, 70,000 gallons is a lot, and, you know, we know  
21 how water is.

22 So I guess my question is to the designers,  
23 have you guys considered a design that's more water  
24 friendly as we move forward in our development of our  
25 island of Maui and our strained resources that we

1 have?

2 MR. OTOMO: To answer the first part of  
3 your question, the project is not at the point where  
4 we're actually designing the units or any of the  
5 infrastructure. This is a process that we need to  
6 get through first.

7 Secondly, regarding the design of the water  
8 fixtures in the units, we all go for low-flow  
9 fixtures within the units. There is an existing  
10 older irrigation well on this project site that we're  
11 going to explore if it can be, you know, revived and  
12 potentially used for irrigation purposes; so that  
13 would take away from the domestic demand. So that's  
14 a possibility as well.

15 And I also want to stress that the number  
16 that you see of that 70,000-some-odd gallons per day  
17 is a planning number that, you know, is used by the  
18 Department of Water Supply. Realistically, when you  
19 build out the units with the low-flow fixture --  
20 fixtures, the numbers might be lower than that  
21 number, but that's a planning number that's used. I  
22 just want to make that clarification.

23 COMMISSIONER HELEKAHI-BURNS: Thank you.  
24 And as you know, I'm just putting it out there. I'm  
25 going to be recommending that, FYI, low flow --



1 MR. OTOMO: Yeah. Appreciate that.

2 COMMISSIONER HELEKAHI-BURNS: Yeah. And  
3 one more -- and this would be, like, for MEO. Is  
4 there any other place that they can consider this  
5 project to be? Because more than several people have  
6 said, this is a great project, you know, we are for  
7 housing.

8 But is there another location? Because  
9 that was what was brought up frequently during our  
10 meeting today. Is there another location that could  
11 possibly be the housing of this project?

12 MR. HOROVITZ: Certainly. Thank you for  
13 the questions. Peter Horovitz.

14 So, you know, MEO has a lot of different  
15 programs. We're not generally developers; and, in  
16 fact, we're partnering with someone who is developing  
17 this land.

18 In that regard, we don't have a trove of  
19 land that we buy and develop for housing. This was a  
20 piece of property that was gifted to MEO about 15 or  
21 16 years ago. And, frankly, we've tried a few  
22 different things with it that haven't worked.

23 And then we were approached by a developer,  
24 and it fits the mission of serving Maui's  
25 communities. So the answer is, no, we don't have our

1 own property that could be walked out.

2           There was mention of a couple of different  
3 proposals of land swaps, and I think -- it's not  
4 quite accurate to say that we were simply offered  
5 these lands and turned them down. There were two  
6 parcels in question that were floated.

7           One, there was a councilmember who had made  
8 a proposal to give -- to swap land in Puunene, the  
9 area. And if I'm recalling correctly, it was never  
10 actually taken up or passed by the council, so it was  
11 actually never really on the table.

12           I know the property in question. It's not  
13 entitled. It's not -- it doesn't have infrastructure  
14 to it.

15           We offered our thoughts on it that it  
16 basically would set the project -- any development  
17 project, any affordable housing project, back by  
18 about five to six years, assuming you could get --  
19 you know, they could get it and who knows what it  
20 would do to the cost. So that was our comments, but  
21 that never came forward.

22           The second was there was an offer of a few  
23 lots in the Maui Lani area, but these, again, really  
24 were not appropriate. These were some of the lots  
25 that the county had taken back or had purchased as a

1 matter of -- as a settlement with the developer of  
2 Maui Lani because there were serious problems with  
3 whether they could be developed.

4 In fact, there were about -- I can't  
5 remember the exact number, about 15 or 20 lots or so  
6 that the county had purchased. A few that, on either  
7 side, that they had gotten were given over to the  
8 hospital foundation to develop for nurses and  
9 whatnot, which is great.

10 The lots that they had remaining that they  
11 offered up were the ones that were seriously  
12 problematic and you couldn't build more than a foot  
13 high. So it was basically, you know, land that  
14 couldn't actually be used.

15 And, again, we're not developers, but we  
16 have this asset that we're struggling to find  
17 something to do with, and Highridge Costa is in the  
18 business and could do it and serve the community.

19 So I hope that answers the question. I'm  
20 happy to follow up on that further if Commissioner  
21 would like.

22 COMMISSIONER HELEKAHI-BURNS: Thank you for  
23 addressing those sites that came up earlier in our  
24 meeting.

25 And one more, just for -- what is MEO's

1 formula or accountability to make sure that this  
2 affordable housing will be used for the present  
3 residents that are in need now, like right now. And,  
4 you know, would probably take you a couple years to  
5 get it developed, but what formula are you using to  
6 ensure that it's the residents that we have now  
7 that's going to get these affordable housing and not  
8 those who are coming to Hawaii now?

9 MR. CHUN: Yeah. Thank you, Commissioner,  
10 for that question. This is Grant Chun from Hale  
11 Mahaolu.

12 We would be managing the property and the  
13 visa of the units when they are -- after they've been  
14 constructed. And so, in that regard, we would  
15 establish the tenant selection plan which typically  
16 would, under the circumstances that we face here on  
17 Maui, provide for a priority for those that had been  
18 displaced by, like, a natural disaster like what  
19 we've experienced here in our community.

20 So the -- the funding that we will be  
21 utilizing for this allows us to make a special  
22 accommodation for, you know, situations like what we  
23 faced here on Maui. And so we intend to do that.

24 COMMISSIONER HELEKAHI-BURNS: I would like  
25 to know more about your special accommodations like

1 just displaced, those from natural disasters, because  
2 special accommodations could be -- you know, could be  
3 very vague and too widespread when we're looking at  
4 our current housing problem now, you know?

5 So special accommodations five years from  
6 now could, you know, get a person who hasn't been in  
7 Hawaii for a year or two. So, like, I kind of want  
8 to just -- want to know how you ensure that those  
9 people that need it now, you know, how do you do it?

10 What is your formula that you use to say  
11 that those who (indiscernible) not at the time that  
12 you do the tenant selection after your project is  
13 finished, but now?

14 MR. CHUN: The tenant -- yeah, I can answer  
15 that question.

16 COMMISSIONER HELEKAHI-BURNS: Go ahead.

17 MR. CHUN: So we -- yeah. So we frequently  
18 get asked that question because there is the  
19 perception that these units once they become  
20 available on our island are, you know, taken up with  
21 people who aren't from here.

22 That's a common concern, and, to a degree,  
23 it's not a completely accurate perception because  
24 actually what we do -- which is actually allowed for  
25 because it's a concern in many communities across the



1 country -- is we're very restrictive on the front end  
2 as far as our process.

3 So the -- typically, the initial  
4 applications are provided locally on paper where  
5 people will actually come in and pick up their  
6 applications in person. And it sounds pretty  
7 old-fashioned and archaic, but I will tell you that  
8 housing operators across the country in highly  
9 desirable communities like ours do this -- are  
10 engaged in this very practice. Why? Because they  
11 want to make sure that it's their community that is  
12 accommodated for, first and foremost; right?

13 So overlaid into that process -- what I was  
14 referring to is that once the applications become  
15 available, there is -- we do have the ability to  
16 accommodate in the plan as far as, you know, folks  
17 that have been displaced by disaster, right, so like  
18 the Lahaina fires. So we are able to do that.

19 And I know -- I get your question in terms  
20 of -- I guess we don't know -- we don't have a  
21 crystal ball as far as what our community is going to  
22 be needing in the way of placement for folks, you  
23 know, in a few years when this project is finally  
24 constructed.

25 And so, again, the -- we do have

1 flexibility in how we define that -- that cohort of  
2 applicants so we can make sure to best accommodate  
3 for the needs of our own community, a local  
4 community.

5 COMMISSIONER HELEKAHI-BURNS: Thank you so  
6 much. And that's all for now. Mahalo.

7 CHAIR PALI: Great. Commissioners, we're  
8 going to take a ten-minute bathroom break. And if  
9 you have the luxury of being home, you might be able  
10 to grab a snack, but we'll come back in ten minutes.  
11 So let's convene -- shoots, let's make it 1:20, 1:20.  
12 Okay, thank you.

13 (Whereupon, a recess was held  
14 from 1:10 p.m. to 1:29 p.m.)

15 CHAIR PALI: Planning Commission, it is  
16 1:31. Actually, my phone says 1:29, so we'll go with  
17 that.

18 Okay. So we are at the place where we are  
19 now asking questions so that way we can prepare for  
20 deliberation and then send a recommendation to  
21 council on the district boundary amendment from  
22 agricultural to urban for the Hale Mahaolu Ke Kahua  
23 Affordable Housing Community.

24 And we've already heard from Lindsey,  
25 Kealoha, and Helekahe-Burns. I want to go over to

1 Deakos. Then from Deakos, we'll go to Thompson, and  
2 then we'll go to Vice Chair Thayer.

3 And I just want to, again, preface that  
4 because we do not have the final authority on this --  
5 it is a recommendation -- you know, it's likely we  
6 will not see it again. It's likely we will not see  
7 this again, so I do want to give you the rein to ask  
8 the questions you need for your recommendation.

9 But I also -- you know, we have a time  
10 limit for our -- our space here, so I need you to  
11 sort of -- I think it's helpful when we're at the  
12 question stage, we don't necessarily have to tease  
13 out our question, just ask your question and let the  
14 applicant answer it.

15 And then if you have more questions, go  
16 ahead and ask more questions, but we definitely don't  
17 need to spend too much time giving our opinions or  
18 justifying the question because we don't want to get  
19 into a situation where we're deliberating before we  
20 create a full record.

21 I just -- I'm trying to protect you all and  
22 myself legally, so let's just do that.

23 We can deliberate and --

24 MR. HOPPER: (No audio.)

25 CHAIR PALI: Okay. Okay. So since this is

1 not a contested case, Counsel is just trying to tell  
2 me that there's a teeny bit more leeway, so we're not  
3 all -- we're still in the clear, folks, we're still  
4 in the clear, but -- anyway. Okay. So that's your  
5 instructions from Chair.

6 I'm going to go next now to Commissioner  
7 Deakos. Do you have your -- oh, I'm sorry. Let me  
8 go to Director first.

9 DIRECTOR AOKI: Just to clarify what Chair  
10 Pali is saying, we have to physically be out of this  
11 room by 3:30. So this meeting must end by 3:30. So  
12 I would really ask that a recommendation be voted on  
13 and provided to us by the end of this meeting. Thank  
14 you.

15 CHAIR PALI: Great. Thank you for that.  
16 Okay.

17 Commissioner Deakos, you've got opportunity  
18 to ask any questions you need to help you attain  
19 clarity on your decision for recommendation on the  
20 state land use district boundary amendment for this  
21 Hale Mahaolu Ke Kahua project.

22 COMMISSIONER DEAKOS: Thank you, Chair.  
23 Yeah, I have a few questions.

24 So, first, I just commend, you know, doing  
25 100 percent affordable, 60 percent AMI. Very few

1 people hit that space, so congrats on doing that.

2 I do know that there is a lot of -- you  
3 know, once you're in that space, there's a lot of  
4 compromise on the buildings that don't necessarily --  
5 sort of a collision between environmental impacts,  
6 the water -- we've heard all about the water, all  
7 that -- and then the ability to house people  
8 affordably, and I think those two don't have to be at  
9 odds with one another.

10 So I work a lot with people that do design  
11 buildings, they design out all those impacts. So  
12 some of your questions I'll be following up from my  
13 colleagues in similar way.

14 Water is a huge one, so we'll start with  
15 water. I'm struggling a bit with the -- I know  
16 there's a map of the stream that hasn't been pulled  
17 up yet. There's also -- that goes just to the north  
18 of the property. I don't know if you can pull that  
19 up. It's on the Page 85 of the application.

20 And then there's another stream. It looks  
21 like that comes up from the -- sort of the southeast,  
22 that it interjects with that. And the reason I'm  
23 interested in the stream, there was talk about the  
24 overflow. So when you get those high rain events,  
25 there is some flooding; it's been prone to flooding.



1           So what -- is that where it floods in that  
2     juncture where the two streams meet? Could you  
3     expand a little more on that? What's being mitigated  
4     in that -- for that flood area?

5           MR. ROY: Thank you, Commissioner Deakos,  
6     for the question. Hopefully you can hear us okay.

7           So we're -- we're just in the process of  
8     pulling up a figure that I think will hopefully help  
9     the discussion in terms of the resources around the  
10    project site.

11          So this is the streams and wetlands map  
12    that was from the Final Environmental Assessment that  
13    was accepted by the Department of Housing and Human  
14    Concerns. And so it shows the alignment of Waiehu  
15    Stream to the north of the project site just across  
16    the intersection there.

17          COMMISSIONER DEAKOS: Yeah. So I don't  
18    know -- somebody mentioned there's a 90-degree bend  
19    that's not natural. There's a diversion that's not  
20    natural.

21          That's why when the stream flows heavy, it  
22    tends to go back to its natural flow. And I'm just  
23    curious where that happens with respect to this  
24    property.

25          MR. ROY: I'm not sure that I can answer

1 that question, at least. I'll -- I know Stacy Otomo,  
2 the civil engineer, is still on the line with us,  
3 maybe he can add some input here.

4 But that was based on a comment made by a  
5 testifier. I'm not sure I'm able to provide any  
6 clarification on that specific comment. I apologize.

7 CHAIR PALI: If I may, Commissioner Deakos,  
8 a better question might be, you know, we've heard  
9 that there potentially could be this thing, like this  
10 bend, and can you validate that you have found it,  
11 that you observed the same bend?

12 That's a better way to ask that question.  
13 It's hard to validate someone's testimony when they  
14 may not have observed that.

15 COMMISSIONER DEAKOS: So do you -- are you  
16 aware of where this stream tends to overflow and  
17 affect neighboring properties? Is it anywhere near  
18 this parcel?

19 MR. ROY: Yeah, thank you. Thanks for the  
20 question. The concern about localized flooding I  
21 believe in the intersection -- in the vicinity of the  
22 intersection of where Kahekili Highway meets Waiehu  
23 Beach Road, that's where there's a culvert that is  
24 owned and maintained by the state Department of  
25 Transportation is located.

1 I think some of the comments in testimony  
2 this morning were maybe pertaining to some of the  
3 conditions arising from localized flooding from that  
4 specific culvert. The comments that we had received  
5 during the process, the environmental assessment  
6 process, was that there seems to have been -- so it's  
7 the responsibility of the state Department of  
8 Transportation to maintain that culvert because it's  
9 located within the right-of-way of the roadway  
10 itself.

11 Our understanding is that that was -- it is  
12 cleaned out periodically by state Department of  
13 Transportation. And when it is cleared out, it seems  
14 to resolve the localized flooding condition in that  
15 specific area. So I think it is maybe a  
16 maintenance-type issue versus a regional flooding  
17 consideration.

18 The flood zone designation for the project  
19 site, the red outline here on the figure, is actually  
20 Flood Zone X, so it's an area of minimal flooding.  
21 It's not designated as a flood zone by the federal  
22 government.

23 But, yeah, that's what we understand the --  
24 some of the comments pertaining to observed flooding  
25 in the intersection area coming from. Hopefully that

1 helps.

2 COMMISSIONER DEAKOS: Yeah. It seems it's  
3 a little outside your zone anyway. So with respect  
4 to the stormwater that lands on your property, where  
5 rainwater, sheet flow, whatever -- so I think you  
6 mentioned or somebody in the group mentioned the  
7 infiltration.

8 So, ideally, you would infiltrate  
9 100 percent of all the water that lands on the  
10 property. It sounds like the substrate is all sand  
11 so it shouldn't be any problem. At least putting  
12 that stormwater -- if you can slow it down -- sounds  
13 like you have some mitigation measures to slow that  
14 water down to infiltrate it.

15 Are you able to do 100 percent? What  
16 mitigation are you using to address the 100 percent  
17 of the stormwater on your site?

18 MR. ROY: Yeah. Thanks, Commissioner.  
19 This is maybe where I have to defer to the expert in  
20 the room, so we've got Stacy Otomo who's the civil  
21 engineer. He's designed the -- well, his company has  
22 designed the drainage plan for this project.

23 And, Stacy, maybe if you wouldn't mind  
24 speaking to the -- how much is being retained through  
25 the drainage plan for this project

1 MR. OTOMO: Commissioner Deakos, to answer  
2 your question, the county drainage standards require  
3 you to mitigate the increase in runoff from a  
4 50-year, one-hour storm.

5 What's happening is generally the site --  
6 runoff on the site, sheetflows from the southerly  
7 boundary toward the northerly boundary, the Waiehu  
8 Beach Road-Kahekili Highway intersection -- so from  
9 there, there's a 48-inch culvert that goes across  
10 Waiehu Beach Road. So the drainage system on the  
11 site would take care of the increase.

12 The release to that existing culvert would  
13 be no more than what's going there now, and the  
14 drainage system would -- for this project would be  
15 like a perforated drainage system where everything's  
16 held underground in a perforated pipe that  
17 infiltrates into the ground. But we are not handling  
18 100 percent of the 50-year storm, just the increase  
19 and maybe a tad more than that.

20 COMMISSIONER DEAKOS: Okay, I appreciate  
21 that. And I understand what is required, and I think  
22 some of the questions deal with -- you know, people  
23 just doing what's required by code doesn't get us to  
24 fixing the problem. So if you're just controlling  
25 the additional impervious surface that you're



1 creating and not addressing what was there before, we  
2 never get ahead of the game.

3 So it's always nice to hear people say,  
4 we're actually going above and beyond what's legal to  
5 mitigate. So if you're able to control more than  
6 just what's the additional impact you're creating,  
7 that would be -- that would be great.

8 MR. OTOMO: I can tell you, as a designer,  
9 when you're required to mitigate so much, we would  
10 never design a system to maintain that exact amount.  
11 You know, obviously there's maintenance issue,  
12 there's other things that affect the system. So we  
13 normally put a little bit of factor of safety into  
14 the design. It may be 5, 10 percent.

15 Again, you know, the pipes come in certain  
16 lengths, so if you needed only 2 more extra feet of  
17 pipe but there's 20 feet of extra pipe, you know,  
18 then that adds to the capacity of the system as well.  
19 But we definitely are going to be more than just the  
20 increase. At this point, we don't know how much more  
21 because the system's not designed.

22 COMMISSIONER DEAKOS: Okay. And I  
23 recognize we're early in the game here, so hopefully  
24 these designs can be implemented. I know -- I think  
25 DOH -- there's maybe the Department of

1 Sustainability -- I tried to get through the thousand  
2 pages of the application. There may have been some  
3 Department of Water -- I don't know.

4 They were asking for additional mitigation  
5 that looks like rainwater catchment, so this is a  
6 great way to address stormwater, you know, allow for  
7 irrigation on the property without tapping the  
8 potable (indiscernible). Is there any design measure  
9 for water catchment?

10 MR. OTOMO: At this time, we're not that  
11 far along where we have that, but the drainage  
12 system, like I said, would do more than what we are  
13 obligated to do by the drainage standards.

14 COMMISSIONER DEAKOS: Okay. So it sounds  
15 like no -- no discussion about rainwater catchment  
16 storage in this design?

17 MR. OTOMO: Not at this time.

18 COMMISSIONER DEAKOS: Is there a way -- you  
19 mentioned a well you were tapping into. There's a  
20 concern that as each project comes online, we're just  
21 putting another straw in the aquifer. We know water  
22 is a precious resource.

23 So, again, a lot of these requests in your  
24 application in order to address potable water --  
25 reduce load on potable water I think you mentioned,

1 you know, water-efficient fixtures, low-flow  
2 fixtures; that's great.

3 Do you have any other mitigation that --

4 MR. OTOMO: Well, first of all, the well is  
5 an existing well. It's not going to be dug as a  
6 brand-new well.

7 COMMISSIONER DEAKOS: Sure.

8 MR. OTOMO: Maybe somebody from MEO can  
9 answer this, but there's also a storage tank that is  
10 associated with that well. So that well at one point  
11 in time was in use, and we just need to take a look  
12 at it -- you know, how viable it is to use it for  
13 irrigation.

14 COMMISSIONER DEAKOS: Sure, I understand.  
15 But that's still taking out of the -- I'm not saying  
16 you're drilling a new -- but the way to reduce  
17 potable water use anyway would be, for example,  
18 rainwater catchment for irrigation, your low flow as  
19 you already mentioned you're doing.

20 Is there any, you know, greywater? I think  
21 there were some suggestions trying to use greywater,  
22 maximize that water use outdoors so that you're just  
23 minimizing your impact on the aquifer on potable  
24 water systems.

25 MR. OTOMO: We're not at that particular

1 stage yet, but, you know, it's something that we can  
2 take a look at. But definitely the drainage system,  
3 you know, would provide recharge to the aquifer.

4 COMMISSIONER DEAKOS: Sure, yeah. Is there  
5 R1 capability there for irrigation?

6 MR. OTOMO: The treatment plan is way down  
7 in Kahului, so to get our volume of water to this  
8 particular site would be -- the facilities are not  
9 there.

10 COMMISSIONER DEAKOS: Okay. Okay. The  
11 greywater would be from the residents themselves if  
12 you were willing to use that, treat that on-site.

13 And then wastewater is another -- it sort  
14 of ties in as we -- I know that you mentioned that  
15 there's sewer capacity to handle the load to dumping  
16 in. We always want to minimize wastewater, so the  
17 more we can infiltrate -- again, that deals with  
18 treating all your showers and sinks and all your  
19 greywater, your washing, if that can be treated  
20 on-site.

21 And, again, I think the reflex is, well,  
22 that's going to increase costs. We have plenty of  
23 examples where they've done this at low cost. So is  
24 there any -- I think you already answered that  
25 question. There's no -- is there any interest in

1 doing greywater treatment (no audio) project?

2 MR. OTOMO: Yeah, I would defer that to the  
3 developer.

4 COMMISSIONER DEAKOS: Okay.

5 CHAIR PALI: Just for the sake of time,  
6 Commissioner Deakos, if you desire to see that, we  
7 can put in the recommendation that the applicant  
8 would consider it. So we don't -- it sounds like  
9 he's sort of answered that question that -- I mean,  
10 we're a little bit ahead of that because we're not --  
11 they haven't started the design yet.

12 And so we're a little early in the game,  
13 but if you want to -- if that's something that you're  
14 passionate about and you think that's helpful to  
15 where it would not hurt the project or the applicants  
16 that it's meant to serve, then we can consider, when  
17 we do a recommendation to council, that they would  
18 just consider it. So you can just make a list.

19 And, commissioners, I would like to task  
20 you with making a list of things that you would like  
21 to have in your recommendation so when we're done  
22 with our questions we can kind of get through that  
23 pretty quick.

24 COMMISSIONER DEAKOS: Yeah. Thank you,  
25 Chair. And, yes, I realize it's early in the game.



1 Of course we're not going to see this again, so just  
2 trying to get ahead of the game.

3 So -- and water is such a big issue that it  
4 just -- it's nice when the applicants say, we  
5 understand, we recognize the water issue, we're doing  
6 these measures to get -- you know, to go beyond code  
7 to demonstrate our commitment to the concerns of the  
8 community.

9 Energy is the other big one. I saw a lot  
10 of comments from various agencies asking about energy  
11 efficiency. Can you address how you're mitigating --  
12 or you plan to mitigate -- essentially, we know  
13 what -- we know what the traditional load is for a  
14 residential building or a residential home.

15 Are you planning to reduce that load with  
16 passive design measures, some efficiency -- you know,  
17 efficient appliances, tons of tax credits that go  
18 towards that. Can you address some of the  
19 efficiency?

20 MR. ROY: Thank you. Thank you,  
21 Commissioner. No, everything that you've mentioned  
22 is -- is obviously a consideration these days for  
23 development -- developments. But the one thing I  
24 think, you know, we would just maybe emphasize again  
25 is the cost considerations associated with affordable

1 housing and bringing together the financing for these  
2 projects to be able to happen.

3 I think there is a desire from the  
4 applicant's perspective to do what they can when it  
5 comes to energy efficiency and also conservation as  
6 well. And based on where the design is currently and  
7 the financing obligations for the project, that's  
8 really -- it's certainly something that they can look  
9 into as they continue to move forward with the  
10 design.

11 COMMISSIONER DEAKOS: Okay. Yeah.  
12 Oftentimes, we talk about the affordable housing  
13 part, but for people that live in there that are low  
14 income, you know, utility bills can kill them, all  
15 these other expenses. So having energy efficiency in  
16 there is extremely important for low income.

17 And so on that same note -- I assume I'll  
18 get the same answer, but solar panels were mentioned  
19 a lot as a recommendation. I mean, they're doing  
20 net-zero affordable homes all over the place now,  
21 especially out here in Hawaii because our energy  
22 is -- you know, our energy is one of the most  
23 expensive state in the country, so the cost  
24 equivalency is usually on par.

25 Is there any consideration of solar panels?

1                   And to add to that, I think solar water  
2 heating is a requirement, but can you just confirm  
3 that?

4                   MS. CABEBE: This is Debbie Cabebe from  
5 MEO. One of the programs that we run as a nonprofit  
6 that primarily works with low-income individuals is  
7 energy assistance programs. So we do energy audits  
8 in people's homes and help them find ways to reduce  
9 their energy consumption.

10                  Some of our programs even allow us to  
11 replace older refrigerators and stoves and things  
12 like that with newer models that will reduce their  
13 energy consumption. We do hot water heaters, and we  
14 do have some limited funding sometimes to put solar  
15 panels on.

16                  So -- I mean, I don't know if there's a way  
17 we can look at a larger project. I know many years  
18 ago we actually did do a partnership with one of the  
19 Hale Mahaolu properties and brought in some federal  
20 funds, and we were able to put solar on all of the  
21 properties.

22                  So, again, I think it's early in the  
23 project, and we don't know all those details, but  
24 those are definitely areas that are (audio  
25 difficulty) for low-income families.

1 COMMISSIONER DEAKOS: That's great. And I  
2 know there's -- Hawaii Energy does massive credits  
3 for affordable homes. I think it's uncapped. It's  
4 200,000 for nonaffordable, but there's no cap so I  
5 think there's lots of ways to pencil it out. So I  
6 appreciate that, that you do work with them.

7 Just a couple other quick ones, the  
8 affordable rental I think I saw 60 years. Can you  
9 just explain to me how the rental gets -- stays  
10 affordable? How does that work?

11 MR. HEATON: Hi, Commissioner. This is  
12 Monte Heaton with Highridge Costa. So when we go  
13 after low-income housing tax credits -- when we go  
14 after our financing with HHFDC, it is a requirement  
15 of receiving those financing sources that we commit  
16 to some period of affordability.

17 Because of the way that scoring is  
18 structured in the competitive application with HHFDC,  
19 it's very difficult to get an allocation without an  
20 extended period of affordability. And, essentially,  
21 all of our projects we go with 60-years-plus, and  
22 that deed restriction will be recorded against the  
23 site for that period of time.

24 CHAIR PALI: I'm going to interrupt real  
25 quick and -- Development team, can you take down the

1 screen share so I can see my commissioners a little  
2 better? Thank you.

3 COMMISSIONER DEAKOS: That's good. I think  
4 that's all I have, Chair. Thank you.

5 CHAIR PALI: Great. Thank you,  
6 Commissioner Deakos. All right.

7 So to the galley, whoever doesn't have  
8 pizza in their mouth, do you have questions?

9 COMMISSIONER THOMPSON: Thank you, Chair.  
10 And actually no further questions from me.

11 CHAIR PALI: Great. And Vice Chair Thayer?

12 VICE CHAIR THAYER: Thank you, Chair. I do  
13 have -- some of my questions have been answered by  
14 the questions asked by fellow commissioners, but I do  
15 have a couple of follow-up questions, one being on  
16 drainage and flooding in that northern portion of the  
17 site.

18 So I live in Paukukalo and I have  
19 personally seen that portion of the site full of  
20 water after, like, the big rains in -- what was it,  
21 2020ish maybe -- but like the water going over the  
22 road and collecting in that side of the site.

23 And there's a really good survey map on  
24 Page 41 of the PDF. It's the district boundary  
25 survey map, and it shows the swale and everything,



1 and it shows the culvert in that part of the  
2 property.

3 Do you -- I guess within the drainage plan  
4 and the maintenance plan for the site, do you foresee  
5 that flooding condition being alleviated?

6 MR. ROY: Thank you, Commissioner, for the  
7 question. I think we've got Stacy Otomo on the line  
8 still, so I think he's maybe best place to answer  
9 that question for you.

10 MR. OTOMO: Commissioner Thayer, to answer  
11 your question, the project will not increase the flow  
12 to the culvert system. My understanding of past  
13 events that happened there regarding flooding was  
14 that the inlet that you just referenced on that map  
15 got clogged with debris. And I think MEO, on several  
16 occasions, contacted the DOT to remove the debris.

17 Again, when the site is developed, a lot of  
18 the vegetations that are on the site now would be  
19 cleared, so the runoff would not contain as much  
20 on-site debris onto the culvert system.

21 And one of the things I think that we can  
22 look at -- because I didn't have a chance to actually  
23 look at the inlet, but one of the topographic maps I  
24 saw seems to have indicated that there may be a grate  
25 that sits on top of that inlet. And that may be

1 contributing to some of the -- is possibly modifying  
2 that inlet to help the clogging situation.

3 VICE CHAIR THAYER: Yeah. That would be  
4 good, you know, the concern being, as some people  
5 have raised today, that these are -- okay. Sorry.  
6 Oh, yay. Is this better? Okay.

7 So some of the concerns brought up where --  
8 you know, for the safety of the residents who are  
9 there -- because these are generally going to be  
10 people and families who have limited resources  
11 already, so to make sure that they're going to be as  
12 safe as possible and not impacted in times of, you  
13 know, natural disasters. And so that's a big concern  
14 that should be addressed.

15 And in the -- in the EA within the comment  
16 letters and within the responses to the comment  
17 letters and the body of the EA itself, there was  
18 representation that HDOT would be responsible for  
19 making sure the culvert is cleaned out.

20 Do you have assurances from them that  
21 they'll do this? Because some of the comments that  
22 were brought up, like in the written letters, were  
23 questioning if that can be relied upon without a set  
24 assurance because, in times past, it's been very  
25 obvious that the culvert has not been cleaned out

1 which has led to the flooding.

2 So is there some kind of assurance that  
3 HDOT is going to uphold their kuleana to make sure  
4 that this place is safe?

5 MR. OTOMO: Well, it's definitely an HDOT  
6 culvert. The facilities, I think, you know, you have  
7 more eyes there in the event that it starts to get  
8 clogged where maybe DOT could be notified earlier.

9 And also what may help is that the site  
10 would have a maintenance crew, you know, obviously  
11 maintaining the landscaping and so forth. And maybe  
12 at times when they do see excessive debris in or near  
13 the headwall, they could help with cleaning it. But  
14 the primary, you know, maintenance should come from  
15 the DOT.

16 VICE CHAIR THAYER: Okay. Thank you. And  
17 related to this on drainage, the swale that's on the  
18 east side of the property is going to be maintained  
19 and some of the runoff from the -- sorry, I couldn't  
20 find the drainage plan that usually has all the  
21 arrows that show where the sheetflow direction  
22 goes -- but the drainage from the -- like the parking  
23 lot and everything is going to flow where?

24 MR. OTOMO: The parking lot and the  
25 buildings are going to flow toward the parking lots

1 more than likely, and the catch basins and the  
2 drainage systems will be in the parking lots so  
3 runoff would not so much go from the project site  
4 into the swale.

5 VICE CHAIR THAYER: Okay. And then would  
6 anything from the parking lot -- I guess my concern  
7 is anything from the parking lot flowing through the  
8 culvert and then into Waiehu Stream and then into the  
9 ocean? So is there some kind of way to prevent the  
10 flow over the parking lot taking all of that car  
11 drippings into Waiehu Stream?

12 MR. OTOMO: Again, this is going to be a  
13 subsurface drainage system where all the runoff goes  
14 into the subsurface drain. It's allowed to percolate  
15 into the ground and, you know, for the most part,  
16 it's sand out here so I would think the percolation  
17 rate would be fair.

18 But there would be an overflow that, you  
19 know, discharges into this culvert system at a lesser  
20 rate than what's going in there now. We're not  
21 stopping 100 percent of the flow.

22 VICE CHAIR THAYER: Okay. But I guess you  
23 have little concern that any of the, I guess,  
24 particulates that drip onto the parking lot won't  
25 necessarily flow into the stream?

1 MR. OTOMO: Well, what we normally do,  
2 Commissioner -- what we normally do is we call for  
3 what they call catch basin inserts where there's like  
4 a bag that goes in underneath the grate that  
5 specifically addresses the concerns you just  
6 mentioned that help filters out the sediment as well  
7 as petroleum products to a certain degree. We can  
8 call for those in the catch basins.

9 VICE CHAIR THAYER: Okay. Beautiful, yeah.  
10 Thank you. Just making sure there's not anything  
11 flowing into the stream and into the ocean.

12 I do have comments on the landscaping plan  
13 that was in there, and coming from the perspective of  
14 minimizing water use, there was heliconia and ginger  
15 in there which are -- require a lot of water to keep  
16 maintained. They're also somewhat invasive and hard  
17 to control without a lot of attention. But if those  
18 could be replaced with some other native or fruit  
19 trees instead, that would be really good.

20 There's a Maui County Planting Plan you can  
21 refer to. And there were other plants mentioned in  
22 the Cultural Impact Assessment, which you did get a  
23 lot, and I commend you for including all those  
24 awesome groundcovers and shrubs, but I would be a  
25 proponent for replacing the ginger and heliconia with



1 less water-thirsty plants, preferably natives.

2 MR. ROY: Thank you for the comment,  
3 Commissioner. We do have the landscape architect  
4 with us today as well. I think David Sereda is still  
5 on the line if there are specific questions on the  
6 landscape plan.

7 VICE CHAIR THAYER: My question would be  
8 would you be open to replacing such plants as  
9 heliconia and ginger with natives that are  
10 drought-tolerant and require less water?

11 MR. SEREDA: Hi, everybody. This is David  
12 Sereda, the landscape architect for the project.  
13 Yes, that's a good suggestion, and we would -- we  
14 would do that.

15 VICE CHAIR THAYER: Thank you. Appreciate  
16 it. And if I may, if you would indulge me to  
17 further, to replace the Singapore plumeria with  
18 another kind of plumeria because you could at least  
19 have lei plants around there, and Singapore plumeria  
20 is not very good for lei because the flowers -- yeah.

21 CHAIR PALI: Junk, let's put that on  
22 record. The flower is junk.

23 MR. SEREDA: Sure. This is David Sereda  
24 again. Yeah, we can -- we could also look at  
25 different types of plumeria.

1 CHAIR PALI: Other than the Singapore.

2 VICE CHAIR THAYER: Yeah, other than the  
3 Singapore plumeria.

4 And then like the fern tree that's in there  
5 could be replaced with koai'a. That is like a  
6 dryland native tree that would grow in the area and  
7 have more significance and use than the fern tree (no  
8 audio) and for the golden glory -- golden glory and  
9 fern tree.

10 CHAIR PALI: Replacement for the golden  
11 glory?

12 VICE CHAIR THAYER: I would suggest (audio  
13 difficulty).

14 CHAIR PALI: Okay. How does this sound  
15 now? Back to normal?

16 VICE CHAIR THAYER: And there's nurseries  
17 on island that would be able to give you good  
18 direction as well. Thank you.

19 CHAIR PALI: Okay. Anything else? I would  
20 give everybody one more opportunity for one single,  
21 last question, and then we'll go ahead in to  
22 deliberate, so I'll just go around for your final  
23 question.

24 And, again, it's a question; we'll have  
25 plenty of time to discuss it, but if you have a

1 question, specifically a question.

2 Commissioner Lindsey?

3 COMMISSIONER LINDSEY: Can you give me --  
4 can you skip me and come back because I have two  
5 questions, and I need to pick one.

6 CHAIR PALI: Okay. Commissioner  
7 Helekahi-Burns?

8 COMMISSIONER HELEKAHI-BURNS: I'm good.  
9 Mahalo.

10 CHAIR PALI: All right. Commissioner  
11 Kealoha?

12 COMMISSIONER KEALOHA: I'm good, too.  
13 Thank you.

14 CHAIR PALI: Great. Commissioner Deakos?

15 COMMISSIONER DEAKOS: Thank you, Chair.

16 One clarification question, I know there  
17 was a request that you don't cut down the trees  
18 larger than 15 feet, but I've heard several times  
19 that you're clearing out the trees so there will be  
20 less debris.

21 Can you clarify if the trees -- the large  
22 trees are staying to combat the heat island effect or  
23 if they're being cut down?

24 MR. ROY: Thank you, Commissioner Deakos.  
25 We've got David Sereda on the line still. I think

1 landscape architect, he can maybe address that  
2 specific question.

3 MR. SEREDA: This is David Sereda again.  
4 In terms of keeping the mature canopy trees, it would  
5 have to be on a tree-by-tree basis. We would take a  
6 look at where they are located in terms of the  
7 proposed buildings, roads, parking areas, sidewalks,  
8 and so forth.

9 But it's certainly within the realm of  
10 possibility to keep some of them, and it would be  
11 something that we would go over with the client.

12 COMMISSIONER DEAKOS: Okay. I know the  
13 application says you will be doing that, so you may  
14 want to update that language in the application.

15 CHAIR PALI: Great. Commissioner Thompson?

16 COMMISSIONER THOMPSON: No further  
17 questions. Thanks, Chair.

18 CHAIR PALI: Commissioner Thayer?

19 VICE CHAIR THAYER: Thank you. I did have  
20 another question on transportation options. There  
21 was talk of exploring bus stops or a bus stop around  
22 the site or nearby it to give -- you know, one, to  
23 give the residents other options. If they are  
24 low-income people, they may not have their own cars,  
25 but also to help alleviate the additional traffic

1 from these residents.

2 Has there been any kind of progress made in  
3 determining that?

4 MR. ROY: Thank you, Commissioner, for the  
5 question. That's certainly something that the  
6 applicant has been interested in pursuing. Again,  
7 the plans for the project is still in the process of  
8 being detailed out from a construction drawing  
9 standpoint.

10 And, you know, for the past year, we've  
11 gone through a fairly extensive 2.97 application,  
12 2.97 process with the county council and the  
13 administration, and we've ended up with approved  
14 modified exemptions for the project that relate to  
15 frontage improvements that need to be installed as  
16 part of the project.

17 So sidewalks, et cetera -- there's a  
18 condition that specifically relates to working with  
19 the Department of Public Works director and to be  
20 able to modify standards in order to accommodate the  
21 120 units for this project to be preserved. Because  
22 it's a very narrow site, this particular project  
23 site, so there is some level of concern about  
24 maintaining the 120 units with providing other  
25 amenities on or off-site.



1 But it does still continue to be something  
2 that the applicant is (audio difficulty) Department  
3 of Transportation. We just don't have a definitive  
4 answer at this point based on the amount of space  
5 that there is for frontage improvements.

6 VICE CHAIR THAYER: Thank you for the  
7 update.

8 CHAIR PALI: Okay. Great. I -- oh,  
9 Commissioner Lindsey? Did that help?

10 COMMISSIONER LINDSEY: It did help a little  
11 bit. I have no more questions. Thank you.

12 CHAIR PALI: Okay. Great. Okay. So I did  
13 my best to try to take your comments, and I created a  
14 list to help this recommendation process go smoothly.  
15 But as you were questioning the applicant, I'm hoping  
16 you made your own list, so if it didn't make my list,  
17 we've not forgotten about it.

18 So I'm just going to read it off, and then  
19 if there's anything that you guys want to comment on  
20 or if there's something big you disagree on --  
21 because we are going to be sending this sort of as a  
22 unified group as a recommendation, and so I just want  
23 to make sure we're all sort of on board.

24 And then we can just -- I'm going to read  
25 this list out and then we'll just talk through it.

1 It's an open discussion; we can deliberate. And so  
2 I'll just go ahead.

3 And the first one was about the HDOT  
4 culvert. It looks like maybe -- Director, can you --  
5 if it's not the applicant's -- if it's not under  
6 their purview, is there then nothing that we can do  
7 to sort of, like, point to -- like maybe whoever's  
8 managing the property could, like, be a site  
9 inspection and say, hey, we're going to -- since  
10 we're there, we're going to just inspect the T when  
11 we feel it's, you know, getting clogged.

12 Because -- just saying that it's DOT's  
13 responsibility, I wonder if there's some kind of  
14 partnership because I think our concern is that if  
15 they're not maintaining it, which they haven't been,  
16 or we've noticed they haven't been regularly, how can  
17 we sort of partner with them and then put that on the  
18 applicant to help out?

19 DIRECTOR AOKI: Thank you, Chair. You're  
20 right. We can't really mandate that the DOT do their  
21 job. So I think if there was a condition that wanted  
22 to be added or suggested that the applicant, DOT --  
23 and provide regular updates or alert them --

24 CHAIR PALI: Like inspections, like, hey,  
25 are you committed to looking at this every quarter or

1 something like that, and then reporting quarterly to  
2 the DOT, hey, this is the condition.

3 I feel like -- just with what we've learned  
4 recently, it's really everybody's job to watch out  
5 for the surrounding area to sort of mitigate a  
6 situation where it would be worse when a flood or  
7 something like that happens. Okay.

8 So that was one of the things brought up,  
9 just that, you know, hey, can we get this maintained?  
10 But since our applicant isn't responsible for  
11 maintaining, maybe we can have a recommendation that  
12 says the applicant will inspect quarterly and then  
13 send reports or updates to DOT to just put them on  
14 alert.

15 Another one was from Deakos, consider best  
16 practices -- and, Deakos, I'll let you give us the  
17 verbiage because, you know, I had water conservation  
18 which also was Helekahi's issue, like we want low  
19 flow.

20 You talked about greywater, solar -- like  
21 we don't know that the project can afford these  
22 things, but we do want the recommendation to say that  
23 would they consider it, and if they can, then make  
24 provision for it. Did I miss something that you had  
25 on there?

1 COMMISSIONER DEAKOS: Well, we know they'll  
2 consider it because it's all over the application.  
3 So I don't know if asking them to consider it  
4 would -- but I -- I think the stormwater, given all  
5 the issues were talking about flooding and the fact  
6 they're sitting on sand, I think that 100 percent  
7 stormwater retention is not a big ask, personally.

8 CHAIR PALI: Okay. Let me go to director  
9 real quick. Director?

10 DIRECTOR AOKI: I just wanted to let the  
11 commission know that there's the water code that  
12 they're going to be required to follow, and that  
13 requires low flow.

14 CHAIR PALI: Oh, good. So it's already in  
15 the code?

16 DIRECTOR AOKI: Yeah.

17 CHAIR PALI: So we don't have to put it in  
18 our recommendation? Okay. It's already low flow in  
19 the -- okay. Thank you.

20 Are you saying that you'd like to do a 100  
21 storm? Is that what you're saying, Deakos?

22 COMMISSIONER DEAKOS: Yes, I would  
23 recommend -- I think that's a small ask. Control  
24 basically the footprint of the stormwater, then  
25 you're not contributing to the flooding issues that

1 exist in the area. And it's just -- it's basically  
2 just retaining the water longer, spreading it out,  
3 and you have -- they have that swale all along the  
4 side.

5 I mean, I probably should have asked the  
6 landscaper about it, but it seems to me like a low --  
7 a simple adjustment.

8 CHAIR PALI: I'm going to go to director.

9 DIRECTOR AOKI: Sometimes what we think is  
10 simple ends up costing a lot of money. So when you  
11 start adding -- and that's the issue when we start  
12 doing these affordable housing projects. That's why  
13 they come in and they ask for exemptions from certain  
14 criteria is because of the fact that it's an  
15 affordable project.

16 So I don't know what the difference in the  
17 cost would be, but that would be something to  
18 consider when you start asking for things that are  
19 above what is required.

20 CHAIR PALI: If you're comfortable with the  
21 language that "we just would like you to consider  
22 it," I feel like that's something you can be -- get  
23 probably get a unified -- but definitely -- maybe  
24 stay away from the mandate. I think that's where we  
25 might run into problems.



1           So I'll let you think through how you feel  
2 about that. Okay, Deakos?

3           I'm going to go through -- and on the same  
4 topic, we do have the words, unless it's already sort  
5 of mandated, when Vice Chair Thayer talked about,  
6 okay, so you've got these -- the drainage will be  
7 pushed out towards the parking lot. It'll go in this  
8 drain and then it's going to go to the north part of  
9 the property. Will it just go into the stream?

10           I do like the fact that they talked, no,  
11 we're going to have this catch basement. And so I  
12 was just going to put in there -- basin. Sorry,  
13 basin, basin. Basin. Okay. I put a basement.  
14 That's on my mind, is the basement.

15           Okay. So catch basins, and they're  
16 assuming that that would already be required, I don't  
17 know, but that the applicant mentioned that that is  
18 something that they would aspire to. And so that we  
19 would like to see the catch basin, is that  
20 representing kind of what you were thinking?

21           VICE CHAIR THAYER: It sounds like that's  
22 already part of the drainage plan.

23           CHAIR PALI: Okay. Already part of the  
24 drainage plan, so not necessary then. Okay.

25           And then we go into the landscaping

1 replacing. And I don't mind, like, spelling this  
2 out, really. Heliconias and gingers, get rid of the  
3 Singapore plumeria, X the golden glory and the fern  
4 tree and replace it with the koai'a tree you  
5 mentioned.

6 I don't know if you want to spell those  
7 out, but those are all things I heard from each of  
8 the commissioners that had questions. Did I miss  
9 anything particular?

10 MR. HOPPER: Chair?

11 CHAIR PALI: Yes.

12 MR. HOPPER: I think you'll want to clarify  
13 which of these you want as just a general  
14 recommendation and which of these you would want as a  
15 actual recommended project condition. Those are a  
16 bit different.

17 If you want it as a recommended project  
18 condition, that would generally run with the land in  
19 a recorded agreement. And so -- I mean, if council  
20 decides to adopt it, too, then you would want to be  
21 very clear with the wording of that as well.

22 CHAIR PALI: Okay. So these were things  
23 brought up from the different commissioners. And so  
24 first I wanted to see is there anything on the list  
25 that we -- I missed?

1 Yes, Commissioner Kealoha?

2 COMMISSIONER KEALOHA: I'm wondering if we  
3 can also put in conditions for the tenant selection  
4 plan?

5 CHAIR PALI: So I don't know that we can.  
6 Let me ask Mr. Hopper because that comes from our  
7 Maui housing code. This developer has to follow a  
8 code that is, like, separate from our purview; so I  
9 don't know that we can change that selection process.

10 But let's go to Mr. Hopper and see what he  
11 says.

12 MR. HOPPER: There might be certain things  
13 you can do, but if this was a 2.97 project, they have  
14 to meet certain specific criteria. I'm not  
15 necessarily confident enough in all those details to  
16 say -- I mean, without the housing director available  
17 or the housing department here -- to see if whatever  
18 you would be proposing would be -- would be okay.

19 There might be some modifications, but the  
20 concern would be, you know, that says to be eligible  
21 for this type of 2.97, you have to do certain things  
22 under a certain criteria. And if we change that,  
23 then there can be issues with it.

24 I suppose to council you could note, maybe  
25 not as a draft condition, but note some things you

1 want to have included --

2 CHAIR PALI: Recommendation.

3 MR. HOPPER: -- to have that discussed with  
4 the developer, the housing department. There might  
5 already be things that are required already, there  
6 might not. And you can also just ask right now,  
7 too -- you can ask the developer what they plan to do  
8 as far as their criteria and get clarification on  
9 what those requirements are.

10 But I don't want to just say we have carte  
11 blanche to establish anything because there's some --  
12 there's some county code requirements there that --  
13 that are triggered by this type of application.

14 CHAIR PALI: So, Commissioner Kealoha, do  
15 you want to discuss maybe what your recommendations  
16 would be as far as what you would like to change?

17 COMMISSIONER KEALOHA: Yeah. I mean, we  
18 had this discussion earlier, and I know that the  
19 applicant said they would consider this, so if we can  
20 put it in as a official recommendation or condition,  
21 whatever, to the Maui -- to the county council  
22 however it needs to go in.

23 And I -- maybe I don't quite know the  
24 number that's appropriate, but I would like to see  
25 affordable housing going to people that have been

1 living here for at least some period of time. So I  
2 don't know if that number -- appropriate number is  
3 five years or ten years. I don't know if we can  
4 discuss what that number should be.

5 CHAIR PALI: So I do know the housing  
6 department has a specific "people who are eligible"  
7 section, and under the eligibility, it says how long  
8 you've had to be a resident of Maui County. And  
9 unless it's changed recently, I believe it was  
10 12 months, and so we'll double-check on that.

11 You know, if you say, hey, I think it  
12 should be five years, then we can just put it -- we  
13 cannot do it as a condition because we can't -- we  
14 don't have authority to over -- you know, impose  
15 things that aren't required.

16 But I think we could say, hey, because of  
17 our current situation, if there's a way county  
18 council have the authority to do it, we would  
19 recommend that you consider, for this particular  
20 project, that all applicants must be, you know,  
21 residents at least five years or more, and we can  
22 have them consider that.

23 Now, the other thing that you have to be  
24 careful, because in theory that sounds really great,  
25 but what if my kid comes back from college this year



1 and she wants -- she needs affordable housing? Are  
2 you doing now exemptions on that five years because  
3 she went away for college and she's coming back?

4 It starts to get really tedious, and these  
5 things have all been, like, teased out when they  
6 created the original sort of blanket eligibility. So  
7 I would want to talk through all those pieces and  
8 consider exemptions because I don't know that -- I  
9 guess the intent is that, well, if you haven't been  
10 here, but then they only went away for college.

11 Or what about someone who went to the  
12 military? Like, they didn't go and have a fun  
13 vacation and a life somewhere else. They, like,  
14 served their country; right? So I would want to  
15 tease that out.

16 Commissioner Lindsey?

17 COMMISSIONER LINDSEY: I think the county  
18 council talked about this last year, and they can  
19 prioritize length of residency and not set the  
20 number, but, like, longer you've been here makes you  
21 a higher priority.

22 CHAIR PALI: Awesome. I like that. But,  
23 Commissioner Kealoha, I think if you're passionate  
24 about that, I think we should just put it in as a  
25 recommendation.

1 COMMISSIONER KEALOHA: Yes.

2 CHAIR PALI: And is your mark five years,  
3 did you say? I don't know if you said.

4 COMMISSIONER KEALOHA: I mean, I like  
5 what -- yeah, five years or priority goes to, like,  
6 the number of years of residency.

7 CHAIR PALI: The longer term. Okay. We'll  
8 draft that for the recommendation. So priority goes  
9 to residents who have lived here longer.

10 Commissioner Lindsey?

11 COMMISSIONER LINDSEY: I think in that bill  
12 that he did, I think it covered like people who went  
13 to the military and people who went to school. So I  
14 think we should maybe refer to it if that's possible,  
15 instead of creating five years, you know what I mean?

16 CHAIR PALI: Well, again, we don't have the  
17 purview to do any of that. So, yeah, that's not in  
18 our purview, but I think if we're expressing that,  
19 hey, this is a special, unique situation and  
20 Commissioner Kealoha wants to make sure it's not  
21 missed since she doesn't have access to that, I don't  
22 think it's hurting -- I think she can just -- I think  
23 she agreed to just adopt your language, like whatever  
24 it is, if there is already a priority for longer-term  
25 residents, I think that we're just saying that we

1 just really want to make sure that that is translated  
2 into what happens.

3 Is that a good representation, Commissioner  
4 Kealoha?

5 COMMISSIONER KEALOHA: Yes.

6 CHAIR PALI: Great. Okay. Anything else  
7 that was missed or last-minute adds?

8 Yeah, Commissioner Deakos?

9 COMMISSIONER DEAKOS: Chair, I'd recommend  
10 the 50 percent renewable offset. So the project will  
11 design in 50 percent offset of the energy usage with  
12 renewables, and they can model all that out.

13 CHAIR PALI: So your recommendation to  
14 council is that they consider requiring the project  
15 to do a minimum of 50 percent renewable energy?

16 COMMISSIONER DEAKOS: That they offset the  
17 energy use of the property by 50 percent with  
18 renewables, and that's to address our climate action  
19 goals, the county goals. That addresses the tenants,  
20 not burdening them with the high utility bills. And  
21 I think there's so many incentives, it's not a big  
22 ask.

23 CHAIR PALI: Okay. Any comments on that  
24 one? I can't -- I can't agree that it's a big ask or  
25 not because we're not doing the layers and layers and

1 layers of funding and paperwork and -- you know, this  
2 is how many years in the making? So I can't  
3 necessarily agree that it's not a big ask, but I can  
4 agree that it's a good thing.

5 So I'm with you that it's a good thing, but  
6 if it comes down to the additional cost and this  
7 penciling out or not, I don't know that I would want  
8 this to be a reason why it couldn't go through.

9 But I agree with you that we need to raise  
10 awareness and do every possible thing that we can  
11 moving forward, but not to where it's deal killers.  
12 I have to be careful of the deal killers.

13 So how do you guys feel? I feel like it's  
14 okay to have in the recommendation to have council  
15 consider it. I don't know that I would want to use  
16 language that they require or mandate it, but I feel  
17 like if the -- if they could consider it and find a  
18 way to do it, I'm definitely okay with that.

19 Any other comments on that?

20 Well, we'll have to vote on these items  
21 individually, so we'll kind of go through it because  
22 we have to send a unified recommendation. Any other  
23 things we need to add on the list? Okay.

24 So should I say the list again then, or do  
25 you think you got a good grasp on those things?

1           DIRECTOR AOKI: So are we -- so maybe if  
2 Tara can just provide a follow-up with the  
3 recommendations by the department, and then if you've  
4 been able to write all these down, you can go through  
5 them or you can have Kellie repeat them for you.

6           CHAIR PALI: I can repeat it again. I do  
7 want to separate now recommendations and conditions.  
8 It sounds like there might have been only one  
9 condition which was the landscaping, and then the  
10 rest were just we are highly stress and express that  
11 you consider greatly and seriously these other  
12 things.

13           Am I expressing ourselves -- and so that  
14 was that -- well, actually the condition -- we do  
15 need to add the inspections -- quarterly inspections  
16 on the culvert and reporting that to HDOT. That  
17 should be a condition because that's an action.

18           We want them to be good partners with the  
19 property and having this culvert that they're not  
20 responsible for, and since they're on-site and  
21 they'll have access to visually seeing this culvert,  
22 there needs to be some kind of partnership there.

23           So I think those were the two conditions,  
24 and then the others were just, if at all possible,  
25 that they consider best practices when it comes to



1 solar, 50 percent offset of the energy, consider  
2 using greywater -- did you say -- is it -- I don't  
3 know the term.

4 Sorry, Commissioner Deakos. Is it  
5 recycling greywater or utilizing greywater? Can you  
6 help me with that?

7 COMMISSIONER DEAKOS: So in the  
8 application, there was recommendation to reduce the  
9 stormwater load and reduce irrigation with potable  
10 water. So one way to do that is to take your  
11 greywater and use it for irrigation so it goes back,  
12 recharges the aquifer.

13 CHAIR PALI: So would it be grammatically  
14 correct to say "consider using greywater"?

15 COMMISSIONER DEAKOS: Yeah, if they would  
16 consider on-site greywater.

17 CHAIR PALI: On-site greywater. Okay,  
18 thank you.

19 MR. HOPPER: Oh, I think it's in the code  
20 that you can't.

21 CHAIR PALI: No?

22 MR. HOPPER: Specifically cannot use.

23 CHAIR PALI: Oh, it's in the code.

24 MR. HOPPER: Yeah.

25 CHAIR PALI: Oh, okay. Hold on. We might

1 have a code conflict here.

2 DIRECTOR AOKI: Last time I know we had  
3 this come up in a -- we've talked about this before  
4 for Maui Business Park. And I believe it was Ashley  
5 Otomo who explained that it's -- that falls under the  
6 state Department of Health. And so you're not really  
7 legally, I believe, allowed to just take your  
8 greywater and use it. So I would suggest you --

9 CHAIR PALI: Leave it alone.

10 DIRECTOR AOKI: -- leave that out.

11 CHAIR PALI: Well, Deakos just that said it  
12 is already there, that they have to find ways. So if  
13 greywater is not the way they can do it, then there's  
14 other ways to mitigate that.

15 COMMISSIONER DEAKOS: Can we clarify, is  
16 that -- I know it's legal because the DOH has manuals  
17 on how to treat greywater, but is this a  
18 commercial/residential issue where it's allowed  
19 commercial but not residential?

20 DIRECTOR AOKI: That could be. Again, if  
21 you're asking the applicant to create an entire  
22 packaging plan for some kind of system to be able to  
23 take their greywater to convert it into recycled  
24 water onto this small parcel, you're going to price  
25 them out of being able to do this affordable project.

1 That's my opinion.

2 The applicants can speak if they think that  
3 this is something they want to look at. I realize it  
4 could just be a recommendation.

5 CHAIR PALI: Yeah, but there's  
6 (indiscernible).

7 Applicant, can you give us a little of your  
8 take on this, please?

9 MR. HEATON: Yeah. This is Monte Heaton  
10 with Highridge Costa. You know, we have never been  
11 asked to do this kind of thing before so I honestly  
12 have no earthly idea what the cost would be, but  
13 just -- I do imagine that it might be prohibitive.

14 Without being able to say that  
15 definitively, you know, we prefer to not -- not have  
16 to kind of explore what might be an extreme cost item  
17 at this stage. And, again, given site constraints,  
18 we don't have a ton of space, so there's a number of  
19 things I'd be worried about.

20 CHAIR PALI: Okay. So just so we can just  
21 one more time address the issue -- so with water  
22 usage, with retaining water on-site with the catch  
23 basin, with all the -- and then the sand and the  
24 percolation -- with all these -- all these things  
25 we've talked about, do you feel like you're using

1 best -- your plan is to use best practices in regards  
2 to saving water and also keeping drainage to a  
3 minimum?

4 MR. HEATON: So what I can say is that we  
5 are planning on achieving LEED Silver on this project  
6 or another equivalent that's acceptable to HHFDC.  
7 So, you know, that comes with a checklist of items  
8 that, you know, are inherently environmentally  
9 friendly.

10 Typically, we don't get too far into which  
11 of those items are going to be selected until later  
12 in the design process so we know which ones fit and  
13 which ones don't.

14 CHAIR PALI: Well, I will speak for  
15 Commissioner Hipolito which is not here. He would be  
16 very happy to hear that you are going to try to  
17 attain for that. We all can attest that that is his  
18 question. Okay.

19 So, Commissioner Deakos, any final  
20 thoughts?

21 COMMISSIONER DEAKOS: Yeah. I understand  
22 the greywater could probably -- cost prohibitive and  
23 you have a pretty narrow property.

24 The rainwater catchment is probably a  
25 different story. I don't know, do you want to

1 address rainwater catchment?

2 It's pretty significant water because you  
3 can -- you have the roofs. You just need the  
4 gutters, and you just need to put those into the  
5 swale or wherever it's going to spread and retain it  
6 rather than shoot it out into the stormwater drain.

7 CHAIR PALI: Applicant, do you have --

8 MR. HEATON: Commissioner, is that a  
9 question for us?

10 CHAIR PALI: Yes.

11 MR. HEATON: Oh, it is. Okay. I think  
12 this one -- we're happy to look at that one. Like I  
13 said, we would have to, you know, go through it with  
14 our engineer to -- not going to cause problems with  
15 the existing site plan. I can't speak to that off  
16 the cuff, but we are happy to look at that one.

17 CHAIR PALI: Okay. And so, Deakos, how  
18 should I word that on the recommendation?

19 COMMISSIONER DEAKOS: Recommend they  
20 attempt 100 percent stormwater retention on-site with  
21 tools such as rainwater catchment, swales,  
22 landscaping, sediment. I don't know if the sediment  
23 basin is a percolating basin or it just overflows in  
24 the storm drain, but any basin that's slowly  
25 percolating; those are all tools to recharge.



1 CHAIR PALI: Are you comfortable with  
2 "aspire to the highest percentage possible" or do you  
3 want the "100 percent" in there?

4 COMMISSIONER DEAKOS: I would like to  
5 aspire to 100 percent. I think it's the same --  
6 probably the same thing.

7 CHAIR PALI: "Aspire to 100 percent."  
8 Okay. All right. Any other items for our  
9 recommendation? Great. Good work.

10 So I'll have Tara repeat back what she has,  
11 and then I'll just -- we'll go for a motion to send  
12 the recommendation to council.

13 MS. FURUKAWA: Okay. So the applicant  
14 shall work in concert with the state Department of  
15 Transportation to inspect the drainage culvert for  
16 blockage -- oh, existing drainage culvert for  
17 blockage and request that they clear it quarterly.

18 The applicant shall consider -- you know, I  
19 had -- what if you have, like, instead "shall  
20 consider upsizing the drainage system to accommodate  
21 on-site flows" rather than specifically stating  
22 retention basin, swales, because -- I mean, they kind  
23 of have to by law --

24 CHAIR PALI: Yeah. You mean in language --  
25 as far as language goes?

1 MS. FURUKAWA: Yeah (indiscernible).

2 CHAIR PALI: Are you okay with that,  
3 Commissioner Deakos?

4 Tara's recommending a language change which  
5 I think still reflects your intent.

6 Can you just read that again, Tara?

7 MS. FURUKAWA: It's just, "The applicant  
8 shall consider upsizing the drainage system to  
9 accommodate existing" --

10 CHAIR PALI: Upsizing the drainage system  
11 versus, like, spelling out all the different ways you  
12 can do it.

13 MS. FURUKAWA: Yeah, because they have to  
14 retain all on-site flow. Yeah.

15 CHAIR PALI: They have to retain on-site  
16 flow anyway.

17 COMMISSIONER DEAKOS: Right, which is the  
18 law, but they're not required to retain  
19 preconstruction; right? So the stuff that's -- so  
20 we're trying to have all stormwater on-site,  
21 including preconstruction, be managed. Sort of like  
22 in the natural state, would be -- there would be  
23 vegetation -- they would all land and percolate.

24 So I think we don't need to list the tools,  
25 but we could say "recommend 100 percent stormwater

1 retention." I don't know what the numbers are. I  
2 don't know if that's an extra 10 percent, an extra 50  
3 percent.

4 Maybe the applicant knows. If they've done  
5 the drainage modeling, they may already know how much  
6 more they would need to control to do  
7 preconstruction.

8 CHAIR PALI: Yeah. These are  
9 recommendations, so I would definitely put "aspire  
10 to," and I don't want to hold them hostage for that.

11 COMMISSIONER DEAKOS: Right. But you're  
12 asking me do you want them -- are we asking them to  
13 aspire to do a little bit better than the plan or are  
14 they aspiring to do 100 percent retention?

15 CHAIR PALI: Well, I think it's both;  
16 right? Because doing better than what they're  
17 required would also be the same as trying to aspire  
18 to the 100; right? I think it's an and/both. I  
19 think anything better than the minimum.

20 COMMISSIONER DEAKOS: (Indiscernible) one  
21 thing to do to control, you know, 1 percent more than  
22 what they're controlling now is a different one. So,  
23 (indiscernible) step it up a notch or to try to  
24 mitigate the entire impact so there's no stormwater  
25 impact.

1 CHAIR PALI: Yeah. No, I'm with you.  
2 Yeah, I'm with you. I just think that -- I could go  
3 back to, like, the deal killers. If it's something  
4 that puts them over where they just can't pencil it  
5 out and we have no project, I want to just give them  
6 the flexibility of trying to do their best, do the  
7 right thing, and if it's 1 percent or 20 percent more  
8 than they're supposed to, it's still a win for us;  
9 right?

10 It's still moving in a direction where  
11 we're going to do more than just the minimum. Does  
12 that make sense? And then until we can have the laws  
13 changed to expect more, we're just not in a position  
14 to sort of -- I mean, I guess we could be in a  
15 position to mandate more than the --

16 COMMISSIONER DEAKOS: Are you asking me if  
17 I want the word "mandate" in there? Or are you  
18 asking me if I want the word "100 percent" versus "do  
19 better"?

20 CHAIR PALI: No, no, no. Well, I want to  
21 get you to compromise so that way we all can put a  
22 stamp on it. Because I hear what you want, and --  
23 but I just wonder -- we're going to vote, and I'm  
24 just trying to meet you in the middle so we can get  
25 something where we all can just agree to. But we can

1 just -- we can keep it that way, and we'll see how  
2 that shakes out if you just want to stay firm on the  
3 100 percent.

4 COMMISSIONER DEAKOS: Okay. Can you  
5 rephrase what the language is?

6 CHAIR PALI: We'll have Tara read what she  
7 has.

8 MS. FURUKAWA: So what if I just say the  
9 applicant shall aspire to upsize the proposed  
10 drainage system to accommodate preconstruction flows  
11 in addition to project-generated flow"? Is that  
12 okay?

13 CHAIR PALI: And then what about the term  
14 "100 percent"?

15 COMMISSIONER DEAKOS: Well, that  
16 addresses all of it.

17 CHAIR PALI: Oh, okay. It's the same. Are  
18 you comfortable with that language, Deakos?

19 COMMISSIONER DEAKOS: Yeah.

20 MR. HOPPER: Chair, I would maybe instead  
21 of saying "upsized," you could say "increase the size  
22 of."

23 CHAIR PALI: "Increase the size" instead of  
24 "upsized." "Shall consider" or what was the beginning  
25 part?



1 MS. FURUKAWA: "Shall aspire to."

2 CHAIR PALI: Okay. Any other items we want  
3 to add on? Okay. So those are the two conditions --  
4 oh, no. Sorry. We have two conditions.

5 Helekahi-Burns?

6 COMMISSIONER HELEKAHI-BURNS: Yeah. I just  
7 got a couple questions like how long does the housing  
8 project after completion is required to provide  
9 affordable housing? Is this like indefinite that it  
10 will always be affordable housing? And for -- and  
11 how much -- 100 percent of the units are all  
12 affordable?

13 CHAIR PALI: Yeah. So there was a specific  
14 grid packet on that one. I actually took a picture  
15 because I always like to get to, like, how much are  
16 you charging people? I mean, all this is really  
17 important; we're doing really heavy lifting.

18 But in the end, what is it going to cost  
19 our people; right? And so there was a whole specific  
20 question -- I don't remember if it was in perpetuity  
21 or not. Let me see if the applicants can refer to  
22 that. But I believe -- I'll let the applicant  
23 answer. I'll let them do their thing. Yeah.

24 Grant Chun, do you have someone that can  
25 answer that?

1 MR. CHUN: Yeah. Go ahead, Monte.

2 MR. HEATON: Everybody was saying -- and  
3 the (indiscernible) was on mute. Yeah, 60 years. 60  
4 years plus.

5 CHAIR PALI: 60 years, yeah. It was in the  
6 packet, 60 years, so in perpetuity for 60 years.

7 So from the time the project is completed,  
8 how many days do you have before you then offer the  
9 affordable housing? I mean, I know you're only  
10 building it for affordable housing so I mean, is it  
11 pretty -- like Day 1 or what does that look like?

12 MR. HEATON: Yeah, we should start  
13 immediately.

14 CHAIR PALI: Yeah, immediately. Okay. So  
15 affordable housing becomes available immediately when  
16 the project has got its final for occupancy.

17 COMMISSIONER HELEKAHI-BURNS: Okay, thank  
18 you. And I just wanted to just make one change in  
19 the landscaping plant choice. I wouldn't suggest  
20 milo. I would suggest maybe another dryland plant;  
21 kou is another one that can probably withstand lack  
22 of -- a little amount of water.

23 Milo is money wood. You go put that out  
24 there, somebody going to cut them down tomorrow. So,  
25 yeah -- so just for the future, da kine problems, no

1 use milo.

2 CHAIR PALI: I like it, I like it.

3 COMMISSIONER HELEKAHI-BURNS: Don't use it  
4 as a landscape. Thank you.

5 CHAIR PALI: That's a good one. Okay. So  
6 can we just first go for the two conditions? We'll  
7 vote on those, and then we'll go and talk about the  
8 recommendations and then we'll vote on those.

9 Is that okay, Tara?

10 MS. FURUKAWA: Yeah, I guess so. So the  
11 energy use, too, yeah, to offset the energy use by  
12 50 percent?

13 CHAIR PALI: That's a recommendation, yeah.  
14 So the conditions were the DOT -- just inspect and  
15 report. They don't have to require cleaning; they  
16 just have to report -- like they just have to inspect  
17 it and report.

18 And if you feel like quarterly's too much,  
19 it could be like once every -- twice a year or  
20 something. But I'm wanting to make sure that there's  
21 some kind of communication that, hey, this looks like  
22 it's getting pretty, you know, bust up with trash and  
23 if there's something that happens, we're in trouble.  
24 So a reporting system that the applicant would agree  
25 to doing to the DOT.

1           And the other, the (audio difficulty), and  
2 I'm going to put the third condition. The third  
3 condition is going to be just confirming that the  
4 2.97 requirements do give preference to the residents  
5 who have lived here longer and those who have been  
6 impacted by the natural disaster. We just want to  
7 reaffirm that right; ladies?

8           I think that should be a condition. It  
9 probably already is, but we just want to affirm it.  
10 And if it is, then we can take it out later, but I  
11 think those were the three. Is that okay?

12           MR. HOPPER: (Indiscernible) that to the  
13 extent permitted by law or something like that. And,  
14 yeah, so just if it's -- if it's already there.

15           As far as the disaster preference, that  
16 might not be in the actual law. That might be -- I  
17 don't know if that's something the applicant can  
18 voluntarily do.

19           CHAIR PALI: I think they said they could.  
20 All right. Then let's just move that back down to  
21 recommendation. Let's make -- keep it clean.

22           So just those two, inspections for DOT and  
23 culvert and the landscape, and then the rest are all  
24 recommendations.

25           MR. CHUN: Okay. So, Madam Chair, just to

1 clarify?

2 CHAIR PALI: Yes, applicant?

3 MR. CHUN: So the only two conditions are  
4 the DOT and the landscaping and the others are  
5 recommendations; is that correct?

6 CHAIR PALI: That is correct. Is that okay  
7 with you guys?

8 MR. CHUN: Yes. Yes, we just wanted to  
9 clarify. Thank you.

10 CHAIR PALI: Okay. Yes. Yeah, I tried to  
11 make it a third, and then I realized that probably --  
12 since we don't really know what is required, it's  
13 probably best not to do that.

14 Okay. Any questions?

15 MR. SEREDA: I have a question. This is  
16 David Sereda, the landscape architect.

17 CHAIR PALI: Oh, yes, please.

18 MR. SEREDA: So the landscape items you're  
19 saying are conditions, not recommendations?

20 CHAIR PALI: Yeah. We don't want to leave  
21 it to chance. We kind of know there's certain plants  
22 we just don't want there.

23 MR. SEREDA: Okay. The milo is one that we  
24 like to use a lot because it meets all the  
25 requirements for a parking lot tree. It's native,



1 Polynesian-introduced, drought tolerant, doesn't have  
2 invasive roots, doesn't drop a lot of stuff. The  
3 Hawaiian kou drops little marble-sized fruit -- nuts  
4 that people slip on, so we don't use those in parking  
5 lots.

6 The parking lot tree list doesn't have a  
7 lot of room to maneuver in terms of native plants,  
8 native trees of a medium-size, large-size canopy that  
9 meet the conditions to qualify as a good parking lot  
10 tree. So we prefer to not have that as a condition  
11 to take milo off the plant list, if it's okay with  
12 you.

13 CHAIR PALI: Now I have a question for you  
14 then. Are you willing -- and your management staff,  
15 once the property's filled and going, to, like, make  
16 sure people aren't going to be cutting at that tree?  
17 I think that's what Helekahi mentioned -- Burns  
18 mentioned, that people like to utilize that -- hold  
19 on.

20 Before you answer that question,  
21 Commissioner Lindsey?

22 COMMISSIONER LINDSEY: I think we should  
23 consider that people are generally good people and  
24 they're not trying to cut down native plants, so it  
25 shouldn't be a consideration on our end because milo

1 is -- there should be more milo. That's the answer  
2 to why they're cutting it down, because there should  
3 be more milo. So we shouldn't remove it --

4 CHAIR PALI: I like that.

5 COMMISSIONER LINDSEY: -- from -- I mean,  
6 we should remove it. It is one of the landscaping  
7 plants.

8 CHAIR PALI: Okay. Okay, I like that.

9 VICE CHAIR THAYER: No, I'm good with milo  
10 being there. But I think she's being -- I think in  
11 Kanaha some years ago, there were people who were,  
12 like, poaching the big, mature milo trees at Kahana.  
13 That was -- that came before the arborist committee.  
14 That was a real thing.

15 But more milo is the answer. And  
16 especially, hopefully because there's people going to  
17 be on-site and watching this all over all the time  
18 and not just out on its lonesome in a beach park  
19 that's closed all night. So hopefully this will be  
20 okay. Thank you.

21 CHAIR PALI: You okay? You agree,  
22 Helekahi-Burns? Yeah?

23 COMMISSIONER HELEKAHI-BURNS: Definitely  
24 more milo.

25 DIRECTOR AOKI: Could I just suggest, Vice

1 Chair Thayer, that you restate exactly what it was  
2 that you did not want so that Tara can write that  
3 down?

4 VICE CHAIR THAYER: Yeah. So the trees or  
5 plants in the planting plan that I think could be  
6 replaced with natives or fruit trees or even  
7 noninvasive lay plants would be the ginger and  
8 heliconia, the fern tree, jatropha, golden glory, and  
9 the Singapore plumeria which was just going to be  
10 substituted with another plumeria.

11 CHAIR PALI: Okay. Great.

12 DIRECTOR AOKI: Thank you.

13 CHAIR PALI: And from the development  
14 team -- I'm sorry, I don't know the landscapers --  
15 David, are you okay with that as a condition?

16 MR. SEREDA: Yes. And I think you did  
17 mention one specific substitution for the fern tree  
18 which was koai'a; is that correct?

19 VICE CHAIR THAYER: Yeah. It's like a --  
20 sort of like a dwarf dryland koa.

21 MR. SEREDA: Yeah. No, I'm familiar with  
22 it. I looked it up in the planting plan. It does  
23 qualify as a parking lot tree, so we can use that.

24 VICE CHAIR THAYER: Yes. Thank you.

25 CHAIR PALI: Great. All right. So since

1 we know the two conditions, can we just go ahead and  
2 have a motion and vote on those two conditions?

3 And then Tara will have a minute to then  
4 repeat some of the --

5 MR. HOPPER: Chair, I wouldn't vote on  
6 something and do that and then take a separate vote  
7 on the other ones.

8 CHAIR PALI: Oh. All one time?

9 MR. HOPPER: Maybe just have her clarify it  
10 and then move on, clarify all the other parts and  
11 then have the motion in the end to approve subject to  
12 those -- to the conditions plus the recommendations.

13 And if there's a second, you can go to  
14 discussion on that. And then if you have a amendment  
15 to delete one or alter one, you could do it that way  
16 potentially.

17 CHAIR PALI: Okay. Sounds good. So, Tara,  
18 can you just give us one last review of the two  
19 conditions and the recommendations and then we'll go  
20 for a motion?

21 MS. FURUKAWA: So the applicant shall work  
22 in concert with the state Department of  
23 Transportation (indiscernible) drainage culvert for  
24 blockage and request that they clear it.

25 The applicant shall aspire to increase the

1 size of the proposed drainage system to accommodate  
2 preconstruction flow and post-development flow.

3 And then the applicant shall attempt to  
4 offset energy use by 50 percent with renewable  
5 energy.

6 So priority of the units shall be granted  
7 to those who have lived here longer and those  
8 affected by the wildfires to the extent allowed by  
9 law.

10 And then the trees and plants in the Maui  
11 County Planting Plan shall be substituted for the  
12 ginger, heliconia, fern tree, tropha, golden glory,  
13 and Singapore plumeria. And then the koai'a was a  
14 little bit too fast for me.

15 VICE CHAIR THAYER: Oh, that's a suggested  
16 replacement for the fern tree.

17 MS. FURUKAWA: Okay.

18 CHAIR PALI: Good job.

19 MS. FURUKAWA: No, I'm going to go back and  
20 listen to -- so it'll be exact.

21 CHAIR PALI: So two are conditions, the  
22 rest are recommendations. And so open for a motion.  
23 Mr. Thompson?

24 COMMISSIONER THOMPSON: Surprise, I'd like  
25 to make a motion to approve the district boundary



1 amendment from agricultural to urban with the  
2 accompanying --

3 CHAIR PALI: Recommendations.

4 COMMISSIONER THOMPSON: -- recommendations  
5 and conditions.

6 CHAIR PALI: And looking for a second?  
7 Commissioner Deakos? And move on -- do you want to  
8 add any comments?

9 COMMISSIONER THOMPSON: Sure. I'll speak  
10 to it. Thanks very much.

11 Well, one is considering the -- this  
12 project for affordable housing, the people that  
13 didn't get to testify here were homeless people,  
14 people in a tent. Everybody that testified had a  
15 house. So bravo for them.

16 And, secondly, in my five years here,  
17 without exception, every single affordable housing  
18 project in front of us is met with opposition. And  
19 they usually name five different ones, but they all  
20 start the same way: we're for affordable housing, but  
21 not here. Down the road or traded off or somewhere,  
22 and that's every single time.

23 So this one I think does have different --  
24 a different flavor in it, and the Hawaiiana ones have  
25 a real to-do, and they'll probably end up in court

1 over that. But as far as the affordable housing,  
2 yeah, we need it in the biggest way.

3 Every time we're planting people in houses  
4 or property, it's detrimental to the environment.  
5 The more people, the more detrimental. There's no  
6 way to get around it.

7 But all that being said, we need the  
8 housing more than anything. That's why I made a  
9 motion to approve it.

10 CHAIR PALI: Commissioner Deakos, any  
11 comments?

12 COMMISSIONER DEAKOS: Yeah. Thank you,  
13 Chair. I'm going to support the zoning change. I do  
14 agree that, you know, this -- we are in an affordable  
15 housing crisis, but I don't necessarily agree that to  
16 build housing, we have to compromise environmental  
17 and social impacts.

18 So there are plenty of communities across  
19 the country where a lot of this stuff we're talking  
20 about today that seem absurd, it's (no audio) why  
21 I've never been asked that, that seems egregious.  
22 They're mandatory in a lot of communities that are --  
23 you know, green building is more part of the design  
24 process and not at a -- not necessarily at a premium.

25 So I do hope that -- it's a little

1 disappointing at the response to some of this. I  
2 know a lot of it is, yes, we'll recommend.

3           However, that being said, I did hear the  
4 proposal to make this a LEED Silver. I don't know  
5 why that wasn't part of the presentation and talking  
6 about what points they would be going after to  
7 achieve LEED Silver. A lot of that deals with  
8 stormwater and energy credits.

9           So I'm a little confused why that came out  
10 at the end, but I sure hope that you guys are  
11 successful in achieving that, and I wish you all the  
12 best with your project.

13           CHAIR PALI: Very good. Thank you,  
14 Commissioner Deakos. Any other people want to put on  
15 regard before we vote on the recommendation? Any  
16 other takers? Okay.

17           Yeah, I think I'll just add to the record  
18 that it's just a balance. I think we owe it to our  
19 community and the generational families that came  
20 before us to listen and to hear and to gather  
21 information, give them an opportunity to speak and  
22 share and allow us to learn in those stories and  
23 those opportunities of testimony and while caring for  
24 people that are here now that are desperate for  
25 housing that are being priced out, that are being

1 forced to the beach to live or forced to the mainland  
2 because they can't afford a place here.

3 So I -- I just think it's a balance. And I  
4 think we did a really good job today, guys, and I  
5 appreciate that. And so I'll be voting to support  
6 this. Okay.

7 Director? Motion, please.

8 DIRECTOR AOKI: All right. You have before  
9 you a motion to recommend approval of the district  
10 boundary amendment with the stated conditions and  
11 recommendations.

12 I'll call each commissioner by name.  
13 Commissioner Thompson?

14 COMMISSIONER THOMPSON: Aye.

15 DIRECTOR AOKI: Commissioner Lindsey?

16 COMMISSIONER LINDSEY: Aye.

17 DIRECTOR AOKI: Commissioner Deakos?

18 COMMISSIONER DEAKOS: Aye.

19 DIRECTOR AOKI: Commissioner Kealoha?

20 COMMISSIONER KEALOHA: Aye.

21 DIRECTOR AOKI: Commissioner  
22 Helekahi-Burns?

23 COMMISSIONER HELEKAHI-BURNS: Nay.

24 DIRECTOR AOKI: I'm sorry. Can you repeat  
25 that?

1 COMMISSIONER HELEKAHI-BURNS: Nay, no.

2 DIRECTOR AOKI: Vice Chair Thayer?

3 VICE CHAIR THAYER: Aye.

4 DIRECTOR AOKI: And Commissioner Apo and  
5 Commissioner Hipolito are absent and excused today,  
6 so we have -- motion passes.

7 CHAIR PALI: Okay. Thank you,  
8 commissioners. That was a weighty thing. We're  
9 going to wrap up this meeting really quickly here.  
10 We've got a couple things left on the agenda.

11 I do want to open up for public testimony  
12 for the Director's Report were items C1, and it's  
13 just a notice. We had a meeting last week on  
14 October -- two weeks ago on October 10th, and we were  
15 not able to come to a unanimous decision. And so  
16 that's going to be rescheduled for December 12.

17 Do you want to read that into the record,  
18 Director?

19 MR. HOPPER: (Indiscernible.)

20 CHAIR PALI: Yeah, I just did. Yeah, okay.  
21 Okay. Great. And so do I -- and then we're also  
22 going to go to Item C2, which is the SMA Minor  
23 Report, and C3, SMA Exemption Report, and also C4  
24 which is the discussion of the next planning  
25 commission agenda for November 14.



1           So I do want to just officially open public  
2 testimony. And if you are online or on the phone and  
3 you would like to testify, I'll give you a few  
4 seconds. You can unmute yourself and say hello.

5           Thanks, Tara.

6           Carolyn, no more testifiers? Okay. Seeing  
7 none, we'll close public testimony.

8           Anybody have any questions on the SMA Minor  
9 Report or SMA Exemption Report?

10          Yes, VP Thayer?

11          VICE CHAIR THAYER: Thank you. The Minor  
12 Report, what's the scope of work for the dune  
13 restoration? Kahekili Beach Park.

14          DIRECTOR AOKI: I don't know. Do we have  
15 anybody from the department online? No? He's gone.  
16 We would have to get back to you on that.

17          CHAIR PALI: We will give you a more  
18 detailed report maybe via e-mail or something.

19          DIRECTOR AOKI: Yeah. We could send it out  
20 to you via e-mail.

21          VICE CHAIR THAYER: Okay. Thank you.

22          CHAIR PALI: All right. Any other  
23 questions? Okay. Commissioner Deakos?

24          COMMISSIONER DEAKOS: Thank you, Chair.  
25 Just a question on the Exemption 00074, construction

1 of a new building for office space and golf cart  
2 storage.

3 I know it's outside the (indiscernible),  
4 and I know we're not -- we haven't passed those rules  
5 yet, but I was just looking on the back aisles. It  
6 is in the flooding, the 3.2 meter flood area. And  
7 I'm just -- I think it's being put on posts and --  
8 does that sound right? I was trying to look in the  
9 maps that were detailed.

10 DIRECTOR AOKI: Again, I would have to --  
11 we would have to have staff look into the record and  
12 get back to you. I apologize we don't have anybody  
13 here today to be able to look all that stuff up.

14 CHAIR PALI: Okay. Any other questions?  
15 None? Okay.

16 And then the last item is November 14th,  
17 and it looks like there's been a memo about that  
18 agenda.

19 DIRECTOR AOKI: Yes, there is. Scheduled  
20 for November 14th, we have the Shoreline SMA Rules  
21 back to you hopefully for one last time. We did have  
22 to post this as a new public hearing because the time  
23 frame has passed quite a bit -- quite a bit of time  
24 frame has passed. So you will have to take public  
25 testimony.

1           Just so you are aware, we have reserved the  
2 28th meeting as a holding place in case you're not  
3 done on the 14th. So the 28th is not being --  
4 nothing's being scheduled just in case we don't  
5 finish.

6           CHAIR PALI: Did we lose our commissioners?  
7 Oh, there you are. Okay.

8           So I really, really want to encourage you  
9 folks to take time to review the record. This has  
10 been -- I know it's been in front of us for over -- I  
11 want to say six months now, eight months, and I know  
12 it's been in the works for ten years.

13           And we did think that we finished it, and  
14 there was a technicality. And so we have to consider  
15 the missing testimony which we did hash out the last  
16 time we met, and now we'll open it back up for public  
17 testimony, and then we will finish it up either on  
18 the 14th or the 28th. And it's a very weighty,  
19 weighty topic.

20           So anyhow -- so I do need, for sake of  
21 time, I do need everyone to do their homework before  
22 they show up, and we have to start on time.

23           So I'd like to introduce a new practice for  
24 the commissioners online. When you chime online, I'd  
25 like you to put in the chat function "Here" and your

1 name so whoever's taking Carolyn's place, we can have  
2 a better record because it's hard to see who's on and  
3 who's not on when nine o'clock hits.

4 And I do just want a documented record of  
5 you guys signing on. I think it's helpful to have.  
6 So when you get on next time around if you are  
7 online -- and I'll let Blaine and Mel know -- go  
8 ahead and put in the chat, like, "Here, Mel" or --  
9 and then we'll know that we have enough, and we can  
10 get started. Okay?

11 Any questions? Awesome. Well, good work  
12 today. Thanks, guys. Aloha. Meeting's adjourned.

13 (End of video recordings.)  
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1 STATE OF HAWAII )  
2 )  
3 CITY AND COUNTY OF HONOLULU )  
4

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7 I, Chantelle Hee, Certified Court Reporter,  
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11 That the foregoing electronically-recorded  
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15 I further certify that I am neither  
16 financially interested in the action nor a relative  
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