

PU'U 'ŌPAE HOMESTEAD FINAL ENVIRONMENTAL ASSESSMENT

TMK: 4-1-2-002:023 (POR.)

WAIMEA, KAUA'I



PREPARED FOR:



HAWAIIAN HOME LANDS
HAWAIIAN HOMES COMMISSION · DEPARTMENT OF HAWAIIAN HOME LANDS

PREPARED BY:



111 S. KING STREET, SUITE 170
HONOLULU, HI 96813

JULY 2020

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DEPARTMENT OF HAWAIIAN HOME LANDS
HALE KALANIANA'OLE
91-5420 KAPOLEI PARKWAY
KAPOLEI, HAWAII 96707

APPROVING AGENCY:

HAWAIIAN HOMES COMMISSION
DEPARTMENT OF HAWAIIAN HOME LANDS
HALE KALANIANA'OLE
91-5420 KAPOLEI PARKWAY
KAPOLEI, HAWAII 96707

PREPARED BY:



111 S. KING STREET, SUITE 170
HONOLULU, HI 96813

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- A. Beneficiary Consultation Meeting Notes

- B. Wildfire Preparedness and Hazard Reduction Considerations Memorandum (Hawai’i Wildfire Management Organization, 2017)

- C. Literature Review for the Pu’u ‘Ōpae Special Area Master Plan, Waimea Ahupua’a, Kona District, Island of Kaua’i, Hawai’i (Keala Pono, 2018)

- D. Archaeological Reconnaissance Survey Letter, Pu’u ‘Ōpae (Keala Pono, 2018)

- E. Cultural Impact Assessment for the Pu’u ‘Ōpae Special Area Master Plan, Waimea Ahupua’a, Kona District, Island of Kaua’i, Hawai’i (Keala Pono, 2020)

- F. Informational Briefing to Hawaiian Homes Commission - Draft Environmental Assessment for the DHHL Pu’u ‘Ōpae Kuleana Homestead Settlement, Kekaha, District of Waimea, Kaua’i Island and Anticipated Finding of No Significant Impact (AFONSI) TMK (4) 1-2-002:023

- G. Preliminary Engineering Report (G70, 2018)

- H. Draft Environmental Assessment Comment Letters

Section 1

Introduction

Chapter 1

Introduction

This Environmental Assessment (EA) has been prepared in accordance with the requirements of Hawai'i Revised Statutes (HRS) Chapter 343, and Hawai'i Administrative Rules (HAR), Title 11, Chapter 200.1, Department of Health, which set forth the requirements for the preparation of environmental assessments.

1.1 Project Information Summary

Type of Document:	Environmental Assessment (EA)
Project Name:	Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Applicant:	Department of Hawaiian Home Lands (DHHL) P.O. Box 1879 Honolulu, HI 96805 Contact: Julie-Ann Cachola, Planner (808) 620-9480
Agent:	G70 111 S. King St., Suite 170 Honolulu, HI 96813 Contact: Kawika McKeague, AICP, Principal (808) 441-2120
Approving Agency:	Hawaiian Homes Commission (HHC) Department of Hawaiian Home Lands P.O. Box 1879 Honolulu, HI 96805 Contact: William Ailā Jr., Chairman, HHC (808) 620-9501
EA Trigger:	Use of State Lands and State Funds
Project Location:	Pu'u 'Ōpae, Waimea Ahupua'a, Waimea District, Kaua'i Island (<i>Figure 1-1</i>)
Project Area:	1,421 acres (231 acres are under DHHL License No. 816 by Kekaha Hawaiian Homestead Association (KHHA))
Tax Map Keys (TMK) and Landowners:	4-1-2-002:023 (por.) (<i>Figure 1-2</i>) DHHL

DHHL Land Use Designation:	General Agriculture, Special District, Future Development (<i>Figure 1-3</i>)
Proposed DHHL Land Use:	Subsistence Agriculture, Pastoral, Supplemental Agriculture, Community Use, Special District
State Land Use District:	Agricultural (<i>Figure 1-4</i>)
County Land Use/Zoning:	Open and Agriculture (<i>Figure 1-5</i>)
Special Management Area (SMA):	Outside of SMA (<i>Figure 1-6</i>)
Flood Zone:	Zone X: Area of Minimal Flood Hazard; Zone A: 1% Annual Chance of Flooding (<i>Figure 1-7</i>)
Anticipated Determination:	Finding of No Significant Impact (FONSI)

1.2 Project Background

1.2.1 The Hawaiian Home Lands Program

The mission of the DHHL is to effectively manage the Hawaiian Home Lands Trust and to develop and deliver lands to native Hawaiians. To accomplish this, DHHL works in partnership with government agencies, private landowners, non-profit organizations, homestead associations, and other community groups.

The Hawaiian Home Lands Program was started with the passage of the Hawaiian Homes Commission Act, 1920, as amended (HHCA) due to the efforts of Prince Jonah Kūhiō Kalaniana'ole. Passed by Congress and signed into law by President Warren Harding on July 9, 1921 (chapter 42, 42 Stat. 108), the HHCA provides for the rehabilitation of the native Hawaiian people through a government-sponsored homesteading program. Native Hawaiians are defined as individuals having at least 50 percent Hawaiian blood.

The stated aim of the legislation was to enable native Hawaiians to escape the tenements and slums in Honolulu; by settling them to become self-supporting, self-sufficient, and thrive once more. Unfortunately, the Act was never fully funded. The lack of financial resources combined with very remote lands has made accomplishing the Department's objectives a challenge.

The main method by which DHHL serves beneficiaries is through the 99-year homestead lease. The leases are provided for Residential, Pastoral, and Agricultural uses for an annual fee of one dollar. According to the 2004 Kaua'i Island Plan (KIP), DHHL owns 14,959 acres in Waimea and has awarded five Pastoral Homestead lots. This Pu'u 'Ōpae Settlement Plan will focus on the development of a Kuleana Homestead on the mauka Waimea lands. DHHL intends to provide Kuleana Subsistence Agriculture and Pastoral homestead lots on 230 acres of land in the vicinity of Pu'u 'Ōpae. Kuleana Homestead Lots are defined under the Hawai'i Administrative Rules (HAR §10-3-30) as unimproved Hawaiian Home Lands for subsistence uses by leases who are willing to live on and accept an unimproved lot.

In 2020, there are 744 native Hawaiians residing on Kaua'i who have received a homestead lease award; while approximately 4,000 applicants remain unawarded. The majority of the leases that were awarded have been for Residential usage. As of 2019, Agriculture applicants account for approximately 50% of unawarded applicants; while approximately 40% are Residential applicants, and approximately 5% of unawarded applicants are Pastoral applicants.

1.2.2 The Kuleana Homestead Program

For many years, beneficiaries have expressed a strong desire to pursue alternative settlement options and to play a role in helping to manage and preserve the natural and cultural resources of this area. Beneficiaries wanted the opportunity to manage their lands and they wanted the Department to deliver homestead lots at a faster rate by awarding raw, undeveloped land. This concept was similar to the "kuleana" land award; which refers to a small area of land awarded to a Hawaiian by the King or ruling monarch of the 1850s. The granting of land carried with it the responsibility to respect, care and cultivate the land. The wise stewardship of the land provided sustenance and well-being to its occupants. This sense of responsibility, both to the land, and to those who share in the use of the land, is the guiding principle for the Kuleana program.

In 1992, a native Hawaiian beneficiary group, Ka 'Ohana o Kahikinui (KOOK) took the initiative to develop the proposal "A Conceptual Community Land Use Plan for the Ahupua'a of Kahikinui." This proposal became the foundation for the Kuleana Hou program, which would distribute raw, undeveloped lands as recommended in 1983 by the Federal-State Task Force on the Hawaiian Homes Commission Act. In 1993, the Hawaiian Homes Commission approved the Kuleana Hou pilot program at Kahikinui, Maui. In 1999, the first 76 Kuleana Homestead leases were awarded to beneficiaries.

In 1998, the first Kuleana Homestead Program was officially adopted as part of the department's *HAR §10-3-30*. Under this non-traditional homestead program, the department agrees to survey, stake and award lots and to provide a compacted unpaved roadway suitable for four-wheel drive vehicles to access the lots. DHHL beneficiaries, who choose to accept an offer of a Kuleana homestead lease, understand and agree that the provision of utilities, housing and the maintenance and repair of the access road becomes the responsibility of the lessee. The Kuleana Homestead Program provides a homesteading alternative for immediate access to raw land (without utilities) and an opportunity to create a new self-sufficient community.

Factors influencing the decision to consider the Kuleana program, versus the standard residential concept, involve the long lead times required for securing infrastructure financing, major difficulty for DHHL in obtaining new monies for development of infrastructure and the need for DHHL to seek innovative solutions in order to increase the pace of distribution of lands to native Hawaiians.

Under the Department's provisions, the Kuleana Homestead Program expands the range of program options provided to native Hawaiian beneficiaries. Under a standard residential community concept, it is necessary for infrastructure such as roads, electricity, sewer, and water to be developed in advance of settlement. As a non-traditional program, awarding raw, undeveloped land for beneficiaries to develop and manage, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land. Through the Kuleana Homestead Program, time spent on the waiting list is reduced. Native Hawaiians receive land within a quicker time frame and are given the opportunities to develop and manage their community.

The Kuleana Homestead Program is not for everyone. The program is designed for the beneficiary who can handle the rigors of an "off-grid", subsistence living lifestyle. In addition, the lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered into by the Kuleana Homestead Association. The lessee must also participate in the maintenance of the right-of-way to the Kuleana Homestead tract and lots.

A guiding principle of the program is empowering Hawaiian Home Lands beneficiaries with the opportunity to determine, as a group or as individuals, choices as to how they wish to develop their Kuleana Homestead awards. Along with the empowerment to choose comes the responsibility to manage the land in accordance with the Kuleana Homestead Program's principles, required health and safety standards, applicable state and county codes, design and building standards, and lease agreement provisions. No Kuleana Homestead Association-developed zoning, building, health and safety codes and permitting processes in addition to current county codes shall be effective unless and until they are approved by HHC.

Initially, basic needs will be provided using the following measures:

- Homesteaders will be responsible for constructing their own dwelling units. Permits and or other entitlement approvals will need to be completed by each respective homesteader.
- Homesteaders may need to haul potable water to individual Kuleana Homestead lots to ensure their own provisions of potable water. Catchment basins may supplement the need for additional water. Development of water sources for agricultural needs would be a longer-range priority.
- Homesteaders shall be responsible for providing their own energy needs. Electricity could be provided via generators or alternative energy production sources.
- Homesteaders shall be responsible for their own solid waste and wastewater disposal. Sewage could be handled via portable septic systems or dry composting toilets.
- Homesteaders shall be responsible for providing their own communication systems. Communications could be handled via cellular telephones or amateur (ham) radio.

1.2.3 Criteria for Kuleana Homesteading in Pu'u 'Ōpae

Of the 14,959 DHHL-owned acres of land in Waimea, 1,421 acres are the focus of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan, of which 231 acres are under DHHL License No. 816 by the KHHHA. This area fulfills the requirements for designation as Kuleana Homestead Lots as defined under *HAR §10-3-30*, which include the following:

- 1) Physical and environmental characteristics of the land;
- 2) Excessive cost to develop the tract for any reason including: the physical characteristics of the land, the distance of the land from existing electrical, water, wastewater disposal, communications, and other utility systems;
- 3) Department land management plans and programs;
- 4) Applicant interest or proposals identifying tracts of land; and
- 5) Suitability for use by lessees who wish immediate access to the land for subsistence uses and who are willing to live on the land and accept an unimproved lot.

Historically, the area of Pu'u 'Ōpae was leased to and used by the Kekaha Sugar Company (KSC) for sugarcane during the plantation era circa 1900. Water from the Waimea watershed was used to irrigate highland sugarcane fields located just below the Pu'u 'Ōpae reservoir throughout the late 1990s. Today, the historic irrigation infrastructure from KSC operations remain abandoned and dilapidated, and the cane fields are now vacant. Although the remoteness of the Project site with limited accessibility and infrastructure are concerning, the area's natural conditions, including rainfall to naturally irrigate crops, and existing four-wheel drive roads made this location a prime candidate for the Kuleana Homestead Program.

The Pu'u 'Ōpae Kuleana Homestead Settlement Project is intended to carry out the mission of the DHHL to effectively manage the Hawaiian Home Lands Trust and to develop lands for native Hawaiians. The planned Kuleana Homesteads Settlement will keep the former sugar plantation lands in agricultural cultivation and provide opportunities for beneficiaries to return to their agricultural roots and stewardship desires. It will also include Community Use areas to promote community cohesion and provide opportunities to expand economic agricultural opportunities. The steep ridge and natural drainageway areas are identified as having the best potential for native plant restoration and have been designated as Special District areas that will remain undeveloped.

1.2.4 Prior Planning Efforts

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan is the Project as defined under *HAR §10-3-30* and is a part of the DHHL 3-tiered Planning System. At tier one is the General Plan which articulates long-range Goals and Objectives for the Department. At the second tier, there are Strategic Program Plans that are statewide in focus, covering specific topic areas such as the Native Hawaiian Housing Plan and a Native Hawaiian Development Program Plan. This second tier also includes the Department's Island Plans that identify the Department's Land Use Designations per island which function similar to the counties' land use zones. Regional plans are located at the third tier in the Department's planning system which focuses at the community/regional level, and apply the goals, policies, and land use designations to specific geographic regions. Settlement Plans are also at this third tier, focusing on areas that are not yet developed.

Previous plans related to the Project area include the 2004 KIP, 2011 West Kaua'i Regional Plan, and the 2014 Pu'u 'Ōpae Farm and Irrigation Project (FIP) Plan.

A role of the KIP is to assign Land Use Designations for all of DHHL's land holdings on Kaua'i and indicate specific areas for priority homestead development. The plan is intended to guide overall land use patterns and development on Kaua'i over a 20-year period.

The KIP designated the lands encompassing the Pu'u 'Ōpae area as General Agriculture, Special District, and Future Development. General Agriculture designations are for lands on which intensive or extensive farming or ranching is allowed. Agriculture use of these lands may serve as an interim use until opportunities for higher and better uses become available. Special District lands are areas that require special attention because of unusual opportunities or constraints. These may include natural hazard areas, areas with cultural or historic value, special view planes and vistas, waterways, and other areas that require in depth planning and analysis. In the planning area, 895 acres of land on the flatter plateau areas were assigned for Future Development. This area was reserved for future homesteading beyond the 20-year planning framework identified in the 2004 Island Plan. At the time, no homesteading was planned for the area due to the high cost of development.

The KIP found that applications for agricultural leases made up the largest type of applicants on the waitlist. Community input from the KIP included inquiries about the availability of agricultural homestead lots. Waimea and Kekaha-specific input included an expressed desire for Subsistence Agricultural, Pastoral, and Residential land uses. Agriculture and Pastoral applicants also voiced a desire to live on their homestead lots. According to a survey of DHHL beneficiaries, the majority (71%) of agriculture applicants prefer a homestead lot that is five acres or less to use for small-scale agriculture operations or a home garden. Beneficiaries also noted a preference for small Pastoral lots, less than 50 acres in size.

Planning for the settlement of DHHL lands at Pu'u 'Ōpae began with the 2011 DHHL West Kaua'i Regional Plan, which identified the development of an Agricultural and Water Plan for the restoration and use of the Pu'u 'Ōpae area as a Priority Project. The plan called for maintaining the Pu'u 'Ōpae reservoir and rehabilitating the irrigation system for future agricultural lessees. The plan further recommended for the development of an Agricultural lease master plan to investigate lands around and below Pu'u 'Ōpae that could be irrigated from the reservoir. This master plan could then create a rational framework for decision making and project selection by the Department and beneficiary community. The size and number of future Agricultural lots would be based on the conditions of the site and the types of agricultural plans being considered.

Part of the DHHL planning process is to encourage beneficiaries to plan for their own future. In 2012, the KHHA was granted a Right of Entry to begin land management and maintenance activities at Pu'u 'Ōpae. In addition, KHHA began preparing a master plan for the Pu'u 'Ōpae FIP to begin implementing the West Kaua'i Regional Plan priority project goals.

The Pu'u 'Ōpae FIP creates a cultural pu'u honua (a place of refuge) where Hawaiians are able to reconnect with the land and water, and acquire farming, pastoral and forest management skills that can ensure their self-sufficiency. It is a values-driven plan based on ahupua'a principles that fulfills the promise of the Hawaiian homes Act by ensuring beneficiary success through agriculture and pastoral education. "Triple bottom line" results anchor this program so that benefits are for people, planet and profits. Food production is a key element of this project aimed at helping the island achieve food security and food self sufficiency using traditional Hawaiian agriculture methods and the skill base of the Hawaiian people. The FIP developed a "mālama honua" (care for the earth) approach to agriculture for the community to address social, economic, and environmental concerns. Three key values guided the FIP:

- 1) Akua first, values first (connections and respect for all beings, spirits, and living things);
- 2) Kuleana (reconnecting Hawaiians with the land, and reestablishing the reciprocal relationship between kanaka and 'āina); and
- 3) From kupuna to 'ōpio (intergenerational transfer of knowledge and values).

By 2014, the KHHA FIP was finalized, covering a total of 1,192 acres, with nearly 300 beneficiaries signing a statement of support for KHHA's proposed work. The FIP proposes the development of a test and learning site, renewable energy through hydroelectric and solar energy ventures, land grants, conservation management, and 140 homestead lots.

Subsequent to the completion of the FIP, KHHA requested from DHHL the use of 231 acres of the 1,421 acres. The KHHA was granted a Right of Entry (ROE) License No. 816 was awarded to KHHA in October 2017 for a 20-year term. The License can be extended for an additional 5-year term, up to a total of 25 years. The KHHA's 231 acres currently under license within the Pu'u 'Ōpae SAP Project area are planned for community agriculture, food production, and educational programs.

In order to inform this Pu'u 'Ōpae Kuleana Homestead Settlement Plan, reference is made to the Kahikinui, Maui project – the first and only other area where DHHL issued Kuleana Homestead leases, which occurred in the late 1990s. Since it was a pilot project, DHHL conducted a formal evaluation of the Kuleana Lease program in 2017. The Evaluation reported that the initial settlement process was confusing for the beneficiaries. Beneficiaries expressed that a major challenge for lessees awarded a Kuleana Homestead lease was understanding what they were required to build and what it would cost. Without individual TMKs awarded to lessees, lessees struggled to receive traditional loans and home insurance to develop their land. With only 12 households residing full time, the community was too small to share in the management of community resources such as the roads, forests, historic sites, and fire management. The Pu'u 'Ōpae Kuleana Homestead Settlement Plan has taken this feedback into consideration to prepare for a more successful settlement.

1.3 Purpose of the Environmental Assessment

This EA will comply with Hawai'i's Environmental Review Process, *HRS Chapter 343*. The EA is being prepared due to the proposed project utilizing State lands and funds. The HHC is the approving agency.

This EA includes the following as required by *HAR Chapter 200.1*: identification of the applicant and approving agency; a list of the required permits and approvals; identification of the trigger requiring *HRS Chapter 343* environmental review; identification of agencies consulted in preparing the Draft EA; description of the action's technical, economic, social, cultural, historical, and environmental characteristics; summary description of the affected environment, including suitable and adequate maps; identification and analysis of impacts and alternatives considered; proposed mitigation measures; and anticipated determination from approving agency. After the 30-day review period of the Draft EA, public comments received were considered and addressed to the extent feasible within the project scope and evaluation. This Final EA highlights key areas of the document that were revised, updated, or modified based upon information received during the public comment period. Upon acceptance of the Final EA, a FONSI is anticipated.

1.4 Agencies, Organizations and Individuals Contacted During the Early Consultation Process

The awarding of Kuleana Homestead leases requires applicants, together with DHHL, to develop a plan for settlement and development of the designated tract. As part of this process, beneficiary consultation meetings were held in October 2017, November 2018, August 2019, and February 2020 (*Appendix A*). Prior to these meetings, studies were conducted to provide a clear evaluation of existing conditions, including plants and animals of the area, archaeology, wildfire risk, roads and existing infrastructure, and the potential for community-based economic opportunities.

The first meeting held in October 2017 was an informational session that shared the preliminary process of the Project. Members of the Kekaha and West Kaua'i Homestead Association as well as a Pastoral lessee were present. Attendees inquired about water availability, reduction of fire risk, concerns related to hunting in adjacent lands, and cultural principles.

The November 2018 meeting was held to provide beneficiaries with a better understanding of the Kuleana Homestead Program, provide information related to the site characteristics and conditions of the Project area, and to better understand the beneficiaries' vision for the area and beneficiary preference for lot size and configuration. Based on the feedback received during this meeting, attendees prioritized awarding as many lots as possible with the option and means to reside on the land. Beneficiaries envisioned Pu'u 'Ōpae as mainly a subsistence agricultural homestead with a small community agricultural cooperative.

The second beneficiary consultation meeting was held in August 2019 to review proposed Settlement Plan concepts based on the input from the prior meeting. Two alternative lotting scheme renderings were shared with beneficiaries. The first included 140 half-acre Subsistence Agriculture Lots. The second included 240 half-acre Subsistence Lots. No Pastoral lots were included as part of the draft plans.

During this meeting, beneficiaries continued to declare the option to reside on the land as their top priority. Beneficiaries also expressed a desire for shared spaces and responsibility. Attendees requested for the settlement to also include Pastoral lots as part of the plan. The greatest perceived physical challenges for the Pu'u 'Ōpae Settlement were road maintenance and upkeep, access to potable water, managing fire hazard risks, and proper waste disposal. Of the two lotting schemes shared, attendees preferred the option with 240 lots because they wanted the Department to maximize the number of lots awarded. Beneficiaries were split, however, when it came to the issue of the size of the lots. Some thought that a half-acre would be too large for them to properly manage while others thought a half-acre wouldn't be enough. Age of the lessee and family size were major variables that influenced beneficiary perception of their capacity to manage a Kuleana Homestead lot, which affected their preference for lot size.

A third beneficiary meeting was held in February 2020 to provide a review of the updated Settlement Plan based on the feedback and recommendations received during the prior two meetings. The meeting also described how the concerns expressed during the previous meeting were addressed. At the conclusion of the presentation, attendees broke into four small groups at the conclusion of the presentation to discuss the following questions:

1. *What would be viable alternatives to provide potable water, wastewater, and power needs? If you accepted a Kuleana Lease at Pu'u 'Ōpae, how would you address these needs?*

Attendees favored using a rainwater catchment system for obtaining and storing potable water. Beneficiaries believed wastewater could be best managed using Individual Wastewater Systems (IWS), composting toilets, or a decentralized cluster wastewater system. The ample sunlight received in western Kaua'i was deemed sufficient to provide electrical power using solar panels.

1. *Would this Settlement Plan, as shown today, work for you and your family?*

Beneficiaries generally approved of the lotting scheme and expressed an eagerness for the project to get underway. They were also pleased that the Kuleana Homestead Association would have the ability to create their own codes and permitting process.

2. *The Rules say DHHL has to provide an unpaved road—do you think it should be paved? (Keep in mind that any Departmental involvement means more time)*

Considering the tradeoff that a paved road would mean more time to get on the land, beneficiaries expressed an overall preference to settle on the land as quickly as possible even if it meant forgoing additional infrastructure improvements. There was a consensus that 4-wheel drive roads would be acceptable for accessing their lot.

3. *What would be viable alternatives for the shared common areas?*

There was a wide range of ideas for utilizing common areas throughout the Project area. Beneficiaries supported the concepts shown for clustered wastewater systems and a community solar microgrid. Other ideas included using the space for community gardens, growing fruit trees, beehives, storing shared farm equipment, recreation space, keiki playgrounds, and educational programs. There were also ideas shared for mitigating wildfire risk by constructing earthen berms that could serve as fire breaks.

4. *Do you have any questions or comments about what was shown today?*

Listed below is a summary of the questions and answers discussed:

- *What was learned from Kahikinui? Will this project be better than Kahikinui?*

In order to inform this Pu'u 'Ōpae Settlement Plan, reference is made to the Kahikinui, Maui project – the first and only other area where DHHL issued Kuleana Homestead leases, which occurred in the late 1990s. Since it was a pilot project, DHHL conducted a formal evaluation of the Kuleana Lease Program in 2017. The Evaluation reported that the initial settlement process was confusing for the beneficiaries. Beneficiaries expressed that a major challenge for lessees awarded a Kuleana Homestead Lease was understanding what they were required to build and what it would cost. Without individual TMKs awarded to lessees, lessees struggled to receive traditional loans and home insurance to develop their land. With only 12 households residing full time, the community was too small to share in the management of community resources such as the roads, forests, historic sites, and wildfire mitigation. The Pu'u 'Ōpae Kuleana Homestead Settlement Plan has taken this feedback into consideration to prepare for a more successful settlement.

- *Can I choose to occupy the lot? What is the definition of a “home”? Can I live in a shed?*

Beneficiaries can only have one home. Per HAR 10-3-7(d) and 10-3-26(d)(amended), an awardee currently holding a Residential Lease will have to return their residential lease, or transfer the residential lease to another family member, before they could receive a Kuleana Homestead Lease award. Also, according to HAR 10-3-26(b)(amended), lessees of an agricultural lot (of less than three acres) must reside on and cultivate their lot within three years of being awarded. Ultimately, the future Kuleana Homestead Association will be responsible for developing the rules and covenants that govern the homestead community. The future Association must determine an acceptable definition of a home.

- *Who will build the homes? Will homes be safe enough without being constructed to State and County codes?*

Beneficiaries will be responsible for building their own home. The Kuleana Homestead Association in consultation with a licensed architect, registered in the State, may develop, adopt, and enforce its own zoning, building, and permitting process on the condition that standards contained in the state health codes and health and safety sections and provisions contained in the Uniform Building Code are met and that a licensed architect, registered in the State, is willing to certify all building plans as part of the community developed permitting process.

- *Can Kupuna transfer their lot to a family member?*

Recipients of a Kuleana Lease will have the ability to transfer the lease to another family member.

- *Will the plan consider phasing the settlement process?*

The Settlement Plan includes a phased approach for the Pu'u 'Ōpae Project area. Settlement of the Pu'u 'Ōpae tract will take place where road conditions are most favorable. This will allow DHHL to award lots as soon as possible while preparing additional rights-of-way. Settlement will begin on the northern plateau nearest to the Pu'u 'Ōpae Reservoir. Kuleana Pastoral and additional Subsistence Agriculture lots could be developed on the southern plateau at a later time once roadways are improved and a method of delivering irrigation water is determined. Details of the settlement timeline are discussed in Section 9 of this Settlement Plan.

- *What would be the frequency of repairs? How much work would it take to self-maintain the roads?*

Minor grading and installation of road culverts will be required to mitigate the erosion currently exhibited at the site. Irrigation and runoff cutoff ditches along fields, lots, and roadways will likely be constructed in accordance with NRCS Standard Practice Codes (Best Management Practices). New roadway crossings with piping or culverts will need to be installed at locations where flood waters may cross roadways. Roads must be consistently maintained by either dropping gravel stabilization as needed, or through pavements if sections are steep and often washed out. The Future Kuleana Homestead Association will be responsible for scheduling routine maintenance activities.

The HHC was given a briefing on the project in August 2018 and April 2020. Information presented in August 2018 referred to bringing the Settlement Plan together with the Kaua'i Island Utility Cooperative (KIUC) Hydroelectric Project and Kekaha Hawaiian Homes Association program. Design constraints for the property were reviewed and a timeline for EA completion was provided. The April 2020 briefing provided a summary review of the Draft EA. Questions from the HHC were primarily with regards to KIUC's role in providing water and road maintenance, and the addition of pastoral lots not previously included in the original Settlement Plan.

A list of agencies and other parties that were presented notice of the proposed project or were contacted during the early consultation period of the EA is provided in *Chapter 7* of this Final EA. Additionally, a listing of those agencies that were provided an opportunity to review the Draft EA is provided in *Chapter 7*. Copies of the comment letters on the Draft EA and letters sent in response are included.

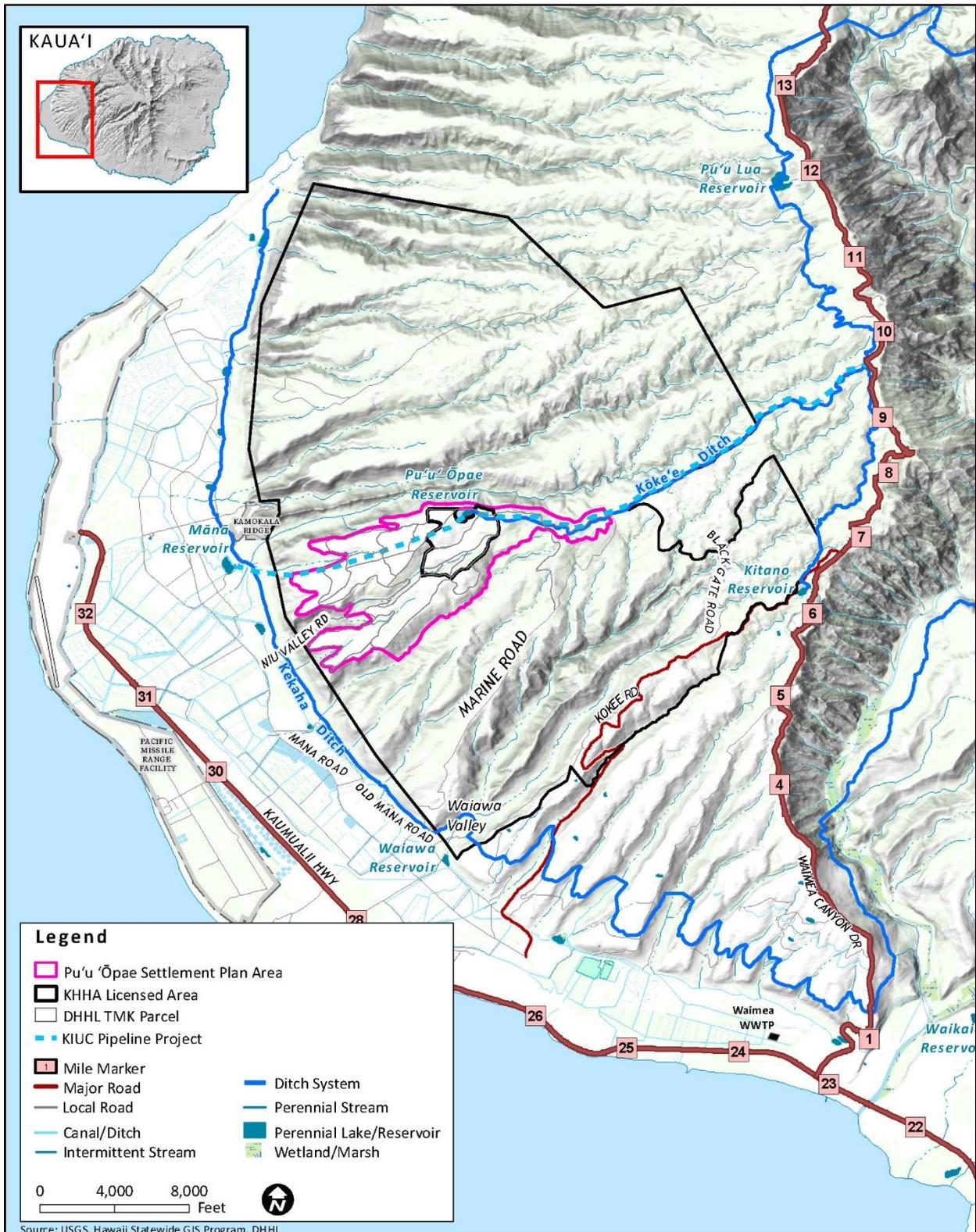


Figure 1-1

Project Location

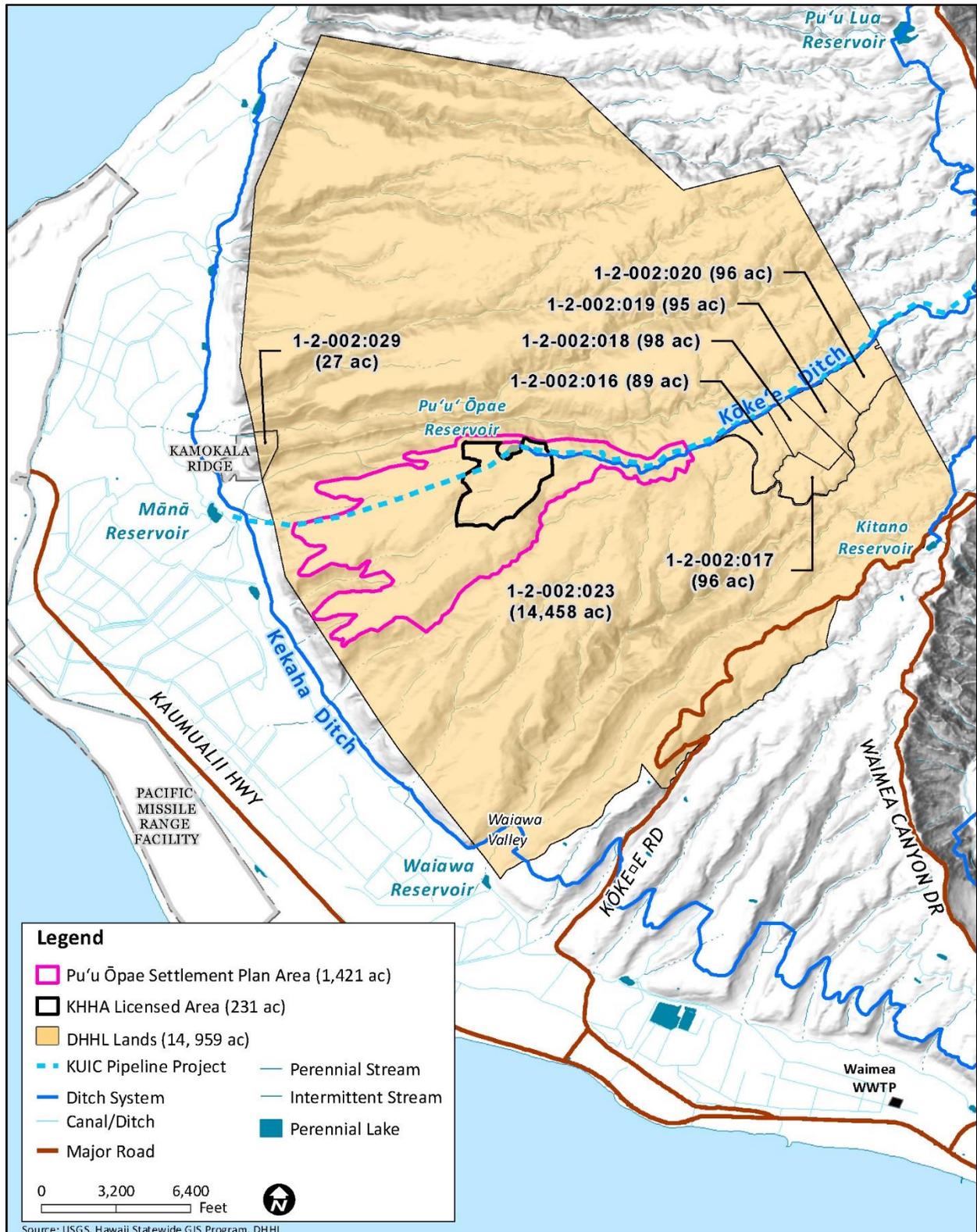


Figure 1-2

Tax Map Key Parcel Map (1-2-002:023 por.)

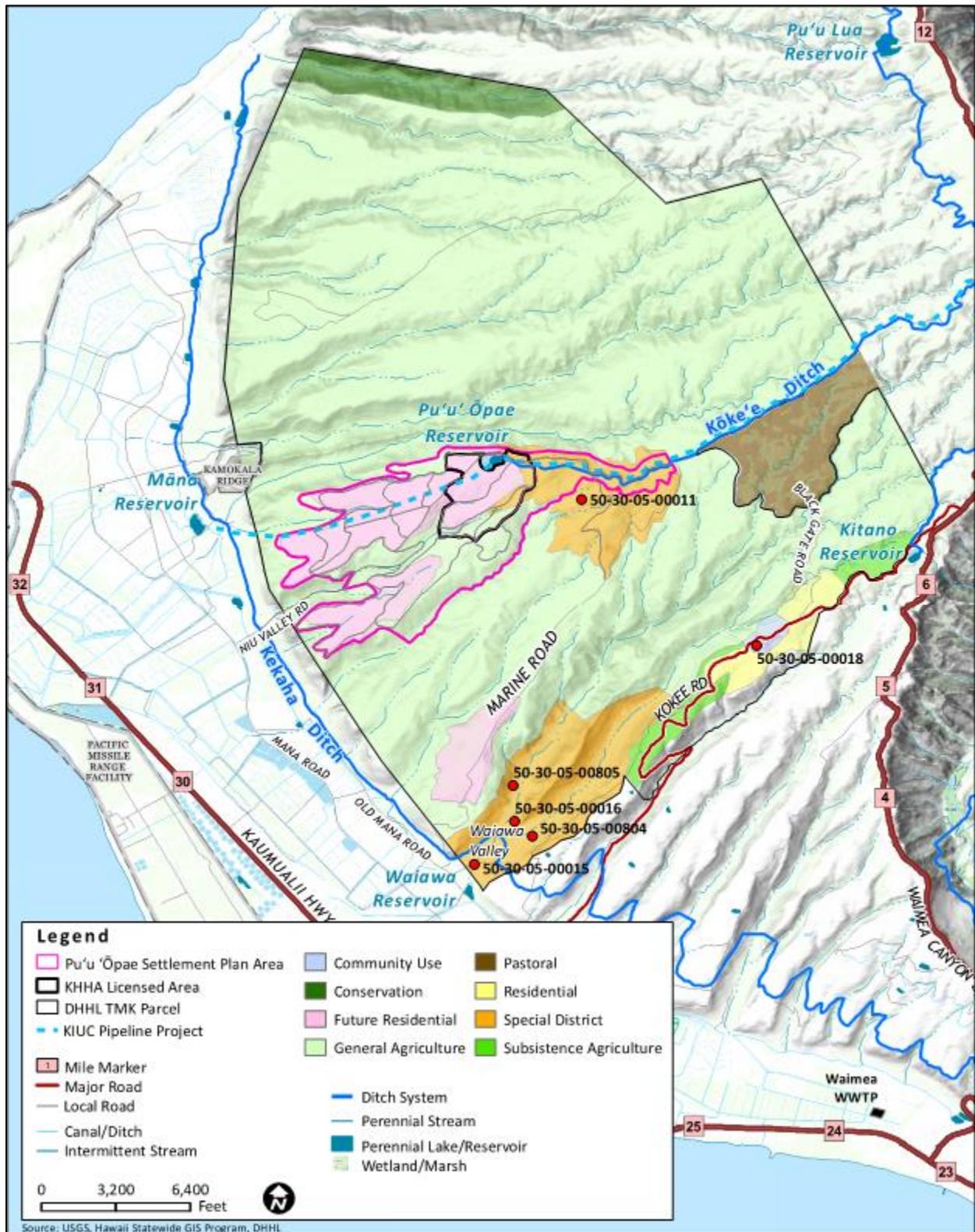


Figure 1-3

DHHL Land Use Designation, Kaua'i Island Plan (2004)

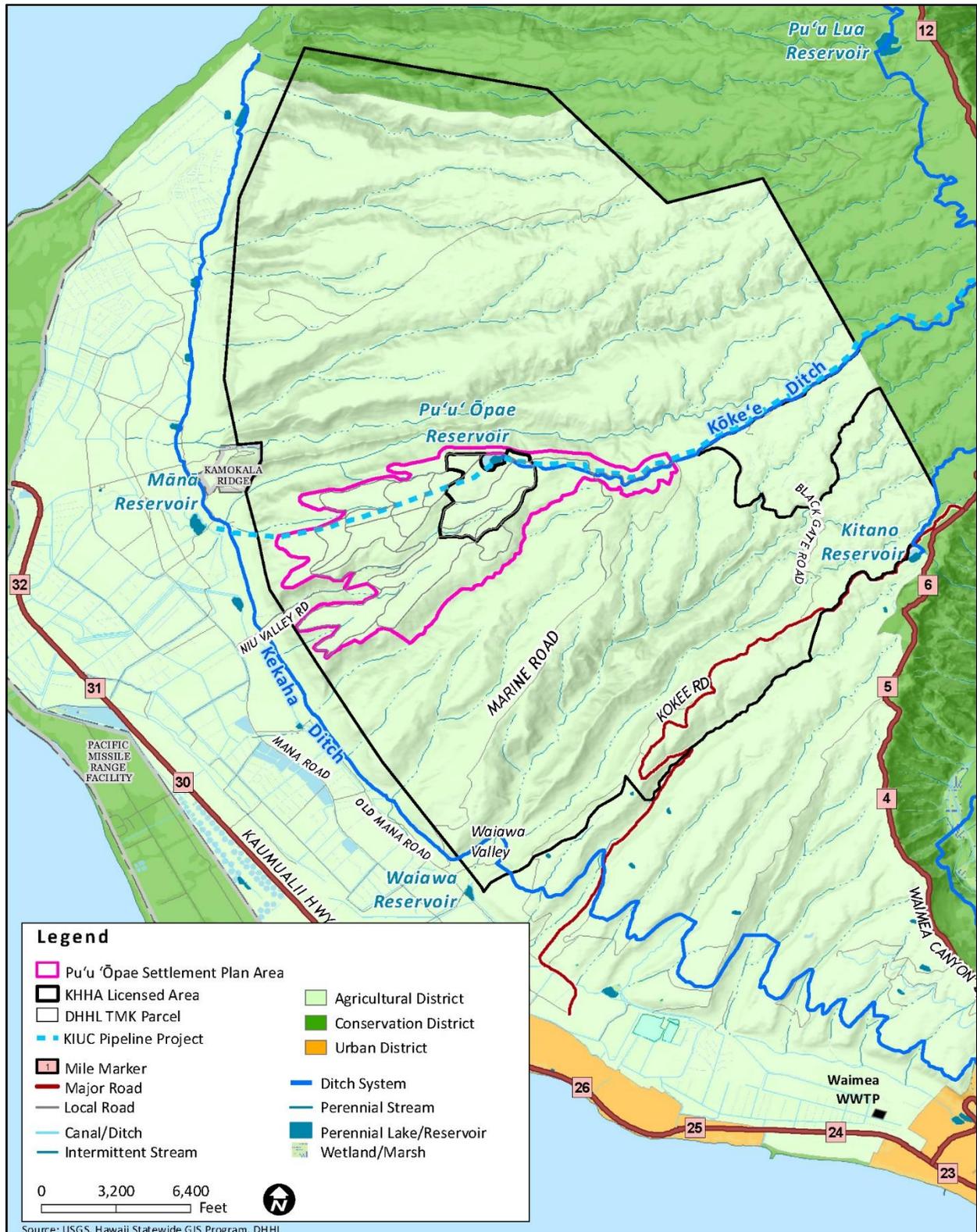


Figure 1-4

State Land Use District Map

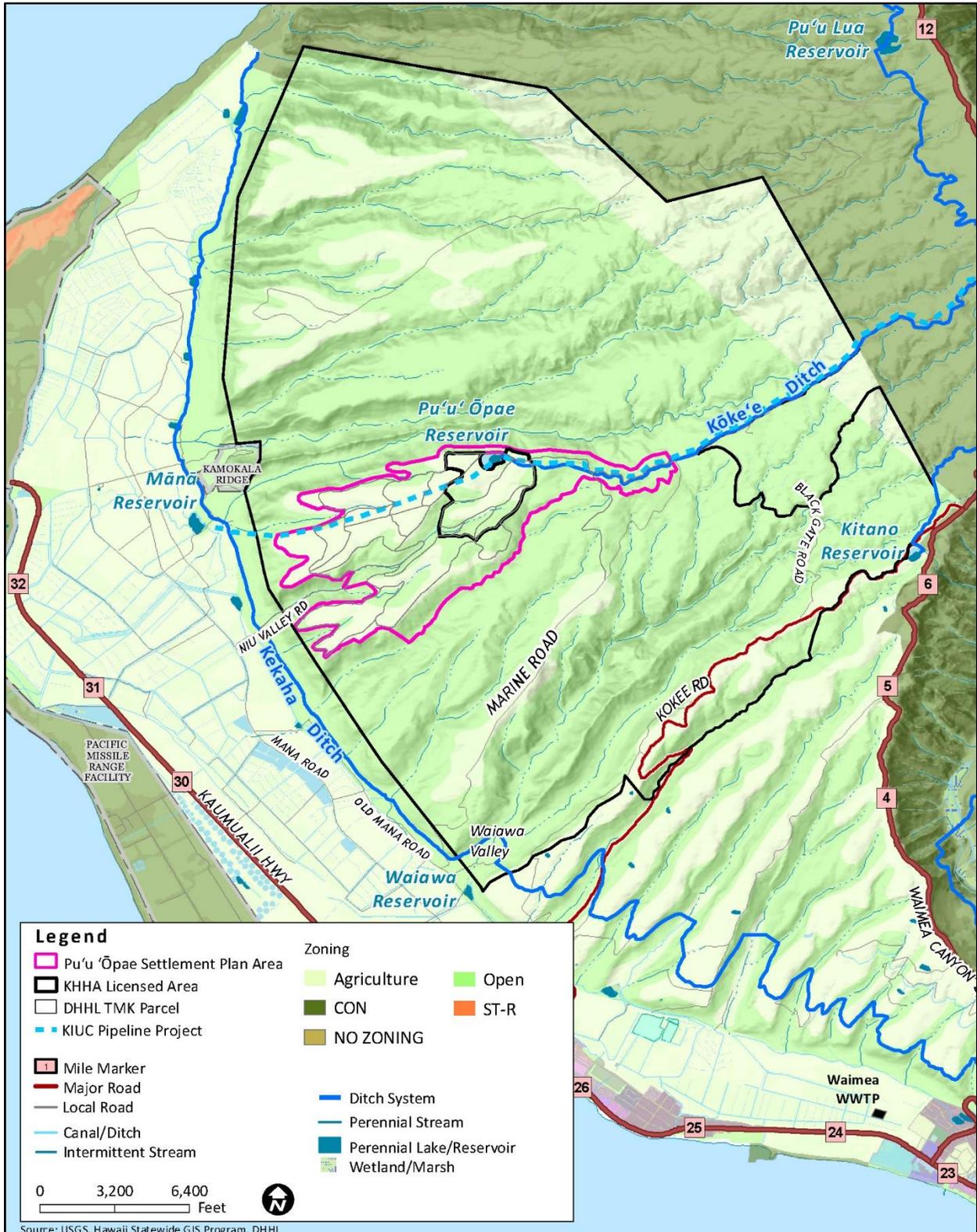


Figure 1-5

Kauai County Zoning

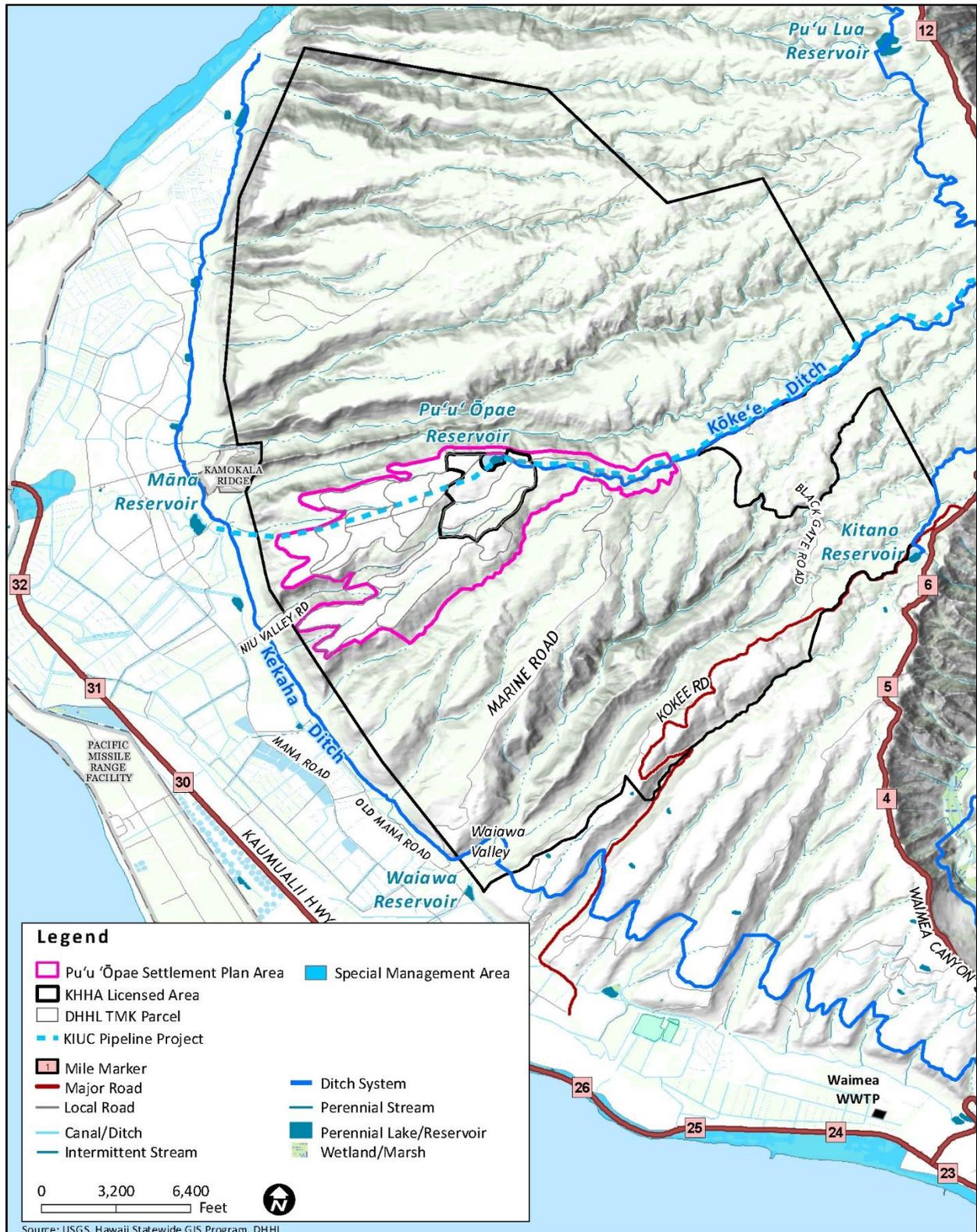


Figure 1-6

Kauai County Special Management Area Map

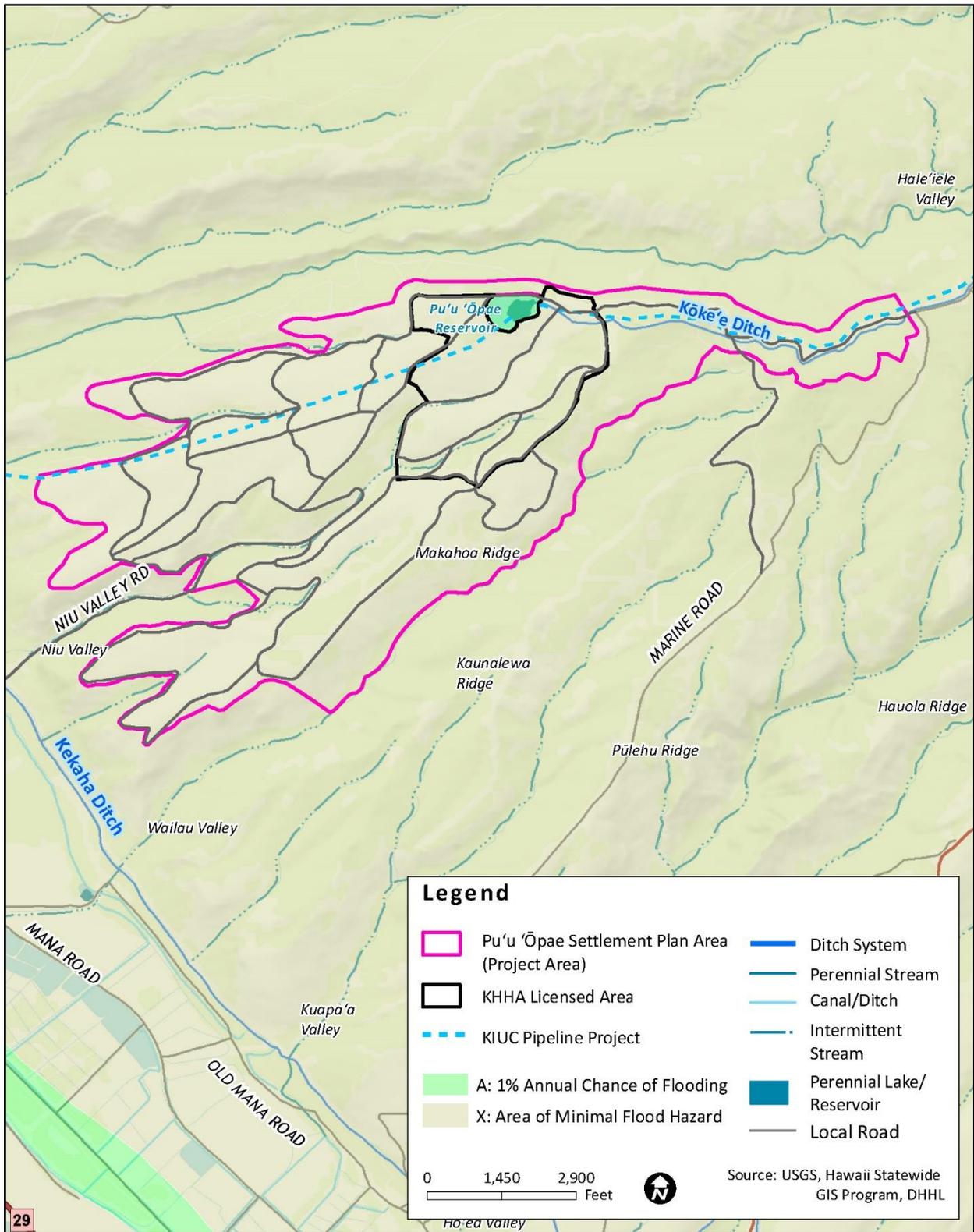


Figure 1-7

FEMA Flood Insurance Map Designation, 1500020140F (2017)

Section 2

Description of the Project

Chapter 2

Description of the Project

2.1 Description of Project

The plan for settlement and development of the Project area is constrained by the physical characteristics of the land. As outlined in *Table 2-1* below, the settlement's lot scheme considered site topography, drainage, accessibility, proximity to water, wildfire risk, proximity to natural and cultural resources, and Beneficiary preferences for lot size and lot configuration. When evaluating lot configuration schemes, consideration was given to layout designs that could maximize the number of lots to be awarded within understood thresholds of carrying capacity, such as the size and density of the lots, their layout, and the need for awarded beneficiaries to share in both the benefits and burdens of maintenance and improvements. The settlement configuration also considered the activities and uses adjacent to the homesteading lots as well as the future build-out of other DHHL lands in close proximity.

Criteria	Value
Topography	Less than 15% slopes, away from drainage ways and flood hazards
Proximity to Roadways	Existing or new four-wheel drive roads
Size	0.5 Acre Subsistence Agriculture and 10-acre Pastoral Lots
Proximity to Water	Pu'u 'Ōpae Reservoir & Kōke'e Ditch and Irrigation System
KIUC Improvements	Incorporate synergies in the two projects
Wildfire Risk	Minimize wildfire's ability to spread/travel and optimize evacuation and fire suppression
Hunting Boundaries	Sited away from existing hunting zones and well within safety zones
Proximity to Natural and Cultural Resources	Sited away from denser areas of intact native forested areas, and traditional, cultural sites and features.
Beneficiary Preferences	Community consensus on lot scheme

Under the DHHL land use system, the 1,421-acre Project area is currently designated as General Agriculture, Special District, and Future Development. An amendment to the existing land use designations at Pu'u 'Ōpae will be required to include Subsistence Agriculture, Pastoral, Supplemental Agriculture, Community Use and Special District (*Figure 2-1*). *Table 2-2* provides an overview of the Land Use Districts.

Areas identified for Subsistence Agriculture are intended for sustainable lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. Pastoral lots are intended for large lot agriculture specifically for pastoral uses. Supplemental Agriculture is land reserved to accommodate lessees who would like to expand their

lots for commercial agricultural purposes. Lessees who demonstrate success at cultivating their half-acre of land may apply for supplemental acreage. Lands designated as Community Use are common areas intended for uses such as cultural activities, parks, recreation activities, meeting pavilions, camping areas, public amenities, commercial activities, and Community-Based Economic Development (CBED). CBED is a process by which communities can initiate and generate their own solutions to their common economic problems and, thereby, build long-term community capacity and foster the integration of economic, social, and environmental objectives. Special District lands are areas that require special attention because of unusual opportunities or constraints. These may include natural hazard areas, open spaces, raw lands far from infrastructure, mixed use areas, or greenways.

Table 2-2 Settlement Plan Lot Strategy		
Land Use	Setting/Intent/Purpose	Land Allocation
Subsistence Agriculture	Small lot agriculture. Lifestyle areas intended to allow for home consumption of agricultural products.	394 total acres (240) .5-acre lots
Pastoral	Large pastoral land for livestock.	110 acres (11) 10-acre lots
Supplemental Agriculture	Land reserved to accommodate lessees who have demonstrated proficiency in agriculture and desire to expand their lots for commercial agricultural purposes.	63 acres
Community Use	Common areas for community uses. Includes space for parks and recreation, cultural activities, Community Based Economic Development, and other public amenities.	302 total acres 150 acres (KHHA)
Special District	Areas requiring special attention because of unusual opportunities and/or constraints. E.g. natural hazard areas, open spaces, raw lands far from infrastructure (difficult to improve), mixed use areas, greenways.	702 total acres 81 acres (KHHA)

A total of 394 acres have been allocated for Subsistence Agriculture, of which 120 acres on the northern plateau are currently planned for Kuleana Subsistence Agriculture lots (*Figure 2-2*). Additional Kuleana Lots could be considered on the southern plateau at a future time. The 120 acres reserved for Subsistence Agriculture leases have been divided into 240 lots at 0.5 acres each. These lots will provide ample land to construct a house, to plant crops and/or raise animals for home consumption of agricultural products. The remaining 274 acres of Subsistence Agriculture are reserved for shared common areas and future buildout of the Kuleana Settlement. The Pastoral homesteading area is located on the southern plateau of the Settlement Plan Area. Pastoral lots were included due to Beneficiary interest and requested at the meeting held on August 29, 2019. Pastoral lots in Pu'u 'Ōpae will be sized at 10 acres each for a total of 11 lots.

Lots were designated primarily along existing roadways on the lower gradient portions of the plateaus. Utilizing existing roadways reduces development costs and minimizes potential impacts to undiscovered natural and historic properties. The gently sloping areas were selected to allow for additional safety measures related to wildfire and flooding. Due to the existing hunting zones surrounding the Project area, a 300-foot buffer was established along the southern boundary of the Settlement Plan Area. No development or activities will be permitted within the buffer for safety purposes.

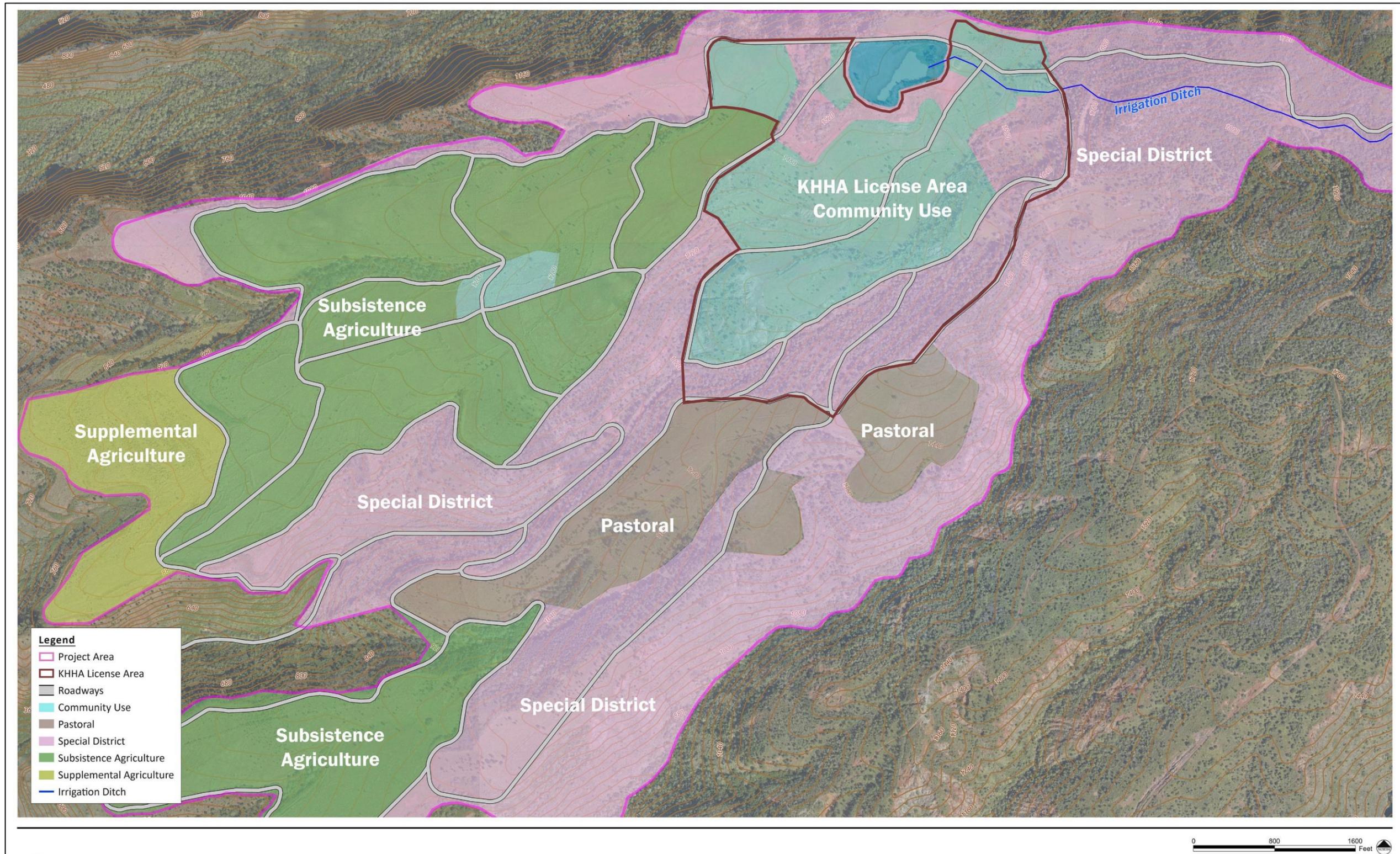


Figure 2-1

Proposed Pu'u 'Ōpae Kuleana Homestead Settlement Land Use Map

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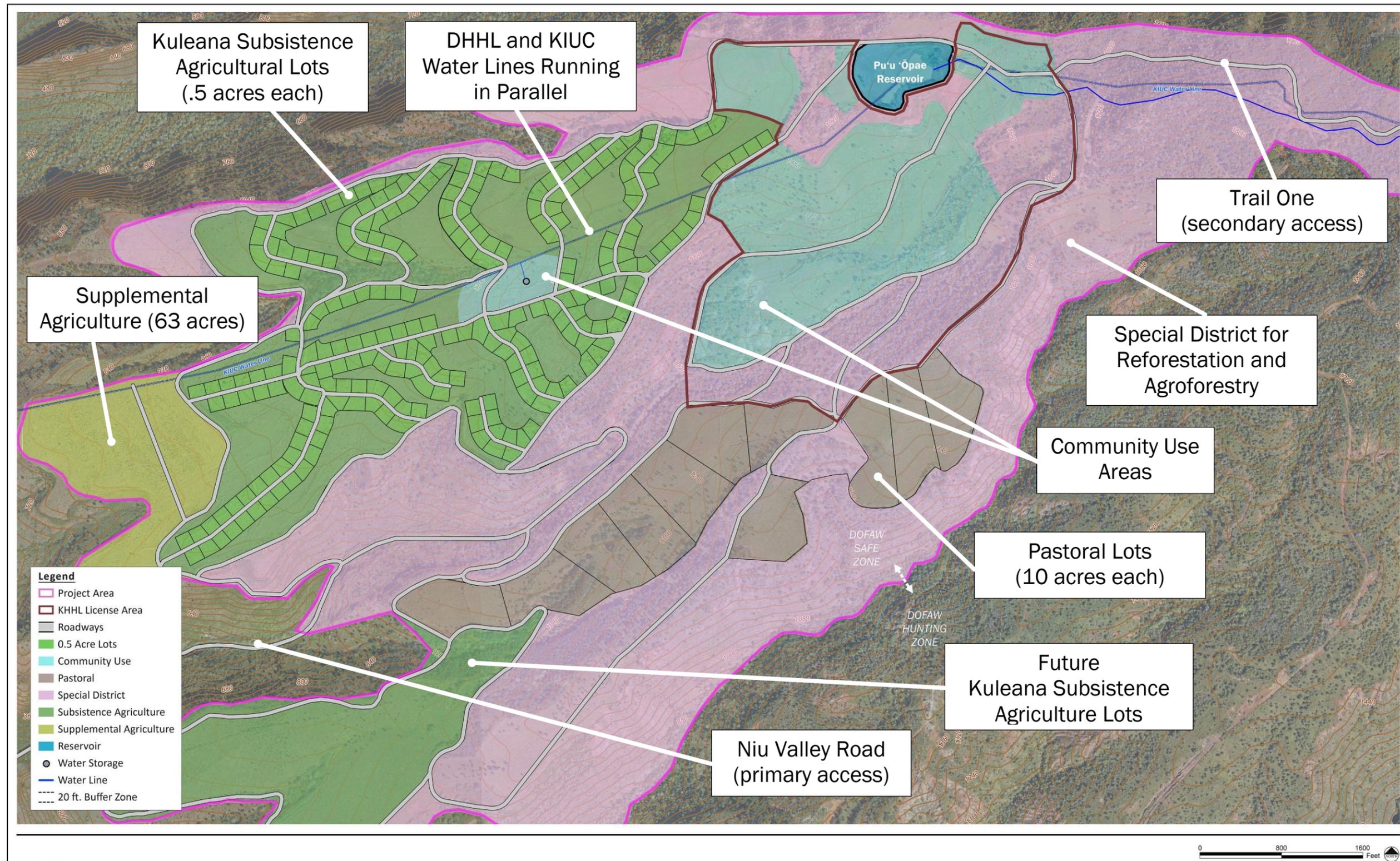


Figure 2-2

Proposed Pu'u 'Ōpae Kuleana Homestead Settlement Lot Scheme

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As the Kuleana Homestead Program is intended to rehabilitate native Hawaiians by providing opportunities for self-sufficiency and self-determination, raw land is being offered to beneficiaries to live on, grow food to sustain their family, and utilize for economic purposes. Beneficiaries receiving awards for Kuleana Homestead lots agree to accept unimproved land in “as-is” condition. Infrastructure such as water, sewage, and electricity will not be provided. Additionally, beneficiaries will be responsible for the maintenance and upkeep of the homestead tract’s rights-of-way, management of wildfire risks, and the preservation of significant historical and biological resources. As such, lessees will be required to become active participants in the Kuleana Homestead Association to develop rules and agreements to formalize their individual and community management responsibilities.

2.2 Community Use and Shared Common Spaces

Community Use Areas Within KHHA License Area

In 2017, the KHHA was granted License No. 816 to begin land management, maintenance activities, and educational/training activities at Pu'u 'Ōpae. The KHHA’s vision for the 231 acres is to create a learning environment that will inform sustainable agricultural opportunities for the Waimea-Kekaha community and support the Kuleana Settlement. KHHA intends to use the License Area to conduct test planting of a variety of crops, pastoral techniques, and other integrated farming practices. The License Area and KHHA’s FIP is integral to the Kuleana Homestead Settlement as it provides educational and community support programs that help to ensure success for Kuleana lessees.

Consistent with the FIP, the Settlement Plan designated 150-acres of the 231-acre License Area for Community Use. The remaining 81 acres are designated as Special District. The Community Use areas are located mauka of the Subsistence Agriculture lots (*Figure 2-3*). This location is in close proximity to the reservoir, and also to the future Kaua’i Island Utility Cooperative (KIUC) electric distribution lines (should they be needed in the future). The FIP acknowledges the reservoir as an important cultural resource worth preserving for the community. As such, the lands adjacent to the reservoir are reserved for cultural uses and community commons.

The FIP also plans for the development of a KHHA Center to serve as a site for community meetings and onsite trainings. It will likely be constructed as a simple raised platform to serve as a basic meeting venue and provide shelter from the rain. As the Kuleana Settlement grows over time, the KHHA Center could be expanded to become a more permanent structure for accommodating larger attendance of Pu'u 'Ōpae residents, visitors, and agricultural experts.

The Community Use spaces within the License Area will also include test planting and ranching areas. These test sites could include uses such as community orchards, community pastoral areas, an aquaculture testing site, and lo’i kalo testing site. The KHHA will be responsible for determining the specific uses and land allocations for these areas. These Community Use areas will follow Natural Resources Conservation Service (NRCS) guidelines and best management practices (BMPs).

The remaining 81 acres of the KHHA’s 231-acre License Area are designated as Special District (*Figure 2-1*). These are lands with slopes too steep for conventional agricultural cultivation. Ungulate trails have been noted on these lands suggesting the need for animal control and monitoring. KHHA plans to look to NRCS for assistance in erosion control methods for these lands.

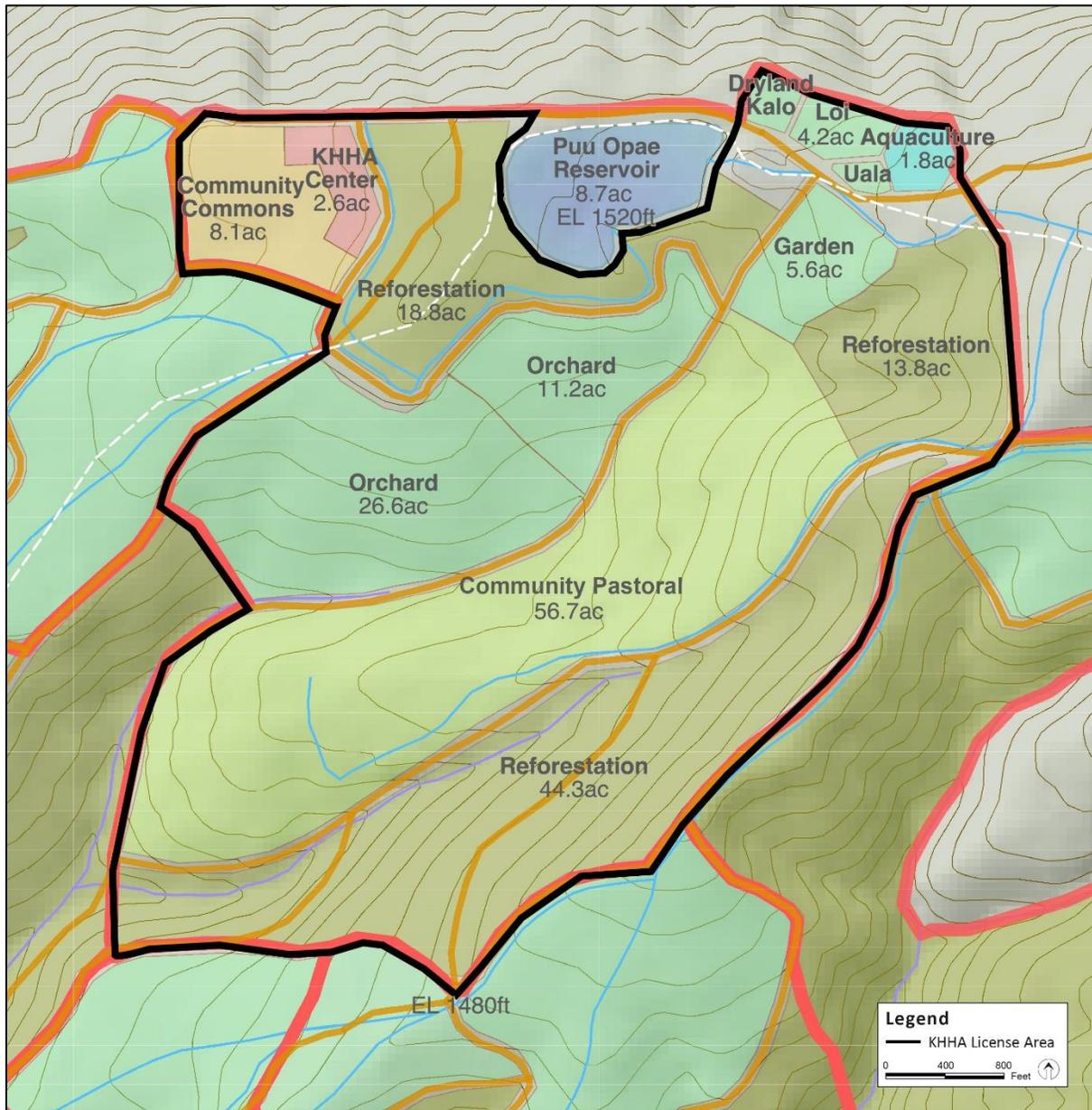


Figure 2-3 Proposed Community Uses in the KHHA License Area

Source: Adapted from Project Master Plan, Pu'u 'Ōpae Farm and Irrigation Project (2018). Kekaha Hawaiian Homestead Association

Additional Community Use Areas Outside of License Area

A second smaller Community Use area is enclaved centrally within the Subsistence Agriculture lots (Figure 2-4). This two-acre area was sited in the center of the Settlement Plan area to serve the dual purpose as an open green space for community recreation and gathering, as well as a water storage area for firefighting purposes. DHHL or the future Kuleana Homestead Association could decide to run a water main down from the Pu'u 'Ōpae reservoir parallel to KIUC's lower penstock to provide easier access to irrigation waters for the Subsistence Agriculture lots. Due to the sloping grade of the land, a pressure breaker would be required for the water line and would be ideally situated at this location. A water tank or holding pond could reduce the hammer pressure in the pipeline and could also store water for emergency firefighting purposes.

The area near the water storage may require some minimal grading to create a flat area where a portable dipping pool could be inflated for firefighting purposes. The area should be kept clear of vegetation and parked vehicles to ensure access for emergency vehicle and helicopters landing. A standpipe from the storage tank or holding pond should remain easily accessible and well signed.



Figure 2-4

Two-acre Community Use Area and Water Storage

Common Areas:

During the August 2019 Beneficiary meeting, attendees expressed a vision for the Pu'u 'Ōpae Kuleana Homestead Settlement that included themes of trust, caring for one another, and sharing. A poll of the attendee's preferred lot configuration (*Figure 2-5*) revealed that 75% of those in attendance desired a traditional western style layout consisting of private individual lots. 25% of attendees expressed an interest for alternative lot configurations that included shared agricultural spaces and a clustering of homes similar to the Hawaiian kauhale model.

The kauhale concept is a traditional, cultural model of housing consisting of tiny home clusters and communal areas for cooking, farming, and gathering. Kauhale are meant to foster a sense of community and ownership. Three primary benefits of this development pattern include:

1. Contiguous open spaces help conserve wildlife habitats and soil quality for agriculture.
2. Grouping homes together reduces the initial investment in roads and infrastructure, as well as the community's long-term maintenance and replacement costs.
3. Relatively close proximity to neighbors means beneficiaries are more likely to coalesce as a community.

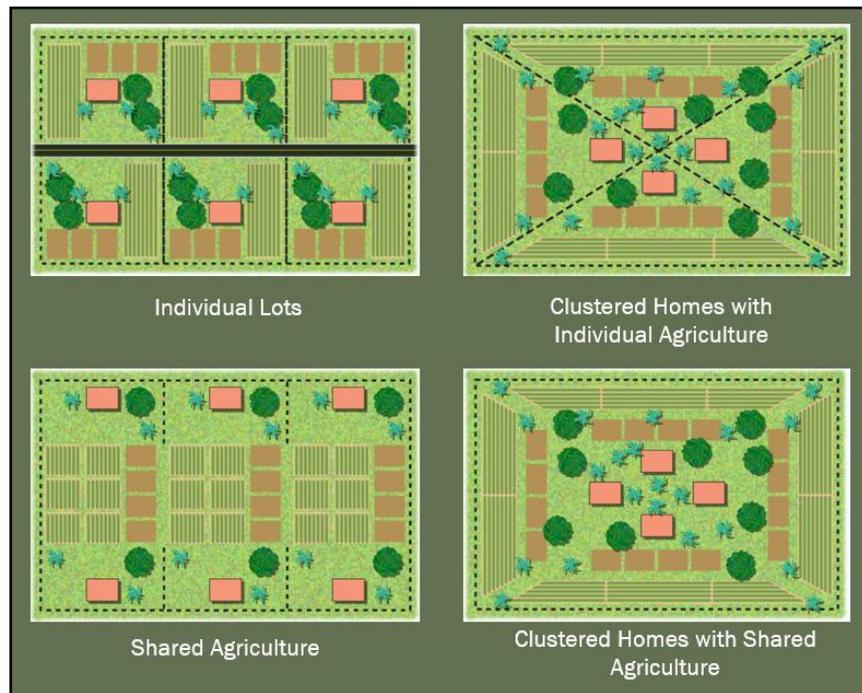


Figure 2-5

Potential Lot Configurations

To accommodate both desires for private individual lots as well as shared spaces, this plan is comprised of individual Kuleana Subsistence Agriculture lots grouped around central common green areas (Figure 2-6). The residents and the Kuleana Homestead Association can determine how best to use the common areas. Some viable options could include community gardens, recreation spaces, pavilions, orchards, a solar microgrid, or a cluster wastewater system. A dirt foot/bike path is encouraged to connect the homestead lots, promote walkability in the community, and reduce wear and tear on the roads.



Figure 2-6

Common Area in the Subsistence Agriculture Area

2.3 Community Management and Economic Development

The mission described in KHHA's FIP was to create "a cultural pu'u honua where Hawaiians are able to reconnect with the land and water, and acquire farming, pastoral and forest management skills that ensure their self-sufficiency."

The FIP's mālama honua approach to agriculture was developed to provide triple bottom line gains for the community, addressing social, economic, and environmental concerns. Three key values guided the FIP: 1) akua first, values first (connections and respect for all beings, spirits, and living things); 2) kuleana (reconnecting Hawaiians with the land, and reestablishing the reciprocal relationship between kanaka and 'āina); and 3) from kupuna to 'ōpio (intergenerational transfer of knowledge and values). The FIP proposed the development of an agricultural test and learning site, renewable energy through hydroelectric and solar energy ventures, land grants, and conservation management. Some of the detailed activities proposed by KHHA include:

- Repairing catch basins for improved waterflow into fields
- Road, ditch, irrigation, and fence repairs and maintenance
- Constructing a platform and storage area
- Sustainable Agriculture workshops with associated workdays
- Establishing test nurseries for starter plants and seasonal crops and trees (traditional Hawaiian plants as well as canoe plants)
- Simultaneous orchard test plantings with livestock corrals
- Testing of existing grasses, and pastoral uses for soil remediation
- Testing for water treatment for future potable water provisions

Due to the lack of easy access to grocery stores in the region, as well as the limited employment opportunities and lower levels of education attainment, KHHA's vision for the License Area includes "a learning environment that will serve the historically marginalized and education deprived population." This includes agricultural training grounds and supplies and partnerships with the University of Hawai'i and its College of Tropical Agriculture and Human Resources to develop culturally relevant curriculum. These opportunities would not only provide quality educational opportunities to the community but also make healthy and sustainable foods more easily accessible to the community.

The non-profit organization, Sustain Hawaii, conducted an Economic Resource Assessment to evaluate the range of community-based economic opportunities relative to Pastoral, Subsistence Agricultural, Special District, and Community Use areas for a similar Kuleana Homestead in Anahola, Kaua'i. The report, *Anahola: Innovation-oriented, Ag-centric, Sustainable Community Development* (2019), envisions a homestead settlement committed to the implementation of the United Nations (UN) Sustainable Development Goals, a set of 17 global goals it adopted in 2015 to improve health and education while also tackling climate change. In *Figure 2-7*, ola (individual well-being) and kaiāulu (community-level well-being) are seen as embedded parts of the 'āina, or biosphere. This model, based on a community-scale healthy food system, moves away from the western sectorial approach to development, where social, economic, and ecological development are seen as separate parts. The focus is shifting from the environment as externality, to a Hawaiian perspective where the 'āina is a precondition and foundation for ola, kaiāulu, and sustainability.



Figure 2-7 Community-Scale Healthy Food System

One potential approach for the Kuleana Homestead community to accomplish these goals, is by establishing a cooperative. Cooperatives are community-owned, needs-based organizations that address the community needs from a commodity-based perspective, creating the basis for self-sufficiency and determination.

Beneficiary consultation and the Sustain Hawaii Report have resulted in a range of specific proposals for community management and economic development. These proposals are explored in the sections below.

2.3.1 Agricultural Cooperative/Food Hub

As a subsistence-based community, the primary purpose of these homestead lands are to preserve and promote unique traditional subsistence practices, which provides homesteaders with the opportunity to sustain themselves by growing food for their family. If a surplus of food can be grown, beneficiaries may also have the opportunity to supplement their incomes with the agricultural products grown on their lots.

At the Beneficiary consultation meeting held in November 2018, attendees shared a sentiment that beneficiaries should have an opportunity to participate in income-generating uses at Pu'u 'Ōpae. When participants were asked to select the statement that best aligned with their vision for Pu'u 'Ōpae, out of four possible options, the highest ranking statement was “Pu'u 'Ōpae should be an Agricultural Cooperative” with 43% of the vote.

An Agricultural Cooperative is an organization in which a cluster of small farms work together as a business, to share resources and help each other to produce and sell their crops. Farmers with common interests may organize through Agricultural Cooperatives to strengthen their collective market power. When agricultural activities increase sufficiently, there likely will be a need for facilities to process and store products. A food hub would help facilitate agricultural product collection,

processing, and distribution, filling the gap between production and consumption and generate jobs and revenue. A flour mill for 'ulu, kalo and 'uala is one example of a food hub.

Commercial kitchens and farmers markets could be considered viable components of an Agricultural Cooperative. Commercial kitchens can be used to turn agricultural products into packaged foods or value-added products. A professional commercial kitchen offers optimal operational efficiency and compliance with local rules and regulations. Food and value-added goods could then be distributed to wholesalers or sold locally at an onsite farmers market. Farmers markets reconnect communities to their food system. They create an opportunity where farmers can simultaneously sell fresh, local food and serve as food educators, revitalizing the way consumers shop and eat. They are places where farmers and neighbors meet to socialize and exchange ideas around cooking, nutrition, culture and agriculture.

The Hawai'i State Department of Agriculture, Agricultural Development Division, conducted an Economic Assessment in 2005 for agriculture in Kekaha. The report finds that Kekaha agricultural lands hold considerable potential value, and recommends diversified agriculture characterized by multiple produce varieties and high-yield crops to utilize the land to its full potential and generate employment opportunities for the local community. The report suggests that the only product for which Kaua'i clearly has a strong competitive advantage over other counties is taro. Other products that may yield a competitive advantage in Kekaha or Kaua'i County include seed crops (such as corn seed), sweet corn, seedless melon, longan, starfruit, rambutan, caimito, avocados, papayas, cucumber, and mangoes. Additionally, floriculture and nursery production has been growing consistently in recent years in Kaua'i County. Products that are not recommended for Kekaha due to either being unsuccessful in the past, lacking competitive advantage (relative to other counties or imports), or not increasing statewide diversification include: shrimp, watermelons, green beans, pineapple, and sugarcane.

2.3.2 Lease Land for Renewable Energy Project

The KIUC, a not-for profit electric cooperative, is proposing a hydroelectric energy project at Pu'u 'Ōpae. The primary purposes of the project are to support KIUC energy grid stability and reliability; to load-shift solar photovoltaic energy to evening peak load; to diversify KIUC's renewable energy portfolio; and to reduce Kaua'i's dependency on fossil fuels. The KIUC project is planned to produce 25 megawatts (MW) of peak hydropower electricity, 250 megawatt hours (MWH) of daily storage capability, and thirty gigawatt hours (GWH) of hydroelectric generation annually. The hydroelectric project is also intended to deliver irrigation water to the lands adjacent to the Project area, including the Kuleana Homestead lots and KHHA's License Area.

The hydroelectric energy project (*Figure 2-8*) involves utilizing the existing Kōke'e Ditch Irrigation System (KODIS) and three existing earthen dam reservoirs (Pu'u Lua, Pu'u 'Ōpae, and Mānā reservoirs). As part of the project, KIUC will rehabilitate the existing water infrastructure at Pu'u 'Ōpae and construct the following to support the hydroelectric project:

- Rehabilitate the Pu'u Lua, Pu'u 'Ōpae, and Mānā reservoirs in accordance with current Hawai'i Dam Safety Regulation standards.
- Replace the gate structure at Pu'u Moe Divide with a new gate structure and intake for the hydroelectric pipeline.
- Construct a new underground pressurized pipeline, approximately 25,000 feet in length, that replaces the lateral branch of the Kōke'e Ditch extending between Pu'u Moe Divide and Pu'u 'Ōpae reservoir (upper penstock).

- Construct a new pressurized pipeline running from the Pu'u 'Ōpae reservoir to the Mānā reservoir, approximately 12,000 feet in length (lower penstock).
- Construct two hydroelectric facilities with a combined capacity of 25 MW and a 33,500-horsepower pump station.
- Repair all existing dirt roads that provide access to the facilities being utilized by KIUC, inclusive of Niu Valley Road from the makai boundary of the DHHL parcel up to Pu'u 'Ōpae reservoir, and Trail One from the Pu'u 'Ōpae reservoir to the upper access off Kōke'e Road.

As part of the planned hydroelectric project, KIUC will replace the existing unlined irrigation ditch from the Moe Divide to the Pu'u 'Ōpae reservoir with a closed pipe system. The new pipe will deliver water from the KODIS to the Pu'u 'Ōpae reservoir for KIUC, KHHA, and the Kuleana Homestead Settlement's use. The KIUC project will rehabilitate the Pu'u 'Ōpae reservoir to its original 88-million-gallon capacity and to current Hawai'i Dam Safety Regulation standards. A new closed pipe system will also be constructed from the Pu'u 'Ōpae reservoir to the Mānā reservoir. Once constructed, KIUC will assume operation and maintenance of the KODIS.

In addition to improving the existing water infrastructure and providing annual lease revenues to DHHL, beneficiaries at Pu'u 'Ōpae will benefit by having improved access roads to the homestead area. KIUC will repair the primary access roads, making them usable by four-wheel drive vehicles for Kuleana lessees. The KIUC project will be evaluated under a separate state environmental review process under 343 HRS. Further description of the project can be found in *Section 3.10*.

2.3.3 Aquaponics

Aquaponic farming is gaining popularity as an alternative to traditional in-ground farming as it produces higher crop yields per square foot and demands a fraction of the water. With aquaponics, farming and aquaculture are combined to create a sustainable, closed-loop, system (*Figures 2-9 and 2-10*). This innovative farming technique could be a viable option for homesteader to maximize the potential crop yields on their lots while conserving water resources. A community-managed aquaponics operation could also be a potential option for the shared common green areas (*Figure 2-6*).

Aquaponic farming is conducted in a water-based, nutrient rich solution, and the root system is supported using an inert medium such as perlite, rockwool, clay pellets, peat moss, coconut fiber, or vermiculite. The fish waste provides an organic source of nutrients for the plants, and the plants naturally filter the water for the fish.

There are several key competitive advantages of aquaponic farming. One is that aquaponic systems can induce plants to mature up to 25% faster and produce up to 30% more growth than those propagated in traditional soil media. Another advantage is that the technical nature of aquaponic farming can make food safety recordkeeping an extension of the basic farm operations. Other advantages are environmental: closed aquaponic systems use 70 to 90% less water than soil-based growing methods and experience less evaporation. Enclosed systems can allow for pest-free and pesticide-free farming, regardless of weather conditions. These controlled systems enable longer growing seasons and can be used in areas with poor soil.

Certain crop types are better suited to aquaponic growing conditions than others. Fast maturing crops, crops where much of the plant is harvested, and crops that don't require abundant space are well suited. Crops fitting these characteristics include lettuce, kale, spinach, bok choy, green onions, basil, mint, tomatoes, beans, strawberries, beets, celery, bell peppers, and beans. Squash and melons can be grown but require greater area.

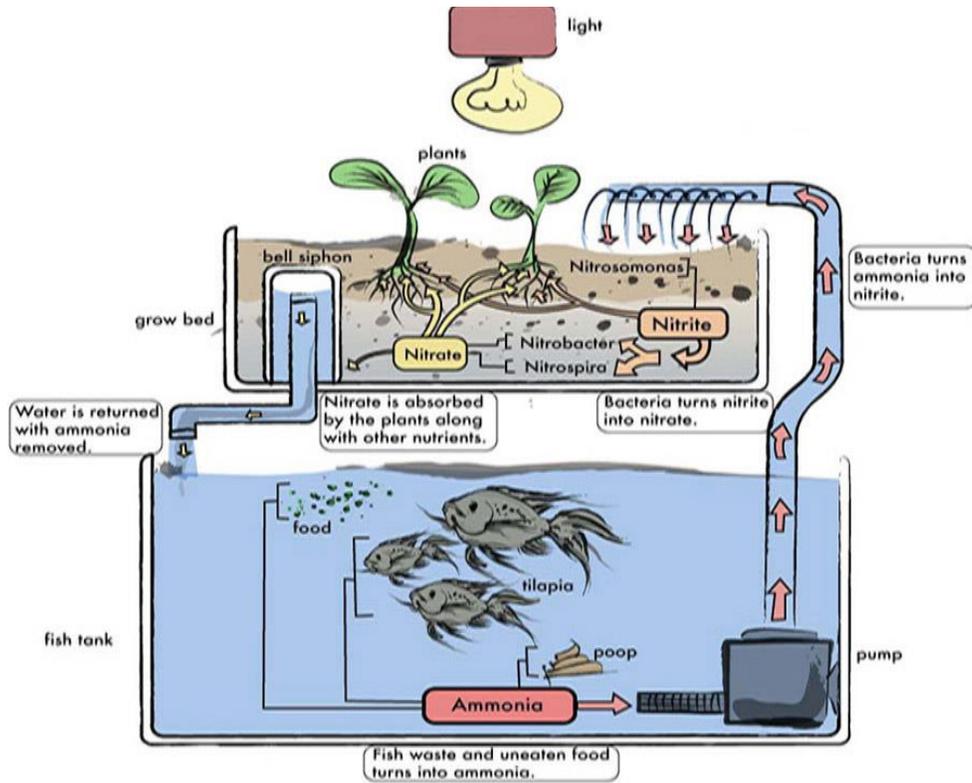


Figure 2-9

Aquaponic System

Source: hawaiianhydroandgarden.com



Figure 2-10

Example of an Aquaponic Farm

Source: *Living Aquaponics, Honaunau, Hawai'i Island (2012)*

Certain crops may not be economically viable using aquaponic methods including fruit trees and staples (e.g. corn, rice). Root vegetables such as kalo, carrots, potatoes, and radishes can be grown but require extra research and adjustment of growing practices.

2.3.4 Restoration and Conservation

What was historically a culturally significant area where trees were harvested for canoe-making, the once forested lands of Pu'u 'Ōpae now consist of a mix of native and non-native woody plants, with game animals and ungulates that likely traverse the area. The 2004 KIP stipulates that land designated as Special District could provide open space which can remain in a natural state or be used for activities which respect or enhance their sensitive qualities. Pu'u 'Ōpae is specifically called out in the KIP for the development of a pu'u honua, or “a retreat and place of refuge for beneficiaries island-wide” on the Special District designated lands. The KIP also envisioned the area as a place for community economic development, and traditional healing and therapies. Other possibilities included agro-forestry projects, conservation, and reforestation.

The approximately 702 acres of lands designated in the Project area as Special District are typically steeply sloping ridge and gulch areas that comprise Niu Valley, Ka'awaloa Valley and the Makahoa Ridge. These steep areas are generally not suitable for farming or occupancy, and therefore were not considered for homestead lots. Additionally, biological observations of the Project site found that a majority of endemic and indigenous plant species identified throughout the property were located in these areas. The designated Special District lands in the Settlement Plan are sensitive areas that will be maintained in conservation and open space. Disturbing the gulches through development could lead to increased and detrimental soil erosion and runoff.

Sloped areas (more than 20%) are typically not ideal for traditional annual crops. The land could, however, conceivably be used to cultivate native plants adopted to those areas that are important for various cultural activities. Soil on the slopes could be stabilized and embankments created for growing specific crops utilizing terraced agroforest planting techniques (*Figure 2-11*). Potential agroforestry methods that could be implemented for Special Districts at Pu'u 'Ōpae may include, but may not be limited to:

- **Alley cropping:** Cultivating food crops with a long-term tree species to provide both food and in the long term, high value lumber.
- **Indigenous/Tropical Forest Farming:** Specialized native and tropical food crops that require cooler temperatures, and varying degrees of sunlight, can be cultivated under the canopy of certain tree species through this method of agroforestry.
- **Silvopasture:** Raising livestock along with cultivated plants and trees can provide ample shade and foraging for animals, while also providing desired fruits and nuts or other products from specialty trees.

Finally, place-based learning and educational programs led by the KHHA will provide additional opportunities for the Beneficiary community to take on stewardship responsibilities and develop long-term plans for the protection, preservation, restoration, and adaptive reuse of historic, cultural, and natural resources at Pu'u 'Ōpae.

Perennial Forest - Slope Planting

Sloped areas (more than 20%) that are typically not ideal for traditional annual crops are suitable for terraced tree planting using agroforestry system such as Perennial Food Forest, through terrace planting techniques.

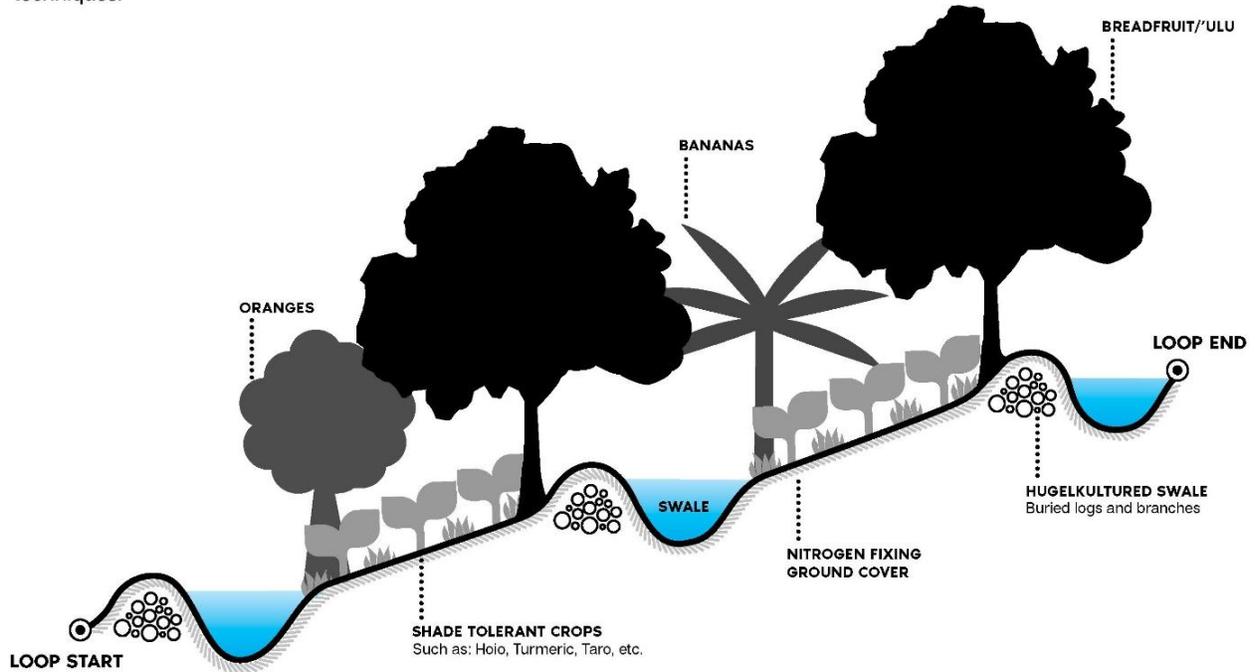


Figure 2-11

Perennial Forest – Slope Planting

2.3.5 Roads and Access

The existing dirt roads on DHHL property provide access to the Pu'u 'Ōpae Project site. The primary on-site roads include Trail One from Kōke'e Road that passes through land owned and managed by DLNR, and Niu Valley Road from the makai property boundary. From Kōke'e Road, Trail One first leads makai towards DHHL's five Pastoral lots located mauka of the Project area, currently occupied by one tenant, and then further makai to the Pu'u 'Ōpae Project area. The road is a one-lane unpaved 4-wheel drive dirt road approximately 12-feet wide.

Niu Valley Road, accessible via Mānā Road, is an existing one-lane dirt road exhibiting erosion with significant deep ruts (*Figure 2-12*). Rocks and boulders currently keep the use of these roads slow and dangerous. The road traverses a steep valley wall between the upper plain of Pu'u 'Ōpae and the bottom of the valley, and crosses over a gully with an existing box culvert. The elevation difference is approximately 900 feet. Due to the steep (greater than 50% slope) terrain and lack of maintenance, the road is highly susceptible to erosion.



Figure 2-12

Existing On-Site Road Conditions

As part of KIUC's hydroelectric project, minor improvements will be implemented to these primary access roads. Niu Valley Road will be improved from Mānā Road to the Pu'u 'Ōpae Reservoir (*Pu'u 'Ōpae Access Road, Figure 2-13*). Trail One from the Pu'u 'Ōpae Reservoir to Kōke'e Road will also be improved, but to a lesser extent (*Figure 2-14*). Improvements will include rock, crowning, re-grading, and installation of culverts to address erosion issues. The use of Mānā Road or Old Mānā Road for the Niu Valley access will require coordination with KAA. As a lessee, KAA will be required to submit a proposed Right of Entry agreement to ADC for review and approval.

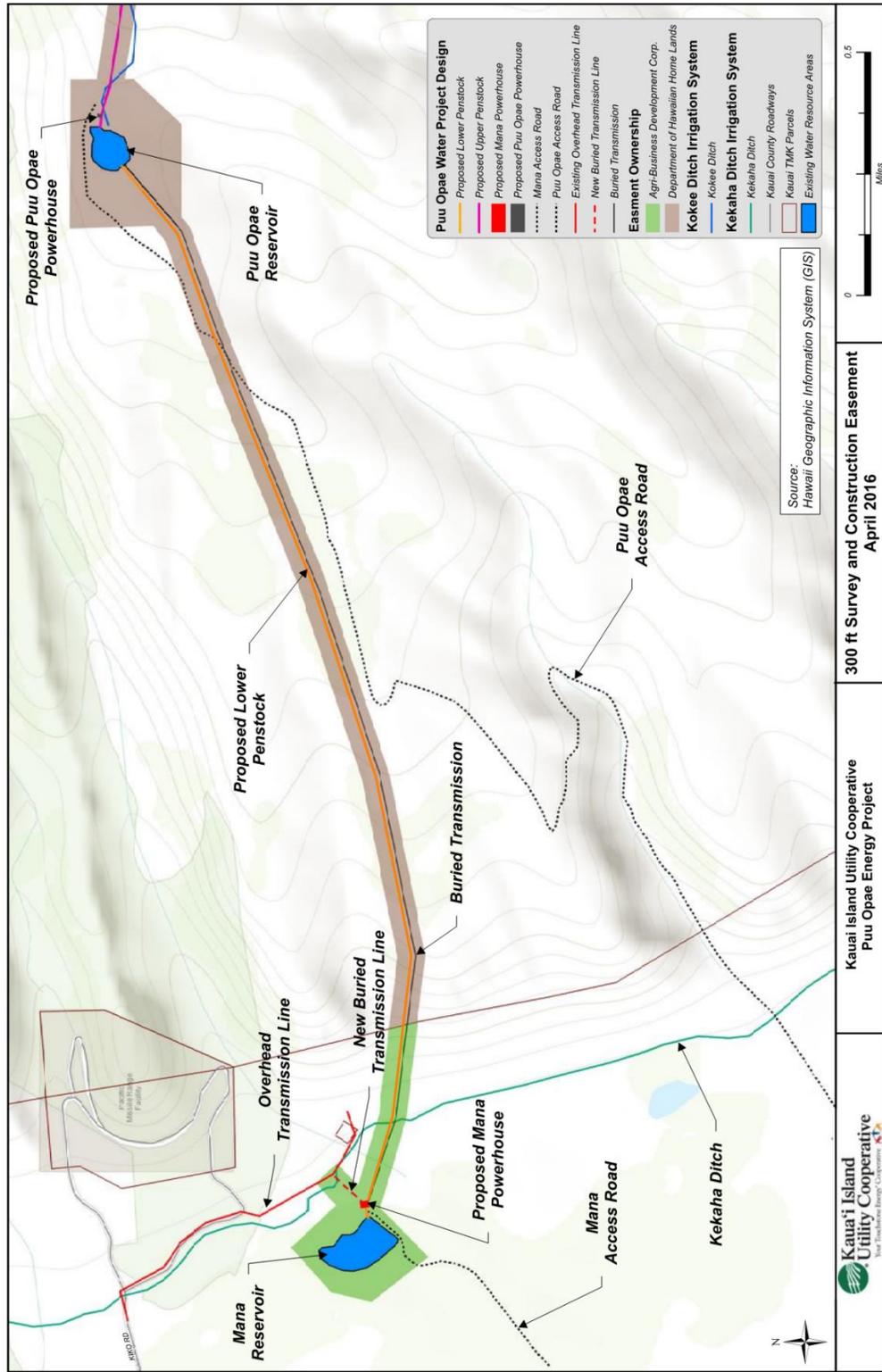


Figure 2-13

KIUC Access Roads (Makai)

Source: Right of Entry No. 679 for Kaua'i Island Utility Cooperative (May 2018)

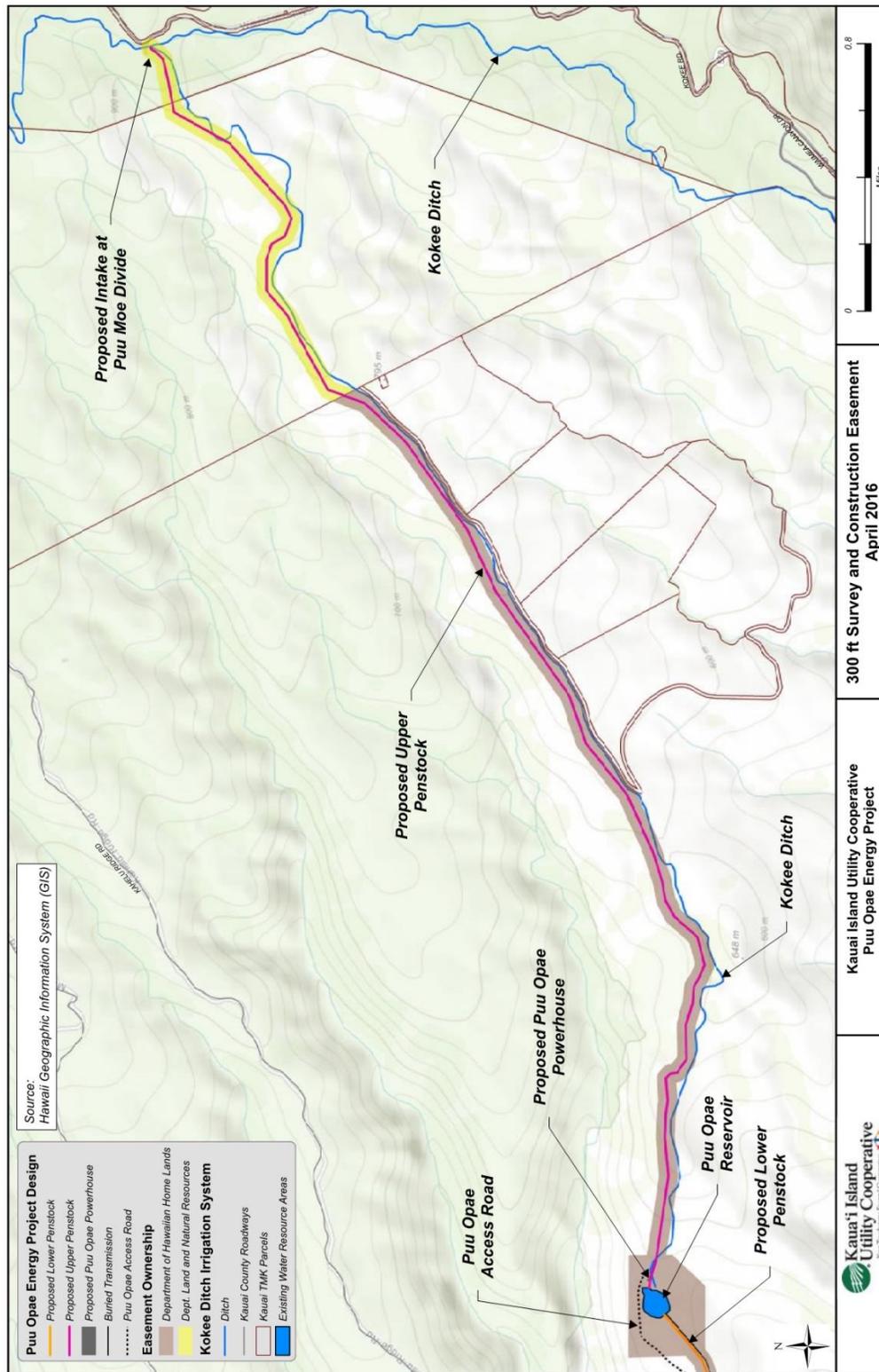


Figure 2-14

KIUC Access Roads (Mauka)

Source: Right of Entry No. 679 for Kaua'i Island Utility Cooperative (May 2018)

For onsite roads, the Settlement Plan was designed to maximize the use of existing dirt roads to the greatest extent feasible. All existing on-site roads within the property are unpaved, 4-wheel drive roads, originally constructed by the KSC. Utilizing the existing roadway network helps reduce development costs for DHHL, while also minimizing the potential disturbance of any undiscovered natural or historic resources. DHHL will construct limited new unpaved gravel roads on site to provide access to the Kuleana Homestead Lots. These roads will not be dedicated to the County, and roadway upkeep and maintenance will be the responsibility of the Kuleana lessee community.

Minor grading and installation of road culverts will be required to mitigate the erosion currently exhibited at the site. Irrigation and runoff cutoff ditches along fields, lots, and roadways will likely be constructed in accordance with Natural Resources Conservation Service (NRCS) Standard Practice Codes (Best Management Practices). New roadway crossings with piping or culverts will need to be installed at locations where flood waters may cross roadways. The beneficiaries will need to consistently maintain the roads by either dropping gravel stabilization as needed, or through pavements if sections are steep and often washed out.

2.4 Settlement Timeframe

Beneficiaries were consulted during the development of the Settlement Plan, and an informational presentation was given to the HHC. The Settlement Plan is being evaluated under the state environmental review process as promulgated under *HRS §343 Environmental Assessments (EA)*. The Settlement Plan and EA will need to be approved by HHC before lots are offered. The HHC must also approve of an amendment to the Kaua'i Island Plan's land use designations for Pu'u 'Ōpae, to allow for appropriate Kuleana Homesteading uses.

The KIUC must complete the improvements to the primary access road, reservoir, and KODIS before settlement may commence. Meanwhile, DHHL will be responsible for the survey and staking of each lot to determine the metes and bounds descriptions of each Kuleana Homestead lot for subdivision/TMK allocation and for preparing an unpaved right-of-way to the awarded lots. Although unpaved, these minimal roads should be hard-packed to ensure access by homesteaders and emergency vehicles including fire, ambulance, and police services. Although not required per *HAR §10-3-30*, DHHL could also provide a water line running parallel to the KIUC waterline from the Pu'u 'Ōpae reservoir to the Subsistence Agriculture Lots, as well as construct the water tank designated within the Community Use area. DHHL will not plan for the installation of any other improvements.

Phasing of settlement for the Pu'u 'Ōpae tract will take place based on proximity to the reservoir as well as where road conditions are most favorable. This will allow DHHL to award lots as soon as possible while preparing additional rights-of-ways and potential water infrastructure. The current access route is provided mauka of the Project area from Kōke'e Road via Trail One. Subsistence Agriculture lots are located on the northern plateau in the upper western portion of the Settlement Plan area and will include both new and improved roads for adequate accessibility. Additional Subsistence Agriculture lots will be awarded as the access roads are completed.

The settlement of the Pastoral lots may commence at a later phase once a non-potable water system is developed for delivering irrigation waters from the Pu'u 'Ōpae reservoir. As the Pastoral lots are separated from the Pu'u 'Ōpae reservoir by Niu Valley, gravity fed water from the reservoir would not be adequate for delivering irrigation water. DHHL or the future Kuleana Homestead Association could develop a pump or siphon system from the reservoir to deliver water to the Pastoral lots at a later phase. This water system could also deliver water to the areas designated for Future Subsistence Agriculture on the southern plateau (*Figure 2-2*).

Development of permanent, long-term infrastructure solutions may eventually be desired by the homestead community. Cooperatives, improvement associations, community development corporations and self-help programs are recommended to equitably share costs and to maximize economies of scale. The lessees may also find it productive to work with the county in the provision and maintenance of those services. Prospective applicants who are interested in becoming Kuleana lessees must understand that DHHL's only commitment is to provide the land, an unpaved road, and to survey, stake, and award lots in accordance with HAR §10-3-30, Kuleana Homestead Leases.

2.5 Summary of Projected Costs: Traditional Homestead vs Kuleana Homestead

The development costs for a traditional homestead community at Pu'u 'Ōpae were estimated and are located in Table 2-3. In response to the Beneficiary demand to live on the lots, the costs include irrigation water for agricultural purposes, wastewater treatment, paved roads built to rural standards, and site preparation. These estimates assume that electrical power needs will be met by the installation of the hydroelectric energy project by KIUC.

Table 2-3 DHHL's Potential Development Costs for Providing Infrastructure Under a Traditional Homestead Program							
Land Use	Potable Water	Non-Potable Water	Sewage	Roadway Improvements	Site Prep	Electricity	Total
	Catchment with Disinfection & Treatment	Irrigation	IWS	Paved Roads	Grubbing & Clearing & 4,000 sf pad	Transmission Lines	
Subsistence Agriculture	N/A	\$6.8 M	\$14.4 M	\$31.0 M	\$2.4 M	N/A	\$54.6 M
Pastoral	N/A	\$7.4 M	\$0.66 M	\$29.2 M	\$2.2 M	N/A	\$39.5 M
Total	N/A	\$14.2 M	\$15.1 M	\$60.2 M	\$4.6 M	N/A	\$94.1 M

Table 2-4 portrays the estimated costs for a non-traditional Kuleana Homestead community at Pu'u 'Ōpae. Under this scenario, as per HAR §10-3-30, the only infrastructure that the department is required to prepare is an unpaved right-of-way to the awarded homestead lots. DHHL will also cover the costs for minimal irrigation improvements including an irrigation pipe for supplying non-potable water from the reservoir to the Kuleana Subsistence Agriculture lots, and a water storage tank for breaking pressure and firefighting purposes. The total estimated cost for a traditional homestead settlement is \$91.4 million. By contrast, the estimated cost for a Kuleana Homestead settlement is \$34.0 million.

Land Use	Potable Water	Non-Potable Water	Sewage	Roadway Improvements	Site Prep	Electricity	Total
	Catchment with Disinfection & Treatment	Irrigation	IWS	Gravel Roads	Grubbing & Clearing & 4,000 sf pad	Transmission Lines	
Kuleana Agriculture	\$0	\$6.8 M	\$0	\$14.0 M	\$0	\$0	\$20.8 M
Kuleana Pastoral	\$0	\$0	\$0	\$13.2 M	\$0	\$0	\$13.2 M
Total	\$0	\$6.8 M	\$0	\$27.2 M	\$0	\$0	\$34.0 M

Based on the 2017 formal evaluation of the Kuleana Lease program, beneficiaries expressed a desire to understand what would need to be built on their awarded Kuleana Homestead lot and what it would cost. To better inform and prepare for a successful settlement, *Table 2-5* portrays the projected costs lessees will be responsible for providing on their homestead lot. The costs vary depending on the preference of the lessee and the type of Kuleana Homestead awarded. For example, constructing a simple composting toilet could cost as low as \$1,000, while the purchase and installation of an individual wastewater system (IWS) could cost up to \$30,000. Although the initial start-up cost for an off-grid lifestyle can be costly, in the long-term beneficiaries are given the opportunity to determine as a group and as individuals, choices as to how they wish to develop their Kuleana Homestead lots and create a self-sufficient lifestyle and community. The total estimated development cost for a beneficiary of a Kuleana Subsistence Agriculture award is between \$34,750 and \$242,000. The estimated development cost for beneficiary of a Kuleana Pastoral award is between \$41,150 and \$248,500.

Land Use	Site Preparation	House	Power System	Additional Buildings	Potable Water	Non-Potable Water	Sewage
	Grubbing and Clearing	RV, Cabin, Home	Solar Panels, Batteries	Barn, Greenhouse, Chicken Coop	Catchment with Disinfection & Treatment	PVC Irrigation Laterals	Composting Toilets or IWS
Kuleana Agriculture	\$5,000- \$7,000	\$10,000 – 150,000	\$13,000- \$30,000	\$750- \$10,000	\$2,000- \$10,000	\$3,000- \$5,000	\$1,000- \$30,000
Kuleana Pastoral	\$5,000- \$7,000	\$10,000 – 150,000	\$13,000- \$30,000	\$150- \$1,500	\$2,000- \$10,000	\$10,000- \$20,000	\$1,000- \$30,000

Section 3

**Description of the
Environmental Setting,
Potential Impacts
& Mitigation Measures**

Chapter 3

Description of the Environmental Setting, Potential Impacts and Mitigation Measures

3.1 Project Location and Characteristics

The Pu'u 'Ōpae Hawaiian Home Lands property is located on the western side of Kaua'i within the traditional ahupua'a of Waimea (*Figure 3-1*). The subject property is designated as Tax Map Keys: (4) 1-2-002:023 with a total land area of 14,558-acres (*Figure 1-2*). Approximately 1,421 acres of the property are the focus of the Pu'u 'Ōpae Settlement Plan, of which 231 acres are under DHHL License No. 816 by KHHA. The Project area is located at the mauka convergence of Niu Ridge, Makahoa Ridge, and Kaunalewa Ridge, makai of the Kōke'e State Park in Kekaha. It is located approximately 33 miles west of Līhu'e. Regional access is via the Kaunua'i Highway right-of-way (Hawai'i Route 50).

The existing site is a remote and rural area with limited accessibility and infrastructure. The area consists of vacant rugged lands with sweeping makai views of the Kekaha coast and the island of Ni'ihau. The subject property was formally leased to and used by the KSC for sugarcane production during the plantation era circa 1900. Water from the Waimea watershed was used to irrigate highland sugarcane fields located just below Pu'u 'Ōpae reservoir through the late 1990s. Today, the historic irrigation infrastructure from KSC operations remain abandoned and dilapidated, and the cane fields are now vacant.

The Project site is located within the State Agricultural District (*Figure 1-3*). This district includes lands with significant potential for the cultivation of crops, aquaculture, raising livestock, wind energy, timber cultivation, agriculture-support activities (i.e., mills, employee quarters, etc.). The County of Kaua'i zoning for the Project site is Agriculture and Open District (*Figure 1-5*). Development for the island of Kaua'i is guided by the State Land Use Districts, as well as the County of Kaua'i's land use zoning code. However, since the Hawaiian Homes Commission Act (HHCA) was passed by Congress in 1921, over 30 years before the State and County was created, responsibility for determining appropriate land uses on Hawaiian Home Lands lies solely with the HHC. As such, the development of the Project area at Pu'u 'Ōpae is influenced by the DHHL Land Use Designations, which are defined in the KIP. While the proposed Settlement Plan Area is located on DHHL lands, it is worthwhile to note that the proposed Subsistence Agriculture and Pastoral land uses happen to be consistent with State Land Use district and County zoning.

There are five existing DHHL Pastoral lots totaling approximately 474 acres, located roughly two miles mauka of the Settlement Plan area (TMK: (4)-1-2-002:016 to (4)-1-2-002:020) (*Figure 3-2*). Three of the five Pastoral lots are currently leased by a DHHL beneficiary. The lessee resides on the property and utilizes the land for pastoral uses. As there are no potable water services for the property, the two unleased lots remain vacant due to insufficient water supply.



Figure 3-1

Ahupua'a Map

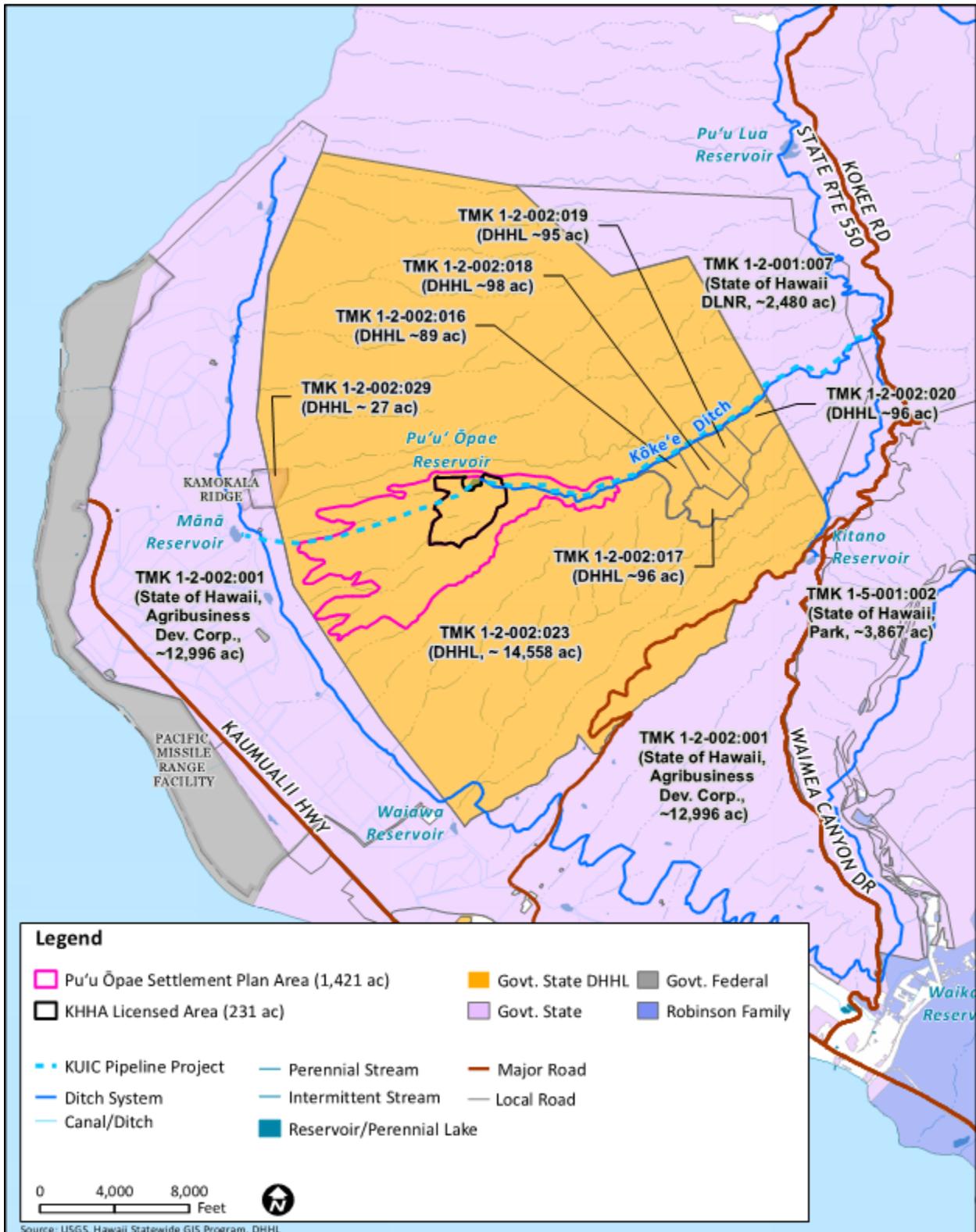


Figure 3-2

Adjacent Landowners

Neighboring the DHHL lands makai of Pu'u 'Ōpae are approximately 12,996 acres which are managed by the Agribusiness Development Corporation (ADC) (*Figure 3-2*). The ADC is a state agency administratively attached to the Hawai'i State Department of Agriculture (HDOA). It has its own board of directors consisting of three ex-officio and eight private citizens appointed by the Governor. ADC is charged with acquiring and managing, in partnership with farmers, ranchers, and aquaculture groups, select high-value agricultural lands, agricultural water systems, and infrastructure for commercial agricultural use.

Approximately 10,232 acres within the DHHL lands are used for public hunting (*Figure 3-3*). Hunting Unit A, adjacent to the Settlement Plan area is managed by the State DLNR. Hunting Unit A allows for hunting game birds, and mammals including feral pigs, feral goats, and black-tailed deer. Hunters may only possess unloaded firearms, while traveling on the approved access routes into Hunting Unit A.

Due to the close proximity of Hunting Unit A to the Settlement Project area, compliance and enforcement of hunting and game management rules will be critical to ensure the safety for residents and visitors to Pu'u 'Ōpae. The Settlement Plan and lot layout provides an additional level of safety by establishing a 300-foot buffer on the southern boundary of the Project area between the settlement area and the hunting area. Under *HAR §13-5-2*, no person is allowed to hunt, possess a loaded weapon, or discharge any weapon within or across a designated Hawaiian Home Lands safety zone. No development or land use activities will be permitted within the buffer for safety purposes.

The land mauka of the DHHL land is part of the Pu'u ka Pele Forest Reserve managed by the Division of Forestry and Wildlife (DOFAW) in the DLNR (*Figure 3-4*). Pu'u ka Pele Forest Reserve is managed for native species conservation, recreational hunting, forestry, and other recreational activities.

The environmental setting, potential impacts, and mitigation measures for the Pu'u 'Ōpae Kuleana Homestead Settlement Plan are addressed in the following sections.

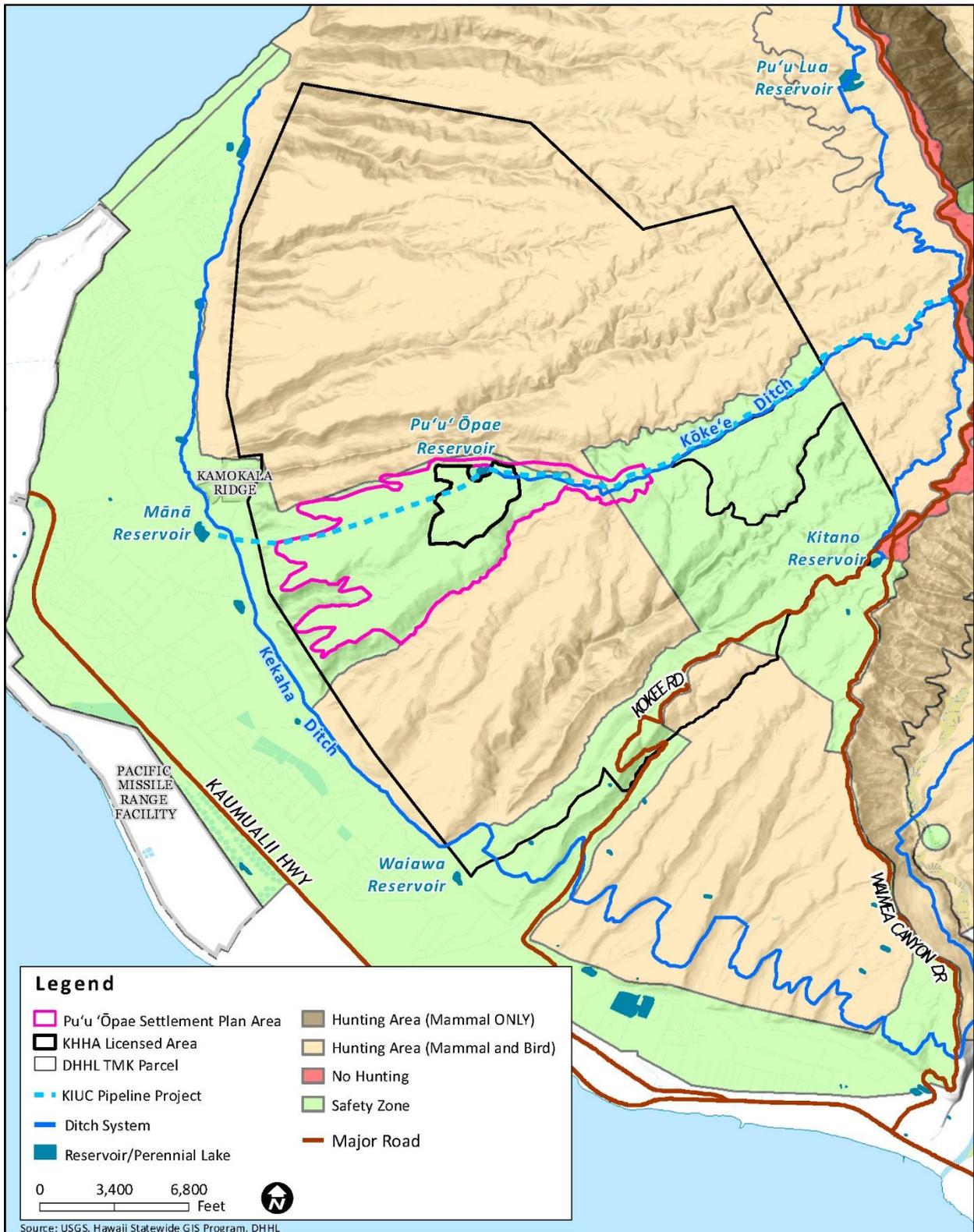


Figure 3-3

DLNR DOFAW Hunting Area & Safety Zone Designations

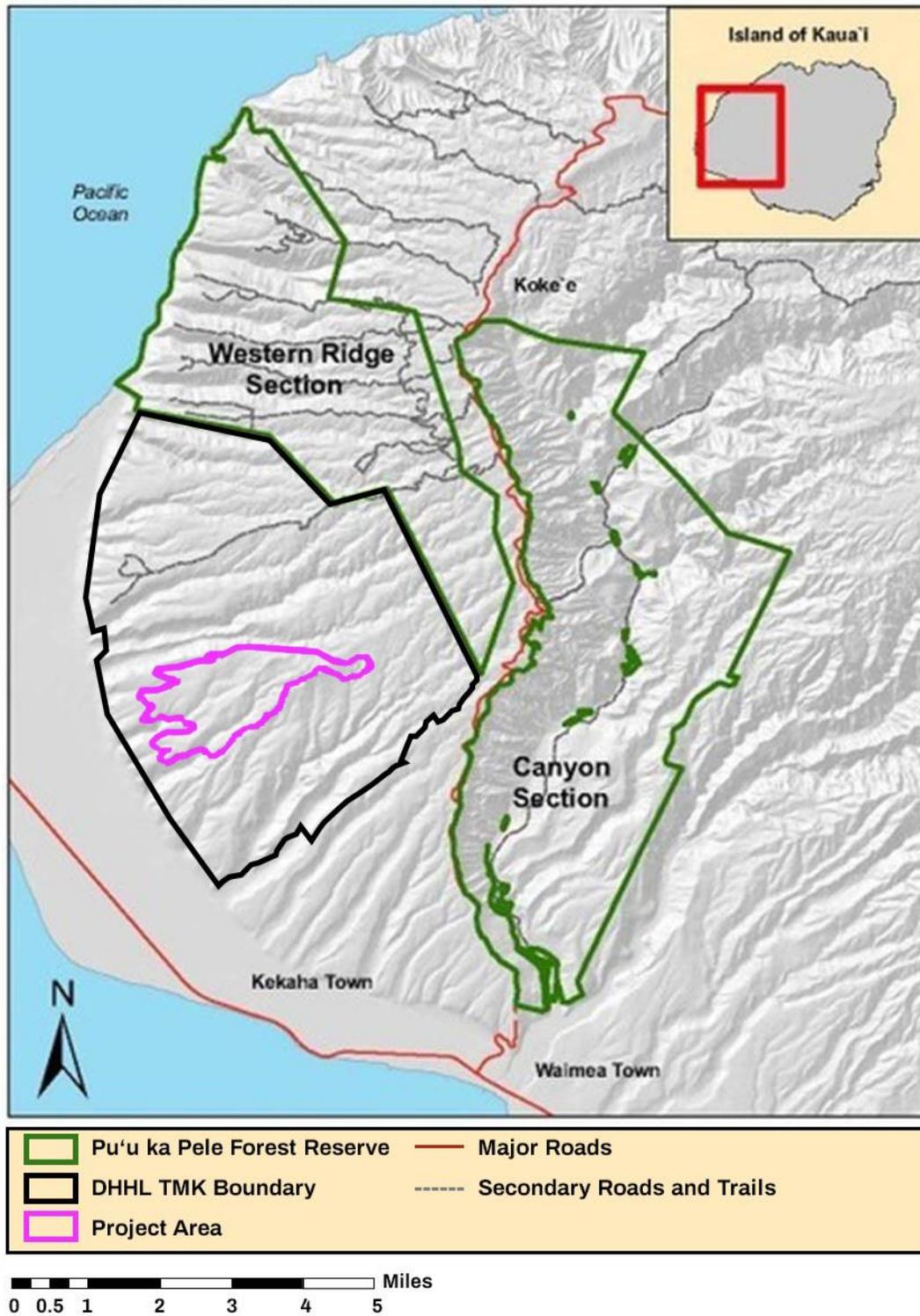


Figure 3-4

Pu'u Ka Pele Forest Reserve

Source: Pu'u ka Pele Forest Reserve Management Plan (2009) State of Hawai'i Department of Land and Natural Resources Division of Forestry and Wildlife

3.2 Climate

Existing Conditions

Climate in West Kaua'i can be characterized as having clear skies and dry conditions. Temperatures for Pu'u 'Ōpae are mild, ranging between the mid-60 degrees Fahrenheit in the winter months and low-70 degrees Fahrenheit in the summer months.

The Project area is located on the drier western side of the island brings an average of 25 to 30 inches of rain per year (*Figure 3-5*). Rainfall data is collected by the National Oceanic Atmospheric Administration (NOAA) Climatic Data Center at Station Kanalohuluhulu (#1075) and Hukipo (#945). The Kanalohuluhulu rain gauge is located at 3,291 feet above mean sea level (msl), and approximately 8 miles northeast of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan area (*Table 3-1*). The Hukipo rain gauge is located at an elevation of 244 feet above msl and approximately 5 miles makai of the Project site (*Table 3-2*). Daily rainfall data for Kanalohuluhulu is available from January 1955 through December 2013, for a span of 59 years. Rainfall data at the Hukipo site is available from January 1, 1950 through December 31, 2000 for a total span of 51 years.

The rainfall data was analyzed to determine if it was adequate for the proposed agricultural and pastoral uses in the Project area. Effective rainfall is considered as rainfall up to 0.8 inches per day, with the assumption that remaining rainfall will runoff or percolate beyond plant uptake capacities. Effective rainfall was then applied across the Project area to calculate average rainfall available for agricultural crops in million gallons per day (mgd) for each month.

Monthly effective rainfall averages from both stations range from as low as 0.33 inches in the summer to as high as 6.31 inches in the winter. The average annual rainfall for Pu'u 'Ōpae is expected to be closer to the Kanalohuluhulu station, around 65 inches.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg Rainfall (in)	11.59	8.10	7.49	4.73	3.18	1.89	2.17	2.36	2.20	4.51	7.47	10.59	66.27
Avg Effective Rainfall (in)	6.31	5.21	4.81	3.70	2.62	1.74	2.05	2.08	2.07	3.18	4.44	5.85	44.07
Avg Daily Rainfall Volume* (mgd)	9.17	8.34	7.00	5.56	3.82	2.62	2.98	3.03	3.12	4.62	6.68	8.52	65.46

* Over 1,661 acres (Existing pastoral lot useable area + KHHA license + Pu'u 'Ōpae Homestead Project area)

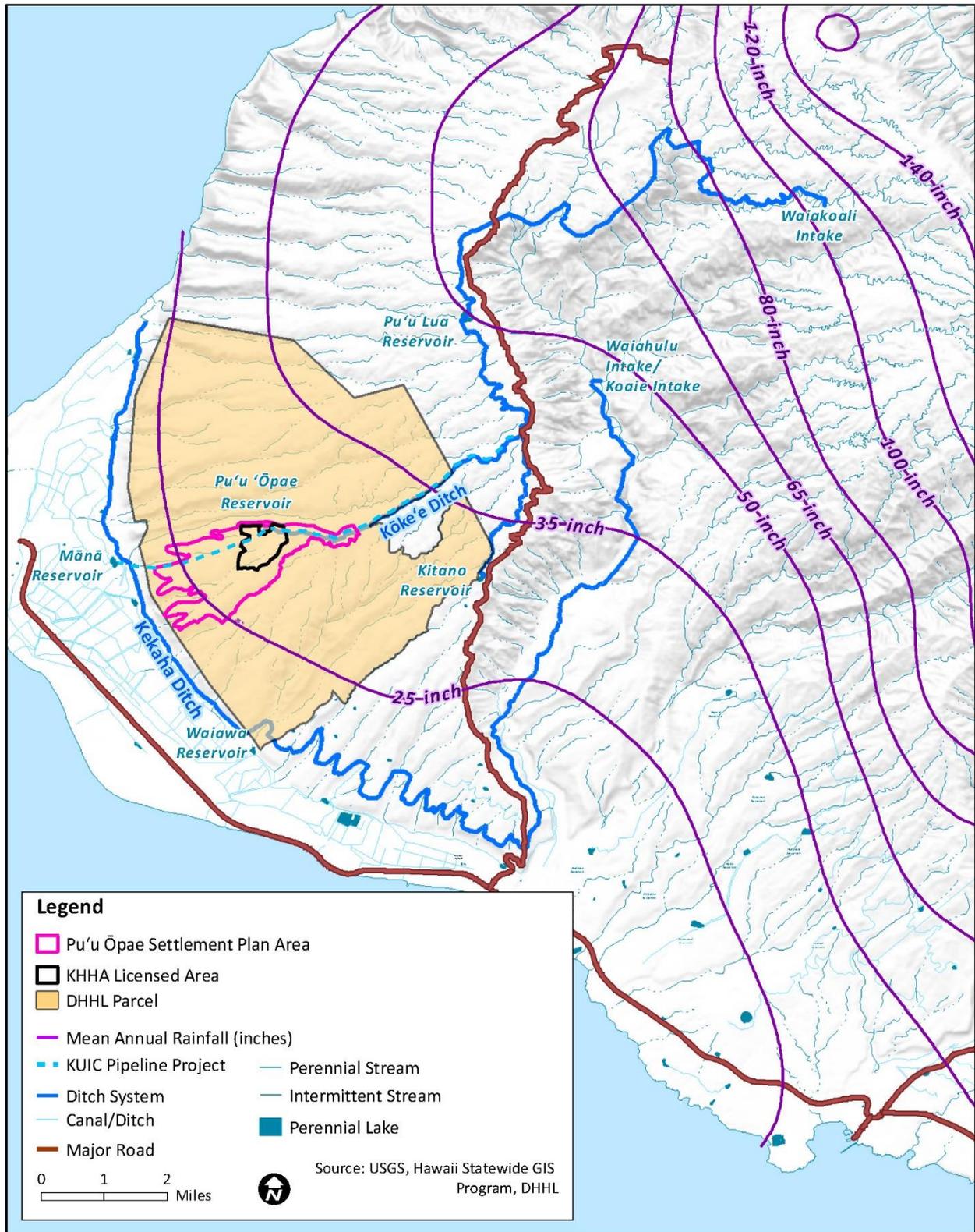


Figure 3-5

Mean Annual Rainfall (Inches)

Table 3-2 Summary of NOAA Rainfall Data for Hukipo Station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg Rainfall (in)	4.52	2.75	2.47	1.36	1.20	0.35	0.59	0.99	1.04	2.55	3.03	4.09	24.93
Avg Effective Rainfall (in)	2.68	1.85	1.54	0.93	0.84	0.33	0.49	0.68	0.86	1.51	1.64	2.00	15.33
Avg Daily Rainfall Volume* (mgd)	3.90	2.95	2.24	1.40	1.22	0.49	0.71	0.99	1.29	2.19	2.46	2.92	22.74

* Over 1,661 acres (Existing pastoral lot useable area + KHHA license + Pu'u 'Ōpae Homestead Project area)

Anticipated Impacts and Mitigation Measures

Rainfall levels at Pu'u 'Ōpae are generally sufficient for a range of agricultural pursuits.

According to the Intergovernmental Panel on Climate Change, the three main causes of the increase in greenhouse gases observed over the past 250 years have been fossil fuels, land use, and agriculture. As the planned Kuleana Subsistence Agriculture and Pastoral lots are small in scale and intended for home consumption of agricultural products, the proposed project is not anticipated to have a significant negative impact on climate.

Native forest restoration in the Special District areas and carbon farming practices could be implemented by lessees to offset the carbon footprint generated by agricultural activities. Carbon farming involves implementing practices that are known to improve the rate at which CO₂ is removed from the atmosphere and converted to plant material and/or soil organic matter. Successful carbon farming results in carbon gains from land management and conservation practices that exceed carbon losses (IPCC, 2019). The Homestead Association as well as the individual lessees would be responsible for initiating such carbon farming techniques.

3.3 Topography

Existing Conditions

Ortho-imagery data was collected for the Project area by Resource Mapping Hawai'i (RMH) in February 2018. The data was taken at approximately 1,500 feet above ground level and at a resolution of 2 cm. The aerial images were processed and used to create a digital elevation model (DEM) from which contours and a topographic map were generated of the Project area (*Figure 3-7 and 3-8*).

Elevations within the Project area range from 850 feet above msl to 2,200 feet above msl (*Figure 3-6*). The Project area generally slopes to the west and drains into the adjacent property through several valleys along the western property boundary. The major discharges occur through Niu Valley, where an existing culvert was observed along Niu Valley Road.

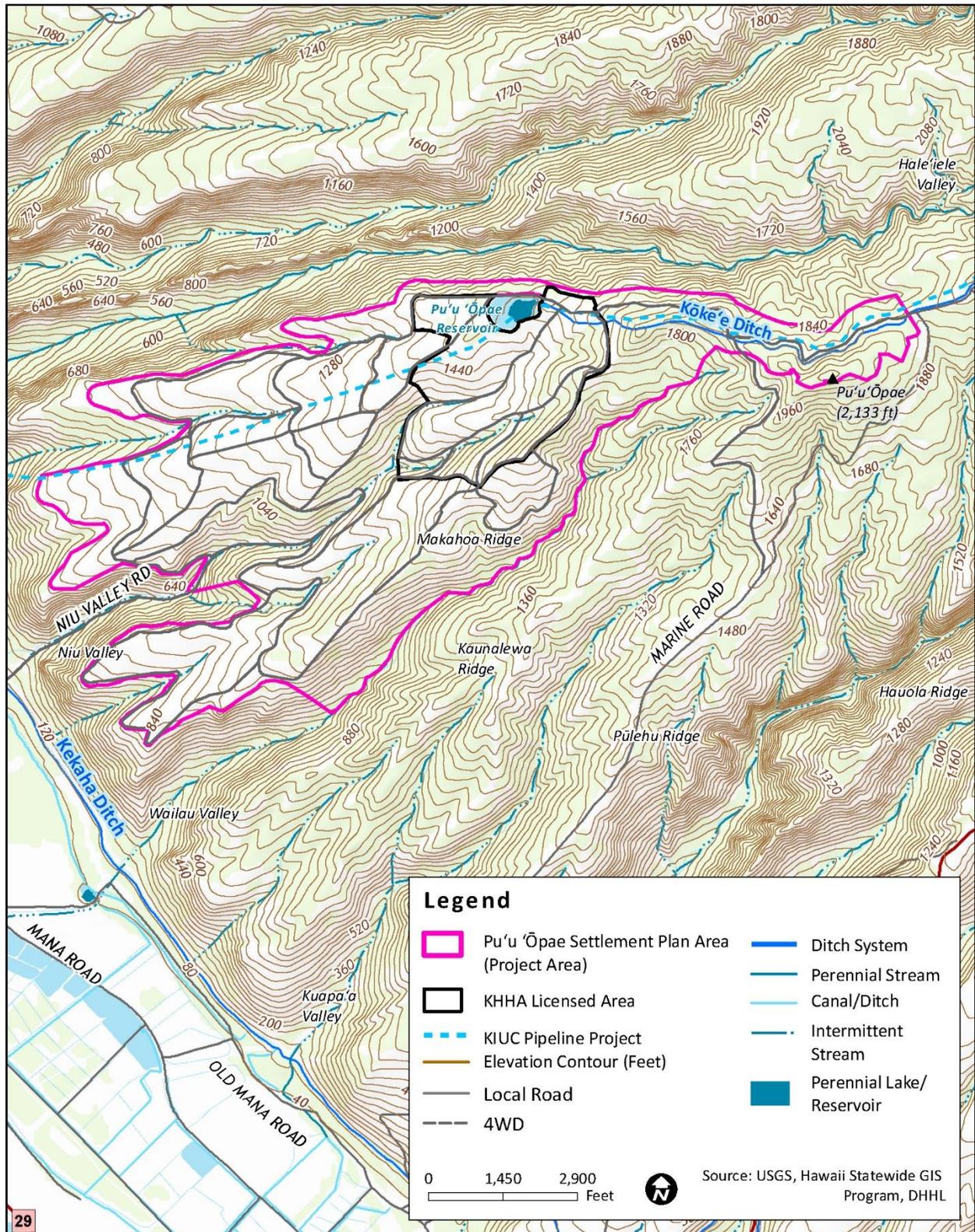


Figure 3-6

Topography and Elevation Map

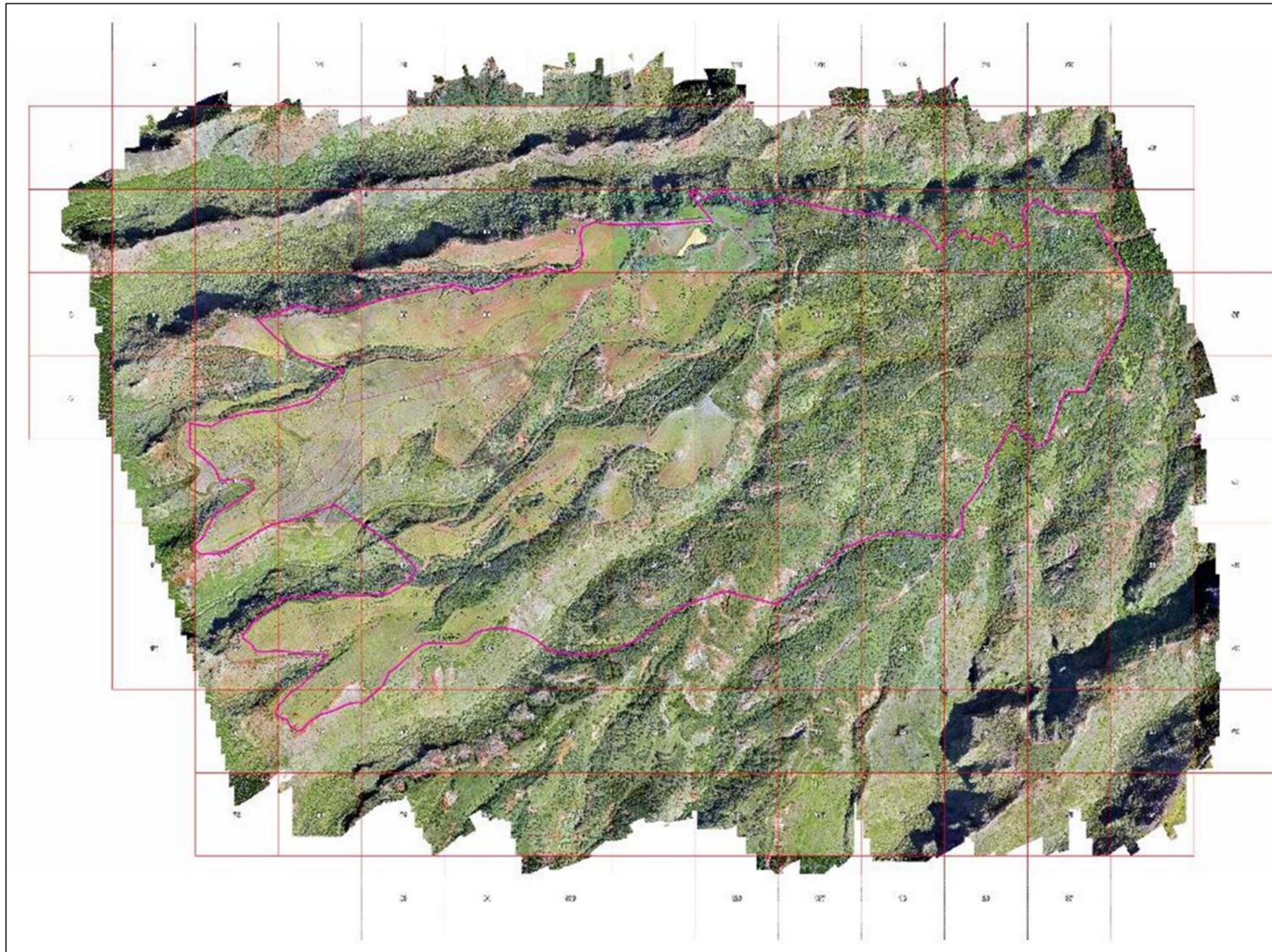


Figure 3-7

Orthoimage of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan Area

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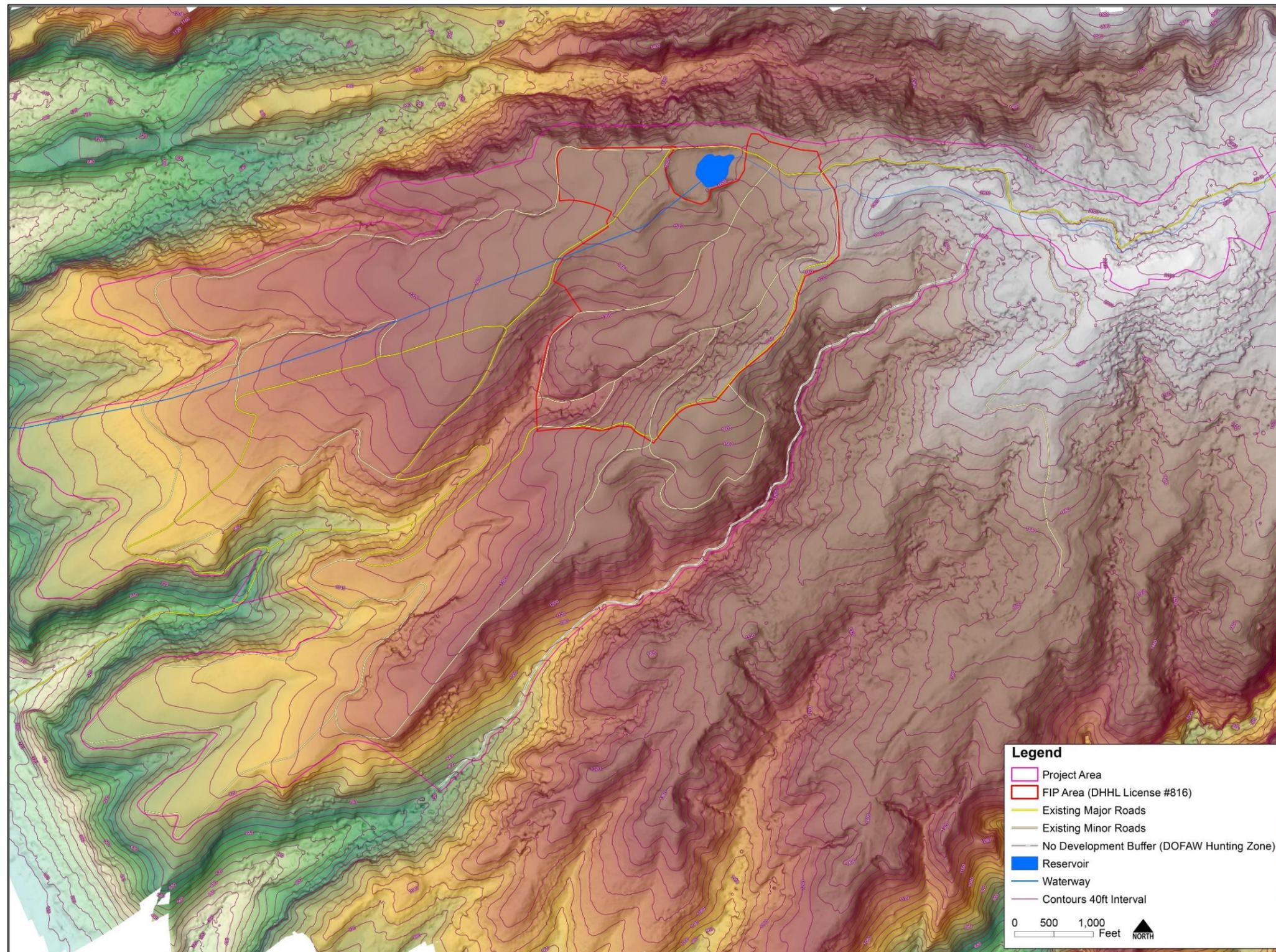


Figure 3-8

Digital Elevation Model of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan Area

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Anticipated Impacts and Mitigation Measures

No substantial changes to the site's topography will be made, although some excavation and grading may be required during the construction of new gravel roads. BMPs will be implemented pursuant to the required Grading Permit to mitigate potential impacts of soil erosion and fugitive dust during grading or excavation.

3.4 Soil Conditions

Existing Conditions

The soils within the Settlement Plan Area are well-draining and good planting soils. The Land Study Bureau of the University of Hawai'i prepared an inventory and evaluation of the State's land resources during the 1960s and 1970s. Ratings were developed to assess overall agricultural productivity, with a rating of "A" very good, to "E" not suitable.

The majority of lands comprising the planned homesteading area are classified as A, B, or C, with a small portion classified as D (*Figure 3-9*). Soils underlying the KHHA License Area are classified as C, D, or E. Nearly all the land classified as E has been designated as Special District under the DHHL Land Use Designation. Nearly all the land comprising the Project area are also classified as "Prime" or "Other Important Agricultural Land" under the Agricultural Lands of Importance to the State of Hawai'i (ALISH) (*Figure 3-10*).

Soil types within the Project area are identified by the U.S. Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey. The Project area consists of Niu silty clay loam with 6% to 35% slopes, Makaweli silty clay loam with 6% to 35% slopes, Mahana silt loam at 12 to 35% slopes, Badland-Mahana complex, Pu'u 'Ōpae silty clay loam at 8% to 40% slopes, and Waiawa extremely rocky clay at 30% to 80% slopes (*Figure 3-11*).

- **Niu silty clay loam soils** were derived from basic igneous rock. They are well drained, medium runoff soils, and are prime farmland if irrigated.
- **Makaweli stony silty clay loam soils** come from igneous rock parent material. They are generally well drained and are classified as medium runoff soils. These soils are prime for farmlands if well irrigated.
- **Mahana silt loam soils** exist from volcanic ash. They are well drained soils, with medium runoff. Mahana soils are not classified for prime farmland.
- **Badland-Mahana complex soils** are of volcanic ejecta and basic igneous rocks. They are well drained soils, and are classified as high runoff. These soils are not classified for prime farmland.
- **Pu'u 'Ōpae silty clay loam soils** come from basic igneous rock parent material. They are well drained soils with medium runoff. These soils are not classified for prime farmland.
- **Wai'awa clay soils** are made of alluvium and colluvium parent material. They are well drained soils with a very high runoff class. These soils are not classified for prime farmland.

Anticipated Impacts and Mitigation Measures

There will be limited soil disturbance to the site's topography, although some excavation and grading will be required during the construction of new roads and improvement of existing roadways. Awarding the land for Kuleana homesteading lots will allow these good quality soils to once again be utilized for food production.

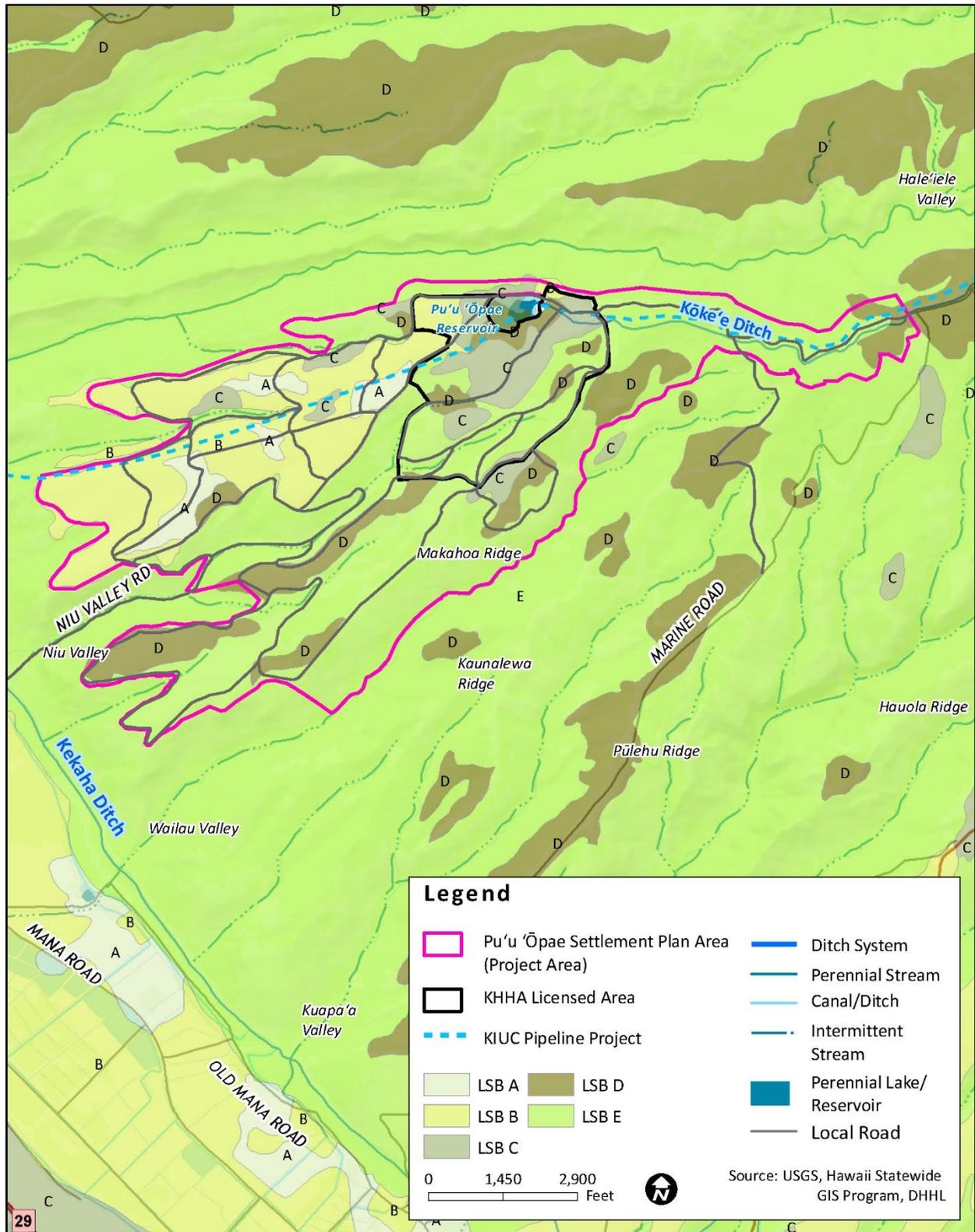


Figure 3-9

Land Study Bureau Ratings

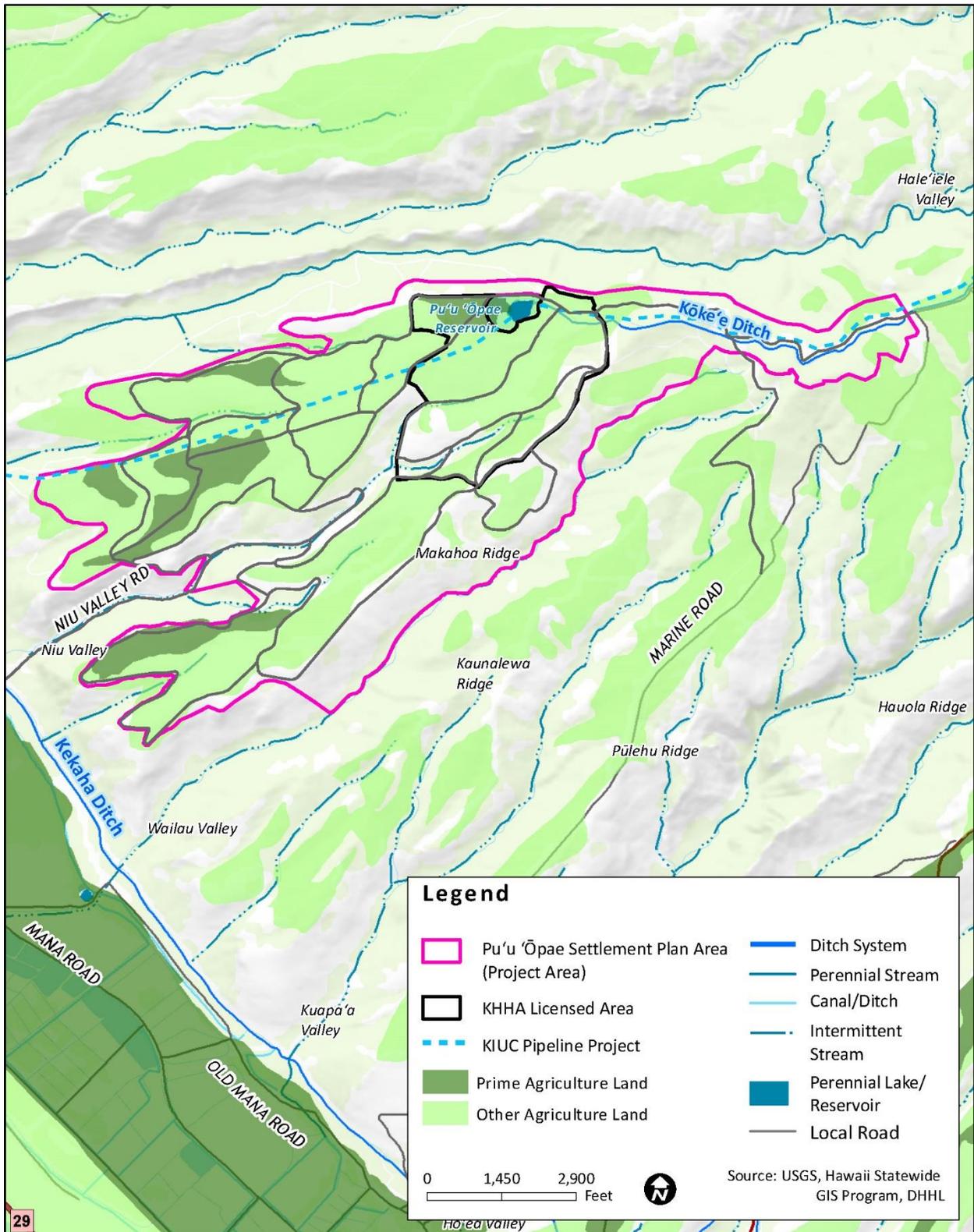


Figure 3-10

Agriculture Lands Important to the State of Hawai'i

3.5 Hydrology

Existing Conditions

The project property was historically leased to and used by the KSC for sugarcane production during the plantation era circa 1900. The KODIS was a major construction project undertaken by KSC in 1927 to deliver water throughout arable lands for sugar cultivation (*Figure 3-13*).

Water is diverted at intake structures from perennial streams within the upper reaches of the Waimea River watershed. Water is transmitted first to Pu'u Lua reservoir then to the Pu'u Moe divide, where the irrigation ditch splits into two separate ditches, allowing water to flow to Pu'u 'Ōpae and Kitano reservoirs. Approximately 500,000-750,000 gallons of water per day flow makai from the Pu'u Moe divide toward the Project area.

The portion of the KODIS within the project property consists of an unlined earthen irrigation ditch and the Pu'u 'Ōpae storage reservoir (State Dam ID KA-0003). The Pu'u 'Ōpae reservoir is situated at an elevation of 1,570 feet above mean sea level. The reservoir spans approximately 10 acres with a maximum depth of 50 feet. KODIS currently does not deliver water into the Pu'u 'Ōpae reservoir due to damages and the lack of maintenance of the irrigation ditch (*Figure 3-12*). Water is also being diverted because of a recent investigation into the structural capacity of the Pu'u 'Ōpae reservoir, which determined that the reservoir strength is compromised. At full capacity, the reservoir could hold a maximum storage of 96 million gallons (*Figure 3-14*). Today, the reservoir only retains rainwater and surface runoff (*Figure 3-15*).



Figure 3-12

The Kōke'e Ditch Irrigation System at Pu'u 'Ōpae

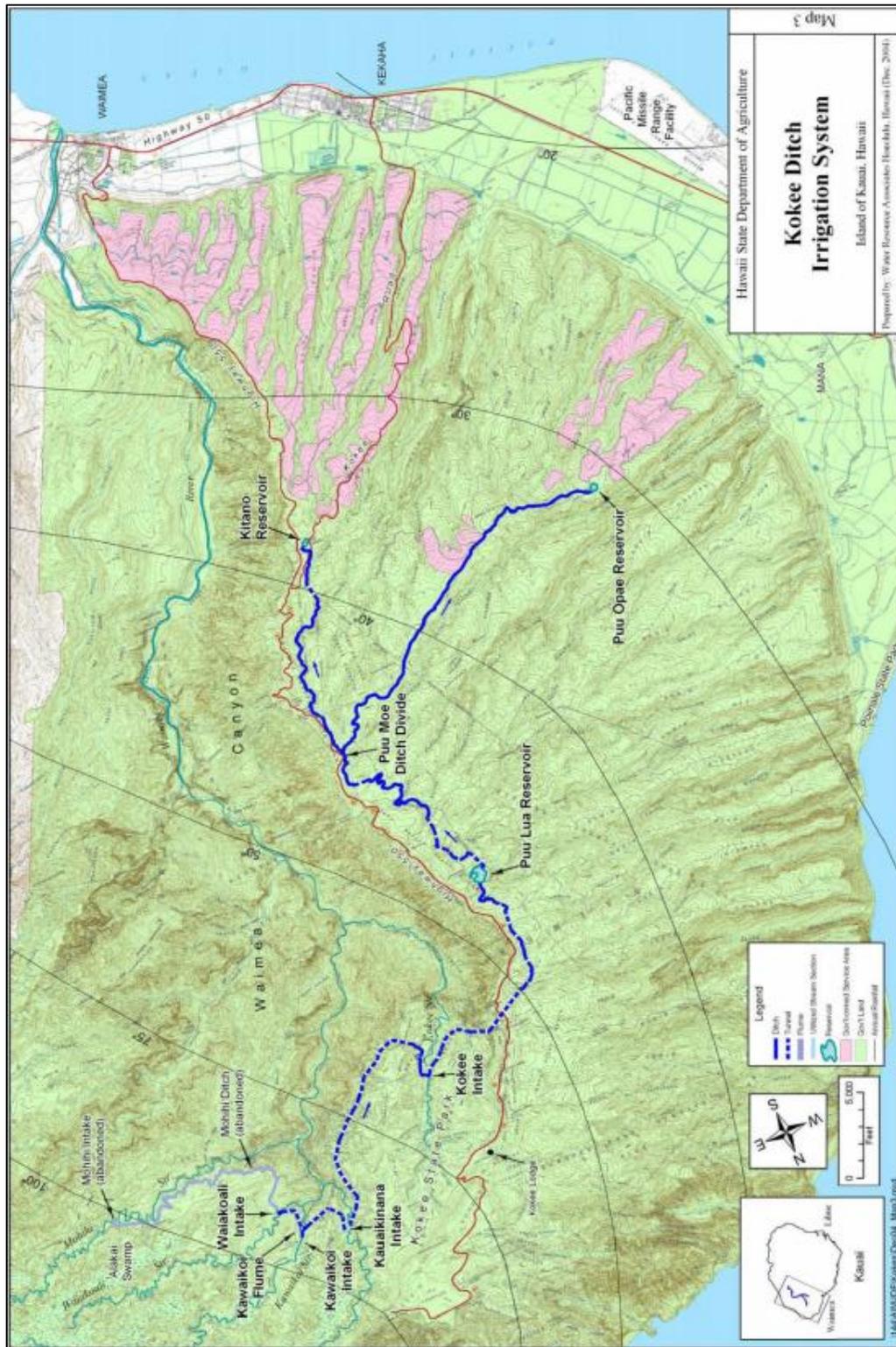


Figure 3-13

The Kōke'e Ditch Irrigation System

Source: Agricultural Water Use and Development Plan (2004) Hawai'i Department of Agriculture



Figure 3-14

Pu'u 'Ōpae Reservoir Circa 2007

Source: Dam Inventory System, State of Hawai'i Department of Land and Natural Resources



Figure 3-15

Pu'u 'Ōpae Reservoir Circa 2019

Anticipated Impacts and Mitigation Measures

The KIUC hydroelectric project will rehabilitate the existing unlined irrigation ditch with a closed pipe system. The KIUC project will also restore the Pu'u 'Ōpae reservoir to its original 88-million-gallon capacity according to current Hawai'i Dam Safety Regulation standards. Specific impacts and mitigation measures related to ditch and reservoir improvement will be discussed in KIUC's forthcoming EA.

Overall, the impact to water resources in the immediate area will be negligible, and if BMPs are utilized, there will be no material effect on ground or surface water quality. Long term drainage and water quality conditions following beneficiary settlement are expected to be similar to existing conditions or improved through land management and native forest recovery efforts.

Invasive species removal will be necessary throughout the life of the restoration project; however, this activity will not utilize any chemical treatments due the potential effects on the water source and future agricultural operations in the immediate vicinity. Riparian forest recovery with appropriate native and introduced, non-invasive plants may contribute to the long-term watershed health of the area.

3.6 Natural Hazards

Existing Conditions

Flooding Hazards

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the majority of the Settlement Plan Area is located in Zone X, defined as "areas determined to be outside the 0.2% annual chance floodplain" (*Figure 1-7*). The area immediately surrounding the Pu'u 'Ōpae Reservoir is designated as Zone A, area with an annual 1% chance of flooding. The valleys and gullies throughout the Project Area are also subject to flooding. The site is not located within a FEMA Special Flood Hazard Area (SFHA).

The Pu'u 'Ōpae reservoir has a culvert spillway located on its northern edge. Water overflow would flow from the spillway and drain into the adjacent Ka'awaloa Valley. *Figure 3-16* illustrates the dam evacuation zone should the reservoir fail from a defect in the embankment structure, while at maximum capacity, under dry (no rain) conditions and no discharge through the spillways.

Under this extraordinary event, the breached water would drain south from the reservoir and into Niu Valley. The floodwaters would then fan out across the flat low-lying ADC lands on the Mānā Plain.

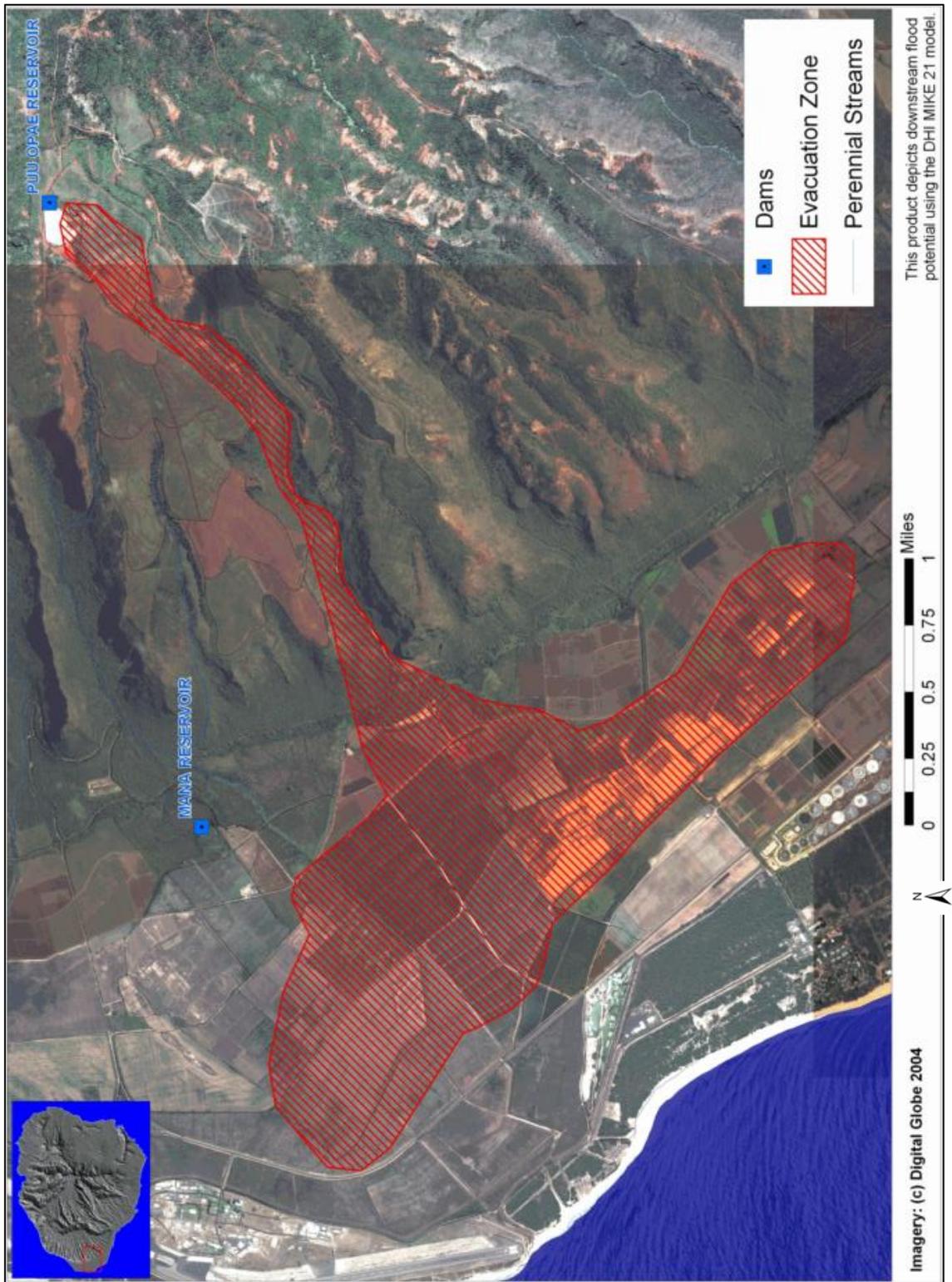


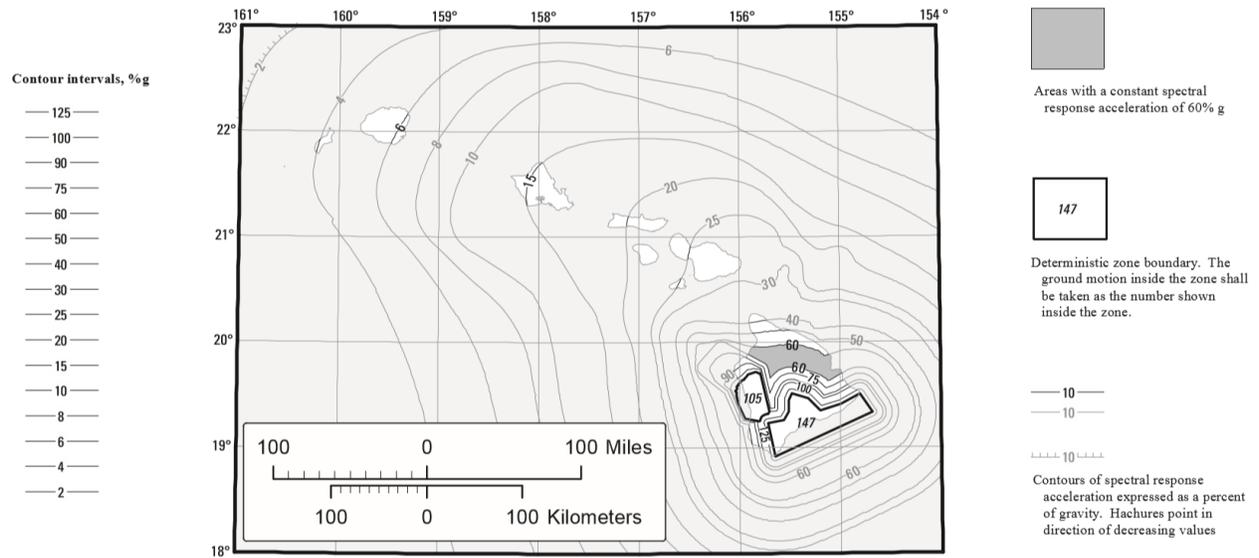
Figure 3-16

Dam Failure Evacuation Zone

Source: Pacific Disaster Center (November 23, 2010)

Seismic Activity

Per the 2012 International Building Code (IBC) seismic design map (*Figure 3-17*), the entire island of Kaua'i could experience seismic activity between five and six percent of the earth's gravitational acceleration (g-force) under a 1.0 second spectral response acceleration event. In comparison the Island of Hawai'i, home to active volcanoes, could experience seismic activity ranging anywhere from 40 to 147 percent of earth's g-force. This represents the upper limits of probable force experienced by the region during a probable seismic event.



Source: USGS (2012), 1.0s MCE Ground Motion

Figure 3-17 1.0 Second Spectral Response Acceleration (5% of Critical Damping)

Tsunami Inundation

The Settlement Plan Area is not within a tsunami evacuation area (*Figure 3-18*). The evacuation areas are located makai of the Settlement Plan area, along the shore and low-lying coastal areas of the Island, and do not extend as far mauka as the Settlement Plan Area.

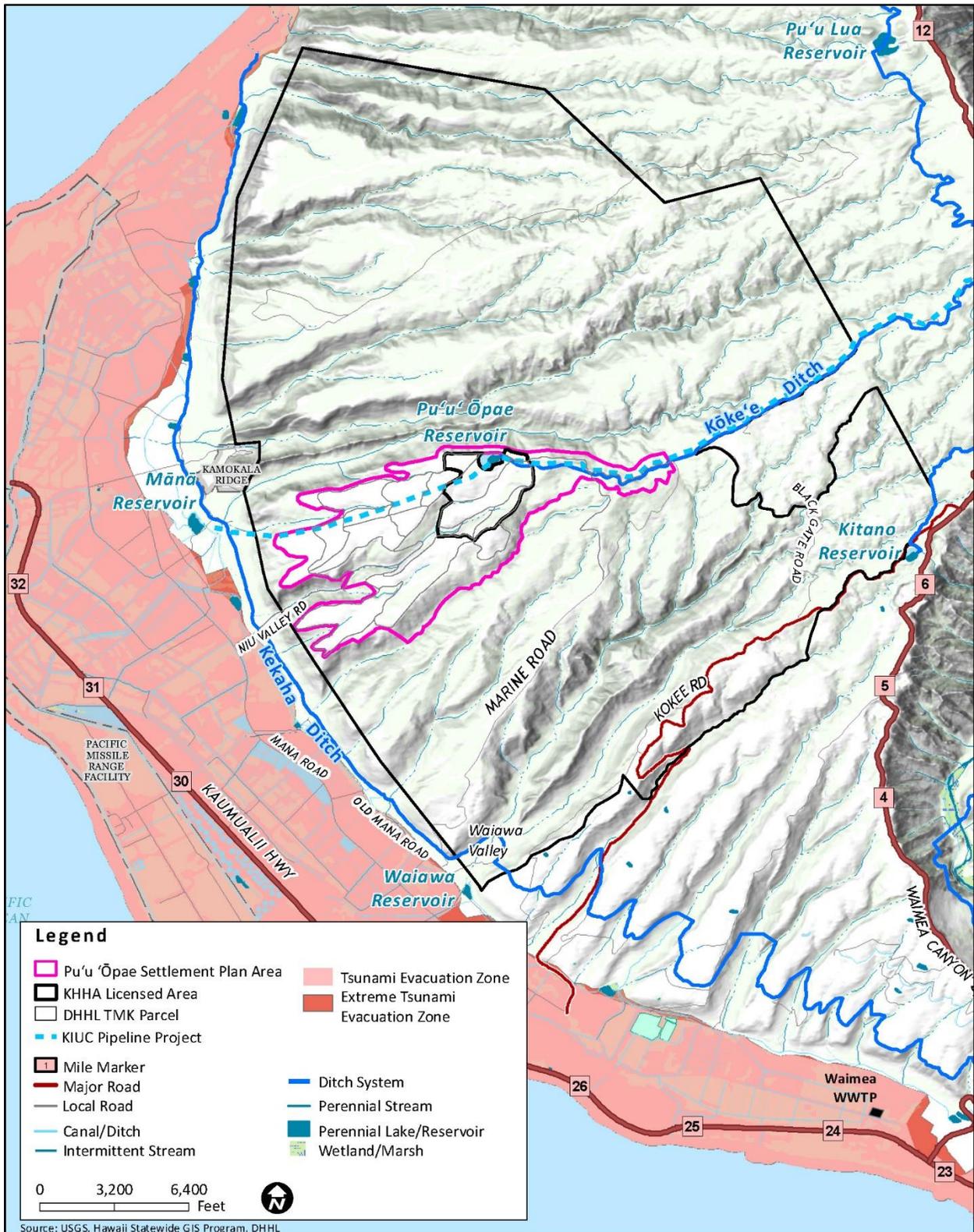


Figure 3-18

Tsunami Evacuation Map

Wildfires

Wildfires are a mauka to makai issue, affecting everything from human safety, infrastructure, drinking water, agricultural production, cultural resources, native forests, watersheds, and coral reefs. In Hawai'i, 98% of wildfires are caused by people, both accidental and intentional. Communities can be at high risk of wildfire due to unmitigated fuels, limited community engagement, insufficient water and firefighting resources, and under-addressed pre- and post-fire planning and preparedness.

Initial response to the majority of wildfires, as well as all medical and other emergencies, is the responsibility of the Kaua'i Fire Department. DLNR-DOFAW responds to wildfire events on State lands and provides additional wildland firefighting assistance when State lands are threatened and/or mutual aid agreements are invoked. Emergency response capacity is high in terms of training and equipment, however the DHHL Pu'u 'Ōpae Settlement Plan Area has challenging topography for firefighting and suffers from very limited access through and around what will become the settlement and adjacent areas.

To assess the likelihood of future fire occurrence in an area, it is important to understand its fire history as an indicator of human fire-starting behavior. A review of fire history in the broader Pu'u 'Ōpae area indicates that the Project area is at high risk for fire starts (*Figure 3-19*). Pu'u 'Ōpae is one of the areas on Kaua'i with both a high density and frequency of ignitions. Recent historical occurrences of significant fires in the region include a wildfire in July 2004 which affected 20 acres; a wildfire in September 2003, which affected 50 acres; and a wildfire in August 2010 which affected 25 acres.

The Hawai'i Wildfire Management Organization (HWMO) assessed the wildfire occurrence history, hazard risk, and methods for reducing overall ignition risks for the Project area (*Appendix C*). HWMO is a nonprofit organization that serves as a hub of wildfire prevention, mitigation, and planning activities in the Hawai'i-Pacific region through proactive, collaborative, and forward-thinking projects.

According to HWMO, the Project area is located within a wildfire-prone environment given the number of fire ignitions that have occurred in the surrounding area and its location to several nearby communities that received high hazard ratings in a 2012 Statewide community wildfire hazard assessment. The 2012 assessment was conducted by HWMO with the help of first responders, utilizing 36 different criteria to determine wildfire risk for each island. Hazard ratings were rated by site inspections and expertise of first responders, with a scale of low to high fire hazard.

Pu'u 'Ōpae's high hazard rating is due to the following factors:

- Steep slopes
- Low precipitation
- Frequent exposure to moderate winds over 15 mph
- Seasonal exposure to drought conditions and desiccation of vegetation
- History of nearby wildfire ignitions
- Major features that adversely affect wildfire behavior, such as ravines, chutes, and saddles
- Proximity of fire prone vegetative fuels around the area
- Vegetative fuel load is 71-100% cover, with mostly contiguous, uninterrupted vegetation

Rainfall patterns across Hawai'i are changing and have led to intense wet and dry pulse events with heavy rains and floods as well as periods of dry and/or drought conditions. It is during these dry conditions that wildfire hazard may be high. Desiccated and dense vegetation can allow fire to spread rapidly. Combined with heavy winds and steep slopes in the area, the wildfire hazard under those circumstances increases dramatically.

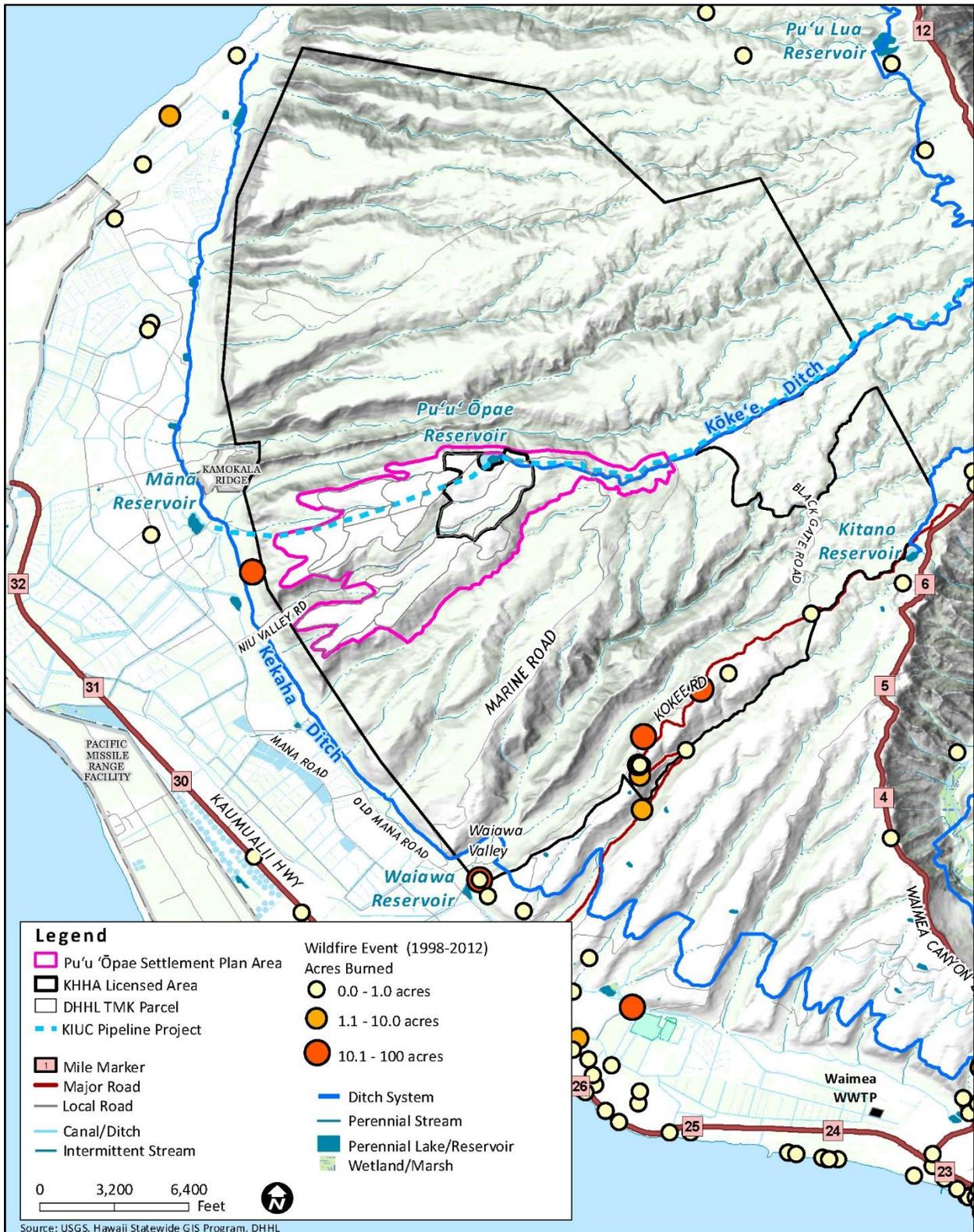


Figure 3-19

Waimea, Kauai Wildfire Incidents 1998-2012

In addition to frequency and density of fire ignitions, it is necessary to understand the trends for where human-caused fire ignitions occur. On Kaua'i, a large majority of fires are started along roads and human-access areas such as trails. As an area is developed and made more accessible, its fire ignitions increase. For the DHHL Settlement Plan Area, it will be important to consider and mitigate this dynamic as new areas become accessible and traversed by residents and visitors.

Climate Change and Sea Level Rise

The U.S. Environmental Protection Agency (EPA) indicates that many islands are particularly vulnerable to adverse effects of climate change because of their small sizes, low elevations, remote locations, and concentration of infrastructure along coastlines. In addition to experiencing hotter air temperatures, rising sea levels, and warmer, more acidic coastal waters, precipitation patterns are forecast to change. Long-term change is thought to be occurring, but its superimposition on normal variability plus multi-year regional cycles such as El Niño/La Niña events make the change signal difficult to read and forecast. Models for Hawai'i indicate a small decrease in precipitation during the wet season and a small increase during the dry season, with additional variability from storms (Leong et al 2014). Higher sea levels, inundation, flooding, and shoreline and beach erosion are expected to affect critical transportation, energy, and water infrastructure, including airports, roads, ports, and wastewater systems.

Anticipated Impacts and Mitigation Measures

Considering the increased risk of wildfire ignition as the Settlement Plan Area further develops, the Kaua'i Fire Department may see an increase in fire responses in Pu'u 'Ōpae. Wildfire management recommendations provided by the HWMO have to be integrated into the design of the entire Project area. Adequate firefighting access, defensible space, and multiple evacuation routes are key factors of the lot scheme addressing human safety, efficient wildfire suppression, and limited wildfire impacts on the landscape.

To mitigate the increased risk of wildfire ignition, the Kuleana Homestead Association requires lessees to become active participants in their community to develop rules and agreements for community-based management. As part of the community-based management approach, lessees are expected to agree upon procedures to effectively manage and maintain fires in the Settlement Plan Area. The HWMO has recommended wildfire management prevention which includes reducing and maintaining vegetation along roads and in human-accessed areas; managing grasses to interrupt continuity of fuel sources throughout the Project area; managing "ladder fuels," or areas where ground vegetation is connected to canopy vegetation; eliminating illegal dumping, and creating buffers of reduced vegetation around developed areas. Planning for drier conditions and addressing seasonal heavy growth of vegetation in the Project area will also be necessary for wildfire protection.

The two-acre Community Use area could serve as a staging area for wildfire response. Water for firefighting could be stored at this Community Use area in either a water storage tank or holding pond. Firefighting helicopters could dip for water directly from the holding pond. If a water tank is constructed instead of a holding pond, the two-acre area could be used to create a staging area for setting up a portable dipping pool for firefighting purposes (*Figure 2-4*). A standpipe from the water tank could be used to fill the dipping pool. The staging area should be relatively flat and sited near to the water storage structure. It should be easily accessed and able to accommodate several parked trucks in addition to the portable dipping pool. The airspace above should be unobstructed for helicopters to access.

Water for the tank or holding pond could be supplied by hauling water down from the reservoir. Alternatively, in the event DHHL or the future Kuleana Homestead Association develops a water main from the reservoir, water could be supplied by tapping directly into the line. The Kuleana Homestead Association would need to store and maintain the portable dipping tanks and maintain an adequate supply of water at the staging area. There are several types of portable tanks the association could utilize including: supported (steel or aluminum frame), or self-supporting (onion tanks, blivits, pillow, or bladder). See *Figure 3-20* below for concepts. To accommodate the size of the Settlement Plan Area, the Homestead Association should plan for a 3,000 to 5,000-gallon tank up to 16 ft by 16 ft.



Figure 3-20

Dipping Pool Concepts for Fire Prevention

According to the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (2017), rising sea levels mostly caused by man-made climate change will affect coastal locations around the State of Hawai'i. The UH School of Ocean and Earth Science and Technology (SOEST) provide a sea level rise scenario for Kaua'i projecting up to a three foot increase over the next 85 years. According to the UH SOEST, sea levels in the central western Pacific Ocean may reach approximately 1 to 2.5 ft higher than the global average sea level rise by the end of the century. An appropriate planning target would include a sea level benchmark of 1 ft by mid-century, and about 3.2 ft by the end of the century.

The location of the Settlement Plan Area in the mauka area of Pu'u 'Ōpae has the benefit of avoiding the direct impacts of sea level rise and coastal erosion. With an elevation ranging between 850 ft to 2,200 ft, the Project area is well above the 3.2 ft projected sea level rise scenario (*Figure 3-21*).

It is estimated that 6.5 miles of major roads island-wide would be flooded with 3.2 ft of sea level rise. This includes portions of Kamuali'i Highway that would become chronically flooded and eroded away. This could result in wide-spread regional issues such as loss of commerce and increased traffic on other roads and highways. Flooding of electric and telecommunication transmission lines could result in service disruptions. Access to the Settlement Plan Area from Kamuali'i Highway could be compromised by coastal flooding and erosion. Long-term planning for Highway removal or replacement will need to be addressed in this region by the State Department of Transportation and the adjacent landowner, ADC.

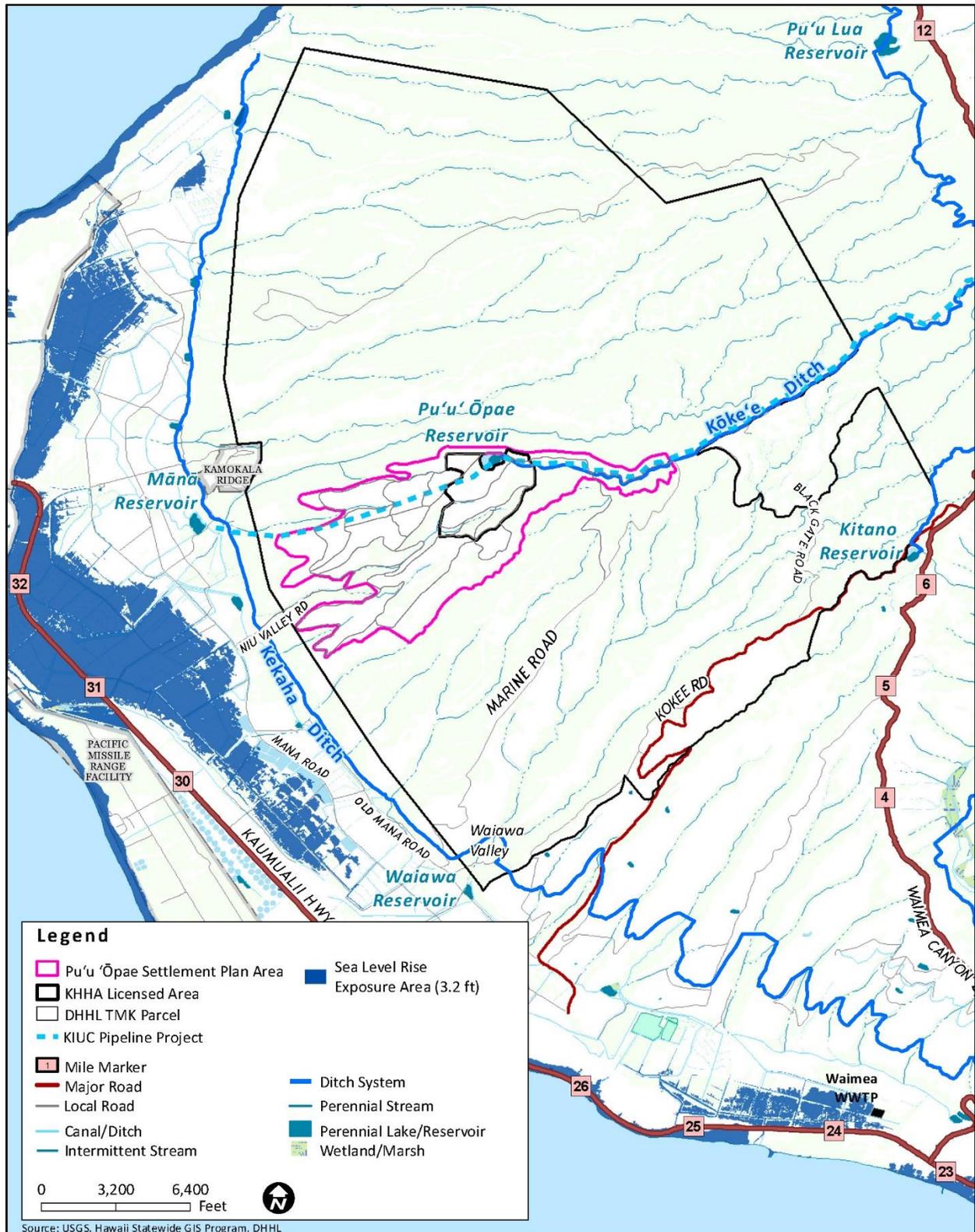


Figure 3-21

Sea Level Rise Exposure Area (3.2 ft rise scenario)

Climate change is expected to increase the difficulty for farmers and ranchers to grow crops and raise animals. Longer periods of extreme heat and drought could threaten crop yields and forage availability for livestock. Additionally, climate change may increase the prevalence of harmful pests and parasites. Changes in temperature and precipitation may require that farmers adapt by changing the types of crops planted, dates of planting and harvesting, and pest management practices. Education and training programs may help mitigate climate impacts by building the capacity of lessees to respond and adapt to the impacts of climate change.

3.7 Biological Resources

Existing Conditions

Hui Kū Maoli Ola conducted a Biological Assessment for the Project area on behalf of G70 and DHHL. The Biological Assessment confirmed the presence of native species at Pu'u 'Ōpae.

Flora

Endemic species at the Project site consist of koa (*acacia koa*) and 'Iliahialo'e (coast sandalwood – *santalum ellipticum*). Indigenous species at the Project site consist of pūkiawe/'a'ali'i mahu (*Leptechophylla tameiameia*), 'a'ali'i (dodder – *dodonaea viscosa*), pōpolo/'olohua (glossy nightshade – *solanum americanum*), 'uhaloa (*waltheria indica*), and pilipili/pi'ipi'i'ula (*chrysopogon aciculatus*). Other native plant species found in the surrounding area include 'uki'uki (*dianella sandwicensis*), 'ōhi'a (*metrosideros polymorpha*), kauila (*alphitonia ponderosa*), 'iliahi (*santalum spp*), naio (*myoporum sandwicense*), and lonomea (*sapindus oahuensis*). Figure 3-22 shows the approximate location of native plants at the Project area. The proposed Settlement Plan and lotting scheme were designed to avoid loss of biological resources to the extent practical.

Avifauna

The Biological Assessment did not identify any native fauna at the Project site; however, there are known native species in the region. Bird species of the surrounding areas of Pu'u 'Ōpae from along the Waimea Canyon rim include native bird populations such as the 'elepaio (*chasiempis sandwichensis*), apapane (*himatione sanguinea*), and amakihi (*hemignathus kauaiensis*). Other native birds known in the surrounding region include the endangered nēnē (*branta sandwicensis*), white-tailed tropic bird (*phaethon lepturus*), pueo (*asio flammeus sandwichensis*), and brown noddy (*anous stolidus*). Non-native birds known to inhabit the surrounding areas include the melodious laughing thrush (*garrulax canorus*), shama (*copsychus malabaricus*), Japanese bush warbler (*cettia diphone*), Japanese white-eye (*zosterops japonicus*), feral fowl (*gallus gallus*), greater necklaced laughing thrush (*garrulax pectoralis*), pigeon (*columbia livia domestica*), common mynah (*acridotheres tristis*), northern mockingbird (*mimus polyglottus*), northern cardinal (*cardinalis cardinalis*), red-crested cardinal (*paroaria coronate*), house sparrow (*passer domesticus*), house finch (*carpodacus mexicanus*), chestnut mannikin (*lonchura malacca*), nutmeg mannikin (*lonchura punctulata*), and barn owl (*tyto alba*).

Seabirds may also overfly the area, including Newell's Shearwaters (*puffinus auricularis newelli*) and band-rumped storm-petrels (*oceanodroma castro*), which were detected near Kauhao Ridge approximately 5.6 miles north of Pu'u 'Ōpae. Although waterbirds were not detected within the project vicinity, state endangered waterbirds including the Hawaiian Duck or Koloa Maoli (*Anas wyvilliana*), Hawaiian Gallinule or 'Alae 'ula (*Gaillinula geleata sandwicensis*), Hawaiian Stilt or Ae'o (*Himantopus mexicanus knudseni*), Hawaiian Coot or 'Alae ke'oke'o (*Fulica alai*) and other endemic waterbirds have the potential to flyover and inhabit the project area.

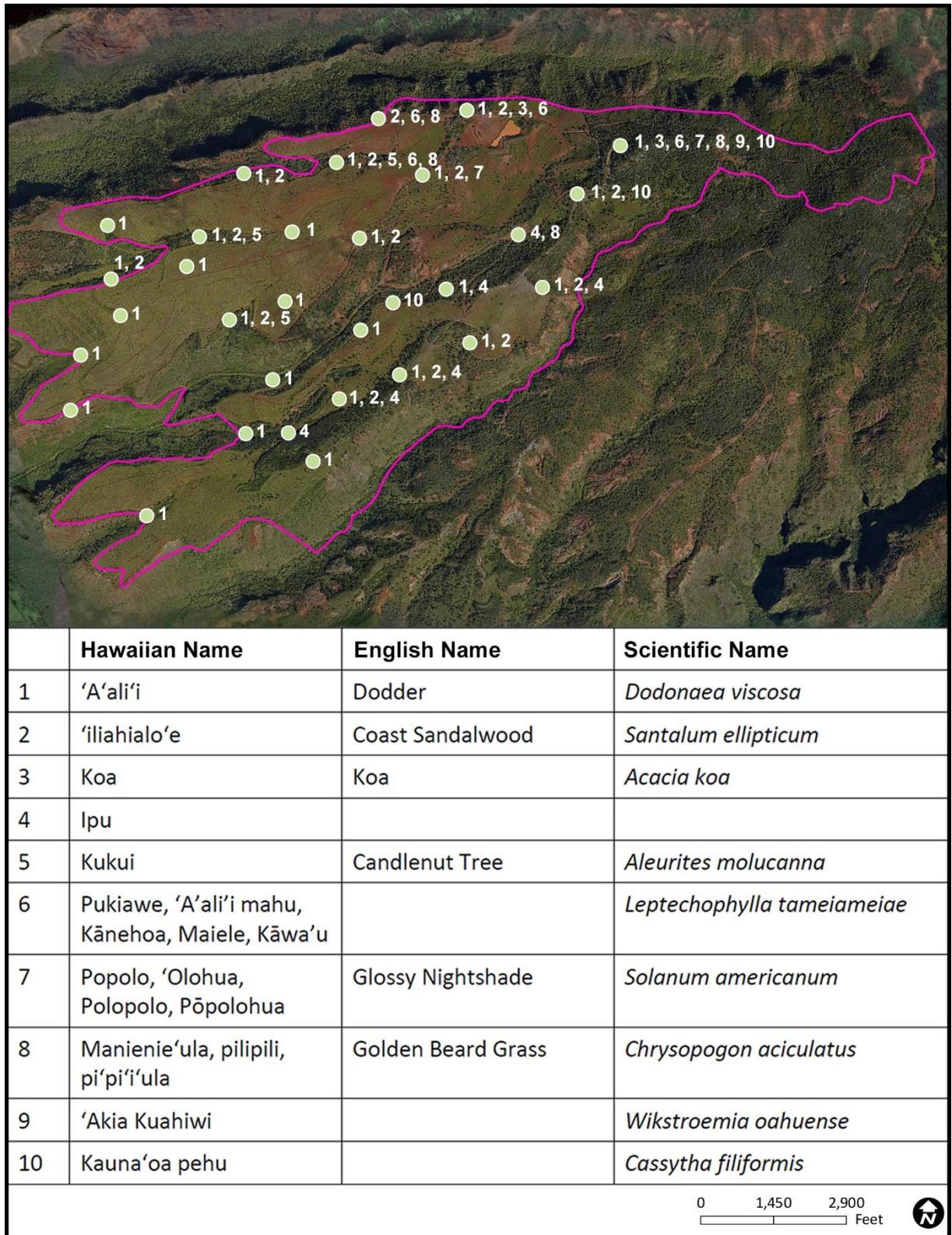


Figure 3-22

Plant Survey Map

Mammalia

According to the United States Fish and Wildlife Service (USFWS), the 'ōpe'ape'a (*Lasiurus cinereus semotus*, Hawaiian hoary bat) roosts in both exotic and woody vegetation across all islands and will leave young unattended in trees and shrubs when they forage. This species, which roost in trees, may exist within and overfly the Project area, as they are known to exist in the vicinity of Pu'u ka Pele Forest Reserve and have been observed in the evenings.

Anticipated Impacts and Mitigation Measures

Special District areas of Pu'u 'Ōpae are planned for native reforestation which will increase native biodiversity, control soil erosion, increase water uptake, and recharge the aquifer. For floral species identified as threatened, endangered, or rare, plant conservation may include collecting plant material for outplanting progeny and protecting species from predation through appropriate fencing. Observed invasive plant species at Pu'u 'Ōpae may be managed through mechanical removal efforts. Boundary fences may need to be established to prevent feral ungulate populations from traversing the homestead and forested areas.

Restoration activities in the Special District lands will help reduce erosion and rehabilitate native ecosystems in the gulches. Restoring native forests and conservation programs could also create potential beneficial impacts to avifauna.

The future Homestead Association will be responsible for the management of natural resources once settlement occurs. Once the lots are awarded the Association will develop appropriate mitigation and conservation programs subject to approval by the Hawaiian Homestead Association. Mitigation may include actions to minimize predator presence, mitigate the spread of Rapid 'Ōhi'a Death, and prevent the spread of invasive species; however, these programs must ultimately be determined and codified by the Association.

The nēnē is considered an endangered species per the State of Hawai'i endangered species law, *HRS Chapter 195D*. Pursuant to the endangered species law, it is unlawful for any person to "take" an endangered or threatened species of aquatic life, wildlife, or land plant. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect endangered or threatened species of aquatic life or wildlife, or to cut, collect, uproot, destroy, injure, or possess endangered or threatened species of aquatic life or land plants, or to attempt to engage in any such conduct (Section 195D-2, HRS). . When the forest is cleared for agricultural or other purposes, it is expected that the nēnē will increase their usage of resources on the site. There is a continued need to protect the nēnē with factors such as mitigating predation by introduced mammals, insufficient nutritional resources for both breeding females and goslings, limited availability of suitable habitat, and human-caused disturbance and mortality. To continue protecting the endangered species, the following recovery actions established in the USFWS's 2004 *Recovery Plan for the Nēnē* will be followed,

1. Identify and protect nēnē habitat which focuses on the identification and protection of sufficient habitat to sustain target population levels;
2. Manage habitat and existing populations for sustainable productivity and survival complemented by monitoring changes in distribution and abundance;
3. Control alien predators which addresses control of introduced mammals to enhance nēnē populations;
4. Develop a captive propagation program which describes techniques and priorities for captive propagation and release of nēnē into the wild;
5. Establish additional nēnē populations through partnerships with private landowners;

6. Address conflicts between nēnē and human activities, including the potential management and relocation of nēnē that are found in unsuitable areas;
7. Identify new research needs and continue research which describes general categories of research needed to better evaluate threats to nēnē and develop and evaluate management strategies to address these threats;
8. Provide a public education and information program which describes important outreach and education activities; and
9. Validate recovery actions which calls for formalizing the Nēnē Recovery Action Group and evaluating management and research projects to determine if recovery objectives have been met.

The Homestead Association may choose to partner with USFWS service to collaborate on nēnē conservation and develop innovative strategies to assure this threatened species' full recovery.

Hawaiian seabirds may traverse the Project area at night during the breeding season (September 15 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and may become disorientated and collide with nearby structures or impact on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by alien mammalian species. Young birds (fledglings) traversing the Project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable. To avoid and minimize potential impacts to avifauna, DHHL will ensure that no nighttime construction activity will occur during the seabird fledging period. The Homestead Association would be responsible for developing appropriate mitigation and conservation programs. Agricultural and homesteading activities could increase the level of nighttime light pollution. To minimize the impacts of nighttime light pollution to seabirds, the Homestead Association will consider the recommended seabird-friendly lighting styles such as downward facing and fully shielded lights to prevent seabird fallout.

To minimize potential impacts to the endangered 'ōpe'ape'a, woody plants greater than 15 ft tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15), and barbed wire will not be used for fencing.

Finally, place-based learning and educational programs led by the KHHA could provide additional opportunities for the Beneficiary community to take on stewardship responsibilities and develop long-term plans for the protection, preservation, and restoration of natural resources at Pu'u 'Ōpae.

3.8 Air Quality

Anticipated Impacts and Mitigation Measures

Short-term impacts to air quality include fugitive dust from vehicle movement as a result of construction activities for the project. On-site/off-site emissions from moving construction equipment and commuting construction workers will also be present on site. The project does not include any construction or demolition of buildings that involve asbestos. Although construction activities will produce on-site/off-site emissions, construction activities for the project will not require an air pollution control permit.

State of Hawai'i Air Pollution Control regulations prohibit visible emissions of fugitive dust from construction activities at the property line. A dust control program will be implemented to control dust from construction activities. Per *HAR 11-60.1-33*, the Department of Health (DOH) provides a list of seven (7) reasonable precautions for fugitive dust control. These precautions include:

1. Use of water or suitable chemicals for control of fugitive dust in the demolition of existing buildings or structures, construction operations, the grading of roads, or the clearing of land;
2. Application of asphalt, water, or suitable chemicals on roads, material stockpiles, and other surfaces may result in fugitive dust;
3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Reasonable containment methods shall be employed during sandblasting or other similar operations;
4. Covering all moving, open-bodied trucks transporting materials which may result in fugitive dust;
5. Conducting agricultural operations, such as tilling of land and the application of fertilizers, in such manner as to reasonably minimize fugitive dust;
6. Maintenance of roadways in a clean manner; and
7. Prompt removal of earth or other materials from paved streets which have been transported there by trucking, earth-moving equipment, erosion, or other means.

Fugitive dust emission will be mitigated through the adherence of these precautions. The development of the Settlement Plan Area will not result in outputs that will affect air quality. No emissions of dust are anticipated to be generated in the long-term as a result of the project.

3.9 Noise

Existing Conditions

There are natural noises in the Project area due primarily to wind in the surrounding foliage. Existing background ambient noise levels within the Project area are largely attributed to motor vehicle traffic along the main highway makai of the Project site. The noise levels around the Project site are consistent with noise levels found in rural areas.

Anticipated Impacts and Mitigation Measures

There will be short term noise generated during road construction; however, noise levels are not expected to adversely affect residents near the Project site. Construction activities will comply with the provisions of *HAR §11-46* for community noise control. The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed allowable levels. Heavy vehicles traveling to and from Project site will comply with the State's administrative rules for vehicular noise control. Over the long term, the project will not affect ambient noise levels.

3.10 Utilities and Infrastructure

3.10.1 Water

The water supply for the Waimea and Kekaha town areas is provided by the County of Kaua'i Department of Water (DOW)-owned system. The system is serviced by the Kekaha Aquifer. The existing DOW Kekaha system is supplied by three wells: Waimea Well "A", Waimea Well "B", and Kapilimao Well. All the extracted water is chlorinated and pumped into the distribution system or stored in holding tanks. Kekaha has two 500,000-gallon tanks servicing the region. However, currently there are no existing potable water systems serving the Project area, as its location is at a higher elevation than the storage tanks.

Irrigation water is delivered to the Pu'u 'Ōpae area from the KODIS via the Pu'u Moe divide. The ditch system leading to the Project area has become dilapidated and in need of repair.

Existing Conditions

Potable Water

There is no existing County of Kaua'i or DHHL potable water system at the Project area or in the vicinity. Under the provisions of *HAR §10-3-30 – Kuleana Homestead Leases*, the provision of potable or irrigation water is not required for the issuance of Kuleana Homestead leases. As such, the lessees will be responsible for providing their own potable water.

Non-Potable Water

Irrigation waters are delivered to the Project area through the KODIS. In 2017, a Commission on Water Resource Management (CWRM) Mediation Agreement for the Waimea Watershed Area was entered into by DHHL, KIUC, ADC, the Kekaha Agricultural Association (KAA), and the West Kaua'i Watershed Alliance for the allocation of waters in the region. Under the Agreement, 6.903 million gallons per day (mgd) from the KODIS are reserved for DHHL's use. The Mediation Agreement further stipulates that DHHL has the right to file for additional water reservations for the Waimea Watershed. DHHL has also submitted a modified petition to the CWRM further detailing allocations of the 6.903 mgd, of which, 0.773 mgd will be reserved for a planned "Mauka Village", along Kōke'e Road, and 6.130 mgd will be allocated to the Pu'u 'Ōpae lands and existing Pastoral lots. DHHL has the right to modify these amounts at their discretion.

Based upon the available water from KODIS and Pu'u 'Ōpae's reservation of 6.130 mgd combined with rainfall, the data indicates the combined non-potable water sources are sufficient to meet the total estimated project demand of 5.324 mgd. This leaves over .8 mgd as reserve.

DHHL's 6.130 mgd for the Pu'u 'Ōpae area is to be split between the five existing Pastoral lots located mauka of the Project area, the KHHA License Area, and the future Kuleana Homestead Settlement. Estimates of water demand were used to allocate water to the various users (*Appendix G, Table 3.2.4*). Based on the calculated estimates, a total of .5 mgd are reserved for the five existing Pastoral lots. The water demand for these five lots was calculated based on full occupancy of the lots and pastoral-type uses, and noted in the water agreement petition that DHHL provided to CWRM. Estimates for the KHHA License Area water demand are based upon the stated uses and associated acreages described in the Farm and Irrigation Project report. A total of 2.025 mgd are reserved for their use. A total of 2.799 mgd have been allocated for the Kuleana Homesteading areas inclusive of .448 mgd for the Pastoral lots, .240 mgd for the Subsistence Agriculture Lots, 1.046 mgd for Special District areas, and 1.060 for other general agriculture uses.

The 1.046 mgd reserved for Special District lands are reserved specifically for the areas outside of the KHHA License Area. This water could be used for road maintenance, reforestation, conservation, or other appropriate uses. Water reserved for the general agriculture uses is intended to serve the shared common green areas, firefighting dipping pool storage area, and the Supplemental Agriculture area. This water could also be allocated to the Subsistence Agriculture area on the southern plateau for the future build out of lots. It would be the responsibility of the Kuleana Homestead Association to determine the best use and allocation of this 1.060 MGD.

The improved KODIS will service the Pu'u 'Ōpae Kuleana Project area. As part of the hydroelectric project, KIUC will provide one tap on the upper penstock mauka of the Project area to deliver irrigation water to the five existing Pastoral lots, and two outlets at the Pu'u 'Ōpae reservoir that will allow KHHA and the Kuleana Homesteaders to draw water directly from the reservoir. Per *HAR §10-3-30* – Kuleana Homestead Leases, the provision of irrigation water is not required for the issuance of Kuleana Homestead leases. As such, DHHL does not plan on providing any infrastructure beyond the reservoir outlet at this time. The beneficiaries and the Kuleana Homestead Association will ultimately be responsible for determining how to deliver water from the reservoir to the individual homestead lots. One method of delivering water to the homestead lots could involve filling a and hauling water from the reservoir outlet with a water trailer (*Figure 3-23*). Another option could include developing a community water delivery service. Under this scenario, the Kuleana Homestead Association could obtain a four-wheel drive water tank truck. The Association could develop and maintain a schedule for delivering water from the reservoir outlet to the individual lots on a routine basis (*Figure 3-24*)

DHHL could assist with the development of more permanent, long-term infrastructure solutions at a future time. Improvements could include a water line from the reservoir, pressure relief valves and an interim storage tank or holding pond. DHHL's main waterline would connect to the outlet at the reservoir to deliver water downhill for the Homestead lots to tap into. This line would be constructed parallel and adjacent to the lower KIUC penstock and buried underground to prevent damage from the potentially high pressures the system may experience. Due to the gradient leading along the top of the plateau away from the reservoir, two pressure service zones would be required to support the development. The DHHL provided interim storage tank or holding pond, designated at the lower-elevation, Community Use area of the Project site, will reduce pressure in the water main midway through the Subsistence Agriculture lots (*Figure 2-4*).

After construction, the Homestead Association and lessees would be responsible for providing any infrastructure improvements beyond the main DHHL line. Infrastructure may include water service laterals, piping, and submeters. Similarly, KHHA will be responsible for all water infrastructure beyond their reservoir outlet.



Figure 3-23

Example of Water Trailer



Figure 3-24

Example of Water Tank Truck

Anticipated Impacts and Mitigation Measures

Potable Water

The project will have no impact upon the existing potable water system. Under the provisions of *HAR §10-3-30 – Kuleana Homestead Leases*, potable water is not required for the issuance of Kuleana Homestead leases. There are other sources of water available to lessees including catchment of rain water and hauling water in to provide personal water supplies. Water treatment systems installed at respective lots will need to meet the requirements as provided in *HAR §11-20 – Rules Relating to Public Water Systems*. Options for water treatment include individual water storage tanks or ponds combined with commercially available compact reverse osmosis or ultraviolet disinfection systems for residential use. The feasibility of potable water options will also be subject to the ability of the Kuleana Homestead Association to implement or enforce their own rules, subject to HHC's approval, as stated in *HAR §10-3-30 – Kuleana Homestead Leases*.

Non-Potable Water

The project will have a beneficial impact upon the existing irrigation water system. The HHC's approval of KIUC's hydroelectric project at Pu'u 'Ōpae was conditioned upon KIUC's provision of water to the homesteading project. KIUC's planned improvements will replace approximately 34,200 feet of the existing KODIS's unlined, open irrigation ditches with underground pipes and will rehabilitate the Pu'u 'Ōpae reservoir. KIUC will be responsible for the operation and maintenance of both the KODIS and Pu'u 'Ōpae reservoir. The Kuleana Homestead Association will be responsible for the water infrastructure throughout the Settlement Plan Area. Similarly, the KHHA will be responsible for the management and upkeep of any new water infrastructure within the License Area.

DHHL will continue to work with KIUC on a water system operational agreement to ensure DHHL water demands can be met by the improved system. DHHL will present an update to CWRM of its plans for Pu'u 'Ōpae and subsequent modifications. The update will also discuss how the Department plans to utilize the water in its reservation request.

3.10.2 Wastewater

Existing Conditions

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan does not include a centralized wastewater service or public water system. There are no existing County sewer systems near the project property. The nearest wastewater treatment plant is the Waimea Wastewater Treatment Plant, which is located over four miles away. The project is located above the State Underground Injection Control line. Wastewater in the area is typically treated and disposed of through the use of an Individual Wastewater System (IWS) or a Wastewater Treatment Works, the latter having more stringent design criteria, permitting, and operating requirements.

The project property is located within the State Agricultural land use zone. As such, any building in this zone may be exempt from *HAR 11-62 – Wastewater Systems*, if buildings or facilities are essential to the operation of an agricultural enterprise.

Anticipated Impacts and Proposed Mitigation

The project is anticipated to generate an average daily wastewater flow of approximately 50,000 gallons per day (GPD) at full build-out. This estimate is based on 251 units with 2 bedrooms at 200 GPD. On-site wastewater systems provide effective, low-cost, long-term solutions for wastewater disposal as long as they are properly designed, installed, and maintained. Wastewater systems for homestead lots and the community common areas will be planned in accordance with *HAR §11-62 – Wastewater Systems*. An IWS consists of two components: 1) treatment (septic or other active treatment system), and 2) disposal (infiltration or reuse). Each awardee would be responsible for obtaining and managing the IWS for their own property.

Infiltration of treated effluent can be utilized if it is not considered an injection well, and if designed in compliance with *HAR §11-62* using infiltration trenches, absorption beds, or ponds. Wastewater reuse (e.g. subsurface irrigation of areas surrounding the wastewater treatment center) can be utilized if designed in accordance with the DOH Wastewater Branch's *Guidelines for the Treatment and Use of Recycled Water (Wastewater Systems and §11-23 Underground Injection Control)*. Wastewater can be a valuable resource for rural communities. In addition to easing the strain on limited freshwater supplies, the reuse of wastewater can improve the quality of streams by reducing the effluent discharges that they receive. Wastewater may also be reclaimed and reused for crop and landscape irrigation.

A cluster system approach is another alternative for wastewater management. Cluster systems involve a cooperative wastewater treatment organization that collects wastewater from a small number of homes, usually two to ten, and transport it via an alternative sewer to a pretreatment land absorption area with no surface discharge of effluent (*Figure 3-25*). An absorption field includes several perforated pipelines placed in long, shallow trenches filled with gravel. The pipes distribute the effluent over a sizable area as it seeps through the gravel and into the underlying layers of soil. The shared common areas could be a possible location for an absorption field (*Figure 2-6*). Cluster systems have lower development cost and offer less complex operation and maintenance than conventional centralized sewage treatment systems. Any type of communal treatment system will be subject to review by regulatory authorities. The future Kuleana Homestead Association and lessees would be responsible for developing and maintaining the cluster wastewater system.

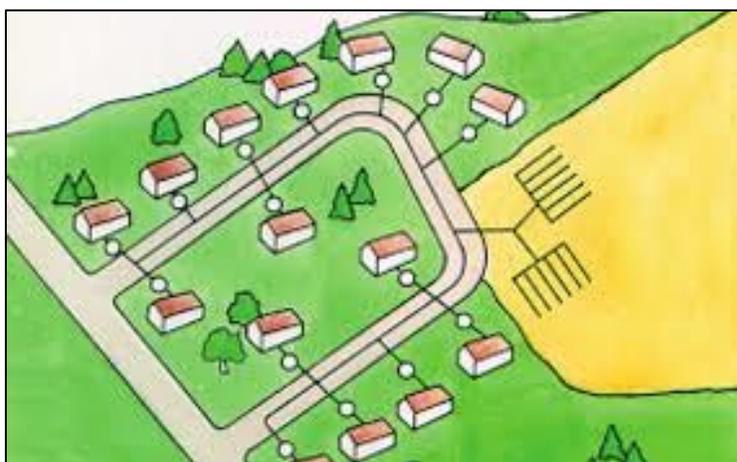


Figure 3-25

Example of a Clustered Wastewater System

Source: *Wastewater Management (2013) Centers for Disease Control and Prevention*

Beneficiaries may also utilize composting toilets if designed in accordance with *HAR §11-62-35 Other Individual Wastewater Systems*. A composting toilet is a type of dry toilet that treats human waste by a biological process called composting. Specific design requirements shall be reviewed and approved by the director on a case-by-case basis (until the community develops its own codes and permitting process that is approved by the HHC).

The community center, common areas, and other uses planned by KHHA, under their current license agreement with DHHL will utilize portable toilets located near the training areas and work sites when larger groups participate in work days. More permanent restroom facilities may be required as the Settlement grows. When needed, KHHA plans to use a system of state-of-the-art compostable toilets. For any proposed commercial kitchens in the Community Use areas, grease interceptors will be installed in accordance with the Uniform Plumbing Code to capture fats, oils, and grease from the proposed kitchen before entering the site's wastewater system. Any kind of butcher shop or agricultural processing center will also require pre-treatment to remove solids and oils prior to IWS disposal. Each type of food processing wastewater will have special factors to consider, and in addition to technology performance issues, seasonality of production will add to the complexity of treatment choices. Should an animal feeding operation be implemented within the license area, the KHHA may be required to develop a National Resources Conservation Service (NRCS) Comprehensive Nutrient Management Plan to minimize potential adverse impacts on water quality and public health.

Additional wastewater from agricultural and pastoral activities must also be managed to ensure compliance with NRCS guidelines. All agricultural waste shall be handled in a manner that is compliant with *HAR §11-62* and the State of Hawaii DOH *Guidelines for Livestock Waste Management*. A NRCS farm plan or conservation plan may be required and would be the responsibility of the lessee.

3.10.3 Drainage

Existing Conditions

The Project site generally slopes to the west and drains into the adjacent property through several valleys along the property's western boundary. Major discharges occur through Niu Valley, where an existing culvert was observed along Niu Valley Road, but there are currently no County municipal drainage systems in the general area of the Project site.

Anticipated Impacts and Proposed Mitigation

At a minimum, proposed drainage improvements will be designed in compliance with the County's Stormwater Runoff System Manual (July, 2001). Pre-development flow patterns and flow rates will generally match post-development conditions with runoff continuing to discharge overland into adjacent properties and into the valleys and drainage channels, as the improvements generally do not consist of impervious areas.

Minor grading and installation of road culverts will be required to mitigate the erosion currently exhibited at the site. Irrigation and runoff cutoff ditches along fields, lots, and roadways will likely be constructed in accordance with NRCS Standard Practice Codes (Best Management Practices). New roadway crossings with piping or culverts will need to be installed at locations where flood waters may cross roadways. Roads must be consistently maintained by either dropping gravel stabilization as needed, or through pavements if sections are steep and often washed out.

Individual lessees will be responsible for constructing drainage improvements on their specific lot and improvements should be designed to minimize downstream impacts. The gulches have been designated as Special District, indicating the presence of sensitive resources that require careful planning.

3.10.4 Electrical Power

Existing Conditions

The KIUC supplies electricity for the County of Kaua'i. KIUC serves areas makai of the Settlement Plan Area but does not have any operating lines that reach further mauka to the Settlement Plan Area. Under HAR §10-3-30, the provision of electricity is not required for the issuance of kuleana homestead leases. The KHHA and the future Homestead Association may attempt to secure power from KIUC for areas designated as Community Use.

Anticipated Impacts and Proposed Mitigation

The proposed Project will not impact the existing utility services provided to the Kekaha or Waimea communities. Being proactive on the energy front, DHHI recently adopted the Ho'omalū Energy Policy (2009). The goal of this policy is to enable native Hawaiians and the broader community to work together and lead Hawai'i's effort in achieving energy self-sufficiency and sustainability. An objective of this policy is to facilitate the use of diverse renewable energy sources on a large and small scale. The objective of this initiative is to not only generate renewable energy, but also to reduce energy costs for beneficiaries and to develop other community benefits like employment opportunities and other reinvestments in the local economy.

One of the renewable energy opportunities that can meet this objective is to provide energy efficiency, self-sufficiency, and sustainability opportunities to homesteaders and their communities. This can be fulfilled with the installation of photovoltaic systems on individual homes and community facilities. Shared common areas could also be used to create a community solar microgrid (*Figure 3-26*). With a solar microgrid, an array of photovoltaic panels would be developed in the shared spaces between the homestead lots (*Figure 2-6*). Energy would be stored in batteries and then distributed to the individual lots.

In the case that photovoltaic systems are pursued, if the systems employ new technologies that have not been included in this EA, then they would have to be evaluated as part of a separate review. For example, issues relative to position and location of photovoltaic system and impacts by glare, visual impacts, and height may have to be assessed if they are not covered in this EA.

In alignment with the adopted Energy Policy, the installation of the new KIUC buried distribution line provides a potential source of electrical power that could service lessees.

Based on the 2017 formal evaluation of the Kuleana Lease program, beneficiaries expressed a desire to understand what would need to be built on their awarded Kuleana Homestead lot and what it would cost. To better inform and prepare for a successful settlement, *Table 2-5* portrays the projected costs lessees will be responsible for providing on their homestead lot. The costs vary depending on the preference of the lessee and the type of Kuleana Homestead awarded. Although the initial start-up cost for an off-grid lifestyle can be costly, in the long-term beneficiaries are given the opportunity to determine as a group and as individuals, choices as to how they wish to develop their Kuleana Homestead award and create a self-sufficient and sustainable lifestyle and community.

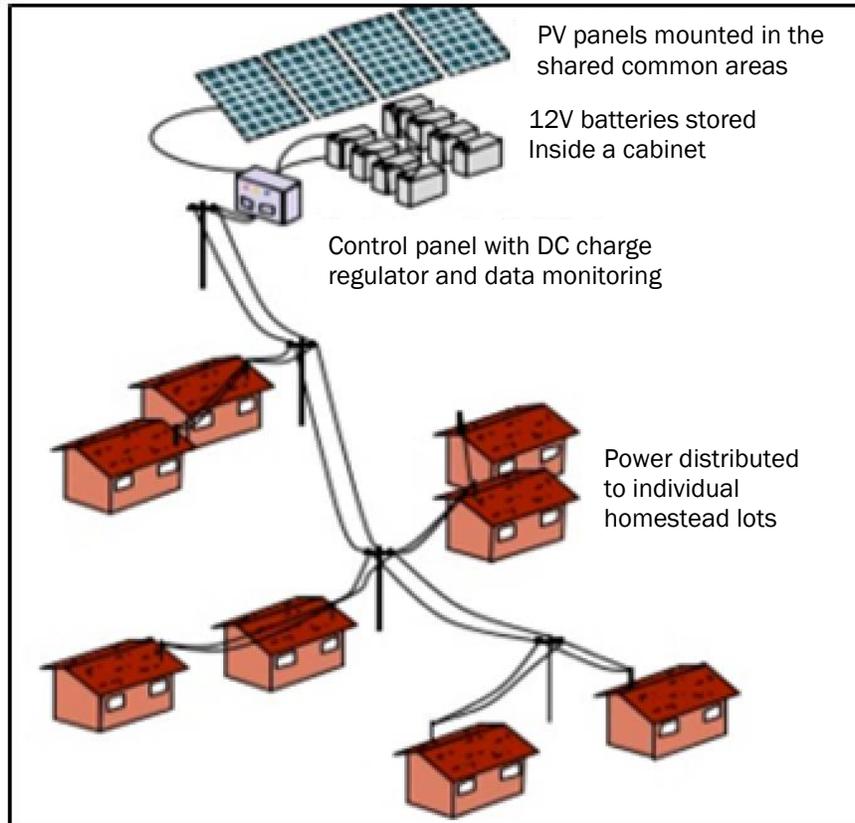


Figure 3-26

Example of a Community Solar Microgrid

Source: *Microgrid Site Summaries (2016) SELCO Foundation*

3.10.5 Traffic and Roadways

Existing Conditions

Off-site Roads

Regional access to the Project area is via the Kaumuali'i Highway right-of-way (Hawai'i Route 50). From the Highway, the Project area may then be approached by either the mauka boundary via Kōke'e Road (State Highway 550), or from the makai boundary via Mānā Road (*Figure 2-2*).

Kōke'e Road is a two-lane road primarily used as the access route to the Kōke'e and Waimea Canyon State Parks, where an estimated 300,000 people visit each year. Access to the Project area from Kōke'e Road is by Trail One, a dirt road that first passes through land owned and managed by the DLNR. Trail One then meanders makai to DHHL's five Pastoral lots, and then towards the Pu'u 'Ōpae reservoir. Trail One is a one-lane unpaved dirt road approximately 12-feet wide.

Ingress at the makai boundary of the DHHL property is by Niu Valley Road, accessible via Mānā Road. The use of Mānā Road for the Niu Valley access will require coordination with KAA. As an ADC lessee, KAA will be required to submit a proposed Right of Entry agreement to ADC for review and approval. Niu Valley Road is an existing one-lane dirt road exhibiting erosion with significant deep ruts. Rocks and loose boulders also currently make the use of this road slow and dangerous. The road traverses a steep valley wall between the upper plain of Pu'u 'Ōpae and the bottom of the valley, and crosses over a gully with an existing box culvert. The elevation difference is approximately 900 feet. Due to the steep (greater than 50% slope) terrain and lack of maintenance, the road is highly susceptible to erosion.

As part of KIUC's hydroelectric project, improvements will be implemented to these primary access roads. Niu Valley Road will be improved from Mānā Road to the Pu'u 'Ōpae Reservoir. The mauka roadway from Kōke'e Road to the Pu'u 'Ōpae Reservoir will also be improved, but to a lesser extent. Improvements will include rock, crowning, re-grading, and installation of culverts to address erosion issues.

On-site Roads

The Settlement Plan was designed to maximize the use of existing dirt roads to the greatest extent feasible (*Figure 3-27*). All existing on-site roads within the property are unpaved, 4-wheel drive roads, originally constructed by the KSC. Utilizing the existing roadway network helps reduce development costs for DHHL, while also minimizing the potential disturbance of any undiscovered natural or historic resources. DHHL will construct a limited number of new unpaved gravel roads on site to provide access to the Kuleana Homestead Lots (*Figure 3-28*). These roads will not be dedicated to the County, and roadway upkeep and maintenance will be the responsibility of the beneficiaries, pursuant to the Kuleana Homesteading Program.

After DHHL prepares the remaining unpaved roads within the network of the Project area, beneficiaries will be responsible for the long-term maintenance and operational upkeep of the roadways inclusive of repairs, re-grading, and maintenance of culverts. The roads will all remain as unpaved, compacted gravel roads requiring 4-wheel drive vehicles.

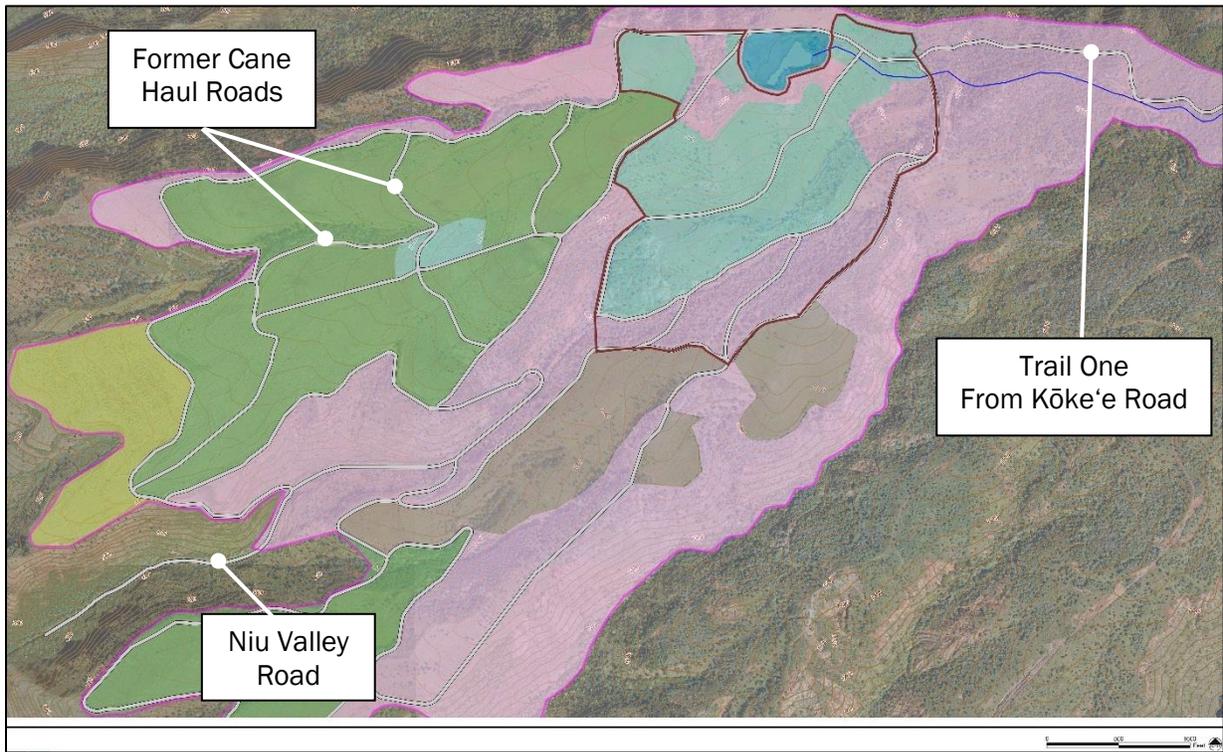


Figure 3-27

Existing Roadways

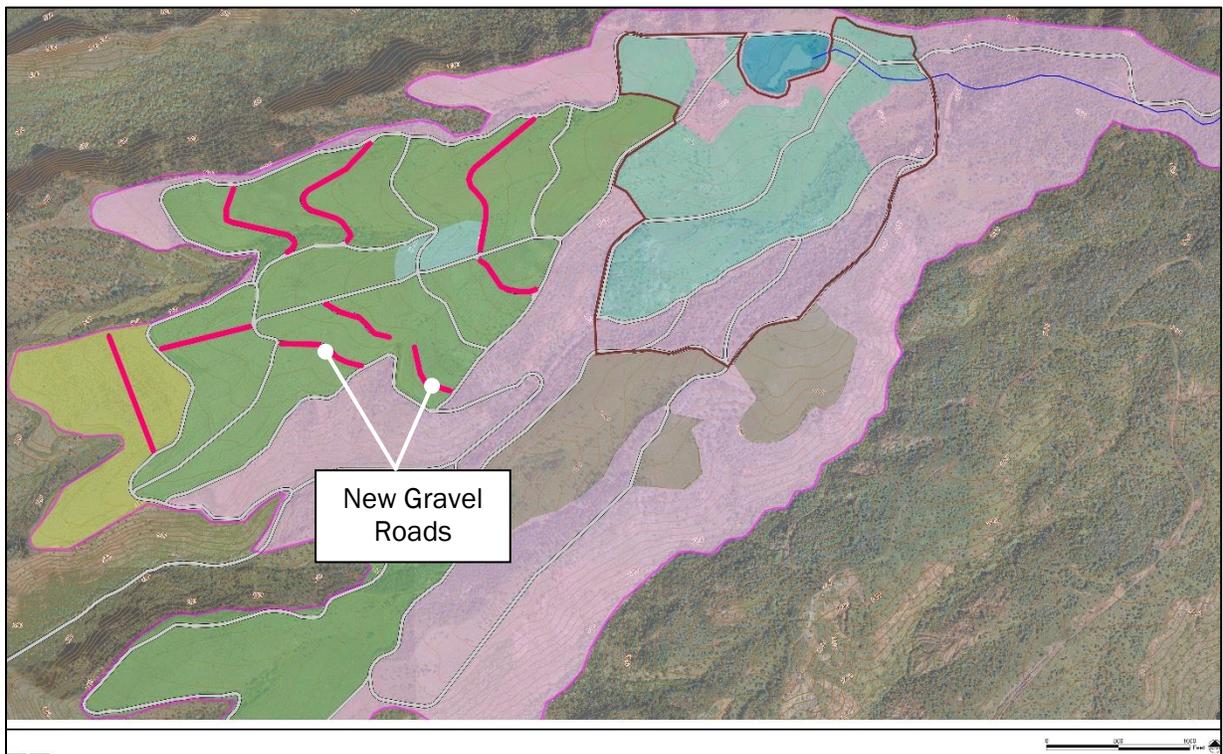


Figure 3-28

New Unpaved Roads

Anticipated Impacts and Mitigation Measures

Improving existing cane haul roads will generate short-term construction-related traffic associated with worker vehicles, and transport vehicles that would deliver machinery, construction materials and waste disposal units.

To minimize potential traffic impacts, the following mitigation measures are recommended, and will be adhered to, for optimal traffic conditions during construction:

- Construction activities and construction material and wastes should be located and stored away from vehicular traffic. Sight lines for drivers on the roadway should be carefully maintained.
- Trucks delivering construction material and disposing of construction waste should be scheduled on weekdays during times of non-peak commuter periods (9:00 AM to 3:00 PM).

The National Fire Protection Association (NFPA) 1141-Standard for Fire Protections Infrastructure for Land Development in Wildland, Rural, and Suburban Areas, Chapter 5, provides fire protection standards for roadways in rural areas where water may not be available. Roads in the Settlement Plan Area will comply with the following standards:

1. "Roadways shall be constructed of a hard, all-weather surface designed to support all legal loads of the jurisdiction" (5.2.2).
2. Roadway widths = 12 ft for each lane of travel (5.2.3)
3. Roadway vertical clearance = 13.5 ft
4. Minimum radius for turns = 60 ft (to the outside turn)
5. Grades no greater than 10 percent. If grades are greater, the agency having jurisdiction can dictate additional requirements needed.
6. Roadways greater than 300 ft require a turnaround (120-ft diameter turnaround)

The development and awarding of the Settlement Plan Area may minimally impact the serviceability of adjacent public roadways in the Project area, namely Mānā Road, Kōke'e Road, and Kaumuali'i Highway. According to OHA 2013 Census data, Native Hawaiian families have an average of 2.4 vehicles per household. As the proposed project will include the awarding of 251 homestead lots (11 Pastoral and 240 Subsistence Agriculture), it is anticipated that up to 602 vehicles could be utilizing roadways to access the site.

3.11 Socio-Economic Characteristics

Existing Conditions

The Project site is located in Pu'u 'Ōpae, Kaua'i within Census Tract 409. *Table 3-3* below presents demographic information from the 2018 American Community Survey 5-Year Estimates for Census Tract 409 and the County of Kaua'i. In 2018, it was estimated that Asians comprised the largest racial group residing in Census Tract 409 reflecting the historic plantation era which brought in large waves of immigrant workers all throughout Asia. Native Hawaiians were the second largest racial group residing within Census Tract 409. Based on historic trends and development of the Settlement Plan Area, the native Hawaiian population residing in Waimea is expected to increase.

The Arts, Entertainment, Recreation, Accommodation, and Food Services sector is the largest industry employing the civilian labor force within Census Tract 409. Other industries that are highly populated include the Educational, Health Care and Social Assistance, Professional, Scientific Management, Administrative and Waste Management Services, and the Retail-Trade industry. Overall, the unemployment rate within Census Tract 409 and the County of Kaua'i are continuing to drop. In 2018, the lowest unemployment rate was recorded from the start of the 5-Year Estimate in 2013.

Table 3-3 Demographic Information for Census Tract 409 and Kaua'i County, 2018		
	Census Tract 409	Kaua'i County
Population	5,524	71,377
Race		
White	19.5%	32.5%
Black/African American	0.3%	0.6%
Amer Indian/Alaskan Native	0.7%	0.5%
Asian	37.7%	34.0%
Native Hawn/Other Pacific Islander	22.4%	9.0%
Other race	0.8%	0.5%
Two or more Races	18.3%	22.6%
Total Households		
Avg household size	3.05	3.13
Median household income	\$77,888	\$78,482
Households with One or more People Under 18 Years of Age	27.9%	30.8%
Unemployment Rate	4.3%	3.9%

Source: U.S Census Bureau, American Fact Finder

Anticipated Impacts and Mitigation Measures

The Kuleana Homestead Program is an outgrowth of the DHHL effort intended to rehabilitate native Hawaiians by delivering lands to them. The development of the Settlement Plan Area with Subsistence Agriculture and Pastoral Homestead lots will increase the overall population of native Hawaiians in the Waimea region. Because Subsistence Agriculture and Pastoral activities offer opportunities for CBED and economic gains, the unemployment rate is expected to continue to decrease with the development of the Settlement Plan Area. Kuleana homesteaders at Pu'u 'Ōpae may be able to grow some surplus of food that could be sold for nominal profit.

Beneficiaries identified and preferred Community Use areas serving as commercial kitchens and farmers markets to package and sell the surplus of foods grown on their lots. The second most preferred option for Community Use areas include an Agricultural Cooperative / Food Hub for different farmers to collaborate more as a business, to share and help each other produce and sell foods on the market. The development of the Settlement Plan Area with Subsistence Agriculture and Pastoral homestead lots will allow homesteaders to preserve and promote traditional subsistence practices while sustaining themselves economically.

Overall, the Kuleana Homestead Development Program is an outgrowth of the DHHL mission and the native Hawaiian population residing in the Waimea region is anticipated to increase. Upon completion, the development of the Settlement Plan Area is intended to rehabilitate native Hawaiians by providing them with access to raw land and an opportunity to create a new self-sufficient community with long-term beneficial impacts.

3.12 Public Facilities and Services

This section discusses the potential for impacts to public facilities and services.

3.12.1 Educational Facilities

Existing Conditions

The proposed Kuleana Homestead development will be served by four public schools operated under the State Department of Education (DOE). There is one elementary, intermediate and high school, and two K-12 charter schools. Educational facilities located near the Project site include:

- Kekaha Elementary School located at 8140 Kekaha Road, is approximately 8.5 miles away from the Project site and is the closest elementary school facility.
- Waimea Canyon Middle School is located at 955 Huakai Road, is approximately 11.4 miles away from the Project site and is the closest middle school facility.
- Waimea High School, located at 9707 Tsuchiya Road, is approximately 11.6 miles away from the Project site and is the closest high school facility.
- Ke Kula Ni'ihau O Kekaha Public Charter School, located at 8135 Kekaha Road, is approximately 8.5 miles away from the Project site and is a Ni'ihau Hawaiian language immersion school serving grades K-12.
- Kula Aupuni Ni'ihau A Kahelelani Aloha Public Charter School, located at 8315 Kekaha Road, is approximately 8.6 miles away from the Project site Ni'ihau Hawaiian language immersion school grades K-12.

Anticipated Impacts and Mitigation Measures

The development of the Settlement Plan Area will not adversely affect public schools serving the Pu'u 'Ōpae area. Although the development of the Settlement Plan Area will increase the number of residents in the area, the average age of potential lessees is 65 years old. The number of school-aged children that would live at Pu'u 'Ōpae is anticipated to be very low. The project will not adversely affect the public school's ability to meet its mission of providing educational services. No adverse impacts are anticipated, and no mitigation measures are proposed.

3.12.2 Recreational Facilities

Existing Conditions

There are three public parks located makai in Kekaha: Kekaha Beach Park, Barking Sands Beach and H P Faye Park. H P Faye Park has a community pavilion, ball courts, playing fields and a comfort station. Kekaha Beach Park and Barking Sands Beach accommodate beach activities inclusive of swimming, paddling, surfing, and fishing. Also located in the Waimea region is the famous Waimea Canyon State Park and Kōke'e State Park.

Anticipated Impacts and Mitigation Measures

The proposed project is not expected to impact existing recreational facilities; therefore, no mitigation is proposed.

3.12.3 Police

Existing Conditions

The Pu'u 'Ōpae area is served by the Kaua'i Police Department Waimea Sub-Station which covers the area from the Halfway Bridge located on Kamuali'i Highway to Polihale and includes Kōke'e State Park. The Waimea Sub-Station is located approximately 11.6 miles from the Project site. The Division of Conservation and Resources Enforcement (DOCARE) also participates in law enforcement on State lands to ensure the protection of natural, cultural and historic resources.

Anticipated Impacts and Mitigation Measures

Waimea District police resources currently provide services for the existing Waimea area. This project will not impact the Police Department's or DOCARE's operations or ability to provide adequate services to the surrounding community. Keeping the existing Project site roadways unimproved may impede upon response time or the ability to access and provide police services. No adverse impacts are anticipated, and no mitigation measures are proposed.

3.12.4 Fire

Existing Conditions

The Kaua'i Fire Department has a total of eight fire stations spanning across Kaua'i Island. The Waimea Fire Station is in closest proximity to the Project site located 11.6 miles away. Additionally, DOFAW is responsible for co-responding with the County Fire Department to wildfire events at the Pu'u 'Ōpae Project site (*Figure 3-29*). DOFAW personnel are primarily natural resource managers, foresters, biologists, and technicians and are not full-time wildland firefighters. Firefighting is one of the many duties performed by DOFAW personnel.

KFD works with the Emergency Medical Services (EMS), who dispatches the closest available unit. During an emergency, this may be either an EMS ambulance or a fire company depending on the type of emergency and location.

Anticipated Impacts and Mitigation Measures

This project is not expected to impact the Fire Department's operations or ability to provide fire protection services to the surrounding Waimea community. Keeping the existing Project site roadways unimproved may impede upon response time or the ability to access and provide fire services.

To mitigate potential impacts to fire services, the Kuleana Homestead Association will be responsible for developing their own self-determined strategies to effectively self-manage and maintain fires within the Settlement Plan Area. Wildfire management prevention may include procedures that reduce and maintain vegetation along roads and in human-accessed areas; management of grasses to interrupt continuity of fuel sources throughout the Project area; manage "ladder fuels," or areas where ground vegetation is connected to canopy vegetation; elimination of illegal dumping, and creation of buffers of reduced vegetation hazards around developed areas. Planning for drier conditions and addressing seasonal heavy growth of vegetation in the Project area should also be considered. Regardless of how the program is managed, homestead lessees would be directly involved with the protection and management of their natural and cultural resources.

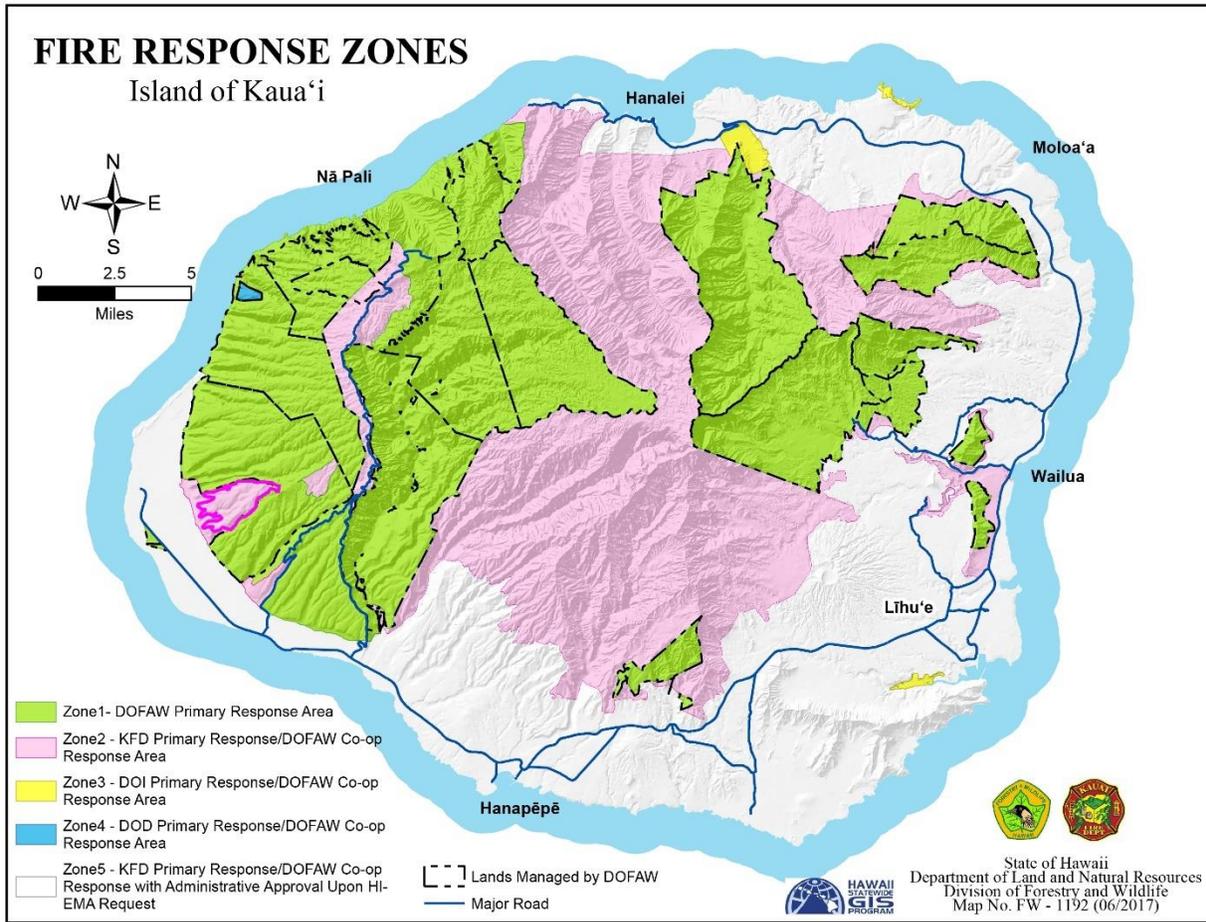


Figure 3-29

Fire Response Zones

Source: DLNR DOFAW (June, 2017)

3.12.5 Emergency Medical Services

Existing Conditions

The nearest hospital to the project is Kaua'i Veterans Memorial Hospital, located approximately 11.5 miles from the Project site. Kaua'i Veterans Memorial Hospital is the only full-service hospital located in Waimea.

Anticipated Impacts and Mitigation Measures

The project will not impact the handling of EMS or medical emergencies in the surrounding Waimea area. Keeping the existing Project site roadways unimproved may impede upon response time or the ability to access and provide emergency medical services. Kaua'i Veterans Memorial Hospital will be accessible should there be an accident or illness affecting residents of the Settlement Plan Area. No mitigation is proposed.

3.12.6 Solid Waste Management

Existing Conditions

The nearest waste management site to the Project area is the Kekaha Landfill, located 5.3 miles from the Project area.

Anticipated Impacts and Mitigation Measures

Construction activities related to the project will generate limited amounts of construction waste. Solid waste material will be removed from the site for proper disposal. No mitigation is proposed.

Solid waste collection via municipal services will not be provided for the Settlement Plan Area. Lessees will be responsible for the collection and disposal of all solid waste. The Homestead Community may potentially decide to collect waste materials through a private collection service. The Homestead Association may also decide to develop a recycling program. Recyclable materials could be collected and delivered to the Kekaha Landfill located 5.3 miles away.

Individual composting and green waste recycling will be encouraged. Composting involves allowing organic matter like food scraps and yard waste to decompose into a material that can provide nutrients to a garden. Compost can also be added to worm casting bins that produce nutrient-rich organic fertilizers. Bulkier organic material, like logs and tree limbs, can be chipped to produce mulch. Mulch is used in landscaping to conserve soil moisture, minimize erosion, control weed, and to provide nutrients for plants.

The Homestead Association could potentially decide to develop a community green waste recycling program. A collection center could be established on Community Use areas, where green waste could be stored. Material could be chipped to produce mulch and distributed to residents for agricultural purposes. The Association could also potentially obtain a pyrolysis oven for producing biochar. Biochar is a charcoal-like material created by burning organic material. Biochar can be applied to ag lots to improve soil quality. Another alternative could involve converting green waste into fuel using a biodigester. Green waste is broken down inside the biodigester by micro-organisms to produce renewable energy and fertilizer.

3.13 Historic, Archaeological and Cultural Resources

3.13.1 Historic and Archaeological Resources

Existing Conditions

Keala Pono completed both a Literature Review and an Archaeological Reconnaissance Survey of Pu'u 'Ōpae on behalf of G70 and DHHL (*Appendix D and E*). The purpose of these studies was to establish the presence/absence or likelihood of cultural resources within the Project area.

The Literature Review revealed that the Mānā area, in which Pu'u 'Ōpae is situated above, was largely dominated by swamp lands, stretched from Barking Sands nearly to Waimea. Sweet potato was the major crop of the area, with some cultivation of kalo in the marshlands. Fish was also abundant in this region's coastal waters and freshwater streams.

Waimea's neighboring ahupua'a of Wai'awa was described as a place of kalo cultivation, including the grounds of the Makahoe Heiau and village site. This village of Makahoe was described as a "small, platform village shrine...four and one-half miles from the coast and at an altitude of 1200 feet". It is thought that the village and kalo cultivation sites were likely located in Niu valley, while the Makahoe heiau was situated upon Niu ridge. On the inland side of Niu ridge, small valleys are found with small streams and a few taro terraces. Petroglyphs were reported in this area.

Mo'olelo of Pu'u 'Ōpae link the area to Menehune, wherein it is said that one of the kings paid Menehune with shrimp or fish for their work to build an 'auwai. In fact, the name Pu'u 'Ōpae (Shrimp Hill) comes from the hill where payment in shrimp was made for their work.

Post-contact, West Kaua'i became the site of large-scale sugar mills, and at a smaller scale, rice farming and ranching. Today, the mauka portions of the Project area continue to be utilized for ranching.

Of the previous archaeological field investigations conducted in the project vicinity between 1906 and 1997, findings from numerous reports have included four heiau, a village shrine, platforms; eight heiau, burial caves, habitation sites, an agricultural terrace; ceremonial, habitation and agricultural features; a single alignment of stones that define the sides of a ridgetop; a complex including three platforms, an enclosure, and a rectangular boulder accumulation; a boulder alignment; the Civilian Conservation Corps Camps dated from the 1930s; 11 features of a former Army campsite from the 1940s; and seven sites which consisted of historic roads, a trash dump, and traditional agricultural features. From those findings, it is estimated that only one feature – Makahoe Heiau – is located within the Pu'u 'Ōpae Project area. However, the Makahoe Heiau was not observed by Keala Pono.

Fieldwork was conducted on approximately 200 acres of TMK: (4) 1-2-002:023 over four days in 2018 as part of the archaeological reconnaissance survey. Three archaeological sites were identified (*Figure 3-30*) consisting of:

1. a series of military trenches;
2. the remains of a plantation camp; and
3. the Pu'u 'Ōpae Reservoir.

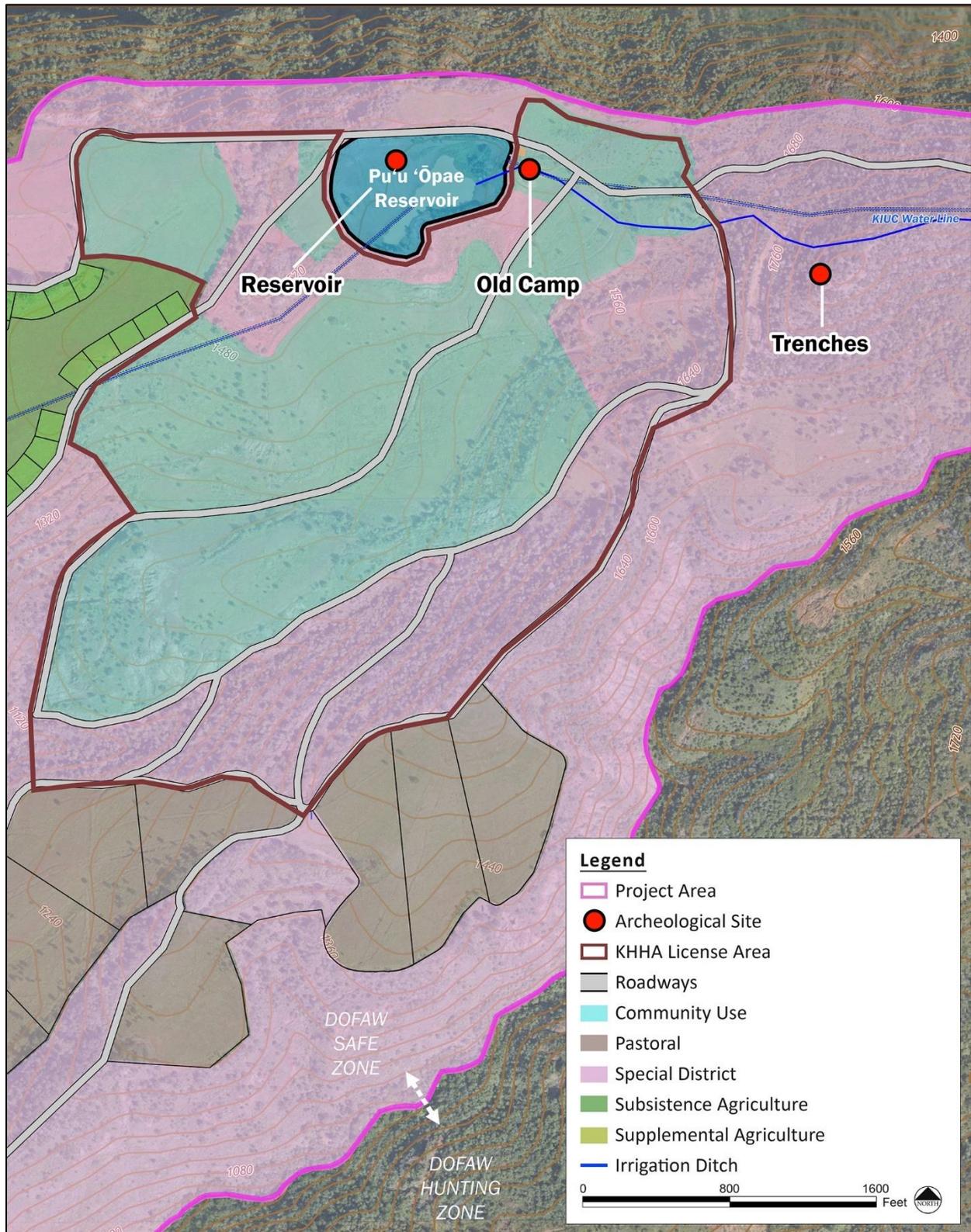


Figure 3-30

Archaeological Site Locations

Anticipated Impacts and Mitigation Measures

The project is not expected to result in significant impacts to known historic properties of the site. All the known historic properties that were identified in the archaeological survey lie outside areas targeted for lease awards to beneficiaries and would be protected under DHHL's Special District and Community Use designations. As appropriate, opportunities for adaptive re-use of these properties could be considered as part of a long-range cultural stewardship program which would require future consultation with SHPD and other key stakeholders.

Prior to the commencement of any work on an awarded parcel, it shall be the responsibility of both DHHL and the lessee to ensure compliance to the state historic preservation review process prior to the issuance of an approval. If historic properties are encountered during construction, work should immediately stop in the general vicinity and the appropriate DHHL representative and SHPD should be contacted immediately and the applicable rules under HRS 6E and its associated administrative rules should be administered. If the discovery involves the find of human remains, all work should immediately cease in the general vicinity and the appropriate DHHL representative, SHPD, and the Kauai County Police Department should be contacted. A reasonable effort to protect the burial should be made in the interim period. Since DHHL lands are defined as tribal lands under the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, if iwi kūpuna, funerary objects, sacred objects, or objects of cultural patrimony are encountered, they are to be cared for as an inadvertent discovery pursuant to procedures provided under 43 Code of Federal Regulations Section 10.4.

3.13.2 Cultural Resources

A Cultural Impact Assessment was completed by Keala Pono in April 2020 (*Appendix F*). The Cultural Impact Assessment includes background research of traditional and historic accounts in the Pu'u 'Ōpae area, and an ethnographic survey including cultural informant interviews.

Existing Conditions

Pu'u 'Ōpae is situated at the mauka convergence of Niu Ridge, Makahoa Ridge, and Kaunalewa Ridge. The parcel is owned by Hawaiian Home Lands within Waimea Ahupua'a, Kona District, on the west side of Kaua'i. The place name Pu'u 'Ōpae (Shrimp Hill) is connected to mo'olelo involving Chief 'Ola and his fellow counselor Pi'i who asked the menehune to help irrigate lo'i kalo in Waimea. The menehune agreed to help and successfully constructed an 'auwai (channel) known as Kīkīaola (container acquired by Ola). In order to repay the Menehune, Pi'i fed the Menehune shrimp on a hill which became known as Pu'u 'Ōpae.

Located in the upland areas of Waimea, the area has been historically known as a place used to harvest trees for canoe-making. Originally, this upland forested area was not a principal place of procuring water resources because the lowlands were saturated with sea water to create a marshy environment. The study found when the KSC came into full operation, although it became one of the highest yielding plantations in the state of Hawai'i, it destroyed many historic and cultural sites. Reservoirs, ditches, plantation camps, roads, sugar mills, and railroads were developed throughout the upland areas of Waimea and marshes were dried up for sugar cultivation. Ultimately, when the KSC came into full operation, it affected native Hawaiians' ability to remain connected to their land.

Access and safety became a growing concern with the military occupying and utilizing the area for target practice from World War II through the Cold War Era. Military bunkers and gun mounts have been noted in the area while ethnographers recollect times collecting shell casings left behind by wartime practices. Although the military has since de-occupied the upland areas of Waimea, they too have contributed to the destruction of many cultural and historic sites. Safety concerns with any shrapnel or unexploded ordinances left behind may keep native Hawaiians away from the land that is rightfully theirs.

Access to place is extremely important to the continuing pilina (connection) of Hawaiians to their environment and culture. It is one of the reasons Hawaiians kanu 'iewe and piko after the birth of a child. "Returning the first honua to the honua we live on is a powerful way to reaffirm the connection of a child to their 'āina hānau (birthplace)." The importance of anchoring keiki to wahi physically and metaphorically through their 'iewe speaks to the importance of place and access to place as a cultural cornerstone. Many parents who continue to kanu 'iewe today seek to go mauka, for safe places, free from development where their keiki's first honua can dwell undisturbed.

With pilina comes understanding, and respect; this continued access to wahi creates a relationship between Hawaiians and those places. Arguably, the most important cultural component of the development of a Hawaiian relationship to place is kuleana. Hawaiian communities that have relationships to the places around them – places they use and access – also develop a growing understanding of those places, their inoa (names), their mo'olelo (stories). With this relationship comes kuleana, the responsibility to mālama place.

The study highlights the unique history of Pu'u 'Ōpae with many interviewees sharing their own accounts of the area's spiritual sites that maintain high levels of mana, and communication with those who have come before. Many archaeological sites within the Project area including heiau, fire pits, quarries and burial caves with iwi highlight the cultural significance of Pu'u 'Ōpae. Interviewees remarked on recent changes in Pu'u 'Ōpae including decreased levels of running water and thus, increased dryness, diminishing populations of native birds, loss of older native trees during high wind events, increasing numbers of non-native plant species, destruction of cultural sites during the plantation era, and passing of kūpuna with knowledge on the mo'olelo and histories of this area. Although recent changes have been noted, what continues to persist is the sharing of mana'o to help complete plans that will build a relationship with the land and the people to perpetuate the livelihood of Hawaiian culture and restore the beauty of Pu'u 'Ōpae.

Anticipated Impacts and Mitigation Measures

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan has few direct negative impacts to cultural resources, and many opportunities for potentially positive cultural impacts are present. Existing roads and waterlines will be utilized and repaired to avoid any further damage to cultural and spiritual sites. The awarding of Subsistence Agricultural and Pastoral lots provides homesteaders with the ability to re-establish a connection to the land. When connections are made with the land the ability to mālama 'āina follows. Rebuilding connections to the land and improving the health of the upland areas of Waimea will continue to strengthen the overall pride in Pu'u 'Ōpae.

3.14 Visual Resources

Existing Conditions

The Pu'u 'Ōpae Settlement Plan is located at the mauka convergence of Niu Ridge, Makahoa Ridge, and Kaunalewa Ridge approximately 800 to 2,100 feet above sea level. Interviewees shared that the location of Pu'u 'Ōpae in the upland area is home to some of the most amazing views on Kaua'i (Figures 3-31 to 3-34). Unobstructed views looking out to Ni'ihau, Lehua, and looking over Polihale, and looking out down below is just one of the greatest features of Pu'u 'Ōpae. Turning around, unobstructed mauka views of the cutting peaks and valleys on the ridges throughout Waimea may be seen. An interviewee noted looking left from Pu'u 'Ōpae one is able to see Makahoa Ridge where a tiny platform juts out. This platform is the jumping off point of pō where the spirits would go. Looking further down, a small hill called hukipō may be seen. This is where they tried to pull the spirits back up.

Anticipated Impacts and Mitigation Measures

The project involves the development of Pastoral and Subsistence Agricultural lots. This type of development will create views of large expanses of open pasture with grazing animals, and agricultural farms with diversified crops. Lessees may build single family homes on their lots. It is anticipated that beneficiaries will stagger their homes to have the best view of the ocean and Ni'ihau as possible. Native forest restoration and conservation efforts planned for the gulch lands will provide views of native ecosystems.



Figure 3-31

Bird's Eye View of Project Area



Figure 3-32

Mauka View of Project Area



Figure 3-33

Makai View of Project Area



Figure 3-34

Makai View – Sunset over Ni'ihau

3.15 Potential Cumulative and Secondary Impacts

Cumulative effects are impacts which result from the incremental effects of an activity when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Minor but collectively significant actions over a period can result in cumulative impacts to a place. Initial settlement of Pu'u 'Ōpae will return the land to a productive state, removing potential military debris and amending the soil to provide a fertile place ready for agriculture. The land will once again be cared for and not be neglected through the same practices of the sugar plantations and military.

By creating additional space for settlement, this project will award 240 Hawaiian families on the DHHL waitlist. Creating settlement opportunities for beneficiaries to establish a self-sufficient and self-determining agricultural community will help to empower residents and rehabilitate Hawaiian culture in Pu'u 'Ōpae.

Secondary effects are impacts that are associated with an activity but do not result directly from the activity. Overall, the project will have beneficial secondary impacts on the Kekaha community. Residents of the Pu'u 'Ōpae Settlement Plan Area are expected to sustain themselves primarily from the food produced on their individual lot, however, they may also rely on additional goods and services available in the nearby town of Kekaha. The influx of families in the Pu'u 'Ōpae area is expected to increase profits for businesses in Kekaha. Providing homestead lots for 240 families may produce additional housing opportunities elsewhere on Kaua'i as beneficiaries may vacate their existing homes when moving onto their new kuleana lots.

Construction activity during the proposed project will generate direct employment as well as indirect and induced employment in construction-related industries. Short-term construction-related impacts on the environment will be generated by the project, and mitigation measures will be implemented to minimize these impacts. Construction related impacts will be temporary and will be in the immediate vicinity of the Project site. Federal, State, and County environmental regulations will be met throughout the construction and operation of the project.

Section 4

Alternatives to the Proposed Project

Chapter 4

Alternatives to the Proposed Project

The following presents an analysis of the alternatives to the proposed project.

4.1 Alternative A – No-Action Alternative

The “No-Action” alternative is the baseline against which all other alternatives are measured. “No-action” refers to the future site conditions that would result should the project not proceed.

The “No-Action” alternative would involve not proceeding with the development of the Pu‘u ‘Ōpae Kuleana Homestead Settlement Plan leaving a portion of the existing DHHL-owned land in Waimea undeveloped. The KHHA would continue to remain a lessee of the DHHL owned property in Pu‘u ‘Ōpae. Meanwhile, DHHL beneficiaries, some of whom have been on the waitlist for over 30 years will continue to wait for leases. The waitlist for the island of Kaua‘i will continue to grow. Additionally, no improvements on the land would be made and would ultimately keep DHHL away from serving their mission of rehabilitating native Hawaiians back on their land.

For these reasons, the “No-Action” alternative was not considered a viable alternative.

4.2 Alternative B – Alternative Location

With DHHL owning 15,061 acres of land in Waimea, an alternative location for development in West Kaua‘i has been analyzed. Community input from the KIP included inquiries about the availability of agricultural homestead lots. Waimea and Kekaha-specific input included an expressed desire for Subsistence Agricultural, Pastoral, and Residential land uses.

Land located along Kōke‘e Road has also been considered for the development of a Kuleana Homestead. The KIP designated land along Kōke‘e Road as Residential, Subsistence Agriculture, and Community Use for the development of the Mauka Village consisting of (141) 1-acre residential lots, (5) 3-acre subsistence agriculture lots, and 42 acres of community use areas. The Mauka Village is based on the ahupua‘a concept linking mountain resources in Waimea to resources located makai in Kekaha. The development of a Kuleana Homestead on land proposed for the Mauka Village was considered but developing a Kuleana Homestead would require an Island Plan amendment with Beneficiary Consultation and approval from the HHC. This would slow the process and set the project back approximately two more years than where the Pu‘u ‘Ōpae Kuleana Homestead project is currently.

The KIP specifically calls out Pu‘u ‘Ōpae for the development of a pu‘uhonua or a “retreat and place of refuge for beneficiaries island-wide” on the Special District designated lands. The 2011 West Kaua‘i Regional Plan recognized Pu‘u ‘Ōpae as a special place that required proper planning to benefit the entire community. In 2014, the KHHA developed the FIP envisioning and proposing land use designations in Pu‘u ‘Ōpae to create opportunities for native Hawaiians to reconnect to the land and

carry out planning efforts designated for Pu'u 'Ōpae. Prior planning efforts for Pu'u 'Ōpae along with its remoteness makes it a prime candidate for the development of a Kuleana Homestead.

Although land in Kekaha was also analyzed for development, given the nature of a Kuleana Homestead, the lands in Pu'u 'Ōpae were deemed to be a better fit for the development of a Kuleana Homestead. The Kuleana Homestead development will carry out previous planning efforts for Pu'u 'Ōpae and help meet the demand of applicants waiting for an agriculture homestead lot. For these reasons, the alternative location located along Kōke'e Road has been dismissed and was not considered a viable alternative for the time being.

4.3 Alternative C – Alternative Residential Homestead Development

Developing the DHHL-owned land in Pu'u 'Ōpae as a Residential Homestead is another alternative. Pu'u 'Ōpae was selected to be developed as a Kuleana Homestead because of the large number of applicants applying for an Agricultural or Pastoral lot, the physical characteristics of the lands, and the recognition of Pu'u 'Ōpae as a pu'uhonua in previous plans. Although the KIP indicates Residential Homestead Awards are preferred, Agriculture Awards make up the largest type of applicants on the island of Kaua'i. Mentimeter polls were taken at consultation meetings with Beneficiaries. Results from Beneficiaries indicate the plan should focus on the opportunity to reside on the land. With Agriculture Awards making up the largest pool of applicants on Kaua'i and input from Beneficiaries, along with the physical characteristics of Pu'u 'Ōpae, developing Pu'u 'Ōpae as a Kuleana Homestead would be most beneficial to both applicants and DHHL. Developing the area as a Residential Homestead, with new homes adequately equipped with infrastructure and utilities, would be excessively costly for DHHL and extend the time applicants will spend on the waiting list. A Residential Homestead would not fully utilize the quality soil available in Pu'u 'Ōpae for agricultural and pastoral purposes that may sustain lessees. The projected economic income may not be completely fulfilled with the development of Residential Homestead. In addition, nearby in Waimea is an area that is already zoned Residential (Kōke'e Road). Focus for this type of settlement should occur there first

The development of a Residential Homestead would not be as beneficial as a Kuleana Homestead with many applicants waiting for Agricultural and Pastoral lots and the costs and time spent towards developing a Residential Homestead.

4.4 Alternative D – Alternative Land Use

The KIP designates lands encompassing the Pu'u 'Ōpae area as General Agriculture, Special District, and Future Development. The characteristics of the natural environment and historic land use in Pu'u 'Ōpae have favorable conditions for Subsistence Agriculture and Pastoral Homestead lots. In addition, the designation of Special District areas along streams would allow for the rehabilitation of waterways.

Developing this area as Residential or Commercial would be very costly. These types of land usages specifically require infrastructure for water, wastewater and electricity, with roads built to County urban standards. The Settlement Plan Area is not close enough to existing infrastructure in order to accommodate these requirements. Developing the area solely as Pastoral or General Agriculture would reduce the number of lots available to beneficiaries.

For these reasons, the characteristics of the natural environment in Pu'u 'Ōpae favor the development of a Kuleana Homestead. The development will provide opportunities for native Hawaiians to

rehabilitate and restore the land for its historic and greatest usage. Alternative land usages identified for Pu'u 'Ōpae in the KIP were eliminated from further consideration. The characteristics of the natural environment are most suitable for development of a Kuleana Homestead.

4.5 Alternative E – Various Lot Sizes

Beneficiary Meetings held in November 2018, August 2019, and February 2020 allowed beneficiaries to voice and collectively agree upon lot sizes for Subsistence Agriculture and Pastoral designated areas. Beneficiaries considered lot sizes ranging from .25-acres, .5-acres, and 1-acre. Consideration was taken into each lot size and Beneficiaries participated in a Mentimeter poll to help make a final decision for lot sizes. The results were closely split amongst all three lot sizes (*Appendix A*).

The option of having lots of differing sizes was considered. Those that would like smaller lots, say 0.25 acres, could opt for those lots. Those that would like to farm larger lots could choose to settle and farm those lots. However, creating a Settlement Plan taking into consideration various-sized lots would be difficult. When awarding lots, each potential lessee would be asked which lot they would prefer. It could be that all beneficiaries asked in the order of the list prefer one size, and if the Settlement Plan was not laid out that way, a beneficiary would be passed over, or the lotting scheme would have to be reconfigured. Some beneficiaries may also feel that leasing various-sized lots would be unfair.

Concerns over lot sizes included 1-acre lots being too large for lessees to properly maintain on their own resulting in hiring additional help to maintain the lot. There were also concerns that .25-acre lots would be too small for any subsistence agriculture opportunities. Beneficiaries came together and collectively decided that .5-acre lot sizes would be the ideal lot size. With this decision, the Pu'u 'Ōpae Kuleana Homestead will result in (240) 0.5-acre Subsistence Agriculture lots and (11) 10-acre Pastoral Lots, totaling 251 lots.

To satisfy the needs of those that would prefer a larger lot, the Pu'u 'Ōpae Kuleana Homestead has designated 63 acres of land as Supplemental Agriculture for lessees to expand agricultural activity. Lessees who are able to manage their Subsistence Agriculture homestead will have the opportunity to apply for additional acreage to expand their agricultural activities in the Supplemental Agriculture area.

For these reasons, the Pu'u 'Ōpae Kuleana Homestead Settlement Plan will move forward with 0.5-acre Subsistence Agriculture lots and 10-acre Pastoral lots. Reducing or increasing the proposed usages of lot sizes was not further concurred.

Section 5

Plans and Policies

Chapter 5

Plans and Policies

The consistency of the Pu‘u ‘Ōpae Kuleana Homestead Settlement Plan with applicable State of Hawai‘i and County of Kaua‘i planning and land use objectives, policies, principles and guidelines are discussed below.

5.1 Hawai‘i State Plan

The Hawai‘i State Plan establishes a statewide planning system that sets forth goals, objectives, policies, and priority directions to provide for the wise use of Hawai‘i’s resources and guide the future long-range development of the State. The Project’s relationship to the goals and applicable objectives, policies, and priority directions are presented in *Table 5-1* below.

Table 5-1 Hawai‘i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Section 226-1: Findings and Purpose			
Section 226-2: Definitions			
Section 226-3: Overall Theme			
Section 226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i’s present and future generations			X
(2) 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.	X		
(3) Physical, social and economic well-being, for individuals and families in Hawai‘i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	X		
Discussion: The Pu‘u ‘Ōpae Kuleana Homestead Settlement Plan will ensure that beneficiaries approach their desired levels of self-reliance and self-determination, with a land area that enhances the mental and physical well-being of the individuals and families in Pu‘u ‘Ōpae, nourishing a sense of community responsibility, of caring, and of participation in community life.			
Section 226-5: Objective and policies for population.			
(a) It shall be the objective in planning for the State’s population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter;			
(b) To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai‘i’s people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs-and desires.	X		
(3) Promote increased opportunities for Hawai'i's people to pursue their socioeconomic aspirations throughout the islands.	X		
(4) Encourage research activities and public awareness programs to foster and understanding of Hawai'i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai'i's population.			X
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among states, provided that such actions do not prevent the reunion of immediate family members.			X
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population			X
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area	X		
Discussion: The purpose of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan is to serve the beneficiaries of DHHL, many of whom have been on the waiting list for over 30 years. The Project will provide increased opportunity for the beneficiaries to pursue their socioeconomic aspirations, however the operations of the Project will not increase the State's overall population.			
Section 226-6: 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 Hawai'i's people.	X		
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands.			X
(a) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Expand Hawai'i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			X
(2) Promote Hawai'i as an attractive market for environmentally and socially sound investment activities that benefit Hawai'i's people.			X
(3) Seek broader outlets for new or expanded Hawai'i business investments.			X
(4) Expand existing markets and penetrate new markets for Hawai'i's products and services.			X
(5) Assure that the basic economic needs of Hawai'i's people are maintained in the event of disruptions in overseas transportation.			X
(6) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.			X
(7) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai'i's small scale producers, manufacturers, and distributors.	X		

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(8) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.	X		
(9) Foster greater cooperation and coordination between the government and private sectors in developing Hawai'i's employment and economic growth opportunities.			X
(10) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			X
(11) Maintain acceptable working conditions and standards for Hawai'i's workers.			X
(12) Provide equal employment opportunities for all segments of Hawai'i's population through affirmative action and nondiscrimination measures.			X
(13) Encourage businesses that have favorable financial multiplier effects within Hawai'i's economy.			X
(14) Promote and protect intangible resources in Hawai'i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			X
(15) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.			X
(16) Foster a business climate in Hawai'i--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
Discussion: One of the primary directives of a Kuleana Homestead is the development of a homestead cooperative, or association. In addition to determining management of community resources, this group will decide to form an agricultural cooperative to process and market excess produce and livestock. Although subsistence agriculture and pastoral work is labor-intensive, it can be both socially and economically satisfying. This Project is not associated with the expansion of economic activities capitalizing on defense, dual-use, or science and technology assets.			
Section 226-7 Objectives and policies for the economy - agriculture.			
(a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawai'i's sugar and pineapple industries.			X
(2) Growth and development of diversified agriculture throughout the State.	X		
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai'i's strategic, economic, and social well-being.	X		
(a) To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawai'i's agriculture through stakeholder commitment and advocacy.	X		
(2) Encourage agriculture by making best use of natural resources.	X		
(3) Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.			X
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai'i's economy.			X
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai'i's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai'i's producers and consumer markets locally, on the continental United States, and internationally.			X
(8) Support research and development activities that provide greater efficiency and economic productivity in agriculture.			X
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.	X		
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			X
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.	X		
(12) Expand Hawai'i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.	X		
(13) Promote economically competitive activities that increase Hawai'i's agricultural self-sufficiency.			X
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			X
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			X
(16) Facilitate the transition of agricultural lands in economically non-feasible agricultural production to economically viable agricultural uses.	X		
<p>Discussion: DHHL is enhancing agricultural growth by providing private initiatives through the awarding of these lands. The designation and settlement of Pu'u 'Ōpae with Subsistence Agriculture and Pastoral uses will increase the opportunities for an agricultural livelihood, and in turn increase the growth and development of diversified agriculture in Kaua'i. This will expand Hawai'i's agricultural base by promoting growth and development of food crops, livestock, and other potential enterprises. The beneficiaries that lease these lots will be committed and advocate for agriculture in their area. Currently unproductive sugar cane lands will be transitioned into economically agricultural uses, and Special District lands will be used for agriculture while protecting their function.</p>			
<p>Section 226-8 Objective and policies for the economy--visitor industry.</p>			
<p>(a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai'i's economy.</p>			
<p>(b) To achieve the visitor industry objective, it shall be the policy of this State to:</p>			
(1) Support and assist in the promotion of Hawai'i's visitor attractions and facilities.			X
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(3) Improve the quality of existing visitor destination areas.			X
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			X
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai'i's people.			X
(6) Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the visitor industry.			X
(7) Foster a recognition of the contribution of the visitor industry to Hawai'i's economy and the need to perpetuate the aloha spirit.			X
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai'i's cultures and values.			X
Discussion: The objective of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan is not related to achieving a visitor industry that constitutes a major component of steady growth for Hawai'i's economy. Its primary function is to serve the needs of the native Hawaiian people.			
Section 226-9 Objective and policies for the economy--federal expenditures.			
(a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai'i's economy.			
(b) To achieve the federal expenditures objective, it shall be the policy of this State to:			
(1) Encourage the sustained flow of federal expenditures in Hawai'i that generates long-term government civilian employment.			X
(2) Promote Hawai'i's supportive role in national defense.			X
(3) Promote the development of federally supported activities in Hawai'i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai'i's environment.			X
(4) Increase opportunities for entry and advancement of Hawai'i's people into federal government service.			X
(5) Promote federal use of local commodities, services, and facilities available in Hawai'i.			X
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai'i.			X
(7) Pursue the return of federally controlled lands in Hawai'i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. The Project is not federally funded. This objective is not applicable to the proposed Project.			
Section 226-10 Objective and policies for the economy--potential growth activities.			
(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 Hawai'i's economic base.			
(b) To achieve the potential growth activity objective, it shall be the policy of this State to:			

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(1) Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.	X		
(2) Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.			X
(3) Enhance and promote Hawai'i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.			X
(4) Accelerate research and development of new energy-related industries based on wind, solar, ocean, and underground resources and solid waste.			X
(5) Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.			X
(6) Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.			X
(7) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research.			X
(8) Develop, promote, and support research and educational and training programs that will enhance Hawai'i's ability to attract and develop economic activities of benefit to Hawai'i.			X
(9) Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawai'i.			X
(10) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai'i's social, economic, physical, and environmental objectives.			X
(11) Increase research and development of businesses and services in the telecommunications and information industries.			X
Discussion: Awarding Pu'u 'Ōpae Homestead lots will allow beneficiaries the potential for growth in diversified agriculture.			
Section 226-10.5 Objectives and policies for the economy--information industry.			
(a) Planning for the State's economy with regard to the information industry shall be directed toward the achievement of the objective of positioning Hawai'i as the leading dealer in information businesses and services in the Pacific Rim.			
(b) To achieve the information industry objective, it shall be the policy of this State to:			
(1) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai'i to accommodate future growth in the information industry;			X
(2) Facilitate the development of new business and service ventures in the information industry which will provide employment opportunities for the people of Hawai'i;			X
(3) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			X
(4) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai'i's people;			X
(5) Provide opportunities for Hawai'i's people to obtain job training and education that will allow for upward mobility within the information industry;			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(6) Foster a recognition of the contribution of the information industry to Hawai'i's economy; and			X
(7) Assist in the promotion of Hawai'i as a broker, creator, and processor of information in the Pacific.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. Planning for the State's economy to position Hawai'i as the leading dealer in information businesses and services in the Pacific rim is not applicable to the proposed Project.			
Section 226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources.			
(a) Planning for the State's physical environment with regard to land-based, shoreline and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawai'i's land-based, shoreline, and marine resources.	X		
(2) Effective protection of Hawai'i's unique and fragile environmental resources.	X		
(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1) Exercise an overall conservation ethic in the use of Hawai'i's natural resources.	X		
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	X		
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	X		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	X		
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	X		
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.	X		
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.	X		
(8) Pursue compatible relationships among activities, facilities and natural resources.	X		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational and scientific purposes.			X
Discussion: The Project supports the protection of land-based, shoreline, and marine resources and has been designed to ensure that these resources will be minimally affected by the construction of dwellings and use of the land. When planning and designing the lotting scheme for activities and facilities, the physical attributes of the area were considered to reduce risk for wildfire, flooding and erosion. DHHL provides incentives that encourage the beneficiaries to protect significant natural resources from degradation or unnecessary depletion. It is inherent within the Kuleana Homestead Rules Hawai'i Revised Statutes (HRS) §10-3-10 that the members of the beneficiary association will exercise an overall conservation ethic in the use and management of Hawai'i's natural resources, encouraging their beneficial and multiple use without generating costly or irreparable environmental damage. It is in the best interest of the beneficiaries to pursue compatible relationships among activities, facilities and natural resources.			

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
Section 226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources.			
(a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources.			
(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:			
(1) Promote the preservation and restoration of significant natural and historic resources.	X		
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.	X		
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	X		
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.	X		
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	X		
<p>Discussion: Survey of the Project area concludes that it had been completely transformed by mechanized plantation agriculture for sugar cane operations that took place during the Historic period, and well into the middle-to-late twentieth century. There are no undisturbed ground surfaces or subsurface deposits dating from pre-Contact times (before 1778) in the Project area. Three archaeological sites were identified during the survey. Management/protection of any unknown site would be the responsibility of the family within whose parcel a site may lie.</p> <p>A biological survey was completed by Hui Kū Maoli Ola for the project area. The survey found the project area to contain many native flora and fauna species dating from the pre-contact period, and non-native flora and fauna species introduced to the Pu'u 'Ōpae area with the development of the KSC. Kuleana Homestead lessees should strive to take measures that will continue the protection of any indigenous or endemic species identified on their settlement lots. The Homestead Association may choose to partner with the U.S. Fish and Wildlife Service for the continued protection and restoration of endangered and threatened species.</p>			
Section 226-13 Objectives and policies for the physical environment--land, air, and water quality.			
(a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:			
(1) Maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources.	X		
(2) Greater public awareness and appreciation of Hawai'i's environmental resources.			X
(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:			
(1) Foster educational activities that promote a better understanding of Hawai'i's limited environmental resources.			X
(2) Promote the proper management of Hawai'i's land and water resources.	X		
(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground and coastal waters.	X		
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.	X		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable				S	N/S	N/A
(6)	Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.	X				
(7)	Encourage urban developments in close proximity to existing services and facilities.	X				
(8)	Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.	X				
<p>Discussion: The Project is not anticipated to pose significant detrimental effects to the surrounding area. The Subsistence Agriculture and Pastoral nature of the Project naturally promotes the proper management of land and water resources in the pursuit of improved quality in Hawai'i's land, air, and water resources. Design and construction practices that enhance the physical qualities of Hawai'i's communities are encouraged. The Community Use area has been sited near existing services and facilities should utility connections need to be made. This community will continue to foster recognition of the importance and value of the land, air, and water resources for themselves and for their culture.</p>						
<p>Section 226-14 Objective and policies for facility systems--in general.</p> <p>(a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives.</p> <p>(b) To achieve the general facility systems objective, it shall be the policy of this State to:</p>						
(1)	Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	X				
(2)	Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	X				
(3)	Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	X				
(4)	Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	X				
<p>Discussion: The Kuleana Homestead Program is the outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian beneficiaries. This program encourages flexibility in the design and development of settlement lots and infrastructure to promote prudent use of resources and accommodate changing public demands and priorities. Under a standard residential community concept, it is necessary for infrastructure to be developed in advance of settlement. However, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land.</p>						
<p>§226-15 Objectives and policies for facility systems--solid and liquid wastes.</p> <p>(a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:</p>						
(1)	Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	X				
(2)	Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.	X				

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
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	S	N/S	N/A
(b) To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.	X		
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	X		
(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.			X
Discussion: The Project supports the objectives and policies for facility systems regarding solid and liquid wastes. As discussed in <i>Section 3.10</i> of this EA, the wastewater improvements will potentially be processed through onsite Individual Wastewater Systems (IWS). Solid waste disposal and recycling programs within the Pu'u 'Ōpae Kuleana Homestead Settlement area will need to be managed by the beneficiary association.			
§226-16 Objective and policies for facility systems--water.			
(a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities.			
(b) To achieve the facility systems water objective, it shall be the policy of this State to:			
(1) Coordinate development of land use activities with existing and potential water supply.	X		
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			X
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.	X		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.	X		
(5) Support water supply services to areas experiencing critical water problems.	X		
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.			X
Discussion: Although under the Kuleana Homestead Program, DHHL is not responsible for providing water infrastructure, the planned KIUC hydroelectric project will repair damaged infrastructure developed by KSC. KIUC will replace approximately 34,200 feet of existing unlined irrigation ditch from the Pu'u Moe to Pu'u 'Ōpae and Mānā reservoirs with a closed pipe system. KIUC will also rehabilitate the Pu'u 'Ōpae reservoir to its original 88-million-gallon capacity and to current Hawai'i Dam Safety Regulations. With the Pu'u 'Ōpae reservoir rehabilitated, a new direct water line with a filtration system will be installed to draw water from the reservoir to the Kuleana Homestead lots. The new water line will provide lessees non-potable water for subsistence agriculture and pastoral purposes.			
§226-17 Objectives and policies for facility systems--transportation.			
(a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			X
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable				S	N/S	N/A
(b) To achieve the transportation objectives, it shall be the policy of this State to:						
(1)	Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;					X
(2)	Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;					X
(3)	Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;	X				
(4)	Provide for improved accessibility to shipping, docking, and storage facilities;					X
(5)	Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;					X
(6)	Encourage transportation systems that serve to accommodate present and future development needs of communities;					X
(7)	Encourage a variety of carriers to offer increased opportunities and advantages to inter-island movement of people and goods;					X
(8)	Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;					X
(9)	Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;					X
(10)	Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai'i's natural environment;					X
(11)	Encourage safe and convenient use of low-cost, energy- efficient, non-polluting means of transportation;					X
(12)	Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and					X
(13)	Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.					X
<p>Discussion: According to the Kuleana Homestead Program, DHHL is responsible for providing an unpaved right-of-way to the awarded lots. Although unpaved, these minimal roadways will be hard packed to ensure access by homesteaders and emergency vehicles including fire, ambulance, and police services. With the planned KIUC hydroelectric project, KIUC will improve a portion of roadways accessing the project area. KIUC will provide minor improvements to Niu Valley Road from Mānā Road to the Pu'u 'Ōpae Reservoir. The mauka roadway from the Pu'u 'Ōpae Reservoir to Kōke'e Road will also be improved. With the assistance from KIUC, the financial cost of roadways is distributed amongst KIUC and DHHL.</p>						
<p>§226-18 Objectives and policies for facility systems--energy.</p>						
(a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:						
(1)	Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;					X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable				S	N/S	N/A
(2)	Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;	X				
(3)	Greater energy security in the face of threats to Hawai'i's energy supplies and systems; and	X				
(4)	Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.			X		
(b)	To achieve the energy objectives, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable energy services to accommodate demand.					
(c)	To further achieve the energy objectives, it shall be the policy of this State to:					
(1)	Support research and development as well as promote the use of renewable energy sources;			X		
(2)	Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			X		
(3)	Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			X		
(4)	Promote all cost-effective conservation of power and fuel supplies through measures including: (A) Development of cost-effective demand-side management programs; (B) Education; and (C) Adoption of energy-efficient practices and technologies;			X		
(5)	Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;			X		
(6)	Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			X		
(7)	Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	X				
(8)	Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and			X		
(9)	Support actions that reduce, avoid, or sequester Hawai'i's greenhouse gas emissions through agriculture and forestry initiatives.			X		
Discussion: Under the Kuleana Homestead Program, DHHL is not responsible for providing electric utilities. It will be up to the beneficiaries to provide for their own energy source, such as through portable generators or solar panels.						
§226-18.5 Objectives and policies for facility systems--telecommunications.						
(a)	Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.					
(b)	To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.					
(c)	To further achieve the telecommunications objective, it shall be the policy of this State to:					
(1)	Facilitate research and development of telecommunications systems and resources;			X		
(2)	Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;			X		
(3)	Promote efficient management and use of existing telecommunications systems and services; and			X		

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable				S	N/S	N/A
(4) Facilitate the development of education and training of telecommunications personnel.						X
<p>Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. Planning for the State's telecommunication facility systems capable of supporting the needs of the people is not applicable to the proposed Project.</p>						
<p>§226-19 Objectives and policies for socio-cultural advancement--housing.</p>						
<p>(a) Planning for the State's socio- cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:</p>						
(1) Greater opportunities for Hawai'i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawai'i's population.				X		
(2) The orderly development of residential areas sensitive to community needs and other land uses.						X
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawai'i's people.						X
<p>(b) To achieve the housing objectives, it shall be the policy of this State to:</p>						
(1) Effectively accommodate the housing needs of Hawai'i's people.						X
(2) Stimulate and promote feasible approaches that increase housing choices for low-income, moderate-income, and gap-group households.				X		
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.				X		
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.						X
(5) 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.				X		
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.						X
(7) Foster a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.				X		
(8) Promote research and development of methods to reduce the cost of housing construction in Hawai'i.						X

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<p>Discussion: Although DHHL is not providing the actual housing unit, the land that is being provided for the beneficiaries will stimulate and promote feasible approaches that increase housing choices, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals. This can be done through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawai'i's population. This will increase homeownership opportunities and choices in terms of quality, location, cost, style, and size of housing, considering the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas. The Kuleana Homestead program fosters a variety of lifestyles traditional to Hawai'i through the design and maintenance of neighborhoods that reflect the culture and values of the community.</p>						
<p>§226-20 Objectives and policies for socio-cultural advancement--health.</p>						
<p>(a) Planning for the State's socio- cultural advancement with regard to health shall be directed towards achievement of the following objectives:</p>						
(1)	Fulfillment of basic individual health needs of the general public.					X
(2)	Maintenance of sanitary and environmentally healthful conditions in Hawai'i's communities.	X				
<p>(b) To achieve the health objectives, it shall be the policy of this State to:</p>						
(1)	Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.					X
(2)	Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.					X
(3)	Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.					X
(4)	Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.					X
(5)	Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	X				
(6)	Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.					X
<p>Discussion: The Kuleana Homestead lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered by the Kuleana Homestead Association. This includes the maintenance of the right-of-way to the Kuleana Homestead tract and lots, Community Use areas, and the Special District drainageways.</p>						
<p>§226-21 Objective and policies for socio-cultural advancement--education.</p>						
<p>(a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.</p>						
<p>(b) To achieve the education objective, it shall be the policy of this State to:</p>						
(1)	Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.					X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable		S	N/S	N/A
(2)	Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			X
(3)	Provide appropriate educational opportunities for groups with special needs.			X
(4)	Promote educational programs which enhance understanding of Hawai'i's cultural heritage.			X
(5)	Provide higher educational opportunities that enable Hawai'i's people to adapt to changing employment demands.			X
(6)	Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.	X		
(7)	Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			X
(8)	Emphasize quality educational programs in Hawai'i's institutions to promote academic excellence.			X
(9)	Support research programs and activities that enhance the education programs of the State.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. The Subsistence Agriculture lots are intended for lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. Community Use areas will promote community cohesion and provide opportunities to expand economic agricultural opportunities. Although all but one area designated for Community Usage is under the lease awarded to the KHHA, KHHA has outlined a plan that will support the Kuleana Homestead. Included in the FIP put together by KHHA includes the possibility of agricultural training programs for Community Use areas. Agriculture training programs will provide guidance and support for lessees to maximize their subsistence agriculture homesteads.				
§226-22 Objective and policies for socio-cultural advancement--social services.				
(a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being.				
(b) To achieve the social service objective, it shall be the policy of the State to:				
(1)	Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			X
(2)	Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.	X		
(3)	Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities.			X
(4)	Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			X
(5)	Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			X
(6)	Promote programs which assist people in need of family planning services to enable them to meet their needs.			X

Table 5-1 Hawai'i State Plan – HRS Ch. 226 Part I. Overall Theme, Goals, Objectives and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable				S	N/S	N/A
<p>Discussion: The Kuleana Homestead Program is an outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian beneficiaries. Through the Program, native Hawaiian beneficiaries are given opportunities to practice indigenous livelihoods, maintain food security and apply natural laws on indigenous lands promoting self-sufficiency and self-determination.</p>						
<p>§226-23 Objective and policies for socio-cultural advancement--leisure.</p> <p>(a) Planning for the State's socio- cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations.</p> <p>(b) To achieve the leisure objective, it shall be the policy of this State to:</p>						
(1)	Foster and preserve Hawai'i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.					X
(2)	Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.					X
(3)	Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.					X
(4)	Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.					X
(5)	Ensure opportunities for everyone to use and enjoy Hawai'i's recreational resources.					X
(6)	Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.					X
(7)	Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai'i's people.					X
(8)	Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.					X
(9)	Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai'i's population to participate in the creative arts.					X
(10)	Assure adequate access to significant natural and cultural resources in public ownership.					X
<p>Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. Planning for the State's advancement with regard leisure to accommodate diverse cultural, artistic, and recreational needs is not applicable to the proposed Project.</p>						
<p>§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being.</p> <p>(a) Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations.</p> <p>(b) To achieve the individual rights and personal well- being objective, it shall be the policy of this State to:</p>						
(1)	Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.					X
(2)	Uphold and protect the national and state constitutional rights of every individual.					X

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
S = Supportive, N/S = Not Supportive, N/A = Not Applicable			
	S	N/S	N/A
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			X
(4) Ensure equal opportunities for individual participation in society.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. Planning for the State's advancement with regard to individual rights and personal well-being to enable individuals to fulfill their socio-economic needs and aspirations is not applicable to the proposed Project.			
§226-25 Objective and policies for socio-cultural advancement--culture.			
(a) Planning for the State's socio- cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai'i's people.			
(b) To achieve the culture objective, it shall be the policy of this State to:			
(1) Foster increased knowledge and understanding of Hawai'i's ethnic and cultural heritages and the history of Hawai'i.	X		
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai'i's people and which are sensitive and responsive to family and community needs.	X		
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai'i.			X
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai'i's people and visitors.			X
Discussion: The Kuleana Homestead Program is an outgrowth of a DHHL effort to expand the range of program options provided to native Hawaiian beneficiaries. Through the Kuleana Homestead program, native Hawaiian beneficiaries are given the opportunity to practice indigenous livelihoods rooted in agriculture and apply natural laws on indigenous land for the growth of a healthy community.			
§226-26 Objectives and policies for socio-cultural advancement--public safety.			
(a) Planning for the State's socio- cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			X
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.	X		
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawai'i's people.	X		
(b) To achieve the public safety objectives, it shall be the policy of this State to:			
(1) Ensure that public safety programs are effective and responsive to community needs.			X
(2) Encourage increased community awareness and participation in public safety programs.			X
(c) To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			X
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			X

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	S	N/S	N/A
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			X
(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.	X		
(2) Enhance the coordination between emergency management programs throughout the State.	X		
Discussion: An emergency/evacuation center has been proposed to be developed along Kōke'e Road and Waimea Canyon Road in the wake of a natural disaster, or other major disturbance. It is located in close proximity to the Kuleana Homestead and will adequately serve the community.			
§226-27 Objectives and policies for socio-cultural advancement--government.			
(a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.	X		
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.	X		
(b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.	X		
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.	X		
(3) Minimize the size of government to that necessary to be effective.			X
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawai'i.	X		
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	X		
(6) Provide for a balanced fiscal budget.			X
(7) Improve the fiscal budgeting and management system of the State.			X
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			X
Discussion: This Kuleana Homestead project empowers a community to form their own association and develop their own Covenants, Conditions, and Restrictions and create their own lifestyle. Limitations in infrastructure improvements will require more innovation on the part of beneficiaries and perhaps more flexibility by agencies including DHHL.			
§226-101 Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
§226-102 Overall direction. The State shall strive to improve the quality of life for Hawai'i's present and future population through the pursuit of desirable courses of action in five major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			

Table 5-1 Hawai'i State Plan – HRS Ch. 226			
Part I. Overall Theme, Goals, Objectives and Policies			
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	S	N/S	N/A
§226-103 Economic priority guidelines.			
(a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai'i's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			
(A) Encourage investments which:			
(i) Reflect long term commitments to the State;	X		
(ii) Rely on economic linkages within the local economy;			X
(iii) Diversify the economy;	X		
(iv) Reinvest in the local economy;	X		
(v) Are sensitive to community needs and priorities; and	X		
(vi) Demonstrate a commitment to provide management opportunities to Hawai'i residents.			X
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			X
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			X
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			X
(5) Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety and welfare would not be adversely affected.			X
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai'i's small-scale producers, manufacturers, and distributors.	X		
(7) Continue to seek legislation to protect Hawai'i from transportation interruptions between Hawai'i and the continental United States.			X
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			
(A) An industry that can take advantage of Hawai'i's unique location and available physical and human resources.			X
(B) A clean industry that would have minimal adverse effects on Hawai'i's environment.	X		
(C) An industry that is willing to hire and train Hawai'i's people to meet the industry's labor needs at all levels of employment.			X
(D) An industry that would provide reasonable income and steady employment.			X
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai'i business.	X		
(10) Enhance the quality of Hawai'i's labor force and develop and maintain career opportunities for Hawai'i's people through the following actions:			

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	S	N/S	N/A
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.	X		
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			X
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.	X		
(D) Promote career opportunities in all industries for Hawai'i's people by encouraging firms doing business in the State to hire residents.			X
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities.	X		
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.	X		
(b) Priority guidelines to promote the economic health and quality of the visitor industry:			
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawai'i's residents and visitors.			X
(2) Encourage the development and maintenance of well- designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.			X
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			X
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai'i's significant natural, scenic, historic, and cultural resources.			X
(5) Develop and maintain career opportunities in the visitor industry for Hawai'i's people, with emphasis on managerial positions.			X
(6) Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.			X
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			X
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			X
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			X
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			X
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i.			X
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			X

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(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:			
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.	X		
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			X
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.	X		
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			X
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community.			X
(6) Seek favorable freight rates for Hawai'i's agricultural products from interisland and overseas transportation operators.			X
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.	X		
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.	X		
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			X
(10) Support the continuation of land currently in use for diversified agriculture.	X		
(e) Priority guidelines for water use and development:			
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.	X		
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	X		
(3) Increase the support for research and development of economically feasible alternative water sources.			X
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.	X		
(f) Priority guidelines for energy use and development:			
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.	X		
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			X
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			X
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.			X
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai'i.			X

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(2)	Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			X		
(3)	Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.			X		
(4)	Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			X		
(5)	Encourage research activities, including legal research in the information and telecommunications fields.			X		
(6)	Support promotional activities to market Hawai'i's information industry services.			X		
<p>Discussion: An Economic Resource Assessment was conducted for a similar Kuleana Homestead to evaluate the range of community-based economic opportunities with the development of a Kuleana Homestead in Pu'u 'Ōpae. Additionally, the planned KIUC hydroelectric project will help secure non-potable water to Subsistence Agriculture and Pastoral lots which will maintain food security for lessees. A surplus of crops may be sold at local Farmer's Markets or through the formation of an agricultural cooperative. The development of a Kuleana Homestead in Pu'u 'Ōpae is in alignment with the State's planning advancements to expand economic growth and job opportunities in agricultural activity helping diversify and reinvest in the local economy.</p>						
<p>§226-104 Population growth and land resources priority guidelines.</p>						
<p>(a) Priority guidelines to effect desired statewide growth and distribution:</p>						
(1)	Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai'i's people.			X		
(2)	Manage a growth rate for Hawai'i's economy that will parallel future employment needs for Hawai'i's people.			X		
(3)	Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	X				
(4)	Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.	X				
(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.			X		
(6)	Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			X		
(7)	Support the development of high technology parks on the neighbor islands.			X		
<p>(b) Priority guidelines for regional growth distribution and land resource utilization:</p>						
(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			X		

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important benefits are present, such as protection of important agricultural land or preservation of lifestyles.			
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.			X
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			X
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.			X
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			X
(7) Pursue rehabilitation of appropriate urban areas.			X
(8) Support the redevelopment of Kaka'ako into a viable residential, industrial, and commercial community.			X
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			X
(10) Identify critical environmental areas in Hawai'i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			X
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.	X		
(12) Utilize Hawai'i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.	X		
(13) Protect and enhance Hawai'i's shoreline, open spaces, and scenic resources.			X
Discussion: The purpose of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan is to support the mission of the DHHL to develop and deliver lands to native Hawaiians, and partner with others towards developing self-sufficient and healthy communities. The proposed Project provides opportunities to practice indigenous livelihoods and apply natural law on indigenous land for lessees to preserve and manage the land properly.			
§226-105 Crime and criminal justice. Priority guidelines in the area of crime and criminal justice:			
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			X
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			X
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			X

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(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			X
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			X
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. The priority guidelines in the area of crime and criminal justice are not applicable to the proposed Project.			
§226-106 Affordable housing. Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or nonessential agricultural land and public land to meet housing needs of low- and moderate-income and gap-group households.	X		
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.	X		
(3) Improve information and analysis relative to land availability and suitability for housing.			X
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawai'i's low- and moderate-income households, gap-group households, and residents with special needs.	X		
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai'i's people for the purchase of initial owner- occupied housing.			X
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.			X
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			X
(8) Give higher priority to the provision of quality housing that is affordable for Hawai'i's residents and less priority to development of housing intended primarily for individuals outside of Hawai'i.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. The development of a Kuleana Homestead takes into consideration the long lead times required for securing infrastructure financing, major difficulty in obtaining new monies for development, the need for DHHL to seek innovative solutions in order to increase the pace of distribution of lands, and allow native Hawaiian beneficiaries opportunities for self-sufficiency and self-determination.			
§226-107 Quality education. Priority guidelines to promote quality education:			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			X
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			X
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force;			X
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;			X

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	S	N/S	N/A
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			
(A) The electronic exchange of information;			X
(B) Statewide electronic mail; and			X
(C) Access to the Internet. Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			X
(6) Pursue the establishment of Hawai'i's public and private universities and colleges as research and training centers of the Pacific;			X
(7) Develop resources and programs for early childhood education;			X
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and			X
(9) Strengthen and expand educational programs and services for students with special needs.			X
Discussion: The purpose of the Project is to provide Kuleana Homestead lots to beneficiaries. The priority guidelines in the area of education are not applicable to the proposed Project.			
§226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:			
(1) Encouraging balanced economic, social, community, and environmental priorities;	X		
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;	X		
(3) Promoting a diversified and dynamic economy;	X		
(4) Encouraging respect for the host culture;	X		
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;	X		
(6) Considering the principles of the ahupua'a system; and	X		
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.	X		
Discussion: The Pu'u 'Ōpae Kuleana Homestead Project supports the overall direction of the State in the area of sustainability. The development of Subsistence Agricultural and Pastoral homestead lots will provide opportunities for lessees to practice indigenous livelihoods rooted in agriculture to sustain food security and economic profit. The return to an agriculture-based livelihood will contribute to the diversification and balancing of Hawai'i's economy. Natural laws will be returned to indigenous lands with lessees taking on the role of managing their homestead community to properly sustain its natural resources. Areas around water ways designated as Special District will remain undeveloped to promote the restoration of native plants.			
§226-109 Climate change adaptation priority guidelines. Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:			
(1) Ensure that Hawai'i's people are educated, informed, and aware of the impacts climate change may have on their communities;	X		

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	S	N/S	N/A
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;	X		
(3) Invest in continued monitoring and research of Hawai'i's climate and the impacts of climate change on the State;			X
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;	X		
(5) Encourage 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;	X		
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;			X
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;	X		
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;	X		
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			X
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.	X		
<p>Discussion: If not specifically educated, informed and aware of the impacts climate change may have on their community, the people of Kaua'i know that they want to be protected and ready in the event of a natural disaster. This EA has integrated and identified the threats of climate change and the resiliency of a Kuleana Homestead <i>Chapter 3</i>.</p>			

5.2 Hawai'i 2050 Sustainability Plan

The long-term strategy of the Hawai'i 2050 Sustainability Plan is supported by its main goals and objectives of respect for culture, character, beauty, and history of the State's island communities; balance among economic, community, and environmental priorities; and an effort to meet the needs of the present without compromising the ability of future generations to meet their own needs.

The 2050 Plan delineates five goals toward a sustainable Hawai'i accompanied by strategic actions for implementation and indicators to measure success or failure. The goals and strategic actions that are pertinent to the Pu'u 'Ōpae Kuleana Homestead Settlement Plan are as follows:

Goal One: A Way of Life - Living sustainably is part of our daily practice in Hawai'i. Strategic Action: Develop a sustainability ethic.

Goal Two: The Economy - Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawai'i. Strategic Actions: Develop a more diverse and resilient economy; Support the building blocks for economic stability and sustainability; and Increase the competitiveness of Hawai'i's workforce.

Goal Three: Environment and Natural Resources - Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations. Strategic Actions: Reduce reliance on fossil (carbon-based) fuels; Conserve agricultural, open space and conservation lands and resources.

Goal Four: Community and Social Well-Being - Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need. Strategic Action: Strengthen social safety nets.

Goal Five: Kanaka Maoli Culture and Island Values - Our Kanaka Maoli and island cultures and values are thriving and perpetuated. Strategic Actions: Honor Kanaka Maoli culture and heritage; Celebrate our cultural diversity and island way of life; Enable Kanaka Maoli and others to pursue traditional Kanaka Maoli lifestyles and practices; and Provide support for subsistence-based businesses and economics.

Discussion: The Pu'u 'Ōpae Kuleana Homestead Settlement Plan is consistent with the State's Sustainability Plan. As the Kuleana Homestead Program is intended to rehabilitate native Hawaiians by providing opportunities for self-sufficiency and self-determination, raw land is being offered to beneficiaries to live on, grow food to sustain their family, and utilize for economic purposes. As a subsistence-based community, the primary purpose of these homestead lands is to preserve and promote unique traditional subsistence practices, which provides homesteaders with the opportunity to sustain themselves by growing food for their family as well as selling surplus for profit. Overall, the proposed Project will address many of the social issues native Hawaiians are continuing to face and provide opportunities for upward social mobility. The proposed Project will not only diversify and provide economic stability for Hawai'i, but it will reconnect lessees to their agricultural roots and restore traditional agricultural practices in Pu'u 'Ōpae.

5.3 Hawai'i State Land Use District Guidelines

State Land Use Districts are established by the State Land Use Commission in accordance with the State of Hawai'i Land Use Law, HRS §205. The intent of the law is to regulate the classification and uses of lands in the State in order to accommodate growth and development as needed, and to retain and protect important agricultural and natural resources areas. All state lands are classified as Urban,

Rural, Agricultural, or Conservation, with consideration given to county general and development plans in determining the classification.

Discussion: The proposed Project site is located within the State designated Agricultural District (*Figure 1-3*). As the Project is within DHHL lands, it is not subject to statutes controlling land use pursuant to the Hawaiian Homes Commission Act (HHCA) §206, which stipulates, “The powers and duties of the governor and the board of land and natural resources, in respect to lands of the State, shall not extend to lands having the status of Hawaiian home lands, except as specifically provided in this title.” Therefore, the Hawaiian Homes Commission is the authority that determines its land use designations and governs the allowable use and activities within the parcel.

5.4 Hawai'i Coastal Zone Management Program

The Coastal Zone Management Program (CZMP) is a comprehensive nationwide program that establishes and enforces standards and policies to guide the development of public and private lands within the coastal areas. In the State of Hawai'i, the CZMP is articulated in the State Coastal Zone Management (CZM) law in HRS §205A. The State CZM objectives and policies address ten subject areas. These subject areas include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, managing development, public participation, beach protection, and marine resources. Virtually all relate to potential development impacts on the shoreline, near shore, and ocean area environments. The objectives of the program are to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone.

Each county is responsible for designating a Special Management Area (SMA) that extends inland from the shoreline. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the Hawai'i CZM Program.

Discussion: HRS §205A requires all state and county agencies to enforce Hawai'i CZM objectives and policies as set forth in HRS §205A-2. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the CZM Program. The entire Settlement Plan Area is outside the SMA as delineated by the County of Kaua'i (*Figure 1-5*) and as such, does not require an SMA Use Permit. The following table addresses the applicability of the objectives/policies of the Settlement Plan Area in relation to the ten subject areas listed above.

Subject Area	Objective/Policy
Recreational resources	The proposed Project is limited to an upland area on the island, and will not affect existing fishing, surfing or other coastal recreational opportunities accessible to the public. The planned Settlement Plan Area will not affect coordination and funding of coastal recreation planning and management. The planned improvements are not expected to adversely affect recreational activities at nearby beaches.
Historic resources	The Project is not expected to result in significant adverse impacts to historic properties of the site. The majority of the historic sites that were identified in the survey lie outside areas targeted for lease awards. The future Homestead Association will be responsible for developing a preservation plan for historical and cultural resources located within the Special District or Community Use lands.
Scenic and open space resources	The Pu'u 'Ōpae Kuleana Homestead Settlement Plan will not adversely impact scenic or open space resources. Once developed, the proposed Settlement Plan Area will not affect public views to and along the shoreline or other nearby coastal recreational resources. Neither short-term construction activities, nor long-term homesteading activities would disrupt ongoing use or access to the shoreline.
Coastal ecosystems	The Project will not adversely impact coastal ecosystems or water quality. The Project is located in the upland area of Pu'u 'Ōpae. Best management practices and erosion control measures will be employed during construction activities to minimize soil loss and control erosion and discharge from the site. There will not be a net increase in runoff from the site.
Economic uses	The Project is providing a facility that is in a suitable location, and will not negatively impact the state's economy. The location is not coastal dependent.
Coastal hazards	The Project site is not within an area vulnerable to tsunami, storm waves, stream flooding, erosion, subsidence or pollution.
Managing development	Project activities will be conducted in compliance with Hawai'i State and Kaua'i County environmental rules and regulations. This EA identifies and, where necessary, proposes mitigation measures to address anticipated impacts from the construction and operation of the Project.
Public participation	The Project has no impact on this specific CZM objective. Three DHHL beneficiary consultation meetings were conducted on November 15 th , 2018, August 29 th , 2019, and on February 6 th , 2020 to share and receive input and feedback on concepts. The Draft EA was distributed to these same groups and additional agencies, and the 30-day public review period allowed for public participation and input regarding the proposed Project.
Beach protection	The Project is not anticipated to result in adverse effects to local beaches, nor should it affect public use of nearby coastal resources and recreational opportunities.
Marine resources	The Project will not impact the protection or use of marine and coastal resources. During construction, best management practices will mitigate erosion and runoff from the homestead lots.

5.5 Hawaiian Homes Commission Act

The purpose of the Hawaiian Homes Commission, enacted by Congress in 1920 through the HHCA, is to “provide for the rehabilitation of the native Hawaiian people through a government-sponsored homesteading program.” The responsibility of the Hawaiian Home Lands trust was transferred to the State in 1959, when the HHCA was incorporated as a provision in the State Constitution. Today, the State’s DHHL now manages and administers the Hawaiian Home Lands trust, which provides homestead leases and loans for residential, agricultural, and pastoral purposes. The specific goals and objectives of the HHCA as administered through DHHL are laid out in the DHHL General Plan.

Discussion

The project is consistent with the applicable objectives and policies of the HHCA.

5.6 DHHL General Plan

DHHL has developed a three-tiered planning system to guide planning of its land holdings and policies for resource management, and for the benefit of current and future beneficiaries. The planning system includes an over-arching General Plan, followed by Strategic Program Plans and Island Plans in the second tier, and Regional and Development Plans in the third tier.

The General Plan, approved by the HHC in February 2002, is a statewide plan with a long-term perspective that established seven categories of goals and objectives to meet DHHL’s mission. The seven categories are: Land Use Planning, Residential Uses, Agricultural and Pastoral Uses, Water Resource, Land Resource Management; Economic Development; and Building Healthy Communities. The following goals and objectives relevant to the Project are as follows:

Land Use Planning

Goals:

- Utilize Hawaiian Home Lands for uses most appropriate to meet the needs and desires of the beneficiary population.
- Encourage a balanced pattern of contiguous growth into urban and rural growth centers.
- Develop livable, sustainable communities that provide space for or access to the amenities that serve the daily needs of its residents.

Objectives:

- Provide space for and designate a mixture of appropriate land uses, economic opportunities, and community services in a native Hawaiian-friendly environment.
- Develop improved relationships with the Counties to ensure reliable and adequate delivery of services to homesteaders.

Agricultural and Pastoral Uses

Goals:

- Increase the number of agricultural and pastoral leases awarded each year.
- Provide infrastructure, technical assistance and financial support commensurate with the intended uses of agricultural and pastoral lots.
- Provide agriculture and pastoral commercial leasing opportunities for beneficiaries.
- Conserve the most productive agriculture lands for intensive agriculture and pastoral use.

Objectives:

- Provide agriculture and pastoral homestead lots for subsistence and supplemental purposes.
- Establish minimum infrastructure requirements for agricultural and pastoral leases.

Water Resources

Goals:

- Provide access to quality water in the most cost-effective and efficient manner.
- Ensure the availability of sufficient water to carry out the mission of Hawaiian Home Lands.
- Aggressively exercise and protect Hawaiian home land water rights.

Objectives:

- Establish water partnership arrangements.
- Identify and establish a clear understanding of existing water resources available to the Hawaiian Home Lands Trust.
- Implement State water use plans, rules, and permits to ensure access to water resources for current and future uses on Hawaiian home lands.

Land and Resource Management

Goals:

- Be responsible, long-term stewards of the Trust's lands and the natural, historic and community resources located on these lands.

Objectives:

- Preserve and protect significant natural, historic and community resources on Trust lands.
- Manage interim land dispositions in a manner that is environmentally sound and does not jeopardize their future uses.

Building Healthy Communities

Goals:

- Empower the homestead associations to manage and govern their communities.
- Establish self-sufficient and healthy communities on Trust lands.

Objectives:

- Build partnerships with public and private agencies to ensure reliable and adequate delivery of services to homesteaders.
- Establish and implement a planning system that increases beneficiary participation in the development and use of Hawaiian home lands and improves communications between DHHL and the beneficiary community.

Discussion

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan is consistent with the DHHL General Plan. The lands in Pu'u 'Ōpae would have excessive costs to develop due to topography and distance to existing utilities; thereby designating this area under the Kuleana Homestead Program provides the most appropriate use and provides an opportunity for beneficiaries to manage their lands and deliver homestead lots at a faster rate than traditional homestead development. Establishing land use as Subsistence Agriculture, Pastoral, Community Use and Special District designates a mixture of appropriate land uses, economic opportunities, and community services in a native Hawaiian-friendly

environment. With these designations, the number of agricultural and pastoral leases awarded each year will increase on land that is already agriculturally productive. Areas identified for Subsistence Agriculture and Pastoral are intended for lifestyle purposes and for people who may want to supplement their food resources or incomes with agriculture as a secondary economic activity. The Kuleana Homestead program also requires the beneficiaries to work together as long-term stewards of the natural, historic and community resources of the area.

The program is designed for the beneficiary who can handle the rigors of an "off-grid", subsistence living lifestyle. In addition, the lessee must agree to participate as an active member in the Kuleana Homestead Association and to comply with rules developed and agreements entered into by the Kuleana Homestead Association.

5.7 DHHL Strategic Program Plans

The second planning tier at DHHL includes completed or developing Strategic Program Plans, focusing on five statewide programs and policies: Native Hawaiian Development, Cultural and Natural Resources, Energy, Water Policy and Agriculture. The Strategic Program Plans provide strategic direction, implementing actions, and budgets for major program areas for the near-term three to five-year period based on the goals and objectives of the General Plan. Of the completed Program Plans, the Native Hawaiian Development, Energy, and Water Policies are applicable to the development of the proposed Project.

Native Hawaiian Development Program Plan

I. Individual Development

Goal:

Provide opportunities for native Hawaiians to obtain the knowledge and skills that will increase their ability to earn a living, become self-sufficient, or secure and make better use of their homestead award.

Implementation Actions for 2012-2014:

1.2 Homesteading Opportunities Assistance Program (H.O.A.P.)

Objective: Revive, expand, and rebrand the existing "Homeownership Assistance Program" into the "Homestead Opportunities Assistance Program," to assist all beneficiaries.

Expansion and enhancement of the program may include technical assistance in residential, agricultural, pastoral, and aquaculture homesteading. Evaluation indicators to measure program outcomes and results will need to be developed for each Implementation Action.

1.2.2 Agricultural Technical Assistance

Provide educational and technical assistance programs to Hawaiian Home Lands agricultural lessees. The objective of the program is to increase the number of successful homesteaders in agricultural enterprises by increasing their knowledge and training in commercial and subsistence agricultural production, best management practices, business planning, processing, and marketing on Kauai, Molokai and Hawaii Islands.

Homestead farmers have expressed the need to have more input into the program's direction and scope of work to make effective use of limited resources (technical assistance, land, loans, project support) in accordance with intent (farm plan) and capabilities (experience, financing).

1.2.3 Pastoral Technical Assistance

Provide educational and technical assistance programs to Hawaiian Home Lands pastoral homestead lessees. The objective of the program is to increase the number of successful homesteaders in pastoral enterprises by increasing their knowledge and training in commercial and subsistence pastoral production, best management practices, marketing, financial and business skills. Current technical assistance includes group training in food productions, disease control, best management practices, business planning, processing, and marketing on Kauai, Molokai, and Hawaii Islands.

Homestead rangers have expressed the need to have more input into the program's direction and scope of work to make effective use of limited resources (technical assistance, land, loans, project support) in accordance with intent (ranch plan) and capabilities (experience, financing).

Ho'omalūō Energy Policy

Objective 1 Mālama 'āina: Respect and protect our native home lands.

Activities:

- Develop, implement, and maintain plans to reduce DHHL's carbon footprint (reduce greenhouse gas emission).

Objective 2 Ko'o: Facilitate the use of diverse renewable energy resources.

Activities:

- Identify properties in DHHL's land inventory that have potential for renewable energy projects.
- Encourage existing and future lessees and licensees of DHHL's properties to design and build their facilities so that they are energy and resource efficient.
- Seek partnerships for the development of renewable energy resources. In this connection, build relationships that could assist DHHL on non-energy related issues.

Objective 3: Kūkulupono: Design and build homes and communities that are energy efficient, self-sufficient and sustainable.

Activities:

- Strive to plan, design, and build new communities utilizing the "ahupua'a" concept and the "Green Communities" program. (The Green Communities program's criteria are designed to provide a cost-effective approach and standard for creating healthy, affordable, and environmentally responsible homes and communities.)

Water Policy Plan

- Policy 6. Foster self-sufficiency of beneficiaries by promoting the adequate supply of water for homesteading when developing or managing water.
- Policy 7. Foster the self-determination of beneficiaries by seeking ways for beneficiaries to participate in the management of water by delegating authority related to water subject to the discretion of the HHC as described in the HHCA.
- Policy 8. Make water decisions that incorporate traditional and place-based knowledge of our people and are clear and methodical in their reasoning.
- Policy 12. Explicitly consider water availability and the costs to provide adequate water when developing new homestead areas, designating land uses, issuing land dispositions, or exchanging properties.

Discussion:

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan encompasses the DHHL's Strategic Program Plans. The proposed Project allows lessees to reconnect with their agricultural roots with opportunities of self-sufficiency and self-determination by means of agriculture production and the provision of water. Community Use areas provide a variety of opportunities for lessees. All but one area designated for Community Use is under the KHHA lease. Possible uses considered for the license area include: a community garden, community orchard, community pastoral area, reforestation projects, community commons, KHHA Center, cultural sites, aquaculture, and community lo'i kalo. The other Community Use designated area will be determined by future lessees. Beneficiaries have voiced their preferences for Community Use areas which include the possibility of a cultural learning center where lessees receive guidance and assistance for their Subsistence Agriculture and Pastoral lots and the option of providing a space for renewable energy production. Both are aligned with the DHHL's Strategic Plan Programs.

5.8 DHHL Kaua'i Island Plan

A role of the 2004 KIP is to assign Land Use Designations for all of DHHL's land holdings on Kaua'i and indicate specific areas for priority homestead development. The plan is intended to guide overall land use patterns and development on Kaua'i over a 20-year period.

According to the 2004 KIP, DHHL owns 15,035 acres in Waimea and has awarded five Pastoral Homestead lots. The KIP designated the lands encompassing the Pu'u 'Ōpae area as General Agriculture, Special District, and Future Development. General Agriculture designations are for lands on which intensive or extensive farming or ranching is allowed. These lands may serve as an interim use until opportunities for higher and better uses become available.

Special District lands are areas that require special attention because of unusual opportunities or constraints. These may include natural hazard areas, open spaces, raw lands far from infrastructure, mixed use areas, or greenways. The 2004 KIP stipulates that land designated as Special District should provide open space which can remain in a natural state or be used for activities which respect or enhance their sensitive qualities. Pu'u 'Ōpae is specifically called out in the KIP for the development of a pu'uhonua, or "a retreat and place of refuge for beneficiaries island-wide" on the Special District designated lands. The KIP also envisioned the area as a place for community economic development, and traditional healing and therapies.

895 acres of land on the flatter plateau areas were assigned as Future Development. This area was reserved for future homesteading beyond the 20-year planning framework identified in the plan. At the time, no homesteading was planned due to the high cost of development.

Discussion:

The KIP found that applications for agricultural leases made up the largest type of applicants on the waitlist. Community input from the KIP included inquiries about the availability of agricultural homestead lots. Waimea and Kekaha-specific input included an expressed desire for Subsistence Agricultural, Pastoral, and Residential land uses. Agriculture and Pastoral applicants also voiced a desire to live on their homestead lots. According to a survey of DHHL beneficiaries, the majority (71%) of agriculture applicants prefer a homestead lot that is five acres or less to use for small-scale agriculture operations or a home garden. Beneficiaries also noted a preference for small Pastoral lots, less than 50 acres in size.

The Pu'u 'Ōpae Settlement Plan took the requests of the beneficiaries into consideration and developed the Future Development areas into 240 Kuleana Subsistence Agriculture lots and expanded 11 Pastoral lots in the current General Agriculture areas. The Hawaiian Homes Commission must approve of an amendment to the Kaua'i Island Plan's land use designations for Pu'u 'Ōpae, to allow for appropriate Kuleana Homesteading uses.

5.9 DHHL West Kaua'i Regional Plan

The DHHL West Kaua'i Regional Plan, completed in 2011, identified Pu'u 'Ōpae as a priority tract for Subsistence Agriculture use. The vision for the priority project was to develop an Agricultural and Water Plan to restore and utilize the lands at Pu'u 'Ōpae. The plan called for maintaining the Pu'u 'Ōpae reservoir and rehabilitating the irrigation system for potential future agricultural lessees. The plan further recommended for the development of an Agricultural lease master plan to investigate lands around and below Pu'u 'Ōpae that could be irrigated from the reservoir. This master plan could then create a rational framework for decision making and project selection by the Department and beneficiary community. The size and number of future Agricultural lots would be based on the conditions of the site and the types of agricultural plans being considered.

Discussion:

In 2012, the KHHA was granted a temporary Right of Entry for 231 acres of the 1,421 acres to begin land management and maintenance activities at Pu'u 'Ōpae. In addition, KHHA began preparing a master plan called the FIP to begin implementing the West Kaua'i Regional Plan priority project goals. The KHHA's 231 acres are planned for community agriculture, food production, and educational programs to support the Kuleana Settlement.

The Pu'u 'Ōpae Kuleana Homestead Settlement Plan will carry out the remaining West Kaua'i Regional Plan vision for Pu'u 'Ōpae through development of Subsistence Agriculture and Pastoral leases.

5.10 Kaua'i County General Plan

The Kaua'i Kākou, the 2018 Kaua'i County General Plan, establishes priorities for managing growth and community development over a 20-year planning timeframe. The plan guides future action concerning land use and development regulations, urban renewal programs, and expenditures for capital improvements. Nineteen policies address the issues most important to Kaua'i residents in the face of existing issues and future growth. Policies applicable to the Settlement Plan Area include, but are not limited to, the following:

- Manage Growth to Preserve Rural Character
- Provide Local Housing
- Recognize the Identity of Kauai's Individual Towns and Districts
- Help Agricultural Lands be Productive
- Respect Native Hawaiian Rights and Wahi Pana

Discussion

DHHL will work with the County of Kaua'i to ensure the Pu'u 'Ōpae Kuleana Homestead is compatible with the County Plan. However, pursuant to the HHCA §206, Hawaiian home lands are not subject to zoning or other land use controls by the County.

5.11 County of Kaua'i Comprehensive Zoning Ordinance

The County of Kaua'i's Comprehensive Zoning Ordinance (CZO) provides regulations and standards for land development and the construction of buildings and other structures in the County of Kaua'i. These regulations and standards prescribed are intended to regulate development to ensure its compatibility with the overall character of the island. The CZO was initially adopted in 1972. Since that time, there have been several amendments to specific provisions. The County concluded the first of two phases of an effort to update the CZO with amendments adopted on December 3, 2012 (Ordinance No. 935). Ordinance No. 935 is the newly adopted zoning code for the County of Kaua'i and will serve as the official zoning code until the County completes the second phase of the project.

Discussion

The Settlement Plan Area is zoned as both Agriculture and Open Space by the County of Kaua'i. This zoning is consistent with the Area's current State Land Use designation as Agricultural. The CZO defines agriculture as the breeding, planting, nourishing, caring for, gathering and processing of any animal or plant organism for the purpose of nourishing people or any other plant or animal organism; or for the purpose of providing the raw material for non-food products. The CZO defines open space as the portion of portions of a parcel unoccupied or unobstructed by buildings, paving or structures from the ground upward. Single family detached dwellings are a permitted use within the agricultural district and open space district of the CZO.

5.12 Special Management Area Rules and Regulations of the County of Kaua'i

The SMA is a designation established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai'i. Special controls on developments within the SMA area are necessary to avoid permanent loss of valuable resources and foreclosure of management options. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the CZM Program. The SMA guidelines of Section 4.0 of the Special Management Area Rules and Regulations of the County of Kauai (2011) are used by the Director of the Planning Commission for the review of developments proposed in the SMA. These guidelines are derived from *HRS Section 205A-22*.

Discussion

The SMA boundary for the Settlement Plan Area is shown in Figure 1-5 and is outside the SMA. The development within the Settlement Plan Area is not expected to have any substantial, adverse environmental or ecological effect. Any adverse effect will be minimized to the extent practicable, including the potential cumulative impact of individual developments.

5.13 West Kaua'i Community Plan

A draft of the West Kaua'i Community Plan (WKCP) was published in January 2020. The Community Plan is to develop a plan to manage future growth and change while also coordinating land use and transportation planning.

Discussion

Although the area of Pu'u 'Ōpae is not specifically recognized in the Community Plan, DHHL will work with the County of Kaua'i to ensure the Pu'u 'Ōpae Kuleana Homestead is compatible with the area's Community Plan. However, pursuant to the HHCA §206, Hawaiian home lands are not subject to zoning or other land use controls by the County.

Section 6

Findings Supporting the Anticipated Determination

Chapter 6

Findings Supporting the Anticipated Determination

6.1 Anticipated Determination

Based on a review of the significance criteria outlined in *HRS Chapter 343* and *HAR Section 11-200.1-13*, development of the Pu'u 'Ōpae Kuleana Homestead Settlement Plan Area has been determined to not result in significant adverse effects on the natural or human environment. A FONSI is anticipated.

6.2 Reasons Supporting the Anticipated Determination

The potential impacts of the development have been fully examined and discussed in this EA. As previously stated, there are no significant environmental impacts expected to result from the project. This determination is based on the assessments as presented below for criterion (1) to (13).

(1) *Irrevocably commit a natural, cultural, or historic resource.*

The proposed Project is not expected to adversely impact any natural or cultural resource. Technical studies have been conducted to assess the potential impact of the proposed Project on fauna and flora, as well as cultural and archaeological resources on DHHL's Pu'u 'Ōpae lands. These studies have found that the property was previously under long-term, intensive sugar cultivation, limiting the expectation of finding pre-Contact archaeological or cultural features, or significant native habitats. Any negative impacts may be mitigated through management protocols developed with the lessees; continued coordination with the State Historic Preservation Division; and designation of valleys, gulches, and biologically promising areas as Special District.

There is the unknown potential for the future discovery and/or encounter of subsurface historical or cultural resources, including the unknown possibility of iwi kūpuna (ancestral remains). Since DHHL lands are defined as tribal lands under the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, if iwi kūpuna, funerary objects, sacred objects, or objects of cultural patrimony are encountered, its statutory requirements and rules for notification, inventory, consultation, and resolution will apply. Sites undocumented at present would be recorded to certain standards sufficient for State Historic Preservation District (SHPD) review. SHPD and the Kaua'i-Ni'ihau Burial Council would be duly notified but the action of iwi would be under the NAGPRA process. All other cultural material would follow HRS 6E-8.

(2) *Curtail the range of beneficial uses of the environment.*

The proposed Project is not expected to curtail the range of beneficial use of the environment by placing native Hawaiians on the land and by designating valleys, gulches, and areas with the potential for native habitat restoration as Special District.

- (3) *Conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344 HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.*

This proposed project does not conflict with the state's long-term environmental policies or goals and guidelines. Potential adverse impacts are associated with short-term construction activities that will be mitigated through compliance with regulatory guidelines and use of best management practices. In the long term, the Project conserves natural resources by protecting potentially sensitive environments on the property and provides an opportunity for native Hawaiians to improve their quality of life through agricultural subsistence.

- (4) *Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State.*

The project will benefit the economic welfare, social welfare, and cultural practices of the community and State by providing native Hawaiian beneficiaries opportunities to develop and manage their community. Homesteaders will be able return to their traditional agricultural and pastoral roots while sustaining themselves. Opportunities to expand agriculture economically as a community may generate an income for homesteaders.

- (5) *Have a substantial adverse effect on public health.*

The project is consistent with existing land uses and is not expected to affect public health. However, there will be temporary short-term impacts to air quality from possible dust emissions and temporary degradation of the acoustic environment in the immediate vicinity resulting from construction equipment operations. The project will comply with State and County regulations during the construction period and will implement best management practices to minimize temporary impacts.

- (6) *Involve adverse secondary impacts, such as population changes or effects on public facilities.*

As detailed in Section 3.11, although the project will increase the population in Pu'u 'Ōpae, the increase in population will not incur secondary impacts to public facilities serving the Pu'u 'Ōpae or greater Waimea area. All lessees will be required to pay property taxes on their lot, which will contribute toward public facilities and services. Wastewater will be managed through DOH-approved individual wastewater systems, so there will be no impact on public wastewater treatment facilities. Similarly, water will most likely be supplied by individual catchment systems, so that the County water system will not be impacted.

- (7) *Involve a substantial degradation of environmental quality.*

The project will not involve a substantial degradation of environmental quality. Long-term impacts to air and water quality, noise, and natural resources are not anticipated. The use of standard construction and erosion control BMPs will minimize the anticipated construction-related short-term impacts.

- (8) *Be individually limited but cumulatively have substantial adverse effect upon the environment or involved a commitment for larger actions.*

The project will reestablish traditional agricultural and pastoral practices, while also preserving Special District areas around natural streams and drainage areas, providing an overall general improvement to the environment. This project does not require or influence a commitment for larger actions.

- (9) *Have a substantial adverse effect on a rare, threatened or endangered species, or its habitat.*

The Project site does not contain known identified rare, threatened, or endangered species or habitat. As outlined in *Section 3.7*, tree disturbance will be timed outside of the bat birthing and pup rearing season to avoid potential impacts to Hawaiian hoary bats. Further, measures to protect the nēnē are identified in *Section 3.7*, if they may return to the Project area. No impacts are anticipated.

- (10) *Have a substantial adverse effect on air or water quality or ambient noise levels.*

General temporary impacts associated with construction are identified in *Section 3.0* of this EA. Mitigation measures which are outlined in this EA will be applied during the on-going construction activity. No detrimental long-term impacts to air, water, or acoustic quality are anticipated with the project improvements. The improvements are not anticipated to detrimentally affect air or water quality or ambient noise levels.

- (11) *Have a substantial adverse effect on or be likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.*

The Project is not located in an environmentally sensitive area. It is located outside of the flood plain, tsunami zone, beach area, geologically hazardous land, estuary and coastal water. During lot selection, the gently sloping areas were selected to allow for additional safety measures related to wildfire and flooding. No impact is anticipated.

- (12) *Have a substantial adverse effect on scenic vistas and viewplanes, during day or night, identified in county or state plans or studies.*

The Kuleana Homestead Settlement is not located in an area that has been identified as a scenic view plane or area of natural beauty by the County or State. The area was previously under intensive sugar cultivation and is proposed for subsistence agriculture. Lessees may choose to build a house on their lot but will be restricted to single family homes. Views mauka and makai of the Project site are not expected to be obstructed. No significant adverse impacts are anticipated.

- (13) *Require substantial energy consumption or emit substantial greenhouse gases.*

The new agricultural activities and homes will not immediately increase energy consumption. The potential exists for lessees to connect to the KIUC distribution line at a future time; however, the Project is not anticipated to require substantial energy requirements when compared with other similar projects.

Section 7

**List of Agencies,
Organizations and Individuals
Receiving Copies of the EA**

Chapter 7

List of Agencies, Organizations and Individuals Receiving Copies of the EA

Early consultation on the Pu'u 'Ōpae Kuleana Homestead Settlement Plan has been carried out with various agencies and stakeholders as part of the scoping process for this Project. Consultation included individual meetings with various agencies and organizations, including Department of Hawaiian Home Lands (DHHL), Department of Land and Natural Resources-Division of Forestry and Wildlife (DLNR-DOFAW), Agribusiness Development Corporation (ADC), County of Kaua'i Department of Water, County of Kaua'i Planning Department, Kaua'i Island Utility Cooperative (KIUC), West Kaua'i and Kekaha Hawaiian Homestead Associations.

Extensive beneficiary informational and consultation meetings were held in October 2017, November 2018, August 2019, and February 2020. An informational briefing regarding the Settlement Plan and this EA was provided to the Hawaiian Homes Commission in August 2018 and April 2020 (*Appendix G*). Informal consultation with recognized 'ohana and cultural descendants also occurred in October 2017.

Parties that were provided an opportunity to review the Draft EA are identified below. Comments received during this consultation process are also provided following this list.

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA		
Respondents and Distribution	Receiving Draft EA	Draft EA Comments Received
Federal Agencies		
U.S. Fish and Wildlife Service	X	
U.S. National Resources Conservation Service	X	
State of Hawai'i Agencies		
Agribusiness Development Corporation	X	
Department of Agriculture	X	
Department of Accounting and General Services	X	
Department of Business, Economic Development & Tourism (DBEDT)	X	
DBEDT, Office of Planning	X	
Department of Health (DOH)	X	
DOH, Clean Water Branch	X	
DOH, Wastewater Branch	X	

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA		
Respondents and Distribution	Receiving Draft EA	Draft EA Comments Received
State of Hawai'i Agencies		
Department of Land and Natural Resources (DLNR), Land Division	X	
DLNR, Commission on Water Resources Management	X	
DLNR, Department of Forestry and Wildlife	X	
DLNR, Division of State Parks	X	
DLNR, Engineering Division	X	
DLNR, Land Division	X	
DLNR, State Historic Preservation Division (SHPD)	X	
DLNR, Office of Conservation and Coastal Lands	X	
Department of Transportation	X	
Kaua'i-Ni'ihau Island Burial Council	X	
Office of Environmental Quality Control	X	
Office of Hawaiian Affairs	X	
Office of Hawaiian Affairs, Kaua'i Office	X	
County of Kaua'i Agencies		
Department of Water	X	
Fire Department	X	
Housing Agency	X	
Kaua'i Emergency Management Agency	X	
Kaua'i Historic Preservation Review Commission	X	
Office of Economic Development	X	
Planning Department	X	
Police Department	X	
Public Works Department	X	
Transportation Agency	X	
Elected Officials		
Senator Ronald D. Kouchi	X	
Representative Dee Morikawa	X	

Table 7-1 Agencies, Organizations and Individuals Receiving Copies of the EA		
Respondents and Distribution	Receiving Draft EA	Draft EA Comments Received
Elected Officials		
Mayor Derek Kawakami	X	
Council Chair Arnyl Kaneshiro	X	
Council Vice Chair, Ross Kagawa	X	
Councilmember Mason K. Chock	X	
Councilmember Felicia Cowden	X	
Councilmember Luke A. Evslin	X	
Councilmember KipuKai Kualii	X	
Community and Private Organizations		
Kaua'i Island Utility Cooperative	X	
Kekaha Agricultural Association	X	
Kekaha Hawaiian Homestead Association	X	
Waimea Public Library	X	
West Kaua'i Hawaiian Homestead Association	X	
West Kaua'i Watershed Alliance	X	

Section 8

List of References

Chapter 8

List of References

- G70. 2018. *Draft – Preliminary Engineering Report Pu’u Opae.*
- Hawai’i Wildfire Management Organization. 2017. *Wildfire-Related Planning Considerations for DHHL Pu’u Opae Master Plan.*
- Hui Ku Maoli Ola. 2018. *Biological Maps for Pu’u ‘Ōpae.*
- Kaua’i Island Utility Cooperative. 2015. *KIUC Pumped Storage.*
- Keala Pono Archaeological Consulting, LLC. 2018. *Archaeological Reconnaissance Survey Letter Report.*
- Keala Pono Archaeological Consulting, LLC. 2020. *Draft – Cultural Impact Assessment for the Pu’u ‘Ōpae Special Area Master Plan, Waimea Ahupua’a, Kona District, Island of Kaua’i.*
- Keala Pono Archaeological Consulting, LLC. 2018. *Draft – Literature Review for the Pu’u ‘Ōpae Special Area Master Plan, Waimea Ahupua’a, Kona District, Island of Kaua’i, Hawai’i.*
- Kekaha Hawaiian Homestead Association. 2014. *Project Master Plan Pu’u Opae Farm and Irrigation Project.*
- Leong, J.A., et. al. 2014. Ch. 23: “Hawai’i and U.S. Affiliated Pacific Islands,” in *Climate Change Impacts in the United States: The Third National Climate Assessment*. J. M. Melillo, Terese (T.C.) Richmond, and G. W. Yohe, Eds., U.S. Global Change Research Program, 537-556. doi:10.7930/JOW66HPM.
- State of Hawai’i, Department of Hawaiian Home Lands. 2011. *West Kaua’i Regional Plan.*
- State of Hawai’i, Department of Hawaiian Home Lands. 2004. *Kaua’i Island Plan*. Prepared by Group 70 International.
- State of Hawai’i, Department of Hawaiian Home Lands, 1993. *Proposal for Expanding DHHL’s Programs.*
- State of Hawai’i, Department of Hawaiian Home Lands. 2017. *Non-Traditional Awards Evaluation.*
- State of Hawai’i, Department of Health. 2016. *Annual Summary 2016 Air Quality Data*. Accessed online: https://health.hawaii.gov/cab/files/2019/07/aqbook_2016.pdf
- State of Hawai’i, Department of Land and Natural Resources, Department of Forestry and Wildlife. 2003. *Title 13, Chapter 123 – Rules Regulating Game Mammal Hunting.*

State of Hawai'i, Department of Land and Natural Resources – Commission on Water Resource Management. 2016. *Draft – Investigation of Kōke'e and Kekaha Ditch Irrigation Systems Waimea, Kaua'i, Hawai'i.*

Sustain Hawaii. 2019. *Final – Anahola Innovation-oriented, Ag-centric, Sustainable Community Development.*

U.S. Census Bureau. Kauai County, Hawaii and Census Tract 409, Kauai County, Hawaii. Accessed Online: https://data.census.gov/cedsci/all?layer=VT_2018_050_00_PY_D1&g=1400000US15007040900_0500000US15007&cid=S0101_C01_001E&tid=ACSST1Y2018.S0101&hidePreview=false&vintage=2018

U.S. Environmental Protection Agency. Climate Impacts in the U.S. Islands. Accessed online: https://19january2017snapshot.epa.gov/climate-impacts/climate-impacts-us-islands_.html

University of Hawai'i at Mānoa Sea Grant College Program. June 2014. *Climate Change Impacts in Hawai'i - A summary of climate change and its impacts to Hawai'i's ecosystems and communities.*

University of Hawai'i at Mānoa Geography Department. Climate of Hawai'i. Accessed online: <http://climate.geography.hawaii.edu/interactivemap.html>

University of Hawai'i at Mānoa Geography Department. Rainfall Atlas of Hawai'i. Accessed online: <http://rainfall.geography.hawaii.edu/interactivemap.html>

Appendices

Appendix A

Beneficiary Meeting Notes



925 Bethel Street
5th Floor
Honolulu, HI 96813
808.523.5866
www.g70.design

Meeting with DHHL Kekaha and West Kaua'i Beneficiaries Meeting Minutes

October 23, 2017

Present:

Bob Freitas (DHHL), Christine Mendes Ruotola (G70), Kawika McKeague (G70), Ryan Char (G70), Lynel Rabago (G70), Lauren Esaki-Kua (G70), Windy McElroy (KPAC), Robin Keli'i-Kapoi (KPAC), Ulukoa Duhaylonsod (KPAC), Rick Barboza (HKMO), Elizabeth Pickett (HWMO)

Kawai Warren, Harold Vidinha (Kekaha Hawaiian Homestead Assoc)

Connie Tano Castenada, Myrna Bucasas, Paulette, Kupo, Ted Blake, Leah Perreira, Mr. Perreira, Nathan Hookano, Odette Borja (West Kaua'i Hawaiian Homestead Assoc)

Location: Eben Manini (DHHL Pastoral Homesteader at Pu'u 'Ōpae)
Subject: Kekaha Enterprise Center
Pu'u 'Ōpae informal presentation

I. Discussion

Bob opened the meeting and clarified that it was an informal info session. DHHL contracted G70 to carry out the planning for Pu'u 'Ōpae and the primary purpose of the trip was to do a site visit and become familiar with the land. Since the team was on-island, also decided to meet with KIUC. This meeting is informal and meant to share the preliminary process. Kawika presented a powerpoint presentation overviewing the Pu'u 'Ōpae project and the structure of the DHHL Special Area Master Plan, EA, and Kuleana Homesteading process. The following were questions and answers raised by beneficiaries:

WATER

- Will there be enough water?
- Before conducting studies, explore if water is available and if homesteading lots are feasible.
 - Response: DHHL has been working to secure water rights to allocate to the lands that have been designated in the West Kaua'i Regional Plan
- If no water, no sense have the project
- How much water are we pumping out/throwing away each day? This needs to be identified and stopped.
- If Pu'u Lua is to the point of overflowing, open it up and let the water flow to Opae reservoir
- Waiawa powerplant waters were being run and released/wasted into the ocean
 - Using more water than they should and wasting it just to generate the power they need and want.
- 30 years ago, kept telling DHHL that Waiawa was supposed to go to DHHL. How did Waiawa go to those other people (hydro project at Waiawa)? Could have generated money for DHHL and could have had control of the waters. Needs to be looked at. It was never addressed.
- Put it in water storage and pump it back up



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5th Floor
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808.523.5866
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- Don't know about drinking water
- Underwater aquifers going straight out to the ocean
- Artesian wells – being desecrated
- Rainfall is not the same anymore. Continually going to have less rainwater and surface water. Should be doing more water storage. Need to be looking at the options.
- Water does not all need to go to Pu'u 'Ōpae, needs to also go to Kitano Reservoir and other areas in Waimea.
- Limited storage area in Pu'u Lua until it is fixed for greater capacity
- Water Commission 2015 study – 22 mgd for corn, 15 mgd wasted irrigation water to Kinikini Reef, water is being wasted by ADC/KAA, there's actually a lot of water up there.
 - Earth Justice – was a good project
 - Don't want to deprive Hawaiians from access to the lands – the best of the worst lands. Put people on the land.
- Two separate ditches –Kōke'e Ditch and Lower Ditch System> Lower Ditch system drives the hydro.
- How much water is used, vs how much water is thrown away?

FIRE

- Forestry is responsible for fire service of lands above cane lands. KFD is the one fighting the fires.
- Best way to reduce fire risk is to start farming, removing grasses

HUNTING

- DLNR is still extending permits to hunt in Pu'u 'Ōpae.
 - They are fencing off areas in the swamps but concentration hunters in Hawaiian Home Lands – safety issue
- Why was the DLNR hunting contract extended? Hawaiians can control hunting on their own lands.
- When they redo the hunting license, change the type of hunting; and if DLNR fails to manage the area/roads then they will lose their hunting license
- Why have a license if you're not going to enforce anything in the license?

OTHER

- Ahupua'a principles – how do we incorporate this into planning
 - Legislature just passed Aha Moku.
 - Plantation owners are still reluctant to release those waters
 - How can we change our communities? Healthy food, healthy lands, getting kids working
 - Next step: G70 team meet with Kawai Warren to discuss the Pu'u 'Ōpae Farm and Irrigation Project in greater detail.
-



CONFERENCE REPORT

111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

TO:	Files		
FROM:	G70 (WB)		
DATE:	11/15/2018	LOCATION:	Hanamaulu, Kaua'i
PROJECT:	Pu'u 'Ōpae Special Area Plan and Settlement Plan	PROJECT NO:	217042-01
SUBJECT:	Project Status and Feedback from Beneficiaries	NO. OF PAGES:	
THOSE PRESENT:	DHHL: Bob Freitas (BF), Kaipō Duncan, Julie-Ann Cachola, Erna Kamibayashi	G70: Kawika McKeague (KMK), Ryan Char (RC), Wesley Bradshaw (WB), Lynel Rabago (LR)	

DHHL and G70 held a joint public meeting with beneficiaries who are on the Kaua'i Island Agricultural Waitlist. Approximately 80 people participated in the meeting.

Opening Statements from BF:

- DHHL has not done agricultural homesteading projects on Kaua'i since 1986.
- There are upcoming opportunities for agricultural homesteading on Kaua'i at Pu'u 'Ōpae, Anahola, and Hanapepe.
- Tonight's meeting is not about awarding lots. Instead, it is an informational meeting. Future meetings will be held with regard to lot awards.

Main Presentation by KMK:

The presentation lasted for about two (2) hours and included an overview of slides, the completion of mentimeter exercises, and a final Q&A. LR and RC assisted KMK at times with details concerning infrastructure, water, and general civil engineering.

The audience seemed to enjoy the mentimeter exercises, and each slide elicited about 30 responses. Participants did not appear to have difficulty understanding or completing the exercises, although some complained about needing to use their cellular data since there was no hotspot connection available.

The PowerPoint presentation and mentimeter survey results is to be posted to the website.

Questions and Answers:

Q1. What happens if the Settlement Plan gets denied?

A1. If it gets denied by the Hawaiian Homes Commission, the plan goes back to the DHHL, consultants and the community. It would basically reset the process of submitting the first draft. We would be required to follow the commission's rules regarding re-drafting and re-submitting the plan.

Q2. What is the cost for this project?

A2. This is in-process now. It is currently undetermined what the exact cost will be. The cost will be estimated during the process of submission to HHC. Since it is a Kuleana Homesteading project, the infrastructure cost is anticipated to be relatively low compared to other homesteading projects.

In conjunction with the DHHL Kuleana Homesteading project is Kaua'i Island Utility Cooperative's (KIUC) proposed Pu'u 'Ōpae Energy Project. The KIUC project includes construction scope and cost that directly benefits the Pu'u 'Ōpae Kuleana Homesteading project. The KIUC project scope proposes to:

- Repair the entire length of the Kōke'e Ditch System to Pu'u Moe Divide.
- Repair the existing diversions to allow for instream flow releases.
- Replace the gate structure at Pu'u Moe Divide with a new gate structure and intake for the hydroelectric pipeline.
- Rehabilitate the Pu'u Lua, Pu'u 'Ōpae (back to original 88-million-gallon capacity), and Mānā reservoirs in accordance with current Hawai'i dam safety regulatory standards.
- Construct a new pressurized pipeline, approximately 25,000 feet in length, that replaces the lateral branch of the Kōke'e Ditch extending between Pu'u Moe Divide and Pu'u 'Ōpae reservoir.
- Construct a new pressurized pipeline running between Pu'u 'Ōpae reservoir and Mānā Reservoir, approximately 12,000 feet in length.
- Construct two hydroelectric facilities with a combined capacity of 25 MW and a 33,500 horsepower pump station.
- Repair all existing dirt roads that provide access to the facilities being utilized by KIUC, inclusive of the access off Kōke'e Road through Niu Valley.

Total estimated costs for KIUC's project based on 20% engineering design in 2015 is \$70 to \$90 million.

Q3. May we please have a copy of the PowerPoint?

A3. Yes, it will be available on DHHL website.

Q4. How did Homesteaders get water to the site at Kahikinui?

A4. Kahikinui didn't have water infrastructure system – the community used rainfall catchment and imported their own water. In this regard, Kahikinui is different from Pu'u 'Ōpae.

Additional talk-story/follow-up:

Kuleana homesteading emerged from Kahikinui. It was community driven. The community got the Army Corps of Engineers and others to help with the project. DHHL distributed lots. These were large pastoral lots with rough roads. There were lessons learned from Kahikinui with regard to failures in implementation of the plan, that will be applied to the Pu'u 'Ōpae project.

Q5. How will lots be awarded? Is the award process by order of chronology of the amount of time you were on the waitlist?

A5. DHHL must follow the HHC rules. Awards must be given chronologically – in the order of when applications were submitted. Pastoral and agricultural waitlists are separate. If wait-listers switch from

one list to another (i.e., pastoral to ag) then their application date changes to the date the application was changed. In other words, they go to the back of the line.

Q6. Will you be able to build your own home?

A6. The rules allow it on agricultural lots. It's part of the Settlement Plan.

Q7. If funds are needed for beneficiaries to bring their lots to a productive level, what funding options will be made? Grants? Loans? Starting funds?

A7. The responsibility for acquiring funding in the case of Kuleana homesteading largely falls upon the lessees/community.

Q8. Have any lots been awarded at Pu'u 'Ōpae?

A8. Present time no "awardees" at Pu'u 'Ōpae.

Q9. With a dwelling how will sewer and drinking water concerns be met?

A9. Remember that the Kuleana program is meant for people who are willing to accept the lot "as is" and are okay with living "off grid." Agricultural (non-potable) water exists, but it's the responsibility of each lot user to acquire potable water or treat water on site. With that being said, KUIC has agreed to provide access to non-potable sources of water and provide long-term management and assistance at Pu'u 'Ōpae.

Regarding sewer, under HAR §11-62, an Individual Wastewater System (IWS) is allowed to serve the proposed residences up to the first 50 single-family dwellings. Again, it is the responsibility of each lot user to properly permit and install an IWS system. Beyond 50 single-family dwellings, a wastewater treatment plant may be required.

Q10. Will the community areas be open for visit/use by existing residential lessees and beneficiaries?

A10. DHHL best guess presently is yes, but ultimately it is up to the KHHA.

Q11. You used Kahikinui as the only example of kuleana homesteading. What is its prognosis? What did you learn from it to make this more successful?

A11. We learned how important it is to make sure people fully understand what they're getting into with Kuleana lots.

Q12. What is KIUC contributing to DHHL with their hydro plant running through Hawaiian home lands?

A12. They are providing access to agricultural sources of water and have agreed to provide assistance and maintain long-term management of non-potable water resources. See answer to question # 2.

Q13. If you give your residential lot to another and go back on to a pastoral list, how is your rank determined? Is it from date of original app or the new recently submitted app?

A13. It's from the date of the newly submitted application.

Q14. I have no questions now, but when I do, who do I call?

A14. You can either contact your local Kaua'i District Office or email our consultants at G70. If you contact the Kaua'i District Office, you can speak with Erna Kamibayashi at 808-274-313. If you contact G70, email either Kawika McKeague or Wesley Bradshaw at DHHLPuuOpae@g70.design.

Q15. Why is it called Pu'u 'Ōpae?

A15. Mo'olelo of Pu'u 'Ōpae link the area to Menehune, wherein it is said that one of the kings paid Menehune with shrimp or fish for their work building an 'auwai. In fact, the name Pu'u 'Ōpae (Shrimp Hill) comes from the hill where payment in shrimp was made for their work.

Q16. Can we hold a meeting like this on the west side?

A16. The meeting location was chosen to be central to also accommodate people who are not located on the west side.

Q17. Will those on Pu'u 'Ōpae list be given priority? Will pastoral lands also be awarded? How much is planned to improve access and water availability's?

A17. Pastoral lots will not be awarded at Pu'u 'Ōpae, only community pastoral areas.

Q18. Will Pu'u 'Ōpae be the only settlement project proposed at this time? Will the Anahola Pastoral land area be looking to have a settlement plan implemented soon? If soon, ETA?

Q19. How do you plan to make access to property easier?

A19. KIUC's energy project includes repair and maintenance of the main access roads off Kōke'e Road and off Mana Road through Niu Valley. Repairs do not include paving and the roads will remain unpaved. Minor onsite roads will also remain unpaved and are the responsibility of each lot user as well as the community.

The following represent outstanding questions that were unanswered at the meeting due to time-constraints. These questions are planned to be addressed in the follow-up meeting.

Q20. When did you separate the ag land and the pastoral?

Q21. Will pastoral wait list, qualify for the subsistence agriculture lots?

Q22. What happens to those been waiting on pastoral land in Pu'u 'Ōpae?

Q23. What if when you signed up there was just ag land?

Q24. Will Roads be looked at to Pu'u 'Ōpae who will fix it?

Q25. How will you prioritize the selection to Pu'u 'Ōpae? People already an awardee versus people on the waiting list?

Q26. Will Black Gate Road be repaired?

A26. Repairs to Black Gate Road are not proposed at this time.

Q27. Why so long you folks take to do anything?

Q28. Anahola - how long?

SUMMARY OF MENTIMETER RESULTS

Key Takeaways:

- While people are frustrated with how long they have been waiting, there is excitement about the opportunity at Pu'u 'Ōpae. Prior to November's Beneficiary Consultation, many beneficiaries had not been involved in meetings about Pu'u 'Ōpae.
- The community wants Pu'u 'Ōpae to provide as many lots as possible with an option to reside on the land. They are concerned about how long it will take to accomplish this, and they are concerned that access and safety are not adequate. They want to see a mix of reforestation, renewable energy projects, backyard subsistence agriculture, and small community cooperatives.
- There is not much support for large cooperatives, so the abundant community space designated in the FIP may be excessive regarding what the community prioritizes. Moreover, given the strong support for awarding as many lots as possible with option to reside on the land, the goal of awarding only 140 lots, as outlined in the FIP, may not adequately address the community's goals.

General sentiment:

- People are frustrated about how long they have been waiting and how slow the homesteading process has been. Respondents complained that they are now too old to farm and work the land as they originally intended.
- However, there is still optimism and excitement about the vision of this project. People are looking forward to the results and eventually getting on the land.
- The beneficiaries communicated a feeling that Pu'u 'Ōpae (and other local projects) can offer opportunity for:
 - Families to connect with the land and become more self-sufficient
 - Children to learn about traditional culture and way of life
 - Preserving culture
 - Protecting the environment

What people know/What they have participated in:

- Many of the beneficiaries who attended the meeting admitted that they did not know much about Pu'u 'Ōpae. For those who did know something, they expressed that the site is difficult to access, but beautiful.
- 56 percent of attendees said that neither they nor their family members had previously attended meetings about Pu'u 'Ōpae.

What people valued most/What they want to prioritize for the Settlement Plan:

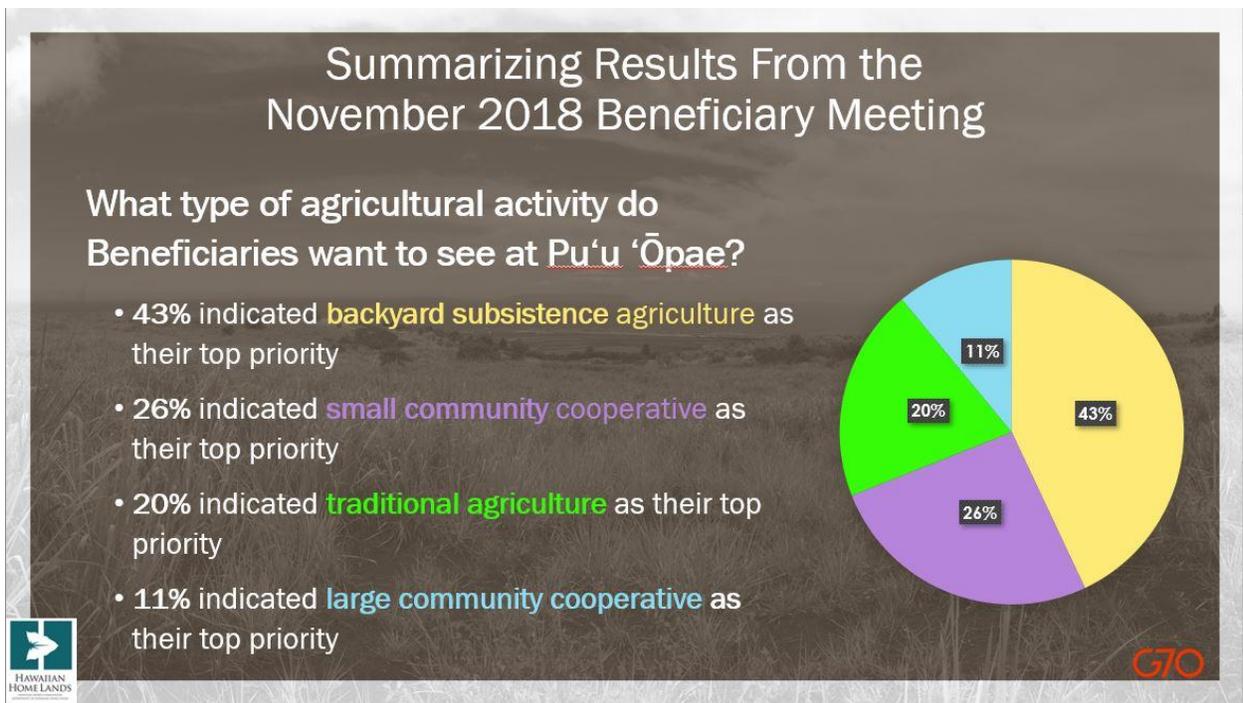
- Awarding as many lots as possible, providing an option and means to reside on the land, and improving site access and safety garnered the most support. About 57 percent of "points" went to these 3 options, while the remaining 5 options only accounted for 43 percent collectively.
- People valued emphasis on reforestation (11%) and renewable energy projects (10%) slightly more than emphasis on subsistence-based agriculture (8%).

Vision:

- Beneficiaries envisioned Pu‘u ‘Ōpae as an agricultural cooperative (43%) more so than a cultural Pu‘uhonua (22%) or neighborhood (18%). An additional 18% of respondents indicated their vision for Pu‘u ‘Ōpae differed from the options we had provided.

Type of agricultural activity:

- 43% indicated backyard subsistence agriculture as their top priority
- 26% indicated small community cooperative as their top priority
- 20% indicated traditional agriculture as their top priority
- 11% indicated large community cooperative to be their top priority



Sample of planned slide for second beneficiary meeting



CONFERENCE REPORT

111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

TO:	The Department of Hawaiian Home Lands (DHHL)		
FROM:	G70		
DATE:	8/29/2019	LOCATION:	Kekaha, Kaua'i
PROJECT:	DHHL Pu'u 'Ōpae Kuleana Homestead Lots Settlement Plan	PROJECT NO:	217042-01
SUBJECT:	Beneficiary Consultation Meeting #1	NO. OF PAGES:	7
THOSE PRESENT:	DHHL: Andrew Choy, Nancy McPherson, Julie-Anne Cachola, Erna Kamibayashi, Kaipo Duncan	G70: Kawika McKeague, Ryan Char, Barbara Natale, Cody Winchester, Kai Akiona-Ferriman	
	Translations: Makana Garma- 'Ōlelo Ni'ihau		

The Department of Hawaiian Home Lands (DHHL) and G70 held a joint public meeting with beneficiaries who are on the Kaua'i Island Agricultural Waitlist. The meeting was held at the Kekaha Elementary School cafeteria on August 29th, 2019, from 6:00 to 8:00 pm. Approximately 36 attendees participated in the meeting. Among the approximately 36 in attendance was a congregation of about 15 residents from the island of Ni'ihau. Makana Garma assisted with 'Ōlelo Ni'ihau translations of meeting materials and facilitating discussions.

Opening Statements from Andrew Choy (DHHL):

- Introductions of DHHL staff present at the meeting
- There are upcoming opportunities for Kuleana Homesteading on Kaua'i at Pu'u 'Ōpae and Anahola.
- Kuleana Homesteading is part of DHHL's efforts to address beneficiaries concerns about lengthy waits on the waitlist and requests to be awarded raw land.
- Tonight's meeting is not about awarding lots. Instead, it is an informational and beneficiary consultation meeting. Future meetings will be held with regard to lot awards.
- Pule provided by meeting attendee

Presentation by Kawika McKeague (G70):

The presentation had a duration of approximately 2 hours and included a PowerPoint presentation, beneficiary input using an online polling platform, and a final Q&A. Both the PowerPoint and the polling questions were translated into 'Ōlelo Ni'ihau.

The presentation covered the following topics:

1. *Why are we here?*
2. *Planning for Kuleana Homesteading for Subsistence Agricultural Lots at Pu'u 'Ōpae*
3. *What has been done to ho'omākaukau?*

4. *Report of the work completed by many that brings us to tonight's presentation*
5. *How do I as a beneficiary help this process?*
6. *Role of beneficiary input has and will be KEY from beginning to end*
7. *What still needs to be accomplished and where do we go from here?*
8. *Timeline of remaining tasks and schedule to eventual awarding of lots*

The presentation showcased two potential lot layout schemes. The first scheme included a total of 140 half-acre lots and a second scheme with 240 half-acre lots.

Of the approximately 36 individuals in attendance, only about 21 participated in the online polling exercises. Both the PowerPoint presentation and the results of the polling exercise will be posted on the DHHL webpage.

At the conclusion of the presentation, the audience had an opportunity to ask questions and provide comment. Barbara Natale (G70) was stationed near the front of the stage to record the highlights of the discussion. These highlights include:

Will there be pastoral lots at Pu'u 'Ōpae?

- None planned at this time

Why was a lot size of half acre selected?

- Some beneficiaries preferred a place to relax, and shared that 1/4 acre is big enough. They would need to hire a farmer to take care of a half acre.
- Some beneficiaries prefer a larger lot size
- Beneficiaries shared that the size of lot should depend on capacity of family

Size of lot

- Beneficiary shared that she could farm 10 acres with her family. She could farm up to 40 acres. It all depends on how/what you farm.
- There are ways to manage the land
- Farming a large amount of land can be taught
- A beneficiary shared that he would need to buy a tractor
- Beneficiaries would need to get together. Resources could be shared.

Would waste disposal/ sewage be provided?

- Kuleana Homestead lots do not provide sewage infrastructure. Only a lot and road access are provided.
- Concern about the impact of 240 lots with septic
- Vision for the land is to have sustainability - requires a certain kind of community to do this

Lessees need to have commitment to this lifestyle

- Training should be included
- Beneficiaries would like to be educated - If you have this size lot, then you need to do this
- Need information on how to take care of the property
- Lessees will need to understand wildlife and how to manage their crops
- Have a right to know what is up there before they spend money and work the land
- Provide a robust introduction to the property for potential lessees
- Make sure beneficiaries understand fully what they are getting into before signing the lease
- Provide opportunity for lessee to back out if needed

Allocation of water

- Variety of crops
- Different crops/animals have different needs
- Crops and water usage can be regulated
- Belief that no matter what crop is determined for the land, that water is needed
- DHHL should be sure to figure out how to supply water to the lots

Summary of Mentimeter Polling Results:

The complete list of polling questions and beneficiary responses is available in the following section.

1. The majority of meeting attendees are homestead applicants
 - Homestead Applicant- 61%
 - Homestead Lessee- 22%
 - Other- 17%
 - Interested in Applying- 0%
2. Attendees believed that the greatest physical challenge for the Pu'u 'Ōpae Settlement Community would be road maintenance and upkeep. The second greatest perceived challenge was access to potable water. The third was managing fire hazard risk. The fourth was waste disposal.
3. Beneficiaries had a strong preference for backyard subsistence agriculture over shared traditional agriculture, a small community cooperative, or large community cooperative.
4. Beneficiaries preferred for homesteads to be arranged as individual lots.
5. Attendees were divided on their preference for the number of lots to be developed.
 - 240 lots- 29%
 - 140 lots- 24%
 - Less than 140 lots- 24%
 - More than 240 lots- 24%

6. Beneficiaries ranked the option to reside on the land as the top priority for the project. Shared spaces and responsibility were ranked second. Subsistence based agriculture was ranked third. Improving site safety was ranked fourth. Awarding as many lots as possible was ranked fifth.

DHHL Pu'u 'Ōpae Beneficiary Meeting

August 29, 2019

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Question 1	
Question	I am a . . .
Respondents	16
Choices	Votes
homestead lessee	4
homestead applicant	11
interested in applying	0
other	3
Question 2	
Question	What is your favorite halli'a aloha (memory) that you have of Pu'u 'Ōpae?
Respondents	11
Responses	
Hunting	
My husband used to gather there with his family...	
Sugarcane	
Hunting	
Hunting and bike riding	
None, my kids used to go there but he said they used to call it Pupae.	
My father graded the road to Puu Ooae and we worked and played there in 1950	
Hunting	
Tranquility	
My Ohana had pastoral up at pu'u opae a long time ago.	
O ta holo ana i uta ho'omamao ela au i ka tumu manakō a he mau auwai ta'u i ite ai. Holo kula mātou i lila no ta opae	
Question 3	
Question	Do you have a pilina (connection) to this 'āina?
Respondents	14
Choices	Votes
'Ae (Yes)	10
'A'ole (No)	4
Question 4	
Question	What physical characteristics of the land at Pu'u 'Ōpae are most important to you?
Respondents	13
Responses	
Relaxing a place to clear the mind	
My children tell me the view	
Just the land itself	
Watching the sunset	
Connection to moolelo and mele	
The view	
The views, relaxing, close to nature	
View peacefulness	
Aohe ano tā po'e	
The beautiful	
The aina, the water, the smell, of the grass, the animals, serenity	
It is beautiful. Remembering having picnic under the mango tree.	
Surrounded with our Kupunas	
Question 5	
Question	Rank what you feel are the greatest physical challenges for the Pu'u 'Ōpae Settlement Community?
Respondents	16
Items	Rank
Road maintenance and upkeep	1
Access to potable water	2
Managing fire hazard risk	3
Preserving historic and cultural resources	5
Access to electricity	6
Preserving biological resources and invasive species control	8
Waste disposal	4
Other concerns not mentioned	7

DHHL Pu'u 'Ōpae Beneficiary Meeting

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Question 6	
Question	Did you participate in the planning process for any of the following plans for the Pu'u 'Ōpae Community?
Respondents	10
Choices	Votes
2004 Kaua'i Island Plan	3
2011 West Kaua'i Regional Plan	3
2014 Farm and Irrigation Project	3
2018 Kuleana Homestead Settlement Plan	8
Question 7	
Question	What three words (or simple sentence) can be used to describe what you hope for the next generation at Pu'u 'Ōpae?
Respondents	14
Responses	
I ola mau to Katou lāhui	
Next generation grow deep into our Hawaiian culture	
That my kids will be rooted there	
Self sufficiency Culture Next generations	
Having a cultural connection to the Aina and the wishes of our Kupuna	
ThriveOla Hoomau	
Awarded lands	
Farming/ Agriculture	
Flourish in all aspects	
Pride in ownership and creating a space for all	
Culture Pride	
My hope in the next generation living on the land. Sharing and continuing the Hawaiian culture. Aloha the Aina.	
Setting up for our future generation. This is our MAUNA!	
Someplace to call their aina	
Question 8	
Question	On a scale from 1 to 10, how much do the following values resonate with you?
Respondents	18
Choices	Weighted average
Akua First	7.666666667
Pu'uwai Aloha	7.166666667
Mālama Honua	7.555555556
Hana Lima	7.411764706
Question 9	
Question	Name another core value that you believe the community at Pu'u 'Ōpae should be built upon.
Respondents	14
Responses	
Pono Lāulima Steadfast	
Trust	
Kapu aloha Kuleana Humility	
Trust Love Aloha	
Kotua ketahi i ketahi	
Aloha Self_sufficiency Pono	
Pono Aloha Kokua	
Trust in one another Sharing	
Kuleana Pono Aloha	
Self_reliance	
Ohana Hanalima Malama	
Malama Care_for_others Create_a_community	
Aloha_for_all	
Supporting_one_another Love_each_other Strong_support_as_a_commu	

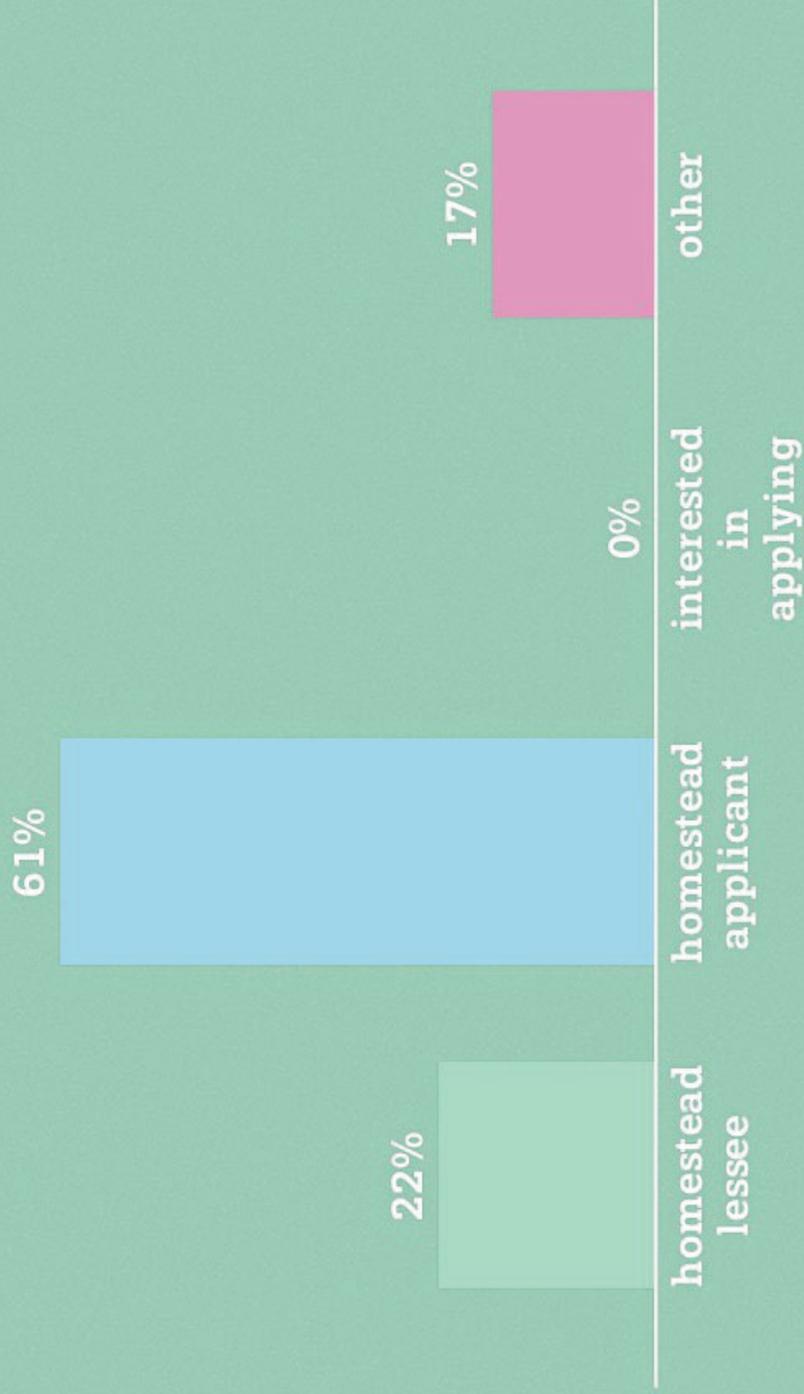
DHHL Pu'u 'Ōpae Beneficiary Meeting

August 29, 2019

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Question 10	
Question	Which image best represents your vision for agricultural activity at Pu'u 'Ōpae?
Respondents	17
Choices	Votes
Backyard Subsistence Agriculture	12
Shared traditional agriculture	2
Small community cooperative	1
Large community cooperative	2
Question 11	
Question	Which is your preferred settlement layout?
Respondents	16
Choices	Votes
Individual Lots	12
Shared Agriculture	2
Clustered Homes with Individual Agriculture	2
Clustered Homes with Shared Agriculture	0
Question 12	
Question	I prefer the Kuleana Homestead Settlement at Pu'u 'Ōpae include . . .
Respondents	17
Choices	Votes
< 140 lots	4
140 lots	4
240 lots	5
> 240 lots	4
Question 13	
Question	Rank from highest to lowest what the Pu'u 'Ōpae plan should really focus on??
Respondents	17
Items	Rank
Shared spaces & responsibility	2
Emphasis on individual space	6
Renewable energy connection	7
Awarding as many lots as possible	5
Subsistence based agriculture	3
Option to reside on the land	1
Reforestation and restoring natural environment	10
Improve site safety and access	4
Community based economic development	9
Preservation of significant historical and archaeological sites	8
Question 14	
Question	What excites you the most about the Kuleana Homestead opportunity at Pu'u 'Ōpae?
Respondents	1
Responses	
Being able to grow our own vegetables and fruit trees and also flowers.	
Question 15	
Question	Do you have any other questions for us?
Respondents	0
No votes for this session	

I am a....



What is your favorite hali'a aloha (memory) that you have of Pu'u 'Ōpae?

Hunting

My husband used to gather there with his family...

Sugarcane

Hunting

Hunting and bike riding

None, my kids used to go there but he said they used to call it Pupae.

My father graded the road to Puu Ooae and we worked and played there in 1950

Hunting

Tranquility

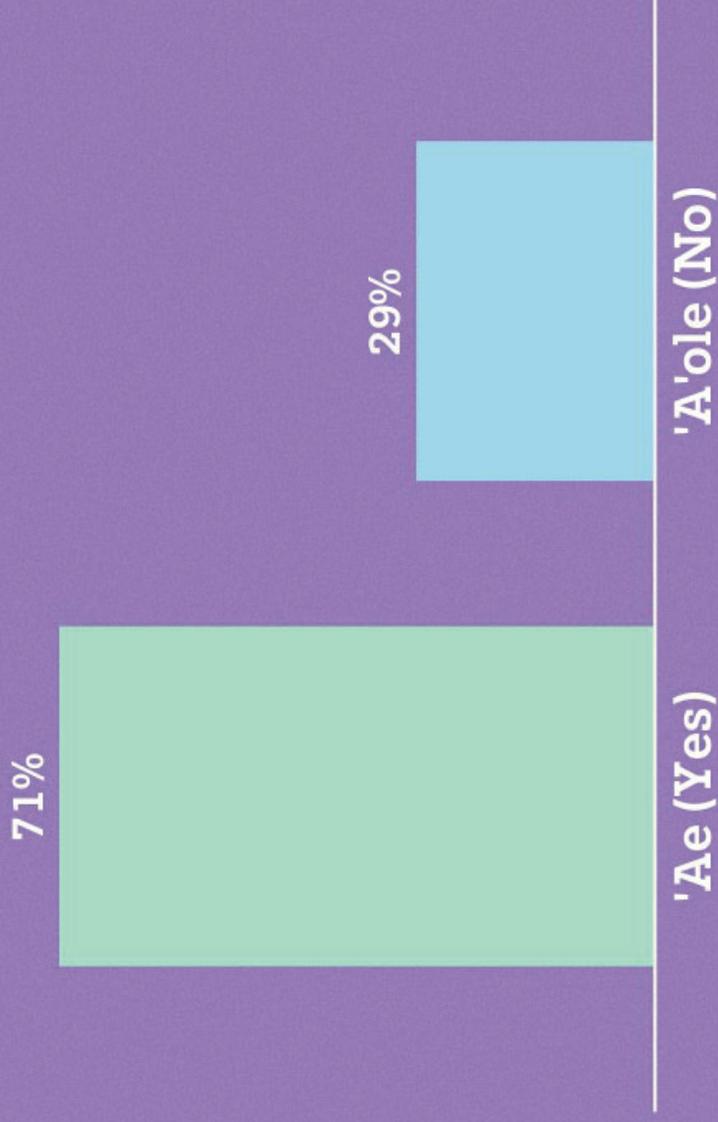


What is your favorite hali'a aloha (memory) that you have of Pu'u 'Ōpae?

My Ohana had pastoral up at pu'u opae a long time ago.

O ta holo ana i uta ho'omamaoela au i ka tumu manakō a he mau auwai ta'u i te ai. Holo kula mātou i lila no ta opae

Do you have a pilina (connection) to this 'āina?



What physical characteristics of the land at Pu'u 'Ōpae are most important to you?

Relaxing a place to clear the
mind

My children tell me the view

Just the land itself

Watching the sunset

Connection to moolelo and
mele

The view

The views, relaxing, close to
nature

View peacefulness

Aohe ano tā po'e



What physical characteristics of the land at Pu'u 'Ōpae are most important to you?

The beautiful

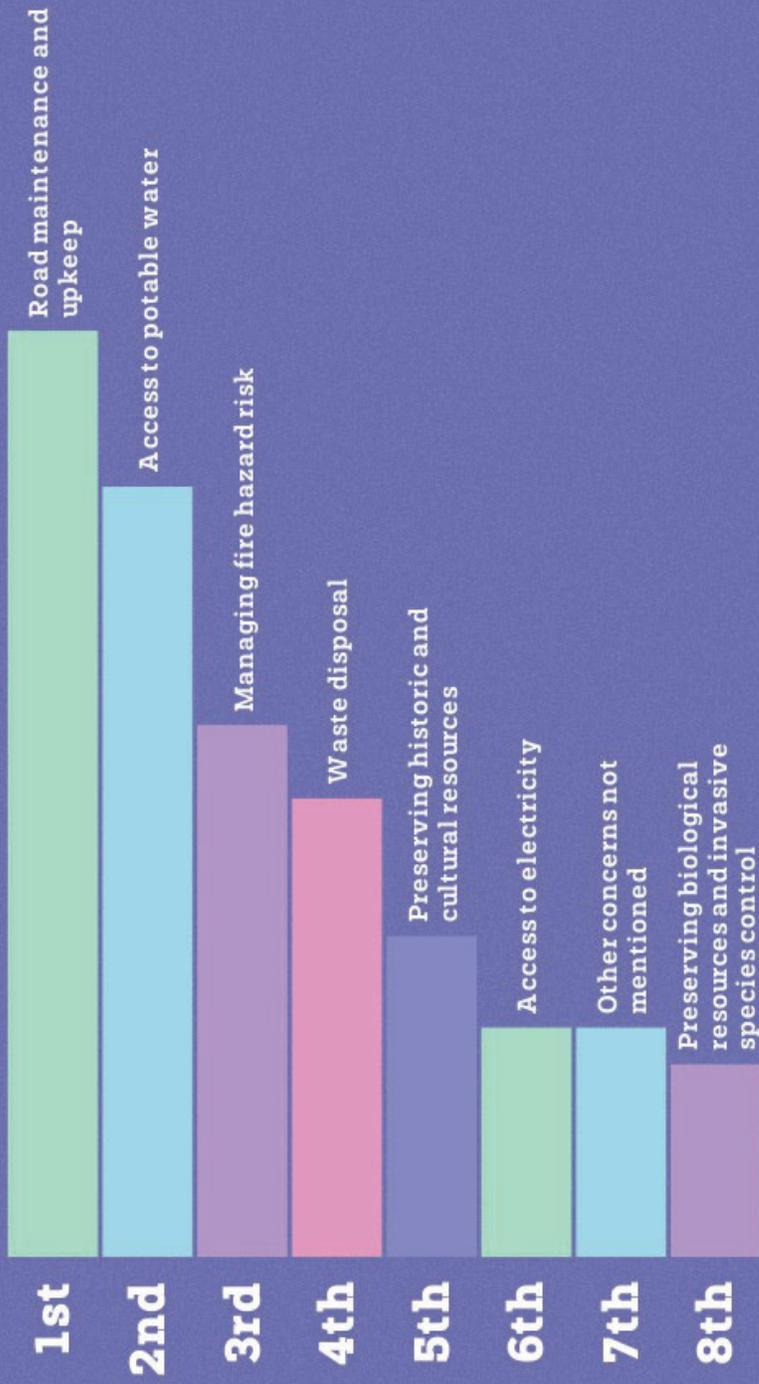
Surrounded with our
Kupunas

The aina, the water, the
smell, of the grass, the
animals, serenity

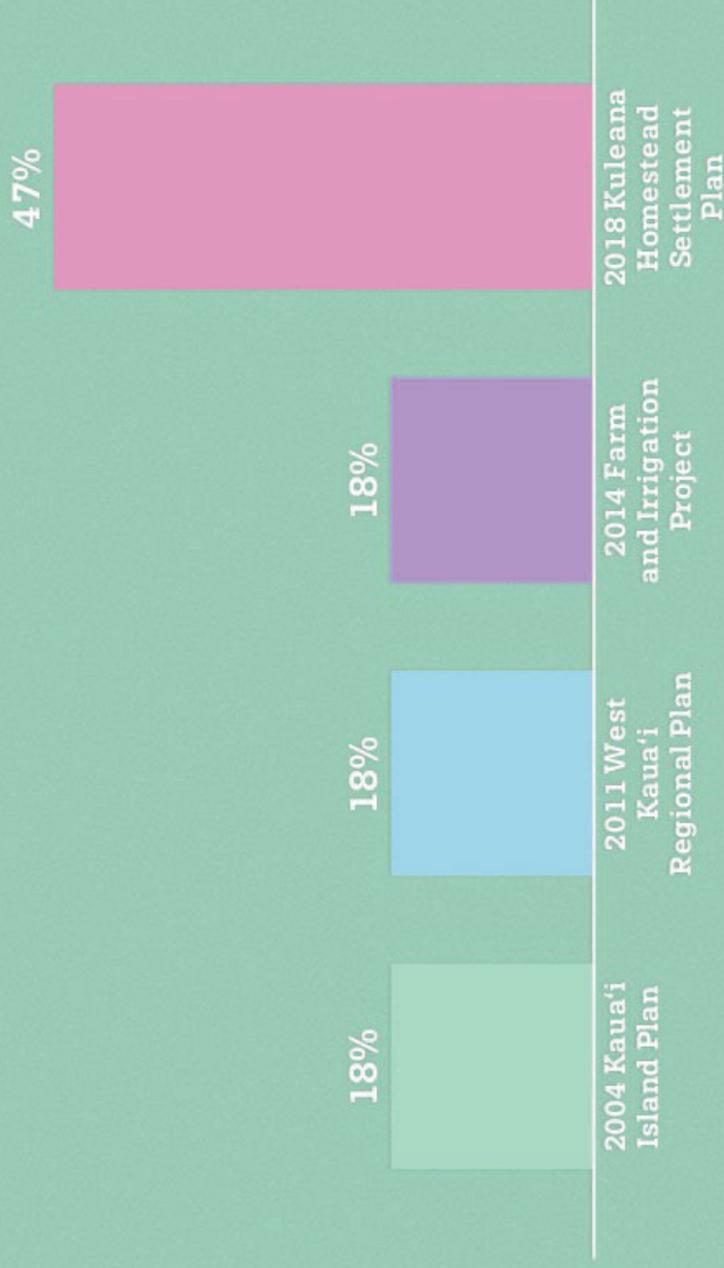
It is beautiful. Remembering
having picnic under the
mango tree.



Rank what you feel are the greatest physical challenges for the Pu‘u ‘Ōpae Settlement Community?



Did you participate in the planning process for any of the following plans for the Pu'u 'Ōpae Community?



What three words (or simple sentence) can be used to describe what you hope for the next generation at Pu'u 'Ōpae?

I ola mau to Katou lāhui

Self sufficiency Culture Next generations

Awarded lands

Next generation grow deep into our Hawaiian culture

Having a cultural connection to the Aina and the wishes of our Kupuna

Farming/ Agriculture

That my kids will be rooted there

Thrive Ola Hoomau

Flourish in all aspects



What three words (or simple sentence) can be used to describe what you hope for the next generation at Pu'u 'Ōpae?

Pride in ownership and creating a space for all

Setting up for our future generation. This is our MAUNAI

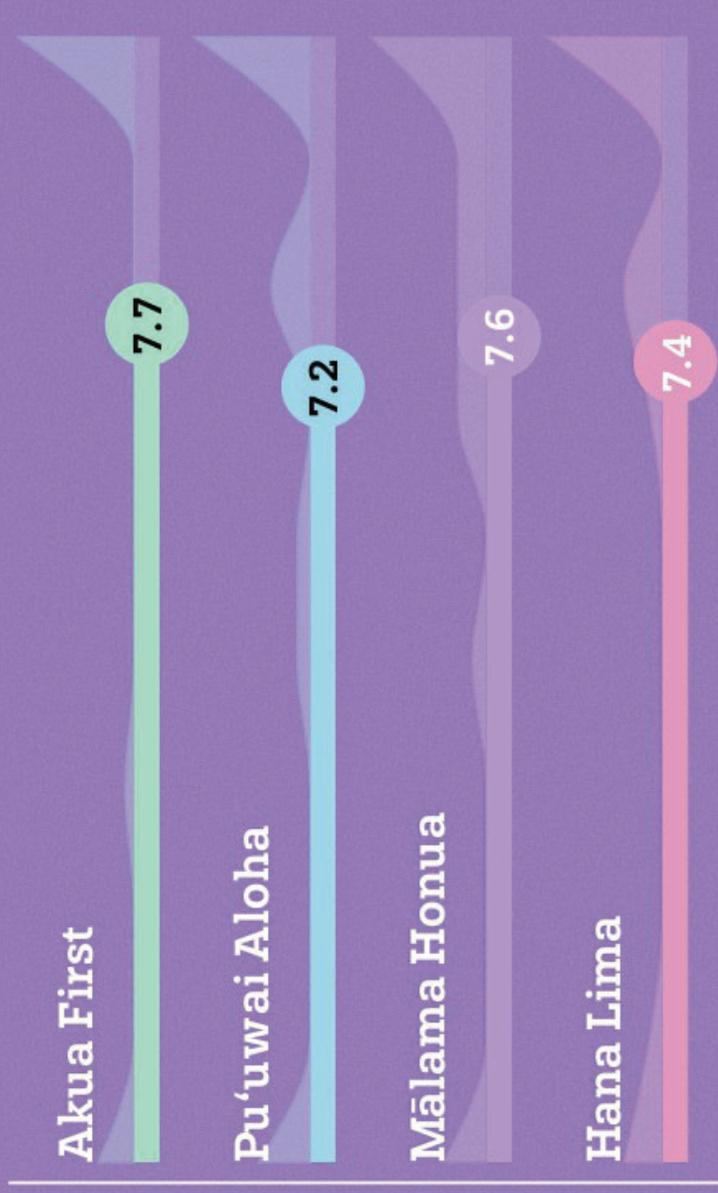
Culture Pride

Someplace to call their aina

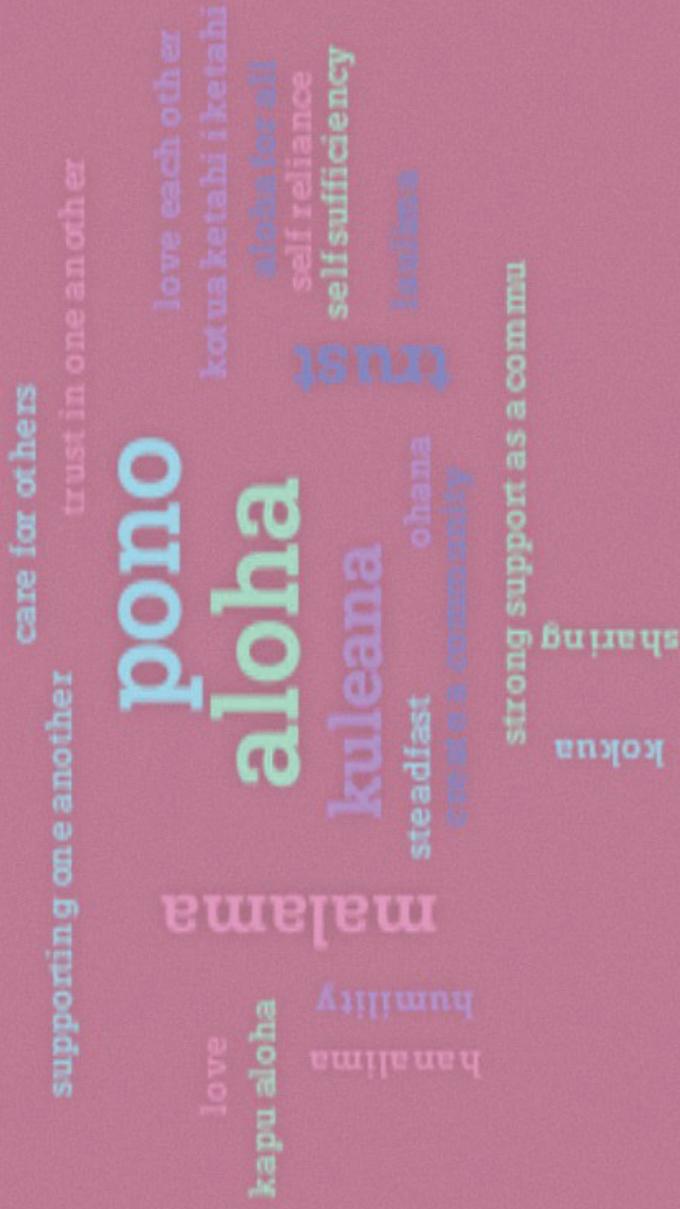
My hope in the next generation living on the land. Sharing and continuing the Hawaiian culture. Aloha the Aina.



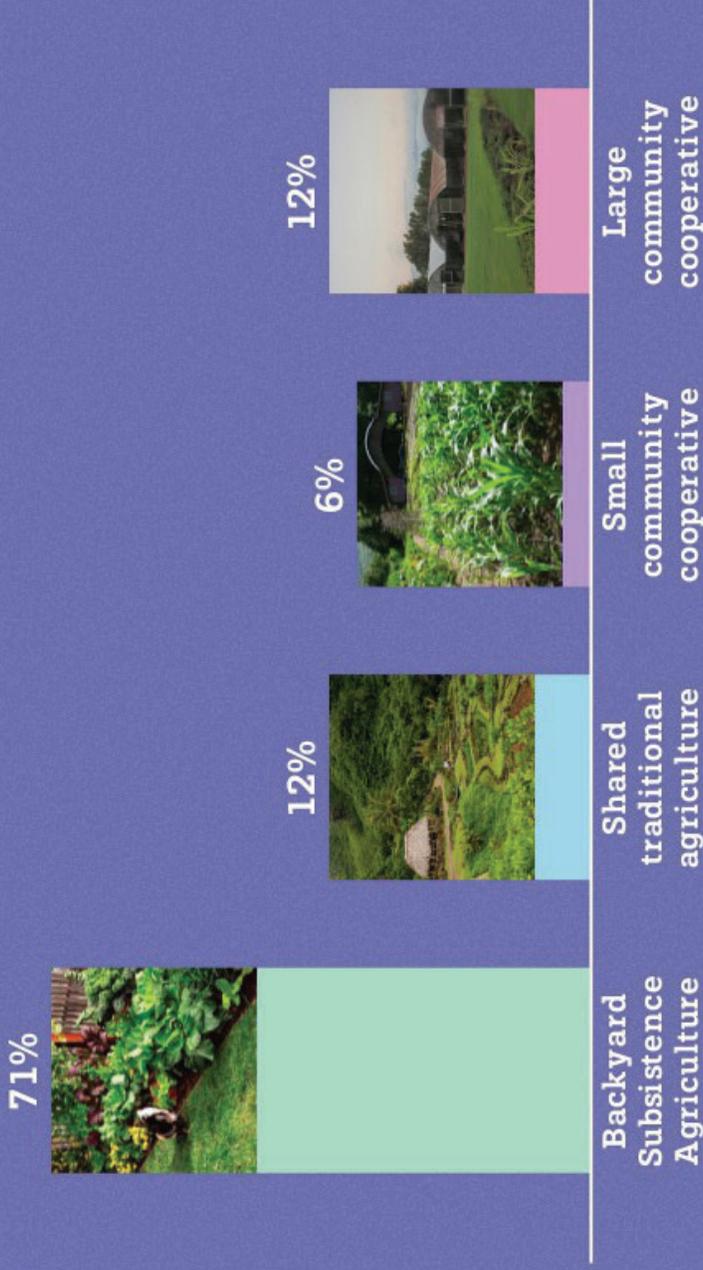
On a scale from 1 to 10, how much do the following values resonate with you?



Name another core value that you believe the community at Pu'u 'Ōpae should be built upon.



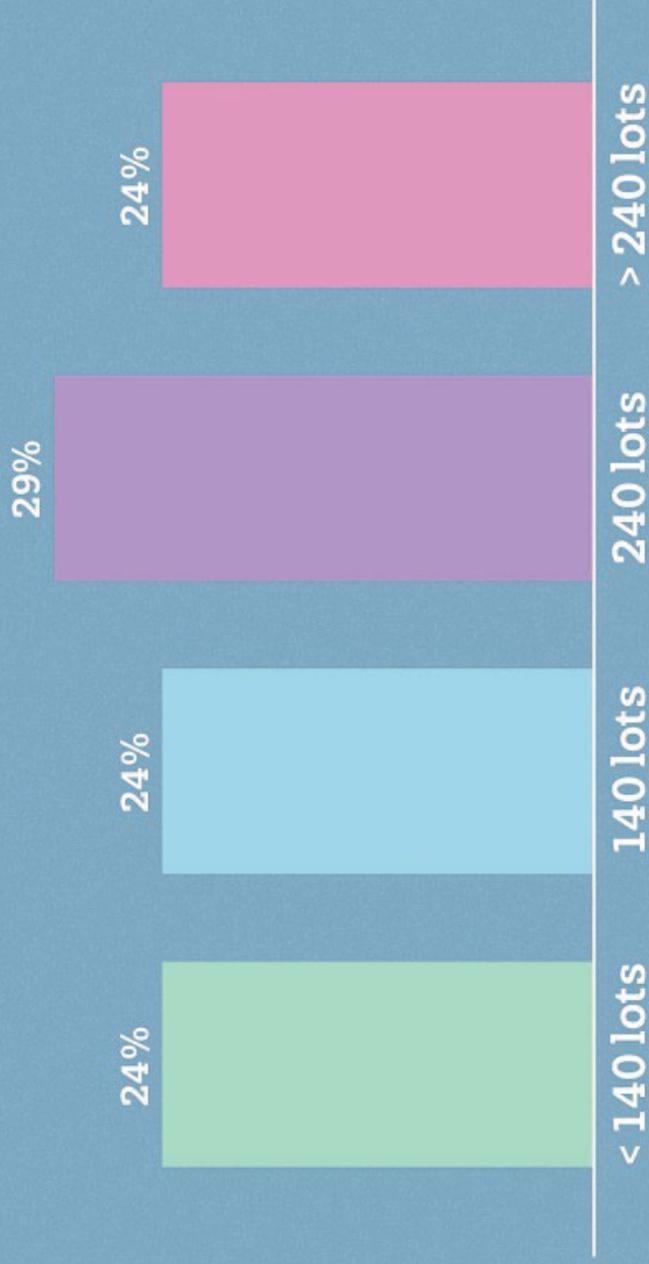
Which image best represents your vision for agricultural activity at Pu'u 'Ōpae?



Which is your preferred settlement layout?



I prefer the Kuleana Homestead Settlement at Pu'u 'Ōpae include...



Rank from highest to lowest what the Pu'u 'Ōpae plan should really focus on??



What excites you the most about the Kuleana Homestead opportunity at Pu'u 'Ōpae?

Being able to grow our own vegetables and fruit trees and also flowers.

Do you have any other questions for us?





CONFERENCE REPORT

111 S. King Street
Suite 170
Honolulu, HI 96813
808.523.5866
www.g70.design

TO:	The Department of Hawaiian Home Lands (DHHL)		
FROM:	G70		
DATE:	02/06/2020	LOCATION:	Kekaha, Kaua'i
PROJECT:	DHHL Pu'u 'Ōpae Kuleana Homestead Lots Settlement Plan	PROJECT NO:	217042-01
SUBJECT:	Beneficiary Consultation Meeting #3	NO. OF PAGES:	6
THOSE PRESENT:	DHHL: Andrew Choy, Nancy McPherson, Julie-Anne Cachola, Erna Kamibayashi	G70: Kawika McKeague, Ryan Char, Cody Winchester	
	Translations: Makana Garma- 'Ōlelo Ni'ihau		

The Department of Hawaiian Home Lands (DHHL) and G70 held a joint public meeting with beneficiaries who are on the Kaua'i Island Agricultural and Pastoral Waitlist. The meeting was held at the Kekaha Elementary School cafeteria on February 6th, 2020, from 6:00 to 8:00 pm. Approximately 40 attendees participated in the meeting. Among the approximately 40 in attendance was a congregation of about 4 residents from the island of Ni'ihau. Makana Garma assisted with 'Ōlelo Ni'ihau translations of meeting materials and facilitating discussions. For the first time in DHHL history, presentation handouts and slides have been translated into 'Ōlelo Ni'ihau. Presentation materials will be made available on the DHHL website.

Opening Statements from Andrew Choy (DHHL):

- Introductions of DHHL staff present at the meeting
- There are upcoming opportunities for Kuleana Homesteading on Kaua'i at Pu'u 'Ōpae and Anahola
- Kuleana Homesteading is part of DHHL's efforts to address beneficiaries concerns about lengthy waits on the waitlist and requests to be awarded raw land
- Tonight's meeting is not about awarding lots. Instead, it is an informational and beneficiary consultation meeting. Future meetings will be held with regard to lot awards
- Meeting tonight will include our presentation on the Settlement Plan as well as small group discussions
- Pule provided by meeting attendee

Welcoming Remarks from Commissioner Dennis Neves (HHC):

Discussion on the Purpose and Intent of the Kuleana Program by Julie Anne Cachola (DHHL):

- Whole new program: Kuleana

- “Lease in your hand, feet on the land
- What is the Kuleana Program
 - Kuleana- Right, privilege, your responsibility
 - Hawai'i Administrative Rules 10-3-30
 - Department obligations
 - Lot metes and bounds
 - Unpaved road access to lot
 - Settling on unimproved lands
 - Lots are awarded AS IS; immediate access with no improvements
 - Lands chosen because:
 - land is not easy to develop
 - excessive costs and time to develop
 - someone can live on land now
 - Kuleana awards are for people who want immediate access to the land
 - Program will put you on the land as quickly as possible -- faster than traditional lease program
 - A traditional house = prequalify for home loan
 - Kuleana lease = no financial obligations
 - This type of lease is not for everyone
 - It is not a turnkey lease
 - The Kuleana waitlist is for agriculture and pastoral list, not residential
- Lessees must create a community association / hui
 - Complex challenges require that community faces them together. Awardees must become a member of the hui.\
 - Lessees must participate in maintenance of roads
 - Preservation of natural, cultural, and historic resources
- Lessees must follow the county codes, zoning, etc. until...
 - Organization / kuleana hui, develops own codes and zoning
 - Get rules approved by commission
 - Once approved, awardees won't have to abide by county rules
- 1995 –Kahikinui Project, Maui
 - Land was only occupied by general lease ranchers
 - Homesteaders wanted land to be for Hawaiians, not for cattle
 - Remote lands meant long wait for infrastructure
 - Program designed to let the people take care of the land; be the eyes and ears
- Typical Timeline:
 - Typical timeline: wait time for securing funding, consultants, design, funding, construction.
 - Land remains idle
- Kuleana Timeline:
 - Put you on the land first
 - Rehabilitation starts at the beginning
 - Develop your community association

- Manage resources as a hui
- Develop community center
- Opportunity for community-based management, economic development, resource development
- Planning process:
 - EA to be finalized in June or July
 - DHHL could award soon thereafter, coordinating with KIUC and Subdivision for TMK's.

Presentation by Kawika McKeague (G70):

The presentation had a duration of approximately 45 minutes. The PowerPoint and discussion questions were translated into 'Ōlelo Ni'ihau.

The presentation covered the following topics:

1. *Why are we here?*
2. *Planning for Kuleana Homesteading for Subsistence Agricultural Lots at Pu'u 'Ōpae*
3. *What has been done to ho'omākaukau?*
4. *Report of the work completed by many that brings us to tonight's presentation*
5. *How do I as a beneficiary help this process?*
6. *Role of beneficiary input has and will be KEY from beginning to end*
7. *How beneficiary input has informed the Kuleana Settlement layout and design*
8. *What still needs to be accomplished and where do we go from here?*
9. *Timeline of remaining tasks and schedule to eventual awarding of lots*

The presentation showcased an updated lot layout scheme. The scheme included a total of 240 half-acre Subsistence Agriculture lots, 11 ten-acre Pastoral lots, 63 acres of Supplement Agriculture, 152 acres of Community Use, and 702 acres of Special District. Slides were shown to demonstrate what all could be done on a half-acre of land. The plan also includes shared common green areas. Subsistence Agriculture lots are located along the perimeter of the shared common greens. The homestead association may determine the best use for these shared spaces. The presentation discussed potential uses and programs for the Community Use and Special District areas.

The presentation focused on the primary concerns expressed by beneficiaries at the previous consultation meeting. These concerns included: roadway maintenance, potable water, wildfire hazard, wastewater, preservation of cultural resources, and electrical power. The presentation outlines potential ways individuals or the homestead association may address these concerns.

Group Discussion:

At the conclusion of the presentation, the audience had an opportunity to ask questions and provide comment. Beneficiaries broke out into four small groups for a 45 minute discussion on the following questions:

1. *What would be viable alternatives for your potable water, wastewater, and power needs? If you accepted a Kuleana Lease at Pu'u 'Ōpae, how would you address these needs?*
2. *Would this Settlement Plan, as shown today, work for you and your family?*
3. *The Rules say DHHL has to provide an unpaved road—do you think it should be paved?**
4. *What would be viable alternatives for the shared common areas?*
5. *Do you have any questions or comments about what was shown today?*

***Keep in mind that any Departmental involvement means more time...*

Discussion Highlights:

- What excites you most about the opportunity at Pu'u 'Ōpae?
 - The plan incorporated our mana'o
 - Faster awarding process
 - No need for financial obligation
 - Like having options and ability to do what community wants
- What gives you pause / what would be a deal breaker?
 - Still some uncertainty about how the Kuleana program works. Never heard of it before tonight.
 - How much of a time commitment / how much work will it be to maintain land?
 - What was learned from Kahikinui? Will this project be better than Kahikinui?
 - Can I choose to occupy lot? Beneficiaries can only have one home. What is the definition of a "home"? Can I live in a shed?
 - Who will build homes? Will homes be safe enough without being to State and County codes?
 - Can Kupuna transfer lot to a family member?
 - Cutting thru red tape
 - Hard to nail timeframe
 - Guidance/enforcement of rules
- What are viable alternatives for potable water, wastewater, and energy?
 - Rain catchment

- Spring water
 - Generator
 - Solar
 - Wind
 - Want KIUC to provide energy. Not fair for KIUC to use Hawaiian land without giving back. They should provide energy free for beneficiaries if they plan on using beneficiary land.
-
- Would this plan work for you and your family?
 - Plan is good.
 - It would be great for a young family to live and work on
 - Like the options presented.
 - Like the ability to choose how to use spaces.
 - Time commitment could be an issue for some.
-
- Do you prefer for the roads to be paved?
 - Concern for erosion.
 - What would be the frequency of repairs? How much work would it be to self-maintain roads?
 - Need 4-wheel drive
 - 5 years would be too long to wait for road improvements.
-
- What are viable alternatives for the shared / common spaces?
 - Education-learn about farm and culture. Learn how to become stewards of the land.
 - Education for rural families.
 - Space for keiki- recreation, education, and cultural practices
 - Would the Department of Education pay to create an education program for community? EA could look at funding opportunities for education.
 - Food forest
 - Community gardens
 - Pollinator garden
 - Cluster wastewater
 - Growing food
 - Training workshops prior to settlement
 - Agricultural test areas
-
- Do you have any questions or comments about what was shown today?
 - Livestock zoning (should they zone where livestock is allowed?)
 - Can KIUC rent go to Puu Opae
 - Phasing, who's there?
 - Time for award impacts family plans
 - Need good lands, right soil types
 - Canoe builders, sandalwood

- Community does some roads of the roads, why wait for KIUC?
- Want to learn
- How much pipes DHHL install?
- Phases
- Hemp and remove poison from ground (from sugar cane era)
- Need to experience environment Before deciding
- Timing of lease should be independent of KIUC
- Need commitment of lease to commit to planning
- Community lot lines not as important
- Entrepreneur or subsistence?

Appendix B

Wildfire Considerations Memorandum (HWMO)



December 27, 2017

To: Kawika McKeague, Group 70

Subject: Written Memorandum for DHHL Pu'u Opae Master Plan: Wildfire Preparedness and Hazard Reduction Considerations; Deliverable 1 of 2

Dear Mr. McKeague,

Please find here Hawaii Wildfire Management Organization's (HWMO) contracted memorandum, which includes pertinent wildfire-related planning considerations for the Pu'u Opae Master Plan.

Once additional specifics related to the settlement plan are determined and provided, HWMO will provide an additional memorandum that provides wildfire-related considerations at the neighborhood level and for the wildland-urban interface.

Please contact me with questions,

A handwritten signature in blue ink, reading "Elizabeth Pickett".

Elizabeth Pickett
Executive Director

Included:

Memorandum 1 of 2
Invoice 1 of 2

Memorandum 1

Wildfire-Related Planning Considerations for DHHL Pu'u Opae Master Plan

The DHHL Pu'u Opae Master Plan project area is located within a wildfire-prone environment. Several nearby communities received high hazard ratings in a 2012 statewide community wildfire hazard assessment rating conducted by HWMO. There are several factors that contributed to these ratings, all of which are important to understand and consider for planning in the area. The wildland fire hazard characteristics can be organized into two categories: the *fire environment* and the *built environment*.

With the exception of vegetation management, many of the characteristics of the fire environment are not changeable through planning (wind, rainfall, etc.). However, careful planning can do much to optimize the positioning and design of a development project to mitigate wildfire hazard to the project area, creating a much safer place for people and the structures they inhabit. By contrast, the built environment is an arena with numerous opportunities to reduce hazard and increase wildfire safety. Proactive, informed planning will play a key role to reduce risk and protect the area, and its residents and structures.

This memorandum discusses both the fire environment and built environment in and around the DHHL Pu'u Opae project area, and provides planning considerations that HWMO assesses to be most relevant to the master planning portion of the project.

FIRE ENVIRONMENT

The DHHL Pu'u Opae Master Plan project area lies within an area that is considered high hazard for the following reasons:

- Steep slopes (some above 30%).
- Low precipitation.
- Frequent exposure to moderate to winds over 15mph.
- Seasonal exposure to drought conditions and desiccation of vegetation.
- History of nearby wildfire ignitions.
- Major features that adversely affect wildfire behavior, such as ravines, chutes, and saddles.
- Proximity of fire prone vegetative fuels around area.
- Vegetative fuel load is 71-100% cover, with mostly contiguous, uninterrupted vegetation.

Planning considerations:

1. **Vegetation management** will be key to reducing wildfire hazard in the area. Vegetation management goals should include:
 - Reducing and maintaining vegetation along roads and in human-accessed areas. More than 98% of wildfires are ignited by people in Hawaii, and managing fuels wherever there is the potential for cars to pull over on dry grass or for humans to mismanage campfires, etc. is essential to reducing the likelihood of ignition. Strategies range from roadside mowing to fenced grazing corridors.
 - Managing grasses to interrupt continuity of fuels. A dense, contiguous swath of dry vegetation (especially the grasses and shrubs present at the lower elevations of the

project area) can allow for fire behavior that travels rapidly across uninterrupted fuel beds. Aiming toward the creation of a patchy mosaic of vegetation heights and densities across the landscape will often allow a fire to slow down, providing firefighters more time to carry out fire suppression activities. This can be achieved by manual, mechanical, or animal grazing methods. Not all vegetation has to be cleared or managed to create such a mosaic, offering a good strategy when not all lands can be managed. This can be applied when considering how to divide land for active agriculture and grazing.

- Managing “ladder fuels.” Ladder fuels are areas where ground vegetation like grass is connected to canopy vegetation with no clear separation. (Example, tall grass touches low hanging branches). Grasses should be kept low and trees limbed high along grass-forest boundaries, so that fire cannot travel easily into treetops. A canopy fire is much more difficult to suppress and travels quickly due to wind exposure.
- Creating a buffer of reduced vegetation hazard around developed areas. Strategies range from regular manual weed whacking to fenced grazing corridors hiking paths, horse trails, irrigated agriculture, native plant restoration, shaded/green fuel breaks, or community uses that alter high hazard vegetative fuel loads. Planning for a low-cost community- or self-sustaining fuels management strategy will ensure longer-term protection than something like weed whacking which will require frequent and costly maintenance.

2. ***Human settlement areas should be located:***

- Away from major topographic features. Fire moves more quickly uphill by pre-heating and pre-drying the vegetation above it, and even more quickly up canyon/ravine-like features. The DHHL settlement area should not be located adjacent to these features.
- In areas with minimal slope.
- If possible, in areas protected from stronger winds.
- In a location that minimizes the number of sides surrounded by unmanaged fuels. For example, a community surrounded by active agriculture or regularly grazed fuels has a lower hazard than one adjacent to unmanaged grasses.

BUILT ENVIRONMENT

The DHHL Pu‘u Opae Master Plan project area can keep its hazard lower by aiming for the following built environment features:

- ***At least two roads in and out of the area.*** Inadequate ingress/egress impedes evacuation, can cause entrapment, and can delay or hinder fire suppression activities.
- ***Water source availability.*** This is a major challenge in the Pu‘u Opae area. In addition to firefighting, water will be key for the Pu‘u Opae area because some of the potential vegetation management and hazard reduction strategies (such as agricultural operations or grazing) will rely on adequate water resources.
 - Pressurized water source availability offers the best wildfire protection, with 500 gallons per minute and hydrants spaced less than 1,000 ft. apart. Non-pressurized water sources are a moderate alternative, such as an offsite or draft location, or a network of helicopter diptanks kept full with rapid re-fill rates. Discussing and

planning water resources for wildfire suppression and probably vegetation management strategies (such as agricultural operations or grazing) with the KIUC project will be very important!

- **Road design** should consider firefighting access and minimize entrapment of both the public and firefighters. Roads should have:
 - Adequate width (24+ feet, paved or a solid surface with drivable shoulders, good visibility to allow two-way traffic and support evacuation and rapid emergency response time).
 - Adequate turnaround space for large equipment.
 - Visible street signs and mile markers.
 - All-season access. Narrow, steep, or non-surfaced roads are difficult to access and limit emergency response equipment.
 - A multi-purpose design: provide ingress/egress, serve as a firebreak that slows/stops fire, runs perpendicular to the slope and wind direction to thwart during-fire flame spread and post-fire erosion.
- **Underground utilities.**
- **Optimized fire suppression access.** Any structures or lands that will need priority protection should be designed with an aim of decreasing firefighter response time through easy access and by locating community infrastructure closest to fire stations and transportation routes.

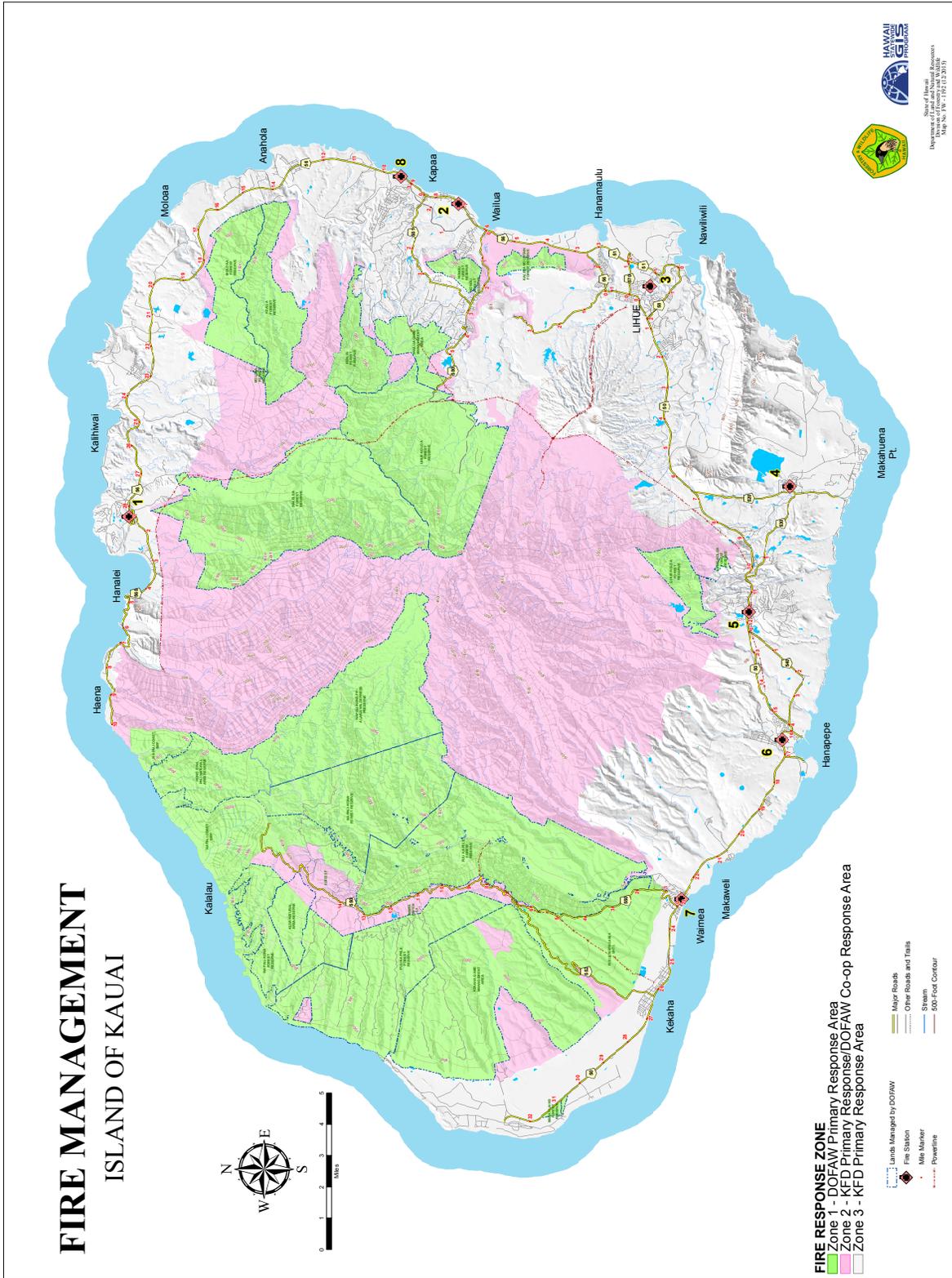
Whenever possible, the strategies should work together, such as:

- Locating roads and settlement areas within a larger framework of actively grazed, cultivated lands.
- Roads should serve as fuel breaks, firefighting access, evacuation routes, and provide access to water resources such as hydrants or draft locations.
- Water can serve agricultural/ranching, residential, and firefighting purposes. Examples includes large water tanks that can be set up to serve as helicopter diptanks, but when not in fire suppression use, the water can be used to fill grazing troughs and agricultural lines and be maintained by the regular water users. Residential water distribution can be designed concurrently with pressurized hydrants, etc.
- Forest restoration activities or grazing operations can be combined with strategies for fire protection, such as along grass-forest boundaries to reduce “ladder fuels”, along community boundaries to create a buffer that reduces hazardous fuel, or along roadsides to minimize the likelihood of roadside sparks becoming fires that carry into the larger area.
- The KIUC project, which is currently being designed may provide additional opportunities for draft locations for fire suppression activities, and coordinating with them may offer mutual benefits.

Additional information:

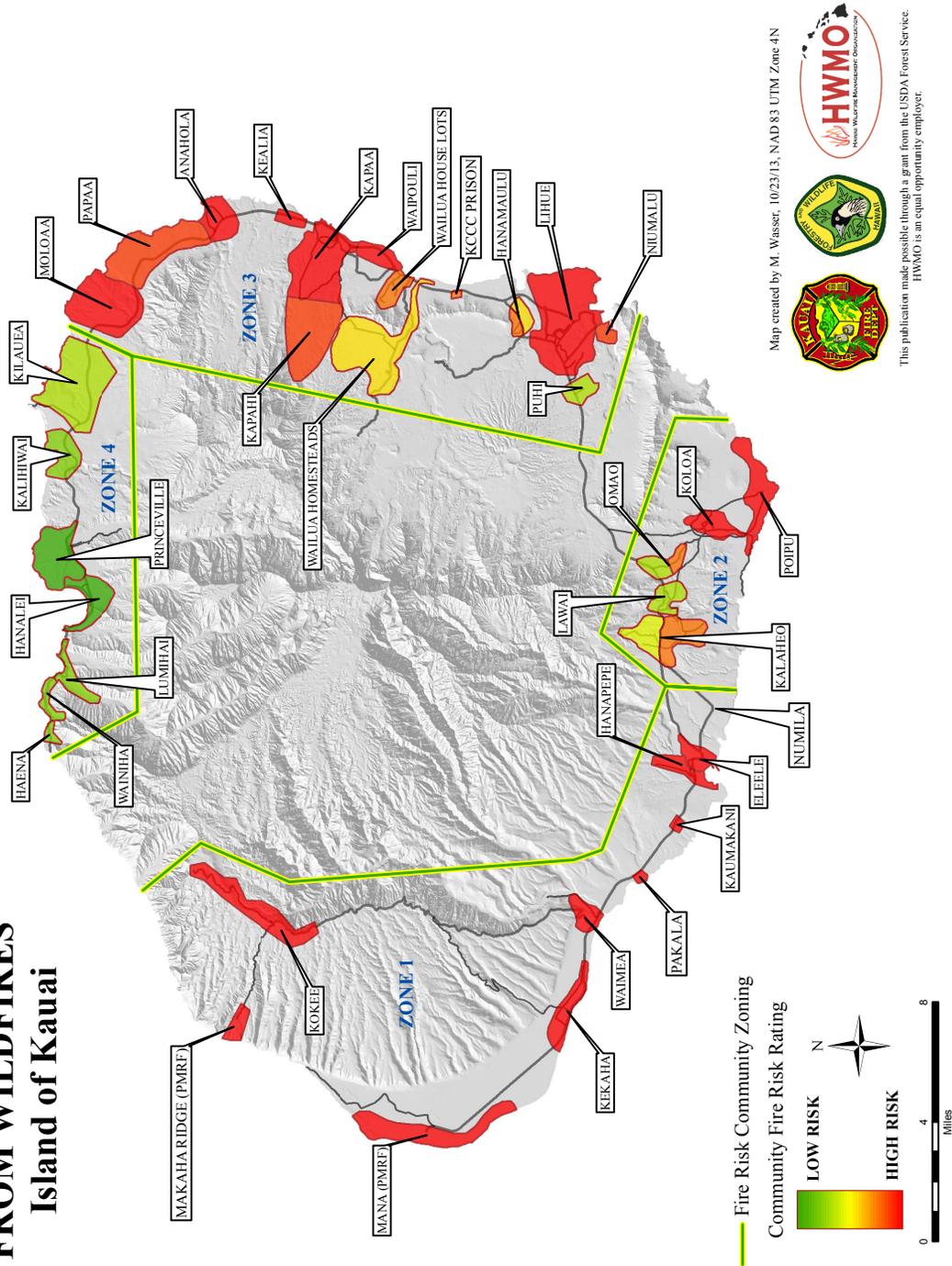
Based on the community meeting during the site visit, it became clear that a fire response map would be useful to your planning process and also the community. The following map indicates which government agencies are responsible for fire suppression across Kauai locations. HWMO

recommends that all parties work closely with the relevant agency fire managers in the final stages of planning and implementing this project.



Map 1. Fire Management Response Map. Updated by DOFAW December 2015.

COMMUNITIES AT RISK FROM WILDFIRES Island of Kauai



Map 2. Communities at Risk from Wildfires Map. Updated by Hawaii Wildfire Management Organization, July 2013. This map is based on 36 wildfire hazard characteristics in developed areas and was completed in partnership with DOFAW and Kauai Fire Department.

Next steps:

Memorandum 2 will include considerations for addressing the following in the settlement plan:

Subdivision hazards: Structure density; Street signs; Home setbacks; Unmanaged, untended lands (vacant lots); Private landowner Firewise/hazard reduction landscaping and defensible space actions.

Building hazards: Roofing assembly; sidings/soffits; under skirting around elevated structures; structural ignitability.

Fire protection capacity: Local emergency operations; Community planning practices and ordinances; and Community fire-safe programs.

Appendix C

**Cultural and Historical Resources
Literature Review
(Keala Pono)**

FINAL— Literature Review for the Pu‘u ‘Ōpae Special Area Master Plan, Waimea Ahupua‘a, Kona District, Island of Kaua‘i, Hawai‘i

TMK: (4) 1-2-002:023 (por.)



Prepared For:

G70
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813



June 2020



Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kāne‘ohe, HI 96744 • Phone 808.381.2361

**FINAL— Literature Review for the Pu‘u ‘Ōpae Special Area
Master Plan, Waimea Ahupua‘a, Kona District, Island of Kaua‘i,
Hawai‘i**

TMK: (4) 1-2-002:023 (por.)

Prepared For:

G70
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813



Prepared By:

Windy McElroy, PhD
and
Dietrix Duhaylonsod, BA

June 2020



Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kāne‘ohe, HI 96744 • Phone 808.381.2361

MANAGEMENT SUMMARY

Keala Pono Archaeological Consulting prepared a cultural and historical resources literature review for TMK: (4) 1-2-002:023 (por.) in Waimea Ahupua‘a, Kona District, on the island of Kaua‘i, where Department of Hawaiian Home Lands kuleana lots are proposed. This work was designed to identify any historic properties that may be located on the parcel in anticipation of the proposed construction. The literature review consisted entirely of library and published research. No archaeological fieldwork was conducted. Although much of the project area was disturbed by sugarcane cultivation in the 20th century, archival research revealed that a traditional heiau, village, and petroglyphs, as well as a plantation-era camp, access road, and irrigation ditch were located within the project boundaries.

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INTRODUCTION

At the request of G70, Keala Pono Archaeological Consulting conducted a literature review for approximately 1,400 acres (567 ha) of TMK: (4) 1-2-002:023 in Waimea Ahupua‘a, Kona District, on the island of Kaua‘i, where Hawaiian Home Lands kuleana lots are proposed. This work was designed to identify any historic properties that may be located in the project area in anticipation of the proposed development. It consisted entirely of a literature review, with no archaeological fieldwork conducted.

The report begins with a description of the project area and a historical overview of land use and archaeology in the area. Results of the literature review are summarized, and recommendations are made in the final section. Hawaiian words and flora and fauna are defined in a glossary at the end of the document.

Project Location and Description

TMK: (4) 1-2-002:023 is a 14,558.684-ac. (5891.690-ha) parcel owned by Hawaiian Home Lands that lies within Waimea Ahupua‘a, Kona District, on the west side of Kaua‘i (Figures 1 and 2). The property consists of rugged uplands, of which approximately 1,400 acres (567 ha) will be considered as the project area (Figures 1 and 2). Unimproved access roads currently run through the parcel, and most land within the project area is undeveloped.

As outlined in the draft Pu‘u ‘Ōpae Farm and Irrigation Plan, a range of proposed uses are planned for the project. These include pastoral and agricultural endeavors, management of natural and cultural resources, and agricultural homesteading. A variety of infrastructure may be needed to develop the area into homestead lots. This may include water resources for fire and irrigation, as well as potable water; access roads and trails; wastewater management, stormwater, drainage, and flood control systems; as well as power and telecommunications services.

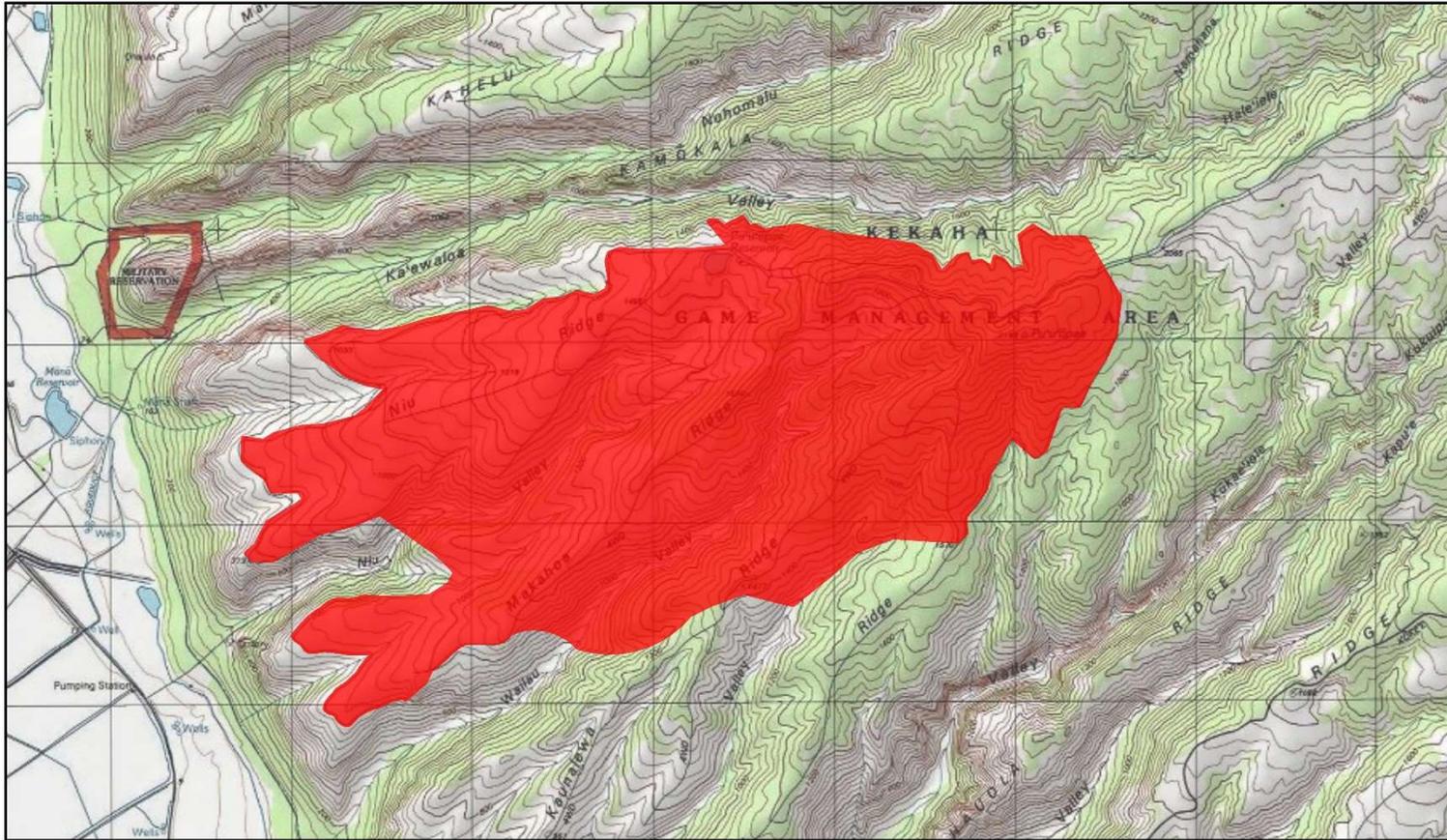
Physical Environment

Kaua‘i Island is unique in many respects. It is the oldest, wettest, and most isolated of the eight main Hawaiian Islands. At roughly five million years old, Kaua‘i is geologically older than the other main islands in the Hawaiian chain (Armstrong 1973). This maturity translates to a weathered landscape, with broad plains and deep soils. The island is also noted for high amounts of windward rainfall, and is even home to the wettest spot on earth, Mount Wai‘ale‘ale, which averages 485 in. (1,232 cm) of rain every year (Morgan 1996:199). However, the leeward (southwest) coast lies in the rain shadow of this peak and receives less than 20 in. (51 cm) of rain per year (Morgan 1996:199).

Situated at the northwestern end of the main Hawaiian chain, Kaua‘i is 116 kilometers from its nearest neighbor, O‘ahu, thus Kaua‘i and its satellite island Ni‘ihau are the most geographically isolated of the main islands (Morgan 1996:199). Moreover, the marine channel separating Kaua‘i and Ni‘ihau from O‘ahu is known for rough conditions and likely hindered interaction between these two islands and the rest of the Hawaiian chain.

The project area lies at an elevation of roughly 800–2,100 ft. (244–640 m) in elevation and extends from 2.2–5.6 mi. (3.5–9.0 km) from the coastline. There are several streams that run through the project area. From north to south they are Ka‘awaloa (intermittent), Niu (non-perennial), Wailau (non-perennial), Kuapa‘a (non-perennial), and Hō‘ea (intermittent). Rainfall in the project area averages from approximately 27 in. (68 cm) per year (Giambelluca et al. 2013).

A variety of soils occur within the area of study (Figure 3). The following Puu Opae series soils are within the project lands: Puu Opae silty clay loam, 8–15% slopes (PwC), Puu Opae silty clay loam,



Legend
■ Project Area



Layer Credits: USGS Topographical Kekaha Quadrangle Map 1991

Figure 1. Project area on a 1991 USGS Kekaha quadrangle.

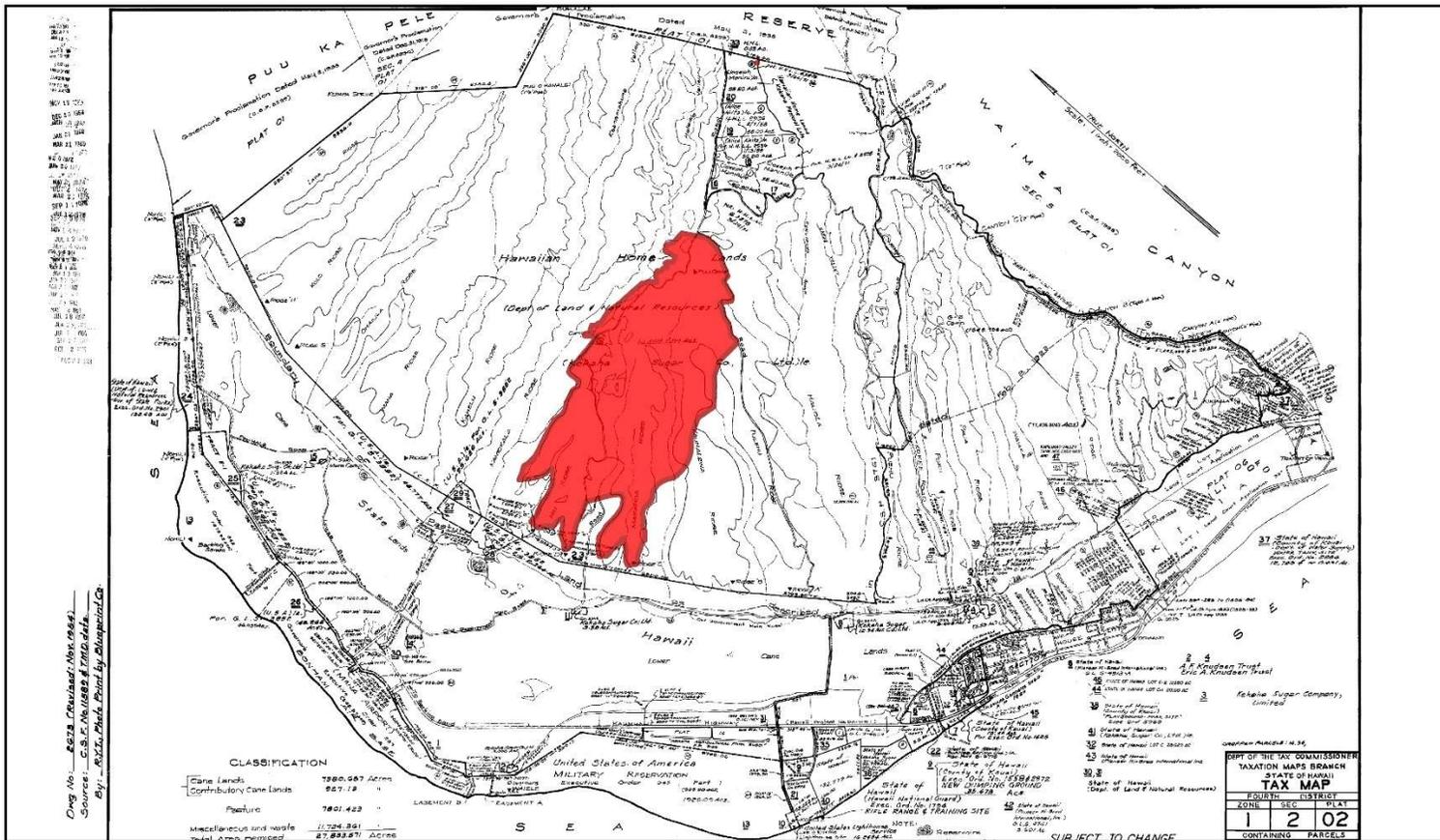


Figure 2. Project area shown on TMK plat (4) 1-2-002.

15–25% slopes (PwD), and Puu Opae silty clay loam, 25–40% slopes (PwE). Puu Opae soils are well-drained and located in moderately to steeply sloping uplands. They developed from weathering of igneous rock and are used for wildlife habitat, pasture, and woodlands (Foote et al. 1972:117). Geographically associated with the Puu Opae series are Mahana soils. Within the project area are Mahana silt loam, 20–35% slopes (MaE3), and Mahana silt loam, 12–20% slopes (MaD). These soils are also well-drained and found in uplands, but they developed from volcanic ash. In addition to the uses mentioned for Puu Opae soils, Mahana soils are also used for irrigated sugarcane agriculture and water supply (Foote et al. 1972:85).

The Makaweli soil series is also common in the project area. Specific to the project lands are Makaweli silty clay loam, 6–12% slopes (MgC), Makaweli silty clay loam, 12–20% slopes (MgD), Makaweli silty clay loam, 20–35% slopes, eroded (MgE2), Makaweli stony silty clay loam, 6–12% slopes (MhC), Makaweli stony silty clay loam, 12–20% slopes (MhD), and Makaweli stony silty clay loam, 20–35% slopes (MhE). These are also well-drained upland soils, and like the Puu Opae series, they developed from weathering of igneous rock. These soils are used for homesites, pasture, and irrigated sugarcane agriculture (Foote et al. 1972:90).

Niu series soils are also common to the project area, specifically the following: Niu silty clay loam, 6–12% slopes (NcC), Niu silty clay loam, 12–20% slopes (NcD), and Niu silty clay loam, 20–35% slopes, eroded (NcE2). Like the above soils, the Niu series are well-drained and found in uplands. They developed from weathering of igneous rock, possibly interspersed with volcanic ash. The Oli series in the project area is represented by Oli loam, 12–20% slopes (OID). Oli soils are well-drained and located in uplands. They were formed in volcanic ash that was deposited over igneous rock. Both the Niu and Oli series soils are used for woodland, pasture, wildlife habitat, and sugarcane agriculture (Foote et al. 1972:98, 102).

Also found within the project area are the following: Waiawa extremely rocky clay, 50–80% slopes (WJF), Rough broken land (rRR), Badland (BL), and Badland-Mahana complex (BM). The Waiawa soils are well-drained, very rocky, and developed in colluvium and from weathered igneous rock. They are used for wildlife habitat, pasture, and water supply (Foote et al. 1972:129). Rough broken land is very steep terrain that is broken by many intermittent drainages. These lands are used for wildlife habitat and watershed (Foote et al. 1972:119). Badlands are steep to very steep relatively barren land. This soil type is used for wildlife habitat and water supply (Foote et al. 1972:28). The Badland-Mahana complex is a mix of Badlands and Mahana silt loam, 20–35% slopes.

BACKGROUND

A brief historic review of the project vicinity is provided below, to offer a better holistic understanding of the use and occupation of the area. In the attempt to record and preserve both the tangible (i.e., traditional and historic archaeological sites) and intangible (i.e., mo‘olelo, ‘ōlelo no‘eau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai‘i State Library, the University of Hawai‘i at Mānoa libraries, the SHPD libraries, The Kaua‘i Historical Society, the Kaua‘i State Parks office, and online on the Office of Hawaiian Affairs website and the Waihona ‘Aina, Huapala, and Ulukau databases. Archaeological reports and historical reference books were among the materials examined.

Waimea in the Pre-Contact Era

Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on and around them, in the context of genealogical accounts... As this Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor, all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment (Maly and Maly 2003).

The history of Waimea begins with the history of Kaua‘i Island:

Kamāwaelualani was the ancient name of the island of Kaua‘i; Kaua‘i is the new name after the time of Wākea mā. Kaua‘i was one of the children of Wākea and Papa and became a new ancestor for the true people, kānaka pono‘ī, of Kamāwaelualani. Because of his good deeds and the great numbers of his descendants as well as the prosperity of the reign of Kaua‘i, Kamāwaelualani was renamed Kaua‘i. (Kamakau 1991:128–129)

Traditionally, the genealogy of humankind can be traced back to this ancient time, especially with the genealogies of the chiefs which are connected to the gods from the dawn of time. These genealogies have been chanted and passed down from generation to generation, preserving an important part in the traditional Hawaiian story of creation.

These pua ali‘i, exalted men and women, chiefs and descendants of chiefs, owned a genealogy that reached unbroken mai ka pō mai (from the time of darkness) to the present. These chiefs were considered to be directly descended from the gods themselves, from Kū, Kāne, Kanaloa, and Lono. These gods had created the first man and woman at ‘Aliō, the beach beside the mouth of the mighty Wailua river. This the genealogy of a chief that began with Kumuhonua [the first man] and continued unbroken from the time of darkness proved that he or she was sacred, godlike, invested with the power of life and death and ruled as the child of the gods. There were several such genealogies, but the one most often chanted for Kaua‘i’s pua ali‘i was the Kumuhonua genealogy. (Wichman 2003:1)

By at least one account, “the genealogy from Kumuhonua and his wife, Lalohonua, continues for thirty-six generations until the birth of Papa,” representing an estimated 1,000 years of history (Wichman 2003:2). This is the same Papa, also known as the earth mother, with whom the sky father Wākea are the ancestors of the Hawaiian people today.

Place Names

There are other means, besides chanted genealogies and their accompanied stories, by which Hawai‘i’s history has been preserved. One often overlooked source of history is the information

embedded in the Hawaiian landscape. Hawaiian place names “usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated... The place names provide a living and largely intelligible history” (Pukui et al. 1974:xii).

Whereas the boundaries of some places are difficult to discern, it appears that the footprint of the Pu‘u ‘Ōpae project stretches across the following valleys and ridges from west to east: the eastern edges of Ka‘awaloa Valley; Niu Ridge; Niu Valley; Makahoa Ridge; Wailau Valley; portions of Kaunalewa Ridge; and perhaps portions of Kuapa‘a Valley. Further upland, the Pu‘u ‘Ōpae project may even extend into the higher elevations of Pūlehu Ridge. It appears that Pu‘u ‘Ōpae is situated at the mauka convergence of Niu Ridge, Makahoa Ridge, and Kaunalewa Ridge.

Hawai‘i State GIS data places the project within the ahupua‘a of Waimea, and that is what will be used in this report. However, it should be noted that other sources place the study area within the ahupua‘a of Mānā and Wai‘awa (Wichman n.d.). According to *The Place Names of Kona: A District of the Island of Kaua‘i* (Wichman n.d.), Mānā Ahupua‘a, on the west, includes Ka‘awaloa, Niu, Makahoa, Wailau, and Kaunalewa. Mānā is bordered by Wai‘awa Ahupua‘a to the east. Wai‘awa Ahupua‘a includes Kuapa‘a and Pūlehu. Both Pu‘u ‘Ōpae and Pu‘u ‘Ōpaenui are said to be in Wai‘awa Ahupua‘a (Wichman n.d.). And Pu‘u ‘Ōpae in particular is said to be located on Pūlehu Ridge. Kekaha is located in Pōki‘i Ahupua‘a which is the next ahupua‘a to the east of Wai‘awa, and still further east of Kekaha is the mouth of the Waimea River which leads up into Waimea Canyon (Wichman n.d.).

Many of these places, as well as others in the general vicinity, are listed “Place Names of Hawaii” (Pukui et al. 1974) as quoted below. Their locations are illustrated in historic maps (see Figures 4–10).

Halemanu. Peak and stream, Waimea district, Kaua‘i. *Lit.*, bird house.

Hō‘ea... Valley, Waimea district, Kaua‘i. *Lit.*, to arrive.

Kahelu. Ridge, Waimea district, Kaua‘i. *Lit.*, the number *or* the scratch.

Kahelu Nui. Valley, Waimea district, Kaua‘i. *Lit.*, big Kahelu.

Kahoana. Valley, Waimea district, Kaua‘i. *Lit.*, the whetstone.

Kaua‘i. Island and county (33 miles long, 25 miles wide, with an area of 553 square miles...). Līhu‘e is the major town and the county seat. Epithet: Kaua‘i o Manokalanipō, Kaua‘i of Manokalanipō (an ancient chief, *lit.*, the innumerable dark heavens).

Kaunalewa... Land section and Ridge, Waimea district, Kaua‘i; a famous coconut grove was here... *Lit.*, swaying place (perhaps referring to coconuts).

Kaunu-Hua. Ridge, Waimea district, Kaua‘i. Peak (4,535 feet high)... The body of Pele is said to lie here. The name is abbreviated in some chants as Unuohua.

Kekaha. Land area... Waimea district, southwest, Kaua‘i. *Lit.*, the place.

Kōke‘e... Land division and stream, Waimea district, Kaua‘i. *Lit.*, to bend or to wind.

Kolo Ridge... Ridge near Mānā and hill in south central Kaua‘i... (said to be the legendary home of Pāka‘a and Kūapāka‘a)... *Lit.*, crawl or pull.

Makahoa... Ridge and *heiau* near Kaunalewa, Kaua‘i... *Lit.*, friendly point.

Mānā... Dry western end of Kaua‘i, where an older sister of Pele, Nāmakaokaha‘i (the eyes of Kaha‘i), introduced the kauna‘oa dodder. *Lit.*, arid.

Namahana. Peak (2,650 feet), land section, and valley. Hanalei District, Kaua‘i.

Niu. Ridge and valley, Waimea district, Kaua‘i... *Lit.*, coconut.

‘Ōhai‘ula... Ridge, Waimea district, Kaua‘i. *Lit.*, red ‘ōhai shrub.

Pōki‘i. Ridge, Waimea district, Kaua‘i. The old name was Pōki‘ikauna (chanting youngest brother or sister). Kapo, Pele’s sister, left her younger female relative, Mochauna (lie struck), here and she chanted a farewell. *Lit.*, youngest brother or sister.

Polihale. State park, beach, ridge, *heiau*, and land division, Waimea district, Kaua‘i, famous for its seaweed (*pahapaha*) used in leis, a practice said to have been introduced by Pele’s sister, Nāmakaokaha‘i. *Lit.*, house bosom.

Puehu. Ridge, Waimea district, Kaua‘i... *Lit.*, scattered.

Pūlehu. Ridge, Waimea district, Kaua‘i...*Lit.*, broiled.

Pu‘ukaPele... Peak (3,657 feet high), Waimea Canyon, Kaua‘i. Voices of Menehune here were believed audible on O‘ahu; Wāwā ka Menehune i Pu‘ukaPele ma Kaua‘i, pū‘oho ka manu o ka loko o Kawainui ma Ko‘olauloa, O‘ahu. Menehune speak at Pu‘ukaPele, birds at Kawai Nui pond at Ko‘olau Loa, O‘ahu, are startled... *Lit.*, the volcano hill.

Pu‘u‘ōpae. Hill, Līhu‘e district, Kaua‘i. *Lit.*, shrimp hill.

Wailau... Valley, Waimea district, Kaua‘i... *Lit.*, many waters.

Waimea... Land division, southwest Kaua‘i, where Captain Cook first landed (1778)... *Lit.*, reddish water (as from erosion of red soil).

Subsistence and Traditional Land Use

The publication *Native Planters in Old Hawaii: Their Life, Lore, and Environment* includes a section specifically dedicated to the Pu‘u ‘Ōpae area. This region is called the “Upland Determinant,” which is recorded to primarily be a forested zone used for the harvesting of trees for canoe-making. It is also noted that deforestation and erosion has pushed the heavily wooded portions to the higher elevations:

The Upland Determinant.

The country behind this broad sandy plain, the “sunset side” of the island, determines the shore plain’s character. Behind Mana and above Niu Ridge are two hills, Pu‘u ‘Opae and Pu‘u Moi... Here in the olden days trees were logged and worked into canoes. Above and beyond stretched the ascending rough approaches to the western Waimea Canyon rim, now deeply broken into by eroded, rocky gulches, and heavily wooded only in the upper reaches. In earlier times its western slopes were forested much lower down than today, as evidenced both by the traditions of canoe logging and the memory of modern man --- as well as by the remnants of forest still left after later erosion and deforestation had set in. (Handy et al. 1991:411)

It appears that this upland forested area was not a principal place of procuring water resources although water from the higher elevations undoubtedly flowed closely around it. The lowlands from the base of the upland determinant to the sea were saturated enough to create a marshy environment in some areas. By the time the Bishop Museum did its archaeological study of Kaua‘i, only a small swamp existed in the Mānā area. This study found, “the remnant of a great swamp that once extended many miles... [of which tradition stated] that the natives could paddle in it from the Barking Sands almost to Waimea” (Bennett 1931:6). The Mānā marsh is also mentioned by Handy et al. (1991:411):

The western [Waimea] canyon rim is not a watershed so far as the westward piedmont area is concerned, and contributes little in the way of subsistence water to the lands below...

Nevertheless, even stemming from ancient times, only two place names in the region (in addition to Wai‘awa before mentioned) included the word for water (wai) to indicate that useful stream water ever reached the lowland. These are Wailau, a small valley behind the Wai‘eli marsh which now has no water, and Waikamo‘o (Water of the Lizard), a valley which opens out onto the plain opposite the Mana ridge, at the northern end of the marsh. Until the swamp lands of Mana were drained there were sizable marshy lakes both north and south of this little valley, between the low pali and the sand.

Handy et al.’s (1991) publication notes that sweet potato was a major crop for subsistence in this western end of the island with some irrigated taro lands in the marshy areas and in the region closer to the Waimea delta. They also note that fishing was especially excellent in the oceans here, as well as in Waimea Stream (Handy et al. 1991:275).

...People of the adjacent arid shores of Kauai were better off than it might seem. Fishing was supremely good along the northwest Napali coast and excellent even in the southwest coastal waters, owing to the currents coming around the island. Also fresh-water fish were abundant in the great streams... From Waimea through Kekaha to Mana on western Kauai, the area was one in which there was normally scanty rainfall. Irrigated taro was grown on the flatlands below Waimea Canyon and in Kekaha, which had springs and marshy taro lands, and there was some taro in the swampy areas of Mana and Waieli. But the people here depended largely on sweet potatoes. (Handy et al. 1991:275)

The cultivation of kalo along the coastal areas of the Kona District of Kaua‘i was made largely possible by the marshy lands found along coastal Mānā, across Wai‘awa and Pōki‘i, all the way to the mouth of the Waimea River. A famous method of growing kalo in Mānā is described as the floating mounds of taro beds in the following ‘ōlelo no‘eau:

Mānā, i ka pu‘e kalo ho‘one‘ene‘e a ka wai.

Mānā, where the mounded taro moves in the water.

Refers to Mānā, Kaua‘i. In ancient days, there were five patches at Kolo, Mānā, in which deep-water mound-planting was done for taro. As the plants grew, the rootlets were allowed to spread undisturbed because they helped to hold the soil together. When the rainy season came, the whole area was flooded as far as Kalamaihihi, and it took weeks for the water to subside. The farmers built rafts of sticks and rushes, then dived into the water. They worked the bases of the taro mounds free and lifted them carefully, so as not to disturb the soil, to the rafts where they were secured. The weight of the mounds submerged the rafts but permitted the taro stalks to grow above water just as they did before the flood came. The rafts were tied together to form a large, floating field of taro. (Pukui 1983:232–233)

Despite this ‘ōlelo no‘eau proclaiming the ingenuity of the Mānā people’s kalo-growing, another ‘ōlelo no‘eau emphasizes that Mānā stood out as a region which actually rarely produced poi relative to other places. This ‘ōlelo no‘eau is as follows:

Ola i ka ‘ai uwahi ‘ole o ke kini o Mānā.

The inhabitants of Mānā live on food cooked without smoking.

Said of the people of Mānā, Kaua‘i, who in ancient days did very little poi-making, except in a place like Kolo, where taro was grown. The majority of the inhabitants were fishermen and gourd cultivators whose products were traded with other inhabitants of the island, even as far as Kalalau. Because all the taro cooking and poi-making was done elsewhere, the people of Mānā were said to live on “smokeless food.” (Pukui 1983:271)

It is interesting that while Mānā Ahupua‘a was noted to be a district with relatively little kalo cultivation, Kolo Valley was specifically named as “the place” where kalo was grown. Yet, Kolo Valley is not along the marshy coastal plain, but rather in the uplands. Similarly, the only upland area in Wai‘awa Ahupua‘a that is noted as a place of kalo cultivation is around Makahoe Heiau, where there was a village, the only one documented in upland Wai‘awa (Bennett 1931). Perhaps a similar special village was located at Kolo Valley in the uplands of Mānā Ahupua‘a. Kolo Valley was the site of Kapā‘ula Heiau. It would be possible that there is some kind of parallel significance between the kalo patches and village around Makahoe Heiau in upland Wai‘awa Ahupua‘a and the kalo patches and inferred settlement around Kapā‘ula Heiau in Kolo Valley in upland Mānā Ahupua‘a.

The kalo cultivation around Makahoe Heiau is specifically described as situated in the gulches coming off of Niu Ridge (Wichman n.d.). It would probably be accurate to say that in upland Wai‘awa Ahupua‘a, the kalo cultivation was technically done in Niu Valley while the heiau (Makahoe) was situated on the ridge (Niu). Following this model, it would be safe to say that in upland Mānā Ahupua‘a, the kalo cultivation was done in Kolo Valley while the heiau (Kapā‘ula) was situated on the ridge (Kolo). Interestingly, while archival research suggests that kalo cultivation was done in Kolo Valley, there is no Kolo Valley depicted on historical maps. There is only a Kolo Ridge, and the name for the valley below is ‘Ōhai‘ula Valley, or Kāhoaloha Valley on the other side of Kolo Ridge.

The Bishop Museum’s *Archaeology of Kauai* describes in great detail numerous habitation, agricultural, and ceremonial structures to include terraces, platforms, trails, burials, irrigation ditches and more, throughout the island. A few temples are documented around the current project area including Kahelu Heiau at the base of a hill in Mānā and Hooneenu Heiau along Kaunalewa Ridge. But Makahoe Heiau appears to be the one closest to and/or within the current project area. It is recorded as being a village site and heiau on Niu Ridge. Bennett gives a brief description of this site:

[Makahoe is] a small, platform village shrine. Thrum describes the village as “Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro lands besides the dry crops to depend on.” On the inland side of Niu ridge small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area. (Bennett 1931:102)

Thus, it could be argued that Bennett and Thrum’s observations (in Bennett 1931) differ from that of Handy et al. (1991). Nevertheless, outside of this Makahoe Heiau and village site, it should be remembered that the rest of the project area was important for harvesting trees for canoes. With this taken into consideration, perhaps there would have also been structures throughout the area for temporary habitation and workspaces for sharpening adzes and such.

Mo‘olelo

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as “mo‘olelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Mo‘olelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life... Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language” (Nogelmeier 2006:429–430).

There is a mo'olelo for Pu'u 'Ōpae and the Waimea area that is significant for its association with the Menehune people. It is said that the Menehune were "masters of stonework and engineering... [and they] built many heiau, fishponds, and irrigation systems for wetland farming" (Wichman 2003:9). Kaua'i has always been associated with the Menehune more so than the other islands of Hawai'i (Handy et al. 1991:404).

The current project's upland area of Pu'u 'Ōpae is specifically mentioned in mo'olelo (Handy et al. 1991:411): "Behind Mana and above Niu Ridge are two hills, Pu'u 'Ōpae and Pu'u Moi, where tradition has it that King 'Ola paid off his Menehune workmen with shrimp or fish delicacies." This story of Chief 'Ola, his counselor Pi'i, and the Menehune led by their chief Papaenaena has been inscribed permanently in the landscape of this region of southwestern Kaua'i:

When Ola succeeded his father [Kū'alunuipaukūmokumoku] as ruler, he first wanted to enlarge the farming area of Waimea. The makai (seaward) portion between the ridges and the ocean would be rich farmland if it could be irrigated. The land was too far above the river level, for the farmers of that time only knew how to make water flow by gravity. Mauka (toward the mountain), Paliuli cliff blocked access to the river. To get water to flow around Paliuli, an irrigation 'auwai (channel) would have to be constructed twenty feet above the river's surface, a seemingly impossible feat. Ola sent his counselor Pi'i to ask the Menehune if they could build such an 'auwai.

The Menehune leader, Papaenaena studied the lay of the land and decided that indeed such an 'auwai could be built... The Menehune solved the problem caused by Paliuli by anchoring a wall in the riverbed itself and building it up against the cliff. They used cut stone blocks that were squared off. Some of these stones are five feet long, three feet wide, and three feet deep and came from a quarry several miles away on the other side of the river. Some blocks are joined, a peg carved from one block fits a hole drilled in another.

By dawn the 'auwai was finished. Papaenaena woke Ola as the first flow of water drenched him. This channel and the area it waters is still known as KīkīaOla (Container [acquired] by Ola).

Pi'i first tried to feed each Menehune one moi (threadfish), but he ran out before each Menehune got one. The Menehune agreed to give him one more day to gather enough food, and he ordered every shrimp that could be found in the streams to be gathered. Place names recall this event: Alapi'i (Pi'i's road), Hali'ōpae (Fetched Shrimp), and 'Ōpaepi'i (Pi'i's Shrimp). That following night, each Menehune received one shrimp as payment and was content. The hill where this payment took place is still called Pu'u'ōpae (Shrimp Hill). (Wichman 2003:10–11)

Oli and Mele

The noteworthiness of specific locales in Hawaiian culture is further bolstered by their appearance in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

Undoubtedly, printed compilations of traditional chants are but a scant glimmer of the multitude that were recited in the days of old. A search through a few contemporary compilations of traditional chants turned up only one that was specifically centered in Waimea, Kaua'i. This chant is classified as a mele inoa, or a name chant, for Queen Ka'ahumanu. In this mele, the well-known red dirt of

Waimea is depicted flowing from the stream and down to the sands. Here is the mele, as recorded in *Nā Mele Welo: Songs of Our Heritage* (Bacon and Napoka 1995:116–117).

‘Ike i ka Wai ‘Ula ‘Ili Ahi o Waimea

‘Ike i ka wai ‘ula ‘ili ahi o Waimea,
He wai ‘ula ia na ke Kiu wai ‘ahulu.
Ke oko ala i ka poli o ka pōhaku,
Mehe hana wai ala i ka houpo o ke kai,
Ke ‘ālapalapa i ke one o Luhi ē.
E luhi ‘oe a ua ne‘i i ka moe,
Inā ke aloha lā, he ‘ai liliha
Ua ‘ike ē.
Know the reddish-colored stream of Waimea,
A reddish water from the home of the cold Kiu breeze.
It ripples along over the bosoms of the rocks,
Reddening the bosom of the sea like menstrual blood,
Washing up on the sands of Luhi.
You may be weary of sleeping so long.
Love is here, a food that is rich,
This is known.

CONTRIBUTOR: Keluia Kailiena Kaluhiwa, Kailua, North Kona, Hawai‘i. O Kaua‘i kēia mele. [Mele is from Kaua‘i.]

NOTE: Mele inoa for Ka‘ahumanu.

‘Ōlelo No‘eau

Like oli and mele, traditional proverbs and wise sayings, also known as ‘ōlelo no‘eau, have been another means by which the history of Hawaiian locales have been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 ‘ōlelo no‘eau or Hawaiian proverbs/wise sayings that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai‘i well (Pukui 1983).

There are six ‘ōlelo no‘eau concerning Waimea that are recorded in Pukui’s compilation. Interestingly, one of these ‘ōlelo no‘eau points out a city of refuge for the people of Waimea; it is located at Kahamalu‘ihi. The other five ‘ōlelo no‘eau focus on the environment and natural resources of the Waimea region. One describes the Waimea rain as being a hard rain. Another describes the waters which turn red from the red dirt after a rain. Still another mentions the well-known reddish salt of Waimea. And the last two ‘ōlelo no‘eau suggest that the waters of Waimea are abundant with fish. Specifically noted are the ‘o‘opu, ‘ōpelu, and kawakawa. Here are the sayings as they appear in Pukui’s publication (1983:110, 146, 172, 179, 190, 318):

Ho‘i hou ka pa‘akai i Waimea.

The salt has gone back to Waimea.

Said when someone starts out on a journey and then comes back again. The salt of Waimea, Kaua‘i, is known for its reddish brown color.

Ka i‘a ho‘opā ‘ili kanaka o Waimea.

The fish of Waimea that touch the skins of people.

When it was the season for hinana, the spawn of ‘o‘opu, at Waimea, Kaua‘i, they were so numerous that one couldn’t go into the water without rubbing against them.

Ka ua nounou ‘ili o Waimea.

The skin-pelting rain of Waimea.

Refers to Waimea, Kaua‘i.

Ka wai ‘ula ‘iliahi o Waimea.

The red sandalwood water of Waimea.

This expression is sometimes used in old chants of Waimea, Kaua‘i. After a storm Waimea Stream is said to run red. Where it meets Makaweli Stream to form Waimea River, the water is sometimes red on one side and clear on the other. The red side is called wai ‘ula ‘iliahi.

Ke one kapu o Kahamalu‘ihi.

The sacred sand of Kahamalu‘ihi.

A city of refuge for those of Waimea, Mānā, and the Kona side of Kaua‘i.

Waikāhi o Mānā.

The single water of Mānā.

When schools of ‘ōpelu and kawakawa appeared at Mānā, Kaua‘i, news soon reached other places like Makaweli, Waimea, Kekaha, and Poki‘i. The uplanders hurried to the canoe landing at Keanapuka with loads of poi and other upland products to exchange for fish. After the trading was finished, the fishermen placed their unmixed poi in a large container and poured in enough water to mix a whole batch at once. It didn’t matter if the mass was somewhat lumpy, for the delicious taste of fresh fish and the hunger of the men made the poi vanish. This single pouring of water for the mixing of poi led to the expression, “Waikāhi o Mānā.”

Ka Makani a me Ka Ua: The Wind and the Rain

With their lives closely connected to the natural environment and physical surroundings, Hawaiian winds and rains were individually named and associated with a specific place, region, or island. In *Hānau Ka Ua*, Akana and Gonzales (2015:xv) explains that kūpuna “knew when a particular rain would fall, its color, duration, intensity, the path it would take, the sound it made on the trees, the scent it carried, and the effect it had on people.” The following wind and rain names associated with the project region offer further insight on kūpuna perspectives of the project area.

Several winds and rains are associated with Waimea, Kaua‘i:

Kili noe is a fine, misty rain. It is noted in a makena, or lamentation, for Queen Emma, where there is mention of ‘Elekeninui, a stream in Waimea:

‘Ike akula au i ka ua o Ko‘i‘ālana lā

Ka ua kili noe i ka maka o ka ‘ākōlea

E wiki ana ka huaka‘i malihini o pulu i ka ua

O ‘Elekeninui, nui maila kā ke anu o ia kuahiwi

I saw the rain of Ko‘iālana

The kili noe rain in the face of the ‘ākōlea fern

The tour is moving quickly to avoid the rain

Of 'Elekeninui, the cold of that mountain is extreme (Akana and Gonzales 2015:83)

Mokihana is a rain of Wailua, Kaua'i but is also the name of a stream and valley in Waimea, as well as the name of a fruit tree. This rain was also cited in a kanikau, or lamentation:

I Wailua ko'u hoa luhi e uē nei i Halehuki ē

Pulu ka 'uhane i ka ua Mokihana

Ke wehe lā i ke oho o ke kāwelu ē

At Wailua my weary companion cries, at Halehuki

The spirit is drenched in the Mokihana rain

Opening up the leaves of the kāwelu grass (Akana and Gonzales 2015:177)

Nahae is a rain of Alaka'i, Kaua'i, whose name means "to shred." This rain is noted in a mele māka'ika'i, or travel chant, for Queen Emma, where the Waimea valley Kauainanā is mentioned:

'Oiai 'o ka nanā 'o Kauainanā

'O ka mana o ka ua Nahae i Alaka'i

While the surly one is in Kauainanā

The power is in the shredding [Nahae] rain at Alaka'i (Akana and Gonzales 2015:180)

Kapa'ahoa is a rain and wind of Kaua'i that is cited in several accounts of Waimea, as in the following mo'olelo and kanikau:

'O Lu'anuu a Laka, 'o Lu'anuu ke keiki a Laka, 'o Hikāwaelena ka makuahine, he ali'i wahine 'o ia no ka ua Kapa'ahoa no Waimea i Kaua'i.

Lu'anuu of Laka, Lu'anuu is the son of Laka; Hikāwaelena is his mother; she is a chiefess of the Kapa'ahoa rain of Waimea in Kaua'i. (Akana and Gonzales 2015:66)

Ku'u kāne, e ku'u kāne ho'i

Ku'u kāne mai ka wai 'ula 'iliahi o Waimea

Wai nono 'ula a ka ua Kapa'ahoa

My beloved husband, oh, my dear husband indeed

My dear husband of the red sandalwood waters of Waimea

Red-glowing water of the Kapa'ahoa rain (kanikau for Kamehameha IV by Queen Emma; Akana and Gonzales 2015:66)

Waipao is a wind of Waimea. It is described as a cool breeze (Nakuina 2005:125).

The Kapa'ahoa rain is cited along with the Kiuwai'ahulu wind of Waimea in an oli composed by Ka'ahumanu:

Kau ke Kiuwai'ahulu o Waimea

Wai nono 'ula a ka ua Kapa'ahoa

I ho'olu'u a kohu i ka pili

A 'ula mai he'a ka uka o Kahana

The Kiuwai'ahulu wind of Waimea settles

Blushing water of the Kapa'ahoa rain

Dyed and stained by the closeness

Becoming red, stained red are the uplands of Kahana (Akana and Gonzales 2015:66–67)

Another rain of Waimea is Nounou‘ili, as described in the ‘ōlelo no‘eau noted previously:

Ka ua Nounou‘ili o Waimea

The skin-pelting [Nounou‘ili] rain of Waimea (Akana and Gonzales 2015:212)

The Kiu, Ko‘apuai‘a, and Nāulu rains are associated with Mānā, Kaua‘i:

E Kū, e Lono, e Kāne, Kanaloa

‘Akahi ‘oe a ‘ike i ka mole wai

I nā mole wai pūhae a ka makani

I nā lile wai ‘ono kau i ka pali

I nā muliwai loloa a ka ua Kiu

‘Oloī ka wai ‘oloke‘a i Mānā

Uhalu ‘ole ke kaha ‘ōkolo i ka helu

Kū, Lono, Kāne, Kanaloa

You are just now seeing the source of water

The water sources torn by the wind

The sparkling, delicious water placed on the cliffs

The long streams created by the Kiu rain

Narrow are the waters crisscrossing at Mānā

Innumerable are the places across which they crawl (Akana and Gonzales 2015:106)

Makemake au i ke inu wai o lalo

I ka ho‘onani mai a ke Ko‘apuai‘a

Pāpa‘anā kō‘ele‘ele Mānā

‘Eleu nō i ke kaha o Nohomalu ē, i laila

I wish to sip of the waters below

Enhanced by the Ko‘apuai‘a showers

Mānā shudders and clamors in haste

Rushing to the sheltered strands of Nohomalu, yes there (Akana and Gonzales 2015:106–107)

Hana ua wai Nāulu ‘o Kona

Hana ua wai Nāulu ‘o Mānā

I ho‘onani ‘ia e piha Keālia wai

Wai Kahelu, ua piha Kalanamaihiki

Na ka wai ua Kaunalewa

Maika‘i iho i ka wai Lolomauna

Kona produces the Nāulu rainwater

Mānā produces the Nāulu rainwater

That enhances and fills the spring of Keālia

The waters of Kahelu, Kalanamaihiki is filled

By the rainwater of Kaunalewa

Beautiful by the water of Lolomauna (Akana and Gonzales 2015:199)

A ua wai Nāulu ka uka o Mānā

Ke hahai lā i ka li‘ulā o Kaunalewa

The waters of the sudden Nāulu showers cover Mānā
Following the mirage of Kanalewa (Akana and Gonzales 2015:200)

Waimea in the Historic Era

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one sovereign. At that time, Kaua‘i was under the rule of Chiefess Kamakahelei, granddaughter of Chief Pelei‘ōhōlani, who was the son of the great O‘ahu Chief Kūali‘i. By this time, Chief Kahekili was the ruler of Maui, Moloka‘i and Lāna‘i, and Chief Kamehameha was on his way to consolidate all the districts of Hawai‘i Island under his own rule. In 1783, Kahekili invaded O‘ahu and added it under his rule, and after Kahekili died in 1794, Kamehameha invaded the following year resulting in a victory which gave him control of all the islands from Hawai‘i to O‘ahu (Kamakau 1996, Kanahele 1995).

Back on Kaua‘i, Chiefess Kamakahelei had married Chief Ka‘eokūlani, a younger half-brother of Kahekili. It is with this tumultuous backdrop that Captain James Cook is recognized as the first westerner to arrive into the Hawaiian Islands. Cook’s first place of anchorage was offshore of Ka‘ahe at Waimea, Kaua‘i in January of 1778. Cook’s party came ashore at Waimea and was greeted by Chiefess Kamakahelei, and a few days later after resupplying with food and water, his ships sailed away.

[Captain Cook’s] longboat landed at the mouth of the Waimea river, on the beach of Luhi beside Lā‘au‘ōkala point. He was greeted by a huge crowd of people pushing and shoving to get a look at this, as many thought, living god come among them. People had come from Nāpali, Mānā, and Kīpū like a rushing stream during the night. Captain Cook wandered about Waimea for a time before returning to his ship... Kamakahelei presented gifts to Cook: hogs, chickens, bananas, taro, sweet potatoes, sugarcane, yams, fine mats, and tapa cloths. In return, Cook presented them with cloth, iron, a sword, knives, bead necklaces, and mirrors... A few days later, his ship loaded with water and fresh food, Captain Cook left Waimea. (Wichman 2003:96)

Records are not clear regarding what happened to Chiefess Kamakahelei. What is clear is that she had a son, Kaumuali‘i, and after an episode of contention with his older brother Keawe, Kaumuali‘i eventually became the ruler of Kaua‘i. While still a young ruler of Kaua‘i, Kaumuali‘i learned of the desire of Kamehameha to add Kaua‘i and Ni‘ihau to his kingdom which now stretched from Hawai‘i Island to O‘ahu. Luckily for Kaumuali‘i, Kamehameha put aside his intention to invade Kaua‘i and instead “sent word to Kaumuali‘i that he would be satisfied if the Kaua‘i chief would acknowledge Kamehameha as his sovereign and pay an annual tribute” (Wichman 2003:100–101). Kaumuali‘i accepted Kamehameha’s offer and remained the rightful ruler of Kaua‘i until his death in 1824 after which the kingdom of Kaua‘i was fully subsumed into the Kamehameha reign. Bennett sums up the political history of the island:

As to the actual history the most significant point is that Kauai remained politically independent up to 1824. The island was never conquered, though in 1810 Kaumualii ceded the island to Kamehameha I to prevent an invasion. With the death of Kaumualii in 1824 the independence of Kauai ceased. (Bennett 1931:8)

Early Historical Accounts of Waimea

Many of the earliest written accounts of the Waimea region came from Captain Cook’s crew and other Western explorers. One of the first descriptions of the area was penned by one of Cook’s lieutenants, James King in 1778. Interestingly, he describes the higher ground, such as that around the current project, as having good soil but devoid of cultivation:

The soil of the Valleys is of a blackish colour intermix'd with sand, & the ground about the Village is cut with ditches of Water intersecting in different parts & roads which are carv'd & seem artificially made. In the dryer places were plantations of Plantains and the paper mulberry trees, kept very clean and in good order, there were but few Coconut trees & those small, with fewer bread fruit trees. The Soil of the higher ground was of a red colour'd stiff consistence & very good, but almost void of cultivation... This higher ground is doubtless capable of cultivation, for the grass was very high. (King in Handy et al. 1991:409)

Cook himself wrote of what he saw at Waimea in 1784 describing the cultivation of taro, sweet potato, sugarcane, and bananas:

[The] moist ground, produces taro, of a much greater size than we had ever seen... and the higher ground furnishes sweet potatoes, that often weigh ten and sometimes twelve and fourteen pounds, very few being under two or three. What we saw of their agriculture, furnishes sufficient proofs that they are not novices in that art. The vale ground has already been mentioned as one continuous plantation of taro, and a few other things, which have all the appearance of being well attended to. The potato fields, and spots of sugar cane, or plantains, on higher ground, are planted with the same regularity; and always with some determinate figure, generally as a square or oblong; but neither of these, not the others, are enclosed in any kind of fence. (Cook in Handy et al. 1991:406)

Another Westerner, Nathaniel Portlock, in 1787, gave his account of the cultivation in Waimea noting the hospitality of the people there:

We proceeded up the valley (from Wymoa), attended by a number of the natives of both sexes, young and old, who behaved with the greatest hospitality and friendship, pressing me earnestly to go into every house we came to, and partake of the best fare in their power to give... This excursion gave me a fresh opportunity of admiring the amazing ingenuity and industry of the natives in laying out their taro and sugar cane grounds; the greatest part of which are made upon the banks of the river with exceeding good causeways made with stone and earth, leading up the valleys and to each plantation; the taro beds are in general a quarter of a mile over, dammed in, and they have a place in one part of the bank, that serves as a gateway. When the rains commence, which is in the winter season, the river swells with the torrents from the mountains, and overflows their taro beds; and when the rains are over and the rivers decrease, the dams are stopped up, and the water kept in to nourish the taro and sugar cane during the dry season; the water in the beds is generally about one foot and a half, or two feet, over a muddy bottom; the sugar cane generally in less water, grows very large and fine and is a great article of food with the native, particularly the lower class, the taro also grows frequently as large as a man's head, and is esteemed the best bread-kind they have. (Portlock in Handy et al. 1991:406)

In 1792, Menzies, a surgeon and naturalist on Captain Vancouver's ship, recorded his admiration for the agricultural efficiency of the Waimea area:

We walked to the confluence of these two streams [Waimea and Makaweli?] and found that the aqueduct which waters the whole plantation is brought with much art and labour along the bottom of the rocks from the north-west branch... Indeed the whole plantation is laid out with great neatness and is intersected by small elevated banks conveying streams from the above aqueduct to flood the distant fields on each side at pleasure, by which their esculent roots are brought to such perfection that they are the best of every kind I ever saw. (Menzies in Handy et al. 1991:407)

In sum, historical accounts of the late 1700s all describe Waimea as an abundant agricultural region. Taro was grown in the wet areas, while sweet potato was noted for the uplands. Coconut, sugarcane, breadfruit, and bananas were also mentioned.

Merchants and Missionaries

The Waimea area has indeed been a place of firsts. Not only did the first Westerner explorers make landfall in this region of Kaua‘i, but Waimea was also the site of the arrival of the first merchant ship, in 1786, and the first Protestant missionaries around two decades later (Collins 2007). Among the earliest merchants were Russian fur traders who built a fort at the mouth of Waimea River “with the permission of the King of Kauai” (Handy et al. 1991:407). Increasingly, “foreign trading vessels came more frequently and some of their trade items such as iron and tools were in use here and there [throughout the Waimea region]” (Handy et al. 1991:407).

Christian missionaries arrived on Waimea’s shores shortly after the merchant ships. In 1820, the Whitneys and the Ruggles, missionaries from New England, were the first to be welcomed by Kaua‘i’s royalty, and within a decade they built the first western-style houses in Waimea while teaching their faith and language to the population (Collins 2007).

When the first New England missionaries, Samuel and Mercy Whitney, and Samuel and Melicent Ruggles, landed in Waimea in 1820, King Kaumuali‘i and his wife, Deborah Kapule, welcomed them and soon were among the first Hawaiians to study English. In 1829, the building of the first three New England-style houses commenced in Waimea: one for Governor Kikioewa, one for Reverend Whitney, and one for Reverend and Mrs. Peter Gulick. (Collins 2007:15)

The first half of the 19th century saw an increase in New England-style structures, especially houses and churches. And perhaps, inconspicuously at the time, “a small, rudimentary Chinese [sugar] mill,” was set up in Waimea by William French in 1835 (Collins 2007:16). This would be a foreshadowing of the large-scale agricultural operations which would eventually come to Waimea and dominate the economy of the Hawaiian Islands by the end of the century.

Waimea and the Changes in Land Tenure

In the mid-1800s, during the reign of Kamehameha III, as the Hawaiian kingdom became increasingly exposed to outside influences, the Hawaiian monarchy faced a crossroads of major change. “The Constitution of 1840 confirmed that only two offices could convey allodial title. These were the *mō‘ī* and the *kuhina nui*. The *Māhele* was an instrument that began to settle the constitutionally granted vested rights of three groups in the dominion of the kingdom—*mō‘ī*, *ali‘i*, and the *maka‘āinana*” (Beamer 2014:143). However, the king felt the difficulty of governing a land where the influence of foreigners had been growing. Dr. David Keanu Sai describes this predicament:

Kamehameha III’s government stood upon the crumbling foundations of a feudal autocracy that could no longer handle the weight of geo-political and economic forces sweeping across the islands. Uniformity of law across the realm and the centralization of authority had become a necessity. Foreigners were the source of many of these difficulties. (Sai 2008:62)

“Several legislative acts during the period 1845-1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership” (Moffat and Fitzpatrick 1995:11). Most prominent of these enactments was the *Māhele* of 1848 which was immediately followed by the *Kuleana Act* of 1850.

The Mahele was an instrument that began to settle the undefined rights of three groups with vested rights in the dominion of the Kingdom --- the government, the chiefs, and the *hoa'āina*. These needed to be settled because it had been codified in law through the Declaration of Rights and laws of 1839 and the Constitution of 1840, that the lands of the Kingdom were owned by these three groups... Following the Mahele, the only group with an undefined interest in all the lands of the Kingdom were the native tenants, and this would be later addressed in the Kuleana Act of 1850 (Beamer 2008:194–195).

Although the Māhele had specifically set aside lands for the King, the government, and the chiefs, this did not necessarily alienate the *maka'āinana* from their land. On the contrary, access to the land was fostered through the reciprocal relationships which continued to exist between the commoners and the chiefs. Perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might have been less informed of foreign land tenure systems. Indeed, the *ahupua'a* rights of the *maka'āinana* were not extinguished with the advent of the Māhele, and Beamer points out that there are “numerous examples of *hoa'āina* living on Government and Crown Lands Post-Mahele which indicate the government recognized their rights to do so” (Beamer 2008:274).

Hoa'āina who chose not to acquire allodial lands through the Kuleana Act continued to live on Government and Crown Lands as they had been doing as a class previously for generations. Since all titles were awarded, “subject to the rights of native tenants.” The *hoa'āina* possessed habitation and use rights over their lands. (Beamer 2008:274)

For those commoners who did seek their individual land titles, the process that they needed to follow consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award to get a binding royal patent. However, in actuality, the vast majority of the native population never received any land commission awards recognizing their land holdings due to several reasons such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new system. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families. There were no Land Commission Awards documented for the project area or its vicinity.

The Sugar Industry

Around the same time that the Māhele was changing the traditional land tenure system in the islands, the first large-scale sugar mill operations began to take hold in Waimea. In 1878, Valdemar Knudsen, a businessman from California, established what would later be known as the Kekaha Sugar Company on leases of Hawaiian crown lands in Kekaha, Mānā and Kōke'e (Wilcox 1996). The marshlands in Kekaha housed the remains of a traditional Hawaiian ditch that had been abandoned when a sandstone substrate was encountered (Wilcox 1996:92). Knudsen expanded the ditch in width and depth to drain the marsh, creating land for sugarcane that could be irrigated with groundwater (Wilcox 1996:92). By the early 1900s, the groundwater source had been depleted, and other irrigation solutions were being investigated.

At that time, Hans Peter Faye, nephew of Knudsen and originally from Norway, was the manager of the Kekaha Sugar Company. It was Faye who supervised construction of the Kekaha and Kōke'e Ditches to tap water from the Waimea River to feed the thirsty plantations below. Teams of Japanese tunnel specialists were brought in to construct the elaborate system of ditches and tunnels (HSPA 1880–1946). The Kekaha Ditch was begun in May 1906 and completed in September 1907 (Wilcox 1996:93). Originally called the Waimea Ditch, this construction is also known as the Waimea-

Kekaha Ditch, but most commonly referred to as the Kekaha Ditch. Wilcox (1996:93) describes the technical specifications of the ditch:

Originally the ditch was 20 miles long— 16 miles on the *mauka* lands and 4 on the lowlands— and it was later extended another 8 miles. Water was taken from the Waimea River at an elevation of 550 feet. Most of the unlined ditches and tunnels were driven through hard rock...A 2,190-foot steel inverted siphon, since replaced, crossed the Waimea River....The capacity was rated at 45 mgd, and average flow was 30 mgd. Four to five hundred additional acres above the ditch were put into cane, utilizing the hydropower to pump the water to the higher elevation.

Two historic maps were found that depict the project area in the late 1800s when the sugarcane industry was just starting to take root in the region. The first map dates to 1878 (Figure 4). Topographic features around Pu‘u ‘Ōpae are illustrated, and several place names such as Waiawa, Pokii, and Puu Lehu are labeled. A few structures are shown at the base of Pu‘u ‘Ōpae at Waiawa. The second map dates to 1891 (Figure 5). This map is more detailed, with many more place names shown. Pu‘u ‘Ōpae is illustrated as two peaks, “Puu opaenui” and Puu opaeki.” Places labeled in the immediate vicinity of the pu‘u are Moekehana, Kahuaapuu, Maialoa, Waiiau, and Kamelehuu.

Kekaha soon flourished into a bustling plantation village. The Hawai‘i Sugar Planter’s Association (HSPA 1880–1946) describes the setting in Kekaha in the early 1900s:

...The plantation had a railroad system of 15 miles of permanent track with two locomotives and cane was transported by flume from the mauka fields to collection points on the railway. The nine-roller mill at the factory produced 80 tons of sugar a day and the sugar bags were sent by rail to the steamship landing at Waimea. KSC used the cultivation contract system or piecework system whereby individuals or “gangs” cultivated certain fields and were paid according to the amount of cane harvested. Kekaha Sugar employed about 1000 people in the early 1900s and approximately 300 families lived in plantation houses. Serving the plantation population were four independent stores, Waimea Hospital, public schools, and the Foreign Church.

By 1909 the mauka cane lands were so extensive that the Kekaha Ditch could not sustain them along with the makai lands. The mauka portion of the ditch was extended an additional 280 feet above the intake, and a second powerhouse was constructed at the site of the original intake (Wilcox 1996:96). New lease agreements in the 1920s allowed for 2,000 additional acres of cane lands in the mauka region, with the fields to be watered by a new ditch system originating in the headlands of Waimea Canyon. In 1923, the Kekaha Sugar Company began construction on the Koke‘e Ditch for that purpose.

The Koke‘e Ditch extends into the current project area and is also known as the Great Mauka Ditch. Wilcox (1996:96) describes the ditch in detail:

This ditch diverted tributaries of the Waimea River in the Kokee area— starting at over 3000 feet elevation with the Mohihi and including the Waiakoali, Kawaikoi, Kauaikinana, and Kokee streams— and comprised forty-eight tunnels averaging 1000 feet, the longest being 3000 feet. The total length was 7 miles of tunnel and 12 miles of open ditch, measured to Kitano Reservoir. Water was running through the ditch by January 1925, and the final upper section of Mohihi was completed early the next year. Puu Lua Reservoir, the major storage facility for this system, was finished in 1927, with a 262-million-gallon capacity... The capacity of the ditch is still 55 mgd up to the reservoir (beyond that point it is 26 mgd); the average flow is 15 mgd.



Figure 4. Portion of an 1878 map showing the project area (Kitteridge 1878). Pu‘u ‘Ōpae is highlighted in red.

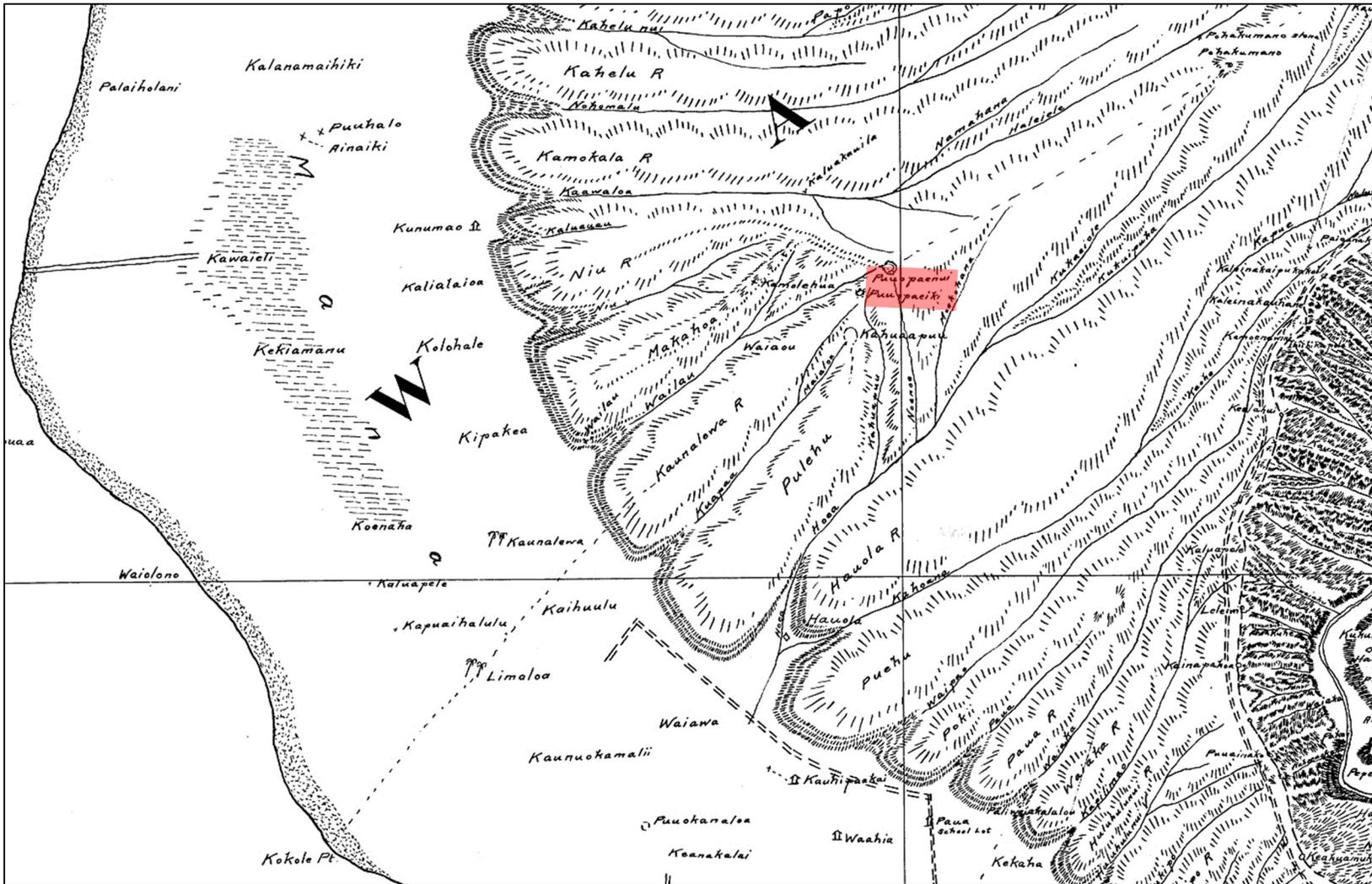


Figure 5. Portion of an 1891 map showing the project area (Imley 1891). Pu'u 'Ōpae (Nui and Iki) is highlighted in red.

Other sugar operations in the Waimea region would later include the Waimea Sugar Mill headed by the Rowell missionary family; and the Hawaiian Sugar Company operating on Makaweli land under Gay & Robinson. Also related to this economic development was the establishment of the Waimea Dairy in 1904 by Faye.

Kekaha Sugar Company is unique for several reasons. It is the only sugar plantation with most of its land leased from the State (Wilcox 1996:97). The plantation utilized a variety of terrain for its fields, from 2,010 feet in elevation to sea level (Wilcox 1996:96). The topography of Kekaha allowed for the plantation to grow cane on both the highest and lowest elevations of any irrigated sugarcane fields in the state (HSPA 1880–1946). At first the cane was carried down the steep ridge by flumes and by rail in the flat lowlands. It is said that the Kekaha lowlands were so flat that the railroad cars had no brakes installed (Wilcox 1996:96–97). Trucks replaced the Kekaha flumes and rail by 1947. In 1938, the Kekaha Sugar Company negotiated a new 21-year lease, and the *Honolulu Advertiser* newspaper claimed that this was “the Territory’s most valuable single piece of property” (HSPA 1880–1946). The Kekaha Sugar Company would become one of the highest yielding plantations in the state of Hawai‘i, with 14 tons per harvested acre recorded in 1983 (Wilcox 1996:97). In 1994 the Kekaha Sugar Company was consolidated by Amfac/JMB (Wilcox 1996:97).

Several maps from the 1900s were found, illustrating the development of the region, which was largely influenced by the sugar industry. A 1900 Hawaiian Government Survey map of the island of Kaua‘i depicts Pu‘u ‘Ōpae (Figure 6). Topographic features are depicted, including the marshy area near Kekaha. A 1903 Hawaii Territory Survey map of the island shows more detail (Figure 7). More place names are labeled, and Kekaha Plantation lands and a large rice paddy are illustrated on the flats below the ridges and valleys. The project vicinity is outlined in yellow to designate grazing lands. A 1912 USGS topographic map provides even further detail (Figure 8). By this time, the flatlands are more developed, and the railroad is in place. A 1930 Kekaha Sugar Company map shows the extent of cane fields in the project area (Figure 9). The Pu‘u ‘Ōpae Reservoir and access roads were constructed by this time, and “Puu Opae Camp” is illustrated just above the reservoir. A 1954 land use classification map shows the extent of cane, pasture, and wasteland in the project area (Figure 10). The reservoir is also depicted.

Waimea at the Turn of the 20th Century and Beyond

The end of the century came to a turbulent end for the Hawaiian Islands. In 1893, the Hawaiian monarchy was overthrown by Western businessmen in the islands backed by the American military. Five years later, the United States claimed its annexation of the islands, and in 1900, President McKinley declared Hawai‘i to be a territory of the U.S.

For most of the 20th century, the sugar industry continued to dominate land use in the Waimea region. Other land-based economic enterprises took place in the form of rice farming and ranching, but these were of a relatively much smaller scale. In addition, the American military has utilized and continues to occupy certain Waimea lands for defense purposes. But as for the current project area, it has remained relatively undeveloped. Various mauka portions of the study area have been used for ranching activities, and they continue to be utilized for this purpose. Apart from that, many zones remain forested.

Previous Archaeology

Numerous archaeological studies have been conducted in the project region. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, O‘ahu as well as the Kaua‘i Historical Society and Division of State Parks in Līhu‘e, Kaua‘i (Figure 11 and Table 1).



Figure 6. Portion of a 1900 map showing the project area (Harvey 1900). Pu‘u ‘Ōpae is highlighted in red.

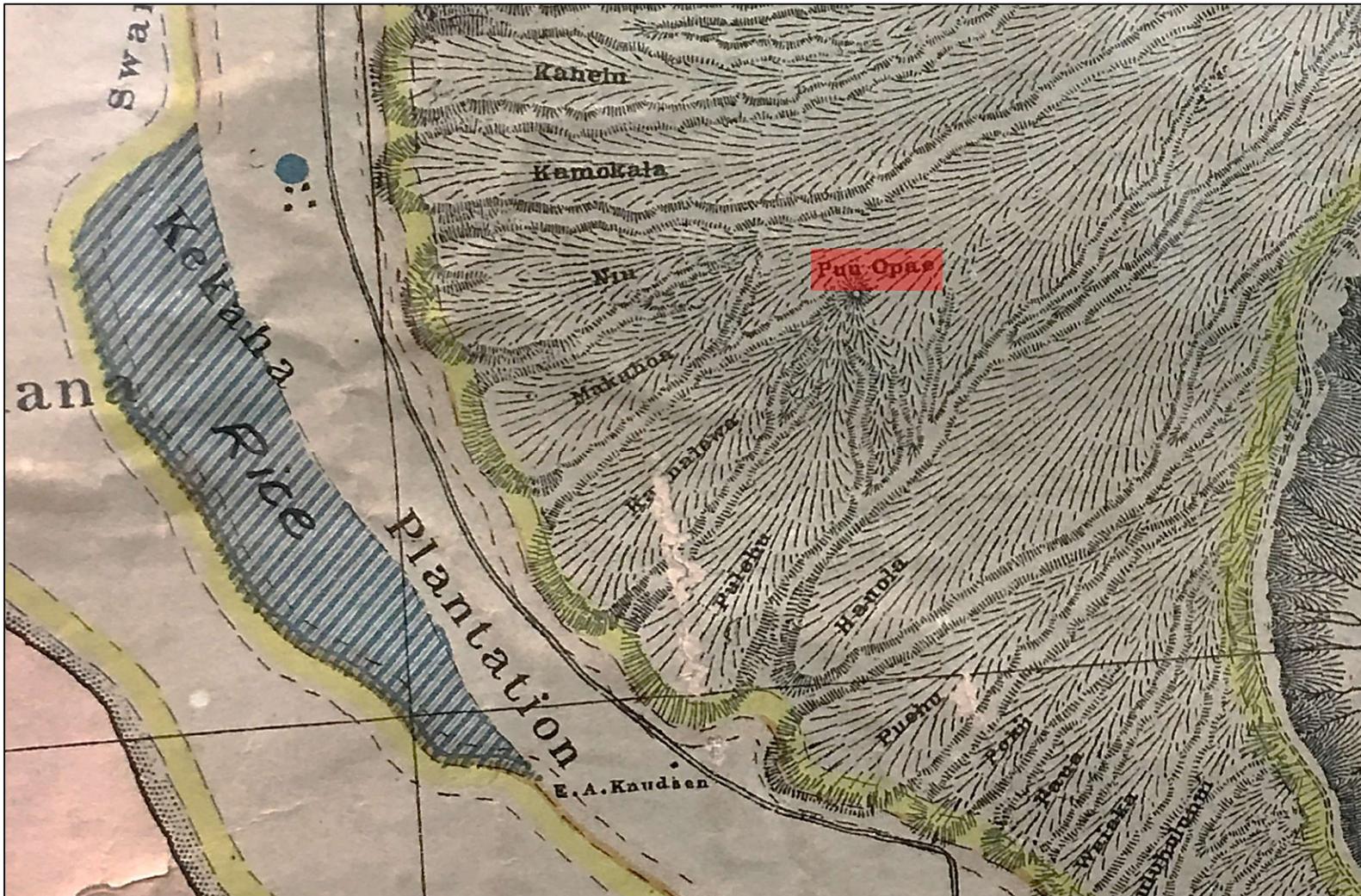


Figure 7. Portion of a 1903 map showing the project area (Wall 1903). Pu'u 'Ōpae is highlighted in red.

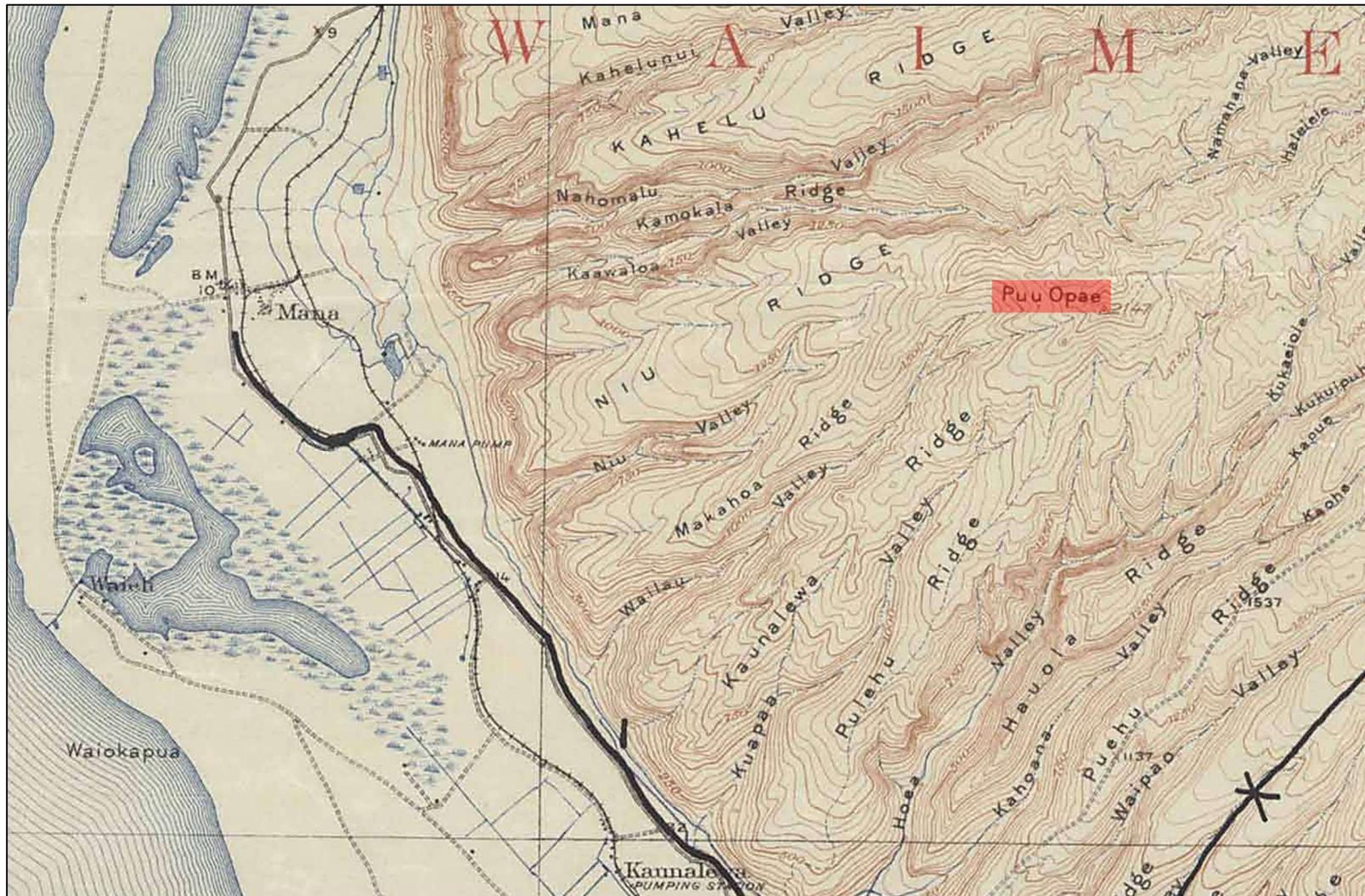


Figure 8. Portion of a 1912 map showing the project area (USGS 1912). Pu'u 'Ōpae is highlighted in red.

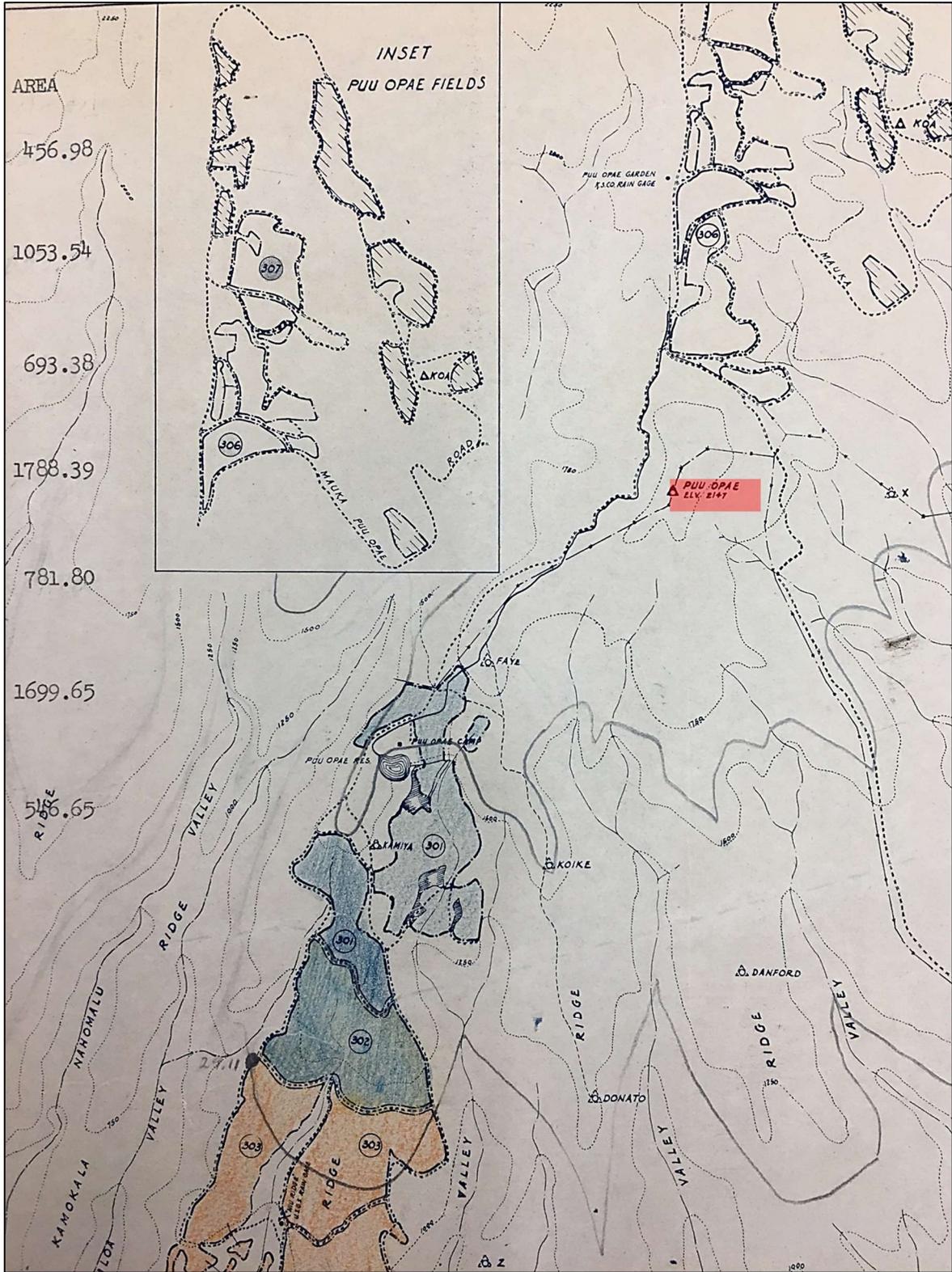


Figure 9. Portion of a 1930 map showing the project area (Kekaha Sugar Co. 1930). Pu'u Ōpae is highlighted in red. The blue zones designate “high mauka” fields, from 1,250–1,780 ft. in elevation, while the orange areas are the “middle mauka” fields, from 750–1,250 ft.

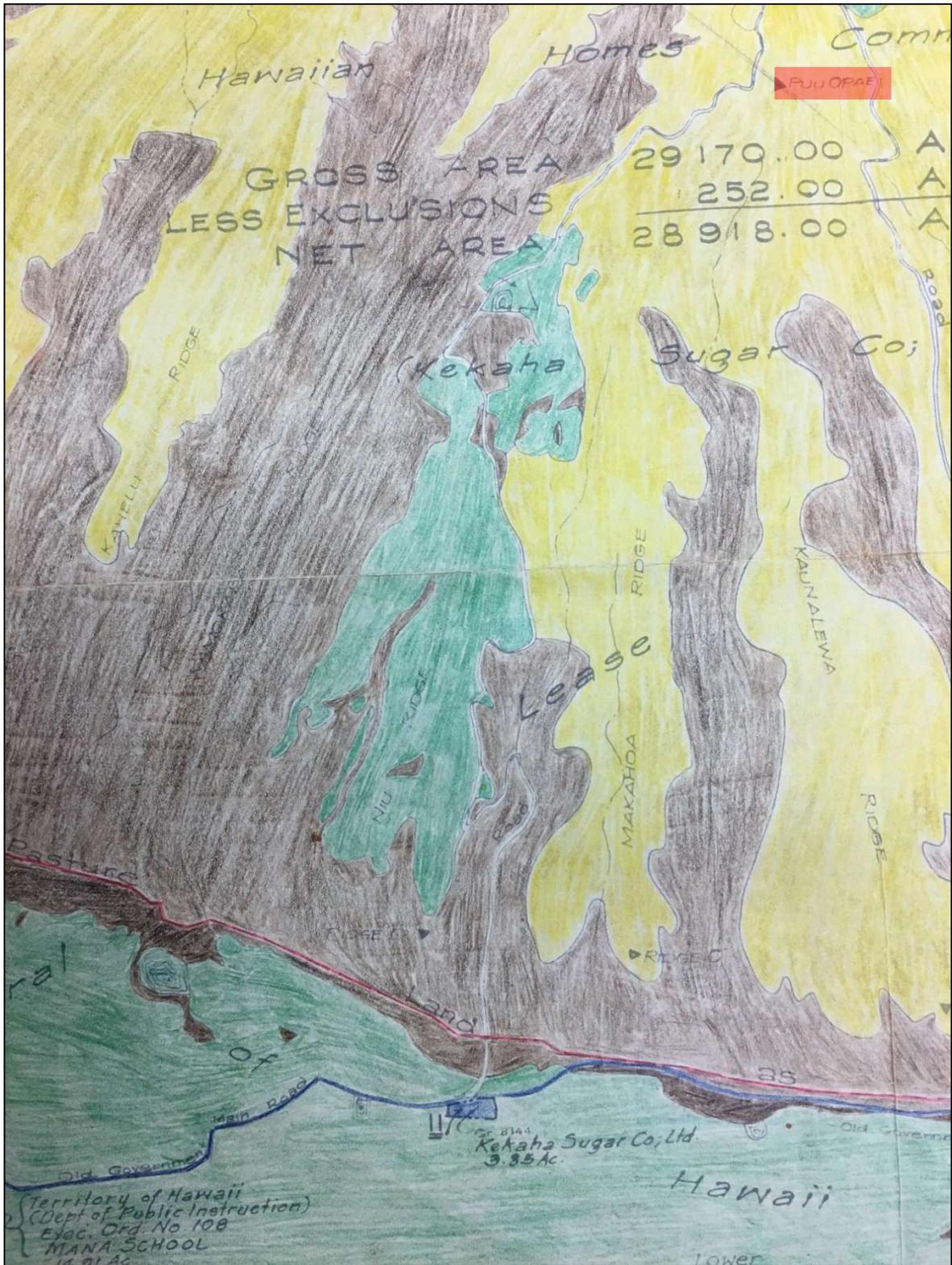


Figure 10. Portion of a 1954 map showing the project area (Territory of Hawaii 1954). Pu‘u ‘Opae is highlighted in red. Can lands are colored in green, pasture in yellow, and wasteland in brown.

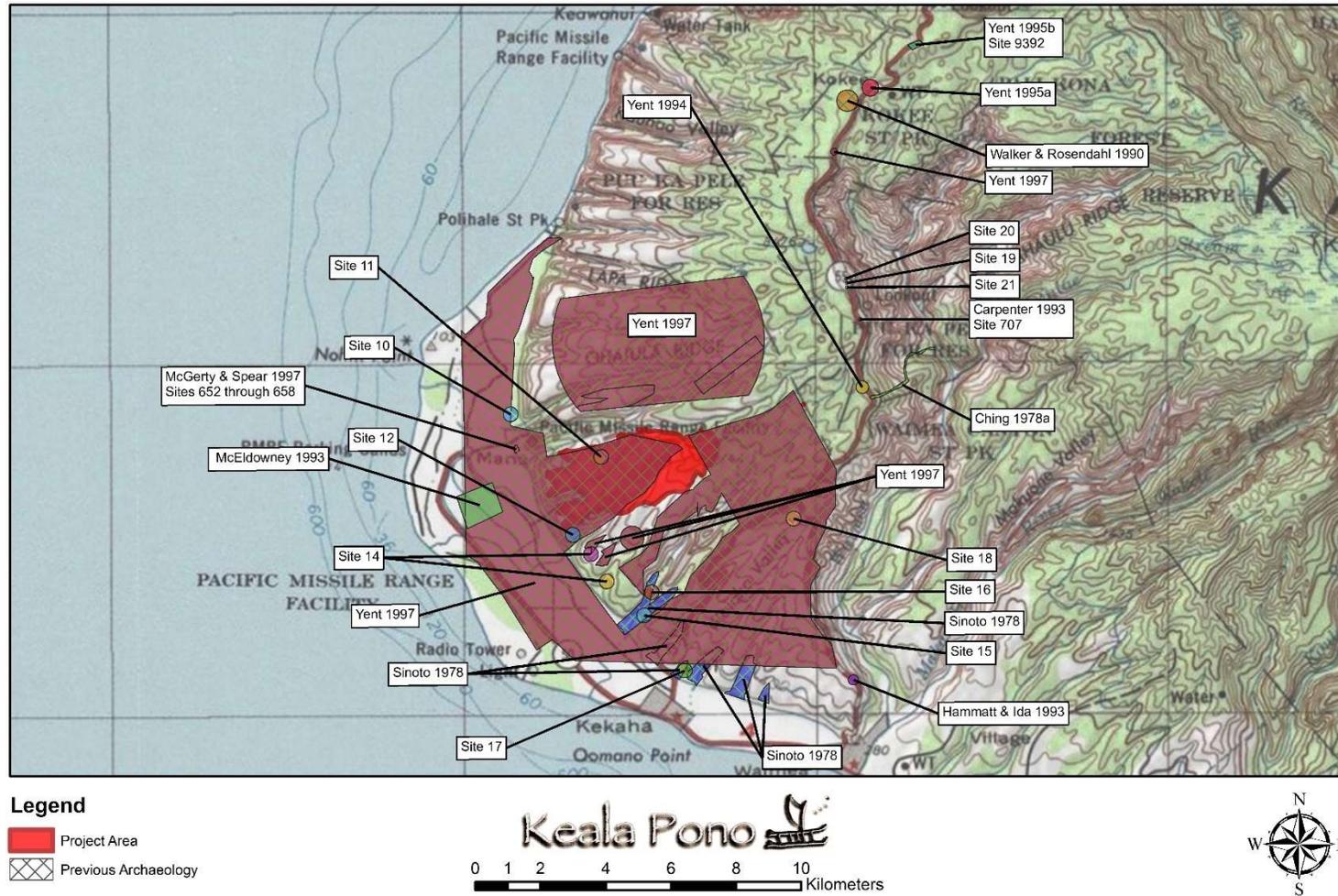


Figure 11. Previous archaeological research in the vicinity of the project area. Note that some projects discussed in the text are not illustrated because their exact location could not be determined.

Table 1. Previous Archaeology in the Project Area Vicinity

Author/Year	Location	Study	Findings
Thrum 1906	Island-Wide	Survey	Recorded four heiau, a village shrine, two platforms, and two flat sacred spaces in the project vicinity.
Bennett 1931	Island-Wide	Survey	Identified 12 sites in the project area vicinity: Sites 10 through 21, which include eight heiau, burial caves, habitation sites, and agricultural terraces.
Ching 1974	Pu‘u Ka Pele	Field Check	Relocated SIHP 19 and 20; could not identify SIHP 21 but surmised that it was still present.
Ching 1978a and 1978b	Waimea Canyon	Reconnaissance Surveys	None.
Sinoto 1978	Eight Valleys in Kekaha	Reconnaissance Survey	Identified numerous ceremonial, habitation, and agricultural features. No new SIHP numbers were assigned.
Kikuchi 1982	Makaha Ridge	Field Check	None.
Yent 1982	Proposed Kōke‘e Hydropower Site	Reconnaissance Survey	None.
Walker and Rosendahl 1990	Proposed Navy Radio Telescope Site	Inventory Survey	None.
Carpenter 1993	Waimea Canyon Lookout	Field Check	Identified one site, described as a single alignment of stones that define three sides of a ridgetop flat. The site was later designated as SIHP 50-30-06-707.
Chaffee and Spear 1993	Pu‘u Ka Pele	Inventory Survey	None.
Hammatt and Ida 1993	Kaleinamanu Ridge	Reconnaissance Survey	None.
McEldowney 1993	Mana Quarry	Survey	Recorded a complex that includes three platforms, an enclosure, and a rectangular boulder accumulation. No SIHP number was assigned.
McMahon 1993	Kōke‘e	Reconnaissance Survey	Identified SIHP 50-30-05-499, a boulder alignment.
Carpenter and Yent 1994	Kahuama‘a Flat		None.
Dowden and Rosendahl 1994	Kōke‘e Air Force Station, Makaha Ridge, and Halemanu	Inventory Survey	None.
Kawachi 1994	Kauhao Ridge	Field Check	None.

Table 1. (Continued)

Author/Year	Location	Study	Findings
Yent 1994	Kukui Communication Facility, Waimea Canyon State Park	Reconnaissance Survey	None.
Yent 1995a	CCC Camp, Kōke'e State Park	Survey	Documented the CCC Camp, which dated to the 1930s. The camp was later designated as SIHP 50-30-06-9392.
Yent 1995b	Kōke'e State Park	Survey	Recorded 11 features of a former Army campsite that dated to the 1940s. No SIHP number was assigned at that time.
McGerty and Spear 1997	Northwest of Kekaha	Inventory Survey	Documented seven sites: SIHP 50-30-05-652 through 658. They consisted of historic roads, a historic trash dump, and traditional agricultural features.
Yent 1997	Kekaha Game Management Area		None.

The discussion below focuses on the uplands, therefore the coastal archaeological work of Kekaha and Mānā is not included. State Inventory of Historic Places (SIHP) numbers are prefixed by 50-30-10 unless otherwise noted

An early survey to identify heiau documented several ceremonial sites in the project vicinity (Thrum 1906). Most relevant is Makahoe (that Thrum calls “Makahoa”), which is likely located within the project area. It was said to be located at Niu, Kaunalewa, and was described as “a village shrine” (Thrum 1906:40). A site nearby is Ho‘one‘enu‘u, a heiau on the south side of Kaunalewa Gulch. It was walled with two tiers and paved platforms, and it is said that circumcision rites were performed there (Thrum 1906:40). Hauola is a heiau in Hō‘ea, Wa‘iawa. It was described as having heavy outer walls, two divisions, and evidence of house foundations near the entrance. Thrum (1906:39) remarked that this site was in the best condition of all the Kaua‘i heiau that he had seen. It was later documented as a place of refuge (Wichman n.d.). Also in the vicinity is an unnamed platform shrine in Wai‘awa. Another unnamed platform is situated at an elevation of 1,700 feet in Paehu, Pōki‘i. Also in Pōki‘i are two “flat sacred places,” Kopahu and Kaleinakauane, the latter of which was a leina, a leaping place for souls of the deceased (Thrum 1906:38). A heiau called Ahuloulu is located at the bottom of Pu‘u Ka Pele and consisted of three platforms. Kahelu is a heiau found at the “base of the hill” in Kahelu, Mānā (Thrum 1906:39). It was described as a 6-foot tall platform.

Another early survey identified 12 sites in the project area vicinity (Bennett 1931). These include SIHP 10–21, many of which were previously identified by Thrum:

Site 10. Kahelu heiau, at Kahelu near Mana and described by Thrum as, “A heiau of platform character at the base of the hill, about 6 feet high in front, not of large size.”

Site 11. Makahoe heiau and village site on Nui ridge, Kaunalewa.

A small, platform village shrine. Thrum describes the village as “Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro land besides the dry crops to depend on.” On the inland side of Niu ridge small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area.

Site 12. Hooneenu heiau, along the ditch line inland from the government road near the center of Kaunalewa ridge.

This heiau now consists of two sections roughly paved, each 15 by 35 feet, the back one 2 feet above the front. The lower platform is built up 4 feet in front, but the ditch line has cut through it causing much disturbance. It is made of the lava so plentiful around. Thrum describes it as consisting of two tiers 20 by 30 feet in size, one 6 feet above the other. He also mentions that it was a heiau for circumcision.

Site 13. Burial caves, on Kaunalewa ridge.

On Kaunalewa ridge there are a number of burial caves. In one there was a canoe containing a skeleton. The canoe was not large, was cut in half, and had the boards sewn together with grass cord. The burial was wrapped in tapa. A number of other bones were jumbled together in the back of the cave. In a cave nearby was a canoe burial wrapped in white, pink, and black tapa, as well as in some blue cotton cloth. There was a pillow of moss, and grass cords were tied clear around the canoe. The canoe was similar to the one mentioned above and seemed to be the other half of it. With this burial was found a feather kahili with a kauila wood handle. The feathers were from sea birds and dyed different colors. Another kahili was without a handle. Aside from these were two flat wooden plates about 10 inches in diameter. A small bundle of dog bones wrapped in stiff tapa was also found. There are on this ridge other caves with evidence of some use at one time. One cave contained a palaoa bone pendant but no other remains.

Site 14. Two small heiaus, near Waiawa, described by Thrum as a 12 by 20-foot shrine, and an 18 by 28-foot shrine.

Site 15. House sites and taro terraces, in Waiawa valley.

Some taro lines may still be seen in lower Waiawa valley. Many house sites are in evidence. They consist for the most part of leveled ground, faced in front with stone, or merely outlined with stone.

Site 16. Hauola heiau, in Hoesa valley at the base of Hauola ridge.

The site is on a talus slope that extends upward from a stream gulch to the base of a ridge. Upstream from the structure is a natural amphitheater. On a large, well-paved platform... is placed a smaller unpaved platform, its back side marked by a facing terrace 3 feet in height. Thrum describes this smaller platform as the location of house sites and says that the passage along its southern wall was the entrance to the heiau. There is nothing to distinguish it now. The third platform at a higher level is inclosed [sic] at the back by a wall... This upper platform is excellently paved with flat lava slopes 15 to 20 inches wide and filled with river pebbles... At the front of this platform is a long, narrow pit with an inner wall 7 feet thick and an outer wall 5 feet thick... The heiau is made of the local stone, a reddish lava, some of which has been slightly waterworn. Coral is found on the paving. The walls are well built of selected pieces carefully piled.

Site 17. Burial caves, on Pokii ridge.

A number of caves that were used for burial have been rifled except for a few bones. In one there was a 3-inch matting of pili grass spread loosely on the floor.

Site 18. Heiau, on top of a small knoll with a commanding view of the country, five miles from the sea, at an elevation of 1700 feet, on the road to Kokee on Paehu ridge.

Thrum describes this site as follows: “The heiau is a simple platform on the top of a hill. It is built up on all sides with stonework, the whole space being then paved. The platform is a perfect parallelogram 40 by 60 feet; elevation above the sea about 1700 feet.”

Site 19. Ahuloulu heiau, on the seaward side of the Puu Ka Pele crater cone at the edge of Waimea canyon.

This heiau consists of a walled enclosure the outside dimensions of which are 37 by 41 feet. The walls are 4 feet wide and badly broken. In front of this structure is a flat area about 50 by 50 feet without paving or boundaries. Back of the enclosure there is a paved platform 8 by 12 feet. This platform is backed by a large rock, the plugged-up holes in which indicate that it might have been used as a depository for umbilical cords.

Site 20. House sites, around the crater of Puu Ka Pele.

The remains of seven house sites are indicated by stones in line forming a terrace with a flat space behind. Some of these house sites measured 30 feet in width and 20 feet in depth. Some of the terracing stones were good-sized boulders. The dirt has washed down from above covering the original platform. On top of the crater cone there is a flat platform 30 feet by 30 feet, slightly terraced, in which river stones and coral are found.

Site 21. House sites, toward the sea from Puu Ka Pele on the north side of the road.

A series of house sites are located on top of a flat ridge, the edge of which is lined with stones for 50 feet or more. There are several cross divisions. Fireplaces consisting of four or more stones placed in a rectangle are in evidence on several of these divisions. (Bennett 1931:102–104)

A 1974 field check re-identified Ahuloulu Heiau (SIHP 19) and the Pu‘u Ka Pele habitation complex (SIHP 20) (Ching 1974). It was believed that the other habitation complex in the area, SIHP 21, still existed, but it was not found due to thick vegetation. However, in a later field check by State Parks, both habitation complexes, SIHP 20 and 21 were re-identified as well as Ahuloulu Heiau, and all three were consolidated as one site called the Pu‘u Ka Pele Complex (SIHP 19). Note that no report for this field check could be located but the information was recorded in later publications (Yent 1995a, 1995b, 1997).

In 1978, a reconnaissance survey throughout the rock borrow areas near Kekaha identified numerous ceremonial, habitation, and agricultural features (Sinoto 1978). In Waiaka, a rectangular stone cairn and a series of overhang shelters were recorded. In Wai‘awa an open flume, concrete foundations, and narrow-gauge rails were noted. Also in this area, Bennett’s (1931) Site 15 was described as “extensively disturbed by bulldozing,” although remnant features were observed (Sinoto 1978:5). Also documented were a complex of terraces and walls probably associated with Site 15. In Kahoana, many terraces, enclosures, walls, and mounds were noted. In Hō‘ea Valley, Hauola Heiau was recorded in excellent condition, and other “numerous small and crudely constructed sites” were reported (Sinoto 1978:6). No new SIHP numbers were assigned at the time of the survey.

A field check at the Waimea Canyon Lookout identified one site (Carpenter 1993). This was a remnant of a possible temporary habitation structure consisting of three alignments of stone. The site was later designated as SIHP 50-30-06-707.

A survey of approximately 15 acres of Mana Quarry identified one archaeological site (McEldowney 1993). The site was comprised of three platforms, an enclosure, and a rectangular boulder accumulation. No SIHP number was assigned at the time of the survey.

In 1993, an archaeological reconnaissance was conducted in Kōke'e for the Emergency Watershed Protection program (McMahon 1993). Only one archaeological feature was identified during this survey, SIHP 50-30-05-499, an alignment of boulders, possibly for agriculture, located at the makai end of the Polihale Ridge Road.

An archaeological survey for the Civilian Conservation Corps (CCC) Camp in Waimea identified one historic site (Yent 1995a). This is the camp itself, which dated to the 1930s. Of the 25 structures of the camp, 19 were still existing at the time of the survey, although many had been modified. The camp was later designated as SIHP 50-30-06-9392.

An archaeological survey was conducted at the former Army campsite on Kaunuohua Ridge (Yent 1995b). No pre-contact archaeological sites were identified during, but 11 historic-era features were documented, all of which were associated with the Army camp, originally constructed in the 1940s. No SIHP number was assigned at the time of the survey.

An archaeological inventory survey near Kekaha identified seven archaeological sites (McGerty and Spear 1997). SIHP 50-30-05-655 and 656 are two overgrown historic roads. SIHP 654 is a trash dump containing a wide diversity of artifacts from the historic period. The other four archaeological properties were all agricultural in nature: SIHP 652, a rock mound; SIHP 653, a cluster of rock mounds; SIHP 657, several clusters of rock-faced terraces along with an 'auwai; and SIHP 658, another rock mound.

Various other archaeological studies yielded no findings. These include two reconnaissance surveys in Waimea Canyon State Park (Ching 1978a, 1978b), a field inspection at Makaha Ridge (Kikuchi 1982), a reconnaissance for the proposed Kōke'e Hydropower Project (Yent 1982), an archaeological inventory survey for the U.S. Navy's Radio Telescope Project (Walker and Rosendahl 1990), an archaeological inventory survey in the Pu'u Ka Pele Reserve (Chaffee and Spear 1993), an archaeological inventory survey at three locations including Makaha Ridge (Dowden and Rosendahl 1994), a reconnaissance of Kaleinamanu Ridge (Hammatt and Ida 1993), a reconnaissance in the Kahuama'a Flat area of Kōke'e State Park (Carpenter and Yent 1994), a field check of Kauhao Ridge (Kawachi 1994), a reconnaissance for the Koke'e Air Force Station (Yent 1994), and a reconnaissance of the Kekaha Game Management Area (Yent 1997).

Summary of Background Information

Waimea was a culturally significant area with many of the natural resources which supported traditional subsistence activities such as fishing and taro and sweet potato cultivation. The uplands of the project area were known as a zone for the harvesting of trees that were made into canoes. Heiau and village sites were also located in the study area, and a mo'olelo involving Menehune explains how Pu'u 'Ōpae was named. The low, flat lands below the project area were once an extensive marsh.

Historically, sugar and rice cultivation and ranching were practiced in the project region, although sugar was the most successful by far. Reservoirs, ditches, plantation camps, roads, sugar mills, railroads, and other infrastructure were built to support this endeavor and the population of plantation workers that settled in Waimea.

Previous archaeological research has identified a number of heiau in the region, although only one, Makahoe, is thought to be within the current area of study. This was described as a village shrine. Petroglyphs are also associated with the traditional village of Makahoe. Other heiau, as well as agricultural, habitation, and human burial sites have been previously recorded for the region.

SUMMARY AND CONCLUSION

A literature review was conducted for approximately 1,400 acres (567 ha) of TMK: (4) 1-2-002:023 in the Pu‘u ‘Ōpae region of Waimea Ahupua‘a, Kona District, on the island of Kaua‘i. Hawaiian Home Lands kuleana lots are proposed for this area. The literature review consisted entirely of library research, with no archaeological fieldwork conducted.

Several archaeological implications can be made based on the literature review presented above. Key data include historical maps, the results of previous archaeological work, and data for previous land use. Archival sources relate that the Pu‘u ‘Ōpae region was culturally significant as a place where trees were harvested for canoe-making. Elsewhere in the vicinity, kalo and sweet potato were cultivated for traditional subsistence.

In the pre-contact era, heiau, agricultural sites, and habitation zones were located in the general vicinity of Pu‘u ‘Ōpae. Within the project area itself was Makahoe Heiau, described as a village shrine, with associated taro fields and petroglyphs. Human burials are known for caves in the region, and these might also be expected elsewhere in the uplands.

No Land Commission Awards were found for the project area, possibly indicating that the uplands were sparsely populated in the early historic era. Beginning in the late 1800s and continuing into the 20th century, sugar (and to a lesser extent, rice) cultivation and ranching were practiced, although sugar was the most successful by far. Reservoirs, ditches, plantation camps, roads, sugar mills, railroads, and other infrastructure supported this endeavor, and the Pu‘u ‘Ōpae plantation camp, its access road, and part of the Koke‘e Ditch are situated within the project boundaries.

In sum, a number of cultural and historical resources may be found within the Pu‘u ‘Ōpae vicinity, such as traditional heiau, agricultural sites, habitation sites, and/or human burials, as well as historic vestiges of the sugarcane industry. Previously documented within the project area are Makahoe Heiau, village, taro fields, and associated petroglyphs; the Pu‘u ‘Ōpae plantation camp, an access road associated with the camp and cane fields, and the part of the Koke‘e Ditch. It is recommended that archaeological surveys are carried out to determine exactly where these features are located, what condition they are currently in, and if any undocumented features occur within the project footprint.

GLOSSARY

ahupua‘a	Traditional Hawaiian land division usually extending from the uplands to the sea.
‘akōlea	<i>Athyrium microphyllum</i> syn. <i>A. poiretianum</i> , a fern native to Hawai‘i.
ali‘i	Chief, chiefess, monarch.
‘auwai	Ditch, often for irrigated agriculture.
heiau	Place of worship and ritual in traditional Hawai‘i.
hinana	Young ‘o‘opu, traditionally caught in nets and a prized food fish.
hoa‘āina	Native tenants that worked the land.
‘ili	Traditional land division, usually a subdivision of an ahupua‘a.
kalo	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.
kanikau	Lamentation, dirge, mourning chant; to mourn, wail, chant.
kawakawa	The bonito, or little tunny fish (<i>Euthynnus yaito</i>).
kawelu	The grass <i>Eragrostis variabilis</i> ; also a seaweed that resembles this grass.
kuhina nui	Prime minister or premier. Ka‘ahumanu was the first kuhina nui. The position was abolished in 1864.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
kupuna	Grandparent, ancestor; kūpuna is the plural form.
leina	To leap or spring. Leina ka ‘uhane or leina a ke akua were places where spirits leapt into the nether world.
lo‘i, lo‘i kalo	An irrigated terrace or set of terraces for the cultivation of taro.
Māhele	The 1848 division of land.
maka‘āinana	Common people, or populace; translates to “people that attend the land.”
makai	Toward the sea.
māka‘ika‘i	To stroll, visit, or tour; to look upon; spectator.
makena	Mourning, lamentation; to weep for joy, lament, or wail;.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
mele inoa	Name chant, composed to honor someone.
menehune	Small people of legend who worked at night to build structures such as fishponds, roads, and heiau.
mo‘olelo	A story, myth, history, tradition, legend, or record.
mō‘ī	King.
moi	The threadfish <i>Polydactylus sexfilis</i> , a highly prized food item.
‘ōhai	The monkeypod tree, <i>Samanea saman</i> .

‘ōlelo no‘eau	Proverb, wise saying, traditional saying.
oli	Chant.
‘ōpelu	Mackerel scad (<i>Decapterus pinnulatus</i> and <i>D. maruadsi</i>).
o‘opu	Fish of the families <i>Eleotridae</i> , <i>Gobiidae</i> , and <i>Bleniidae</i> .
poi	A staple of traditional Hawai‘i, made of cooked and pounded taro mixed with water to form a paste.
pu‘u	Hill, mound, peak.

REFERENCES

- Akana, C.L. and K. Gonzales
2015 *Hānau Ka Ua Hawaiian Rain Names*. Kamehameha Publishing, Honolulu.
- Armstrong, R.W. (editor)
1973 *Atlas of Hawaii*. University of Hawai‘i, Honolulu.
- Bacon, P.N. and N. Napoka (editors)
1995 *Na Mele Welo: Songs of Our Heritage*. Translated by M. K. Pukui. Bishop Museum Press, Honolulu.
- Beamer, B.
2008 *Na wai ka mana? ‘Ōiwi Agency and European Imperialism in the Hawaiian Kingdom*. Diss. University of Hawai‘i, Honolulu.

2014 *No Mākou Ka Mana Liberating the Nation*. Kamehameha Publishing, Honolulu.
- Bennett, W.C.
1931 *The Archaeology of Kauai*. Bishop Museum, Honolulu.
- Carpenter, A.
1993 *Fieldcheck of Archaeological Site, Waimea Canyon Lookout, Waimea Canyon State Park, Kaua‘i*. Division of State Parks, Department of Land and Natural Resources, Honolulu.
- Carpenter, A. and M. Yent
1994 *Archaeological Reconnaissance Survey of a Portion of Kahuama‘a Flat, Kōke‘e State Park, Hanalei District, Island of Kaua‘i (TMK:5-9-01:por.1 and por.16)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.
- Chaffee, D.B. and R.L. Spear
1993 *An Inventory Survey of a Parcel of Land in the Pu‘u Ka Pele Forest Reserve, Waimea Canyon Park, Waimea Ahupua‘a, Waimea, Island of Kaua‘i (TMK:1-2-01:4 partial)*. Scientific Consultant Services, Inc., Honolulu.
- Ching, F.
1974 *Inventory of Historic Sites Records #50-30-01-19 through #50-30-01-22*. Department of Land and Natural Resources, Honolulu.

1978a *Archaeological Reconnaissance of Kukui Trail, Waimea Canyon State Park, Kona, Kaua‘i Island*. State Historic Preservation Division, Honolulu.

1978b *Archaeological Reconnaissance of Proposed Mule Staging Area, Waimea Canyon State Park, Waimea, Kona, Kaua‘i*. State Historic Preservation Division, Honolulu.
- Collins, L.F.
2007 “Waimea, Kaua‘i.” *Volume One: Hawai‘i’s Historic Corridors*. Historic Hawai‘i Foundation, Honolulu.
- Dowden, S. and P. Rosendahl
1994 *Archaeological Inventory Survey: Mountaintop Sensor Integration and Test Program Project Area, Land of Waimea, Waimea District, Island of Kauai (TMK:4-1-2-01:6;4-1-4-01:13;4-5-9-01:1.6)*. Paul H. Rosendahl, Inc., Hilo, Hawai‘i.

- Footo, D., E. Hill, S. Nakamura, and F. Stephens
 1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. United States Department of Agriculture, Soil Conservation Service. Published in cooperation with the University of Hawaii Agricultural Experiment Station, Washington, D.C.
- Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delporte
 2013 *Online Rainfall Atlas of Hawai'i*. Bulletin of the American Meteorological Society 94, 313–316, doi: 10.1175/BAMS-D-11-00228.
- Hammatt, H.H. and G.K. Ida
 1993 *Archaeological Assessment of Two Locations for a proposed State Agricultural Park Waimea, Kaua'i*. Cultural Surveys Hawai'i, Kailua, Hawai'i.
- Handy, E.S.C., E.G. Handy, and M.K. Pukui
 1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bishop Museum Press, Honolulu.
- Harvey, F.E.
 1900 *Map of the Island of Kauai Hawaiian Islands*. Hawaiian Government Survey. Register Map 1395. Scale: 5,000 feet = 1 inch.
- HSPA (Hawai'i Sugar Planter's Association)
 1880–1946 Register of the KEKAHA SUGAR COMPANY 1880–1946. Accessed online via the University of Hawai'i at Mānoa Special Collections, November 2017.
 <http://www2.hawaii.edu/~speccoll/p_kekaha.html>
- Imlay, L.E.
 1891 *Map of Kauai Compiled from Government Surveys and Private Surveys of Lands Belonging to Gay and Robinson*. Register Map 2246 Scale 3,000 feet = 1 inch.
- Kamakau, S.M.
 1991 *Tales and Traditions of the People of Old: Na Mo'olelo a ka Po'e Kahiko*. Translated by M.K. Pukui. Edited by D.B. Barrere. Bishop Museum Press, Honolulu.
- 1996 *Ke Kumu Aupuni*. 'Ahahui 'Ōlelo Hawai'i, Honolulu.
- Kanahele, G.S.
 1995 *Waikiki 100 B.C. To 1900 A.D.: An Untold Story*. The Queen Emma Foundation, Honolulu.
- Kawachi, C.
 1994 *Archaeological Field Check of Kauhao Ridge as Part of the Widening of Forestry Firebreaks Project, Waimea Canyon State Park*. Division of State Parks, Department of Land and Natural Resources, Honolulu.
- Kekaha Sugar Co., Ltd.
 1930 *Plantation Map of Kekaha Sugar Company Limited*. Civil Engineering and Survey Dept. Scale on Map.
- Kikuchi, W.
 1982 *Field Inspection of Makaha Ridge, Waimea, Kaua'i*. State Historic Preservation Division, Honolulu.

- Kitteridge, C.S.
1878 Untitled map of the Waimea, Kaua'i vicinity. Register Map 1371. No scale.
- Maly, K. and O. Maly
2003 *He Wahi Mo'olelo No Ponahawai A Me Punahoa Ma Hilo: A Collection of Traditions and Historical Accounts for Ponahawai and Punahoa, District of Hilo, Island of Hawai'i (TMK 2-3-44:19; 2-3-49:53; 2-3-37:01)*. Kumu Pono Associates, Hilo, Hawai'i.
- McGerty, L. and R.L. Spear
1997 *An Archaeological Inventory Survey of a Parcel of Land Near Kekaha in the Ahupua'a of Waimea, District of Kona, Island of Kaua'i (TMK 1-2-02)*. Scientific Consultant Services, Inc., Honolulu.
- McEldowney, H.
1993 *Archaeological Survey for a Proposed Expansion of the Mana Quarry Site Mana, Waimea, Kauai TMK: 1-2-02:1*. State Historic Preservation Division, Honolulu.
- McMahon, N.A.
1993 *Archaeological Reconnaissance Survey for Emergency Watershed Protection along Ridge Roads in the Koke'e Uplands, Koke'e, Waimea District, Island of Kaua'i*. Department of Land and Natural Resources, Honolulu.
- Moffat, R.M. and G.L. Fitzpatrick
1995 *Palapala 'aina: Surveying the Mahele*. Editions Limited, Honolulu.
- Morgan, J.R.
1996 *Hawai'i: A Unique Geography*. Bess Press, Honolulu.
- Nakuina, M.K.
2005 *The Wind Gourd of La'amaomao*. Revised Edition. Kalamakū Press, Honolulu.
- Nogelmeier, M.P.
2006 Commentary. *The Epic Tale of Hi'iakaikapoliopele*. Awaiaulu: Hawaiian Literature Project, Honolulu.
- Pukui, M.K.
1983 *'Ōlelo No 'eau: Hawaiian Proverbs & Poetical Sayings*. Bishop Museum Press, Honolulu.
- Pukui, M.K., S.H. Elbert, and E.T. Mookini
1974 *Place Names of Hawaii*. University Press of Hawai'i, Honolulu.
- Sai, D.
2008 *The American Occupation of the Hawaiian Kingdom: Beginning the Transition from Occupied to Restored State*. Diss. University of Hawai'i, Honolulu.
- Sinoto, A.
1978 *Cultural Reconnaissance of Rock Borrow Areas Near Kekaha, Kaua'i, Hawai'i*. Department of Anthropology, Bernice P. Bishop Museum, Honolulu.
- Territory of Hawaii
1954 Tax Map Fourth Division Zone 1 Sec 2 Plat 02. Classification of Lands, Withdrawl by Hawaiian Homes Commission. Scale 2,000 feet = 1 inch.

- Thrum, T.G.
1906 *Hawaiian Almanac and Annual for 1907*. Thomas G. Thrum, Honolulu.
- USGS (United States Geological Survey)
1912 *Topographic Map of the Island of Kauai*. Surveyed in 1910. Scale 1:2500. Contour Interval 50 feet.
- Walker, A.T. and R.H. Rosendahl
1990 *Archaeological Inventory Survey USN Radio Telescope Project Area, Land of Waimea, Waimea District, Island of Kauai*. Paul H. Rosendahl, Inc., Hilo, Hawai'i.
- Wall, W.E.
1903 *Kauai Hawaiian Islands*. Hawaii Territory Survey. Scale on Map.
- Wichman, F.B.
n.d. *The Place Names of Kona: A District of the Island of Kaua'i*. Frederick B. Wichman, Hanalei, Hawai'i.

2003 *Nā Pua Ali'i O Kaua'i: Ruling Chiefs of Kaua'i*. University of Hawai'i Press, Honolulu.
- Wilcox, C.
1997 *Sugar Water Hawaii's Plantation Ditches*. University of Hawai'i Press, Honolulu.
- Yent, M.
1982 *Archaeological Reconnaissance: Proposed Kokee Hydropower Project, Kōke'e State Park, Waimea Canyon State Park and Upper Kekaha, Waimea District, West Kaua'i*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1994 *Archaeological Reconnaissance Survey: Kukui Facility Radio Communication Upgrade Koke'e Air Force Station Waimea Canyon State Park Waimea, Kaua'i TMK: 1-2-01:9*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1995a *Archaeological Survey: Civilian Conservation Corps (CCC) Camp, Kōke'e State Park, Waimea, Kaua'i (TMK:1-4-01:13)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1995b *Archaeological Survey: Former Army Camp Site, Kōke'e State Park, Waimea, Kaua'i (TMK:1-4-01)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1997 *Archaeological Reconnaissance Survey: Kekaha Game Management Area, Waimea, Kaua'i (TMK: 1-2-02)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

Appendix D

**Archaeological Reconnaissance Survey
Letter
(Keala Pono)**



PO Box 1645
Kaneohe, HI, 96744

July 26 2018

Kawika McKeague
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague,

As of 7/16/2018, archaeological reconnaissance survey of Pu'u 'Ōpae on Kaua'i is complete. Fieldwork was conducted on approximately 200 acres of TMK: (4) 1-2-002:023 over four days (Figure 1). Three archaeological sites were identified: 1) a series of military trenches; 2) the remains of a plantation camp; and 3) the Pu'u 'Ōpae Reservoir. The following is an account of the four field days and the sites that were observed.

Day 1: Friday, July 13, 2018

Archaeologists Steven Eminger and Max Pinnoneault met with community member Eben Manini at his residence. They spoke with Eben a while regarding the area and its history (Hawaiian times, sugar era, military, etc.). He mentioned hearths eroding out of the surface that he was very concerned may be impacted by future construction activities. Although they were outside of the current project's survey area, the team agreed to take a look before proceeding to two other areas.

Hearths Outside the Project Area

By all appearances the hearths are not extremely old. It is likely that they are associated with military activities in the area. There were various military-related items in the vicinity (bullet shells, machine gun links, etc.). Also seen with one of the charcoal features was an empty rusted metal can. Eben was very good at identifying bullet casing calibers as well as when they were used.

Potential Village on Niu Ridge

Eben also mentioned that he had seen stone alignments or walls in one of the old cane fields on Niu Ridge, so the team proceeded there. He explained how all of the walls in this part of the island are "rough" and not well-made like those he's seen in Kalalau and on the windward side of the island. He also noted how the artifacts he has found in this area are all "rough," and not well-finished - he explained they are probably expediently made/used.

Eben took the team down the middle of Niu Ridge to roughly the 1,000' elevation and showed them an area between fields that was never planted due to the slope. It was an area between adjacent flat areas/fields that were at different elevations (approximately 10 m or so difference in

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elevation). There were numerous boulders, many exhibiting scars from being moved with heavy machinery, presumably from clearing the adjacent fields. Nothing cultural was observed after surveying the area.

Makahoa Ridge Kukui Grove

While surveying on Niu Ridge, the team saw a very obvious grove of kukui trees on the next ridge to the east and headed there. En route they conducted a “windshield survey” and stopped at several places to investigate rocks, potential sites, etc., with nothing cultural found. The kukui grove was interesting with a nice stand of wiliwili trees next to it. They spent some time thoroughly surveying this slope, but again nothing definitively associated with human activities was observed.

Day 2: Saturday, July 14, 2018

Eben offered to join the team again, which consisted of archaeologists Steven Eminger, Max Pinsonneault, and Robin Keli'i. They visited two areas and then were thwarted by rain so the survey was cut short and the team visited the Koke'e Museum to look at the petroglyph they have on display from Pu'u 'Ōpae.

Military Trenches

Eben had mentioned a place within the survey area where he had seen trenches (“entrenchments”) associated with military activities, so the team headed there. They had to park the vehicle some distance away which allowed for a good reconnaissance of the area. They eventually got to the nose of the ridge where there was a substantial trench about a meter deep and a meter or two wide (Figure 2). The trench intersected a second one and terminated in a larger, excavated rectangular area, presumably where weapon emplacements were mounted. Seen in the area were fragments of green asphalt roofing material, nails and miscellaneous metal items, lumber pieces, and bullet shells.

Pu'u 'Ōpae Old Camp

Because the day was wet, the team did not want to drive too far down any of the access roads, as all are rugged and may not be passable in heavier rain (Figure 3). They surveyed the site of the “Old Camp” just east of the reservoir. The first features identified were two old steel water tanks (assembled out of steel plates fastened together with closely spaced massive rivets) set on cement foundations (Figure 4), along with a cement foundation consisting of footings encircled by fallen metal rod “hoops” with fittings to tighten the hoops around the now-rotted away redwood water tank. There was evidence that it may have been burned at some point in time, whether early on or much more recently it was not possible to tell (but probably more recently). All of these tank features were at an appropriate elevation to gravity feed the old camp, if indeed that was what they were used for.

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Next, the team walked down to where they thought the old camp may have been previously located. It was very obvious that the site had been fairly recently bulldozed, with the bulldozed push piles around the cleared perimeter. Surveying the area they noted various historic artifacts on the surface, including Coca Cola bottle fragments, ceramic fragments, window glass pieces, as well as various metal pieces (most unidentifiable as to function).

Koke'e Museum

The rain started coming down heavier and the sky was darkening so the team thought it pertinent to drive back out before the road became impassable. It was slick as it was already. With the extra time, they headed to the Koke'e Natural History Museum to look at the petroglyph they have on display that were taken from Pu'u 'Ōpae (Figure 5). The petroglyph is labelled as being a man, from Pu'u 'Ōpae Village (though the sex of the figure is not apparent). The rock is by all appearances its original size, meaning that the rock does not look to have been broken off of a larger piece. It appears that the petroglyph was done on this small-sized rock, which in and of itself is very uncommon. The rock does not look to be of the typical type found in the Pu'u 'Ōpae area and is somewhat denser and finer grained with almost a shiny surface appearance. Most of the rocks that the team observed in the survey area are heavily weathered and rougher looking, none presenting a very nice surface for creating a petroglyph.

The design itself is an anthropomorph, headless, long bodied, and without feet, though there are slight angles at the ends of the arms suggesting hands. The figure appears to have a double set of arms on the left side as you look at it. It is hard to determine how the figure was chipped into the rock and it is not typical of most petroglyphs on other islands, either in style or method of creation. The chips seem to be few, large and smooth/round edged (rather than sharp-edged as one would expect a large chip out of a dense rock to be).

Day 3: Sunday, July 15, 2018

Eben again offered to join the team, which consisted of the same archaeologists as the day before. The weather was much improved so they completed a perimeter survey of the Phase 1 area as well as a survey of one of the gulches.

Perimeter Survey

The team began the day by driving the north edge/perimeter of the Phase 1 area. The only item of interest recorded was an old coiled cable just on the opposite side of the fence line - the only cultural item seen. It is likely a historic artifact/feature connected with past sugarcane cultivation (Figure 6).



Gulch Survey

After surveying that edge, a shallow middle gulch that had escaped bulldozing/sugarcane cultivation was explored to see what was there. Ground visibility was very good, as well as being generally clear in the gulch. Nothing cultural was observed and the only items of interest were sandalwood populations.

Day 4: Monday, July 16, 2018

On the final day, archaeologists Steven Eminger and Max Pinsonneault conducted a pedestrian survey of the reservoir vicinity.

Pedestrian Reconnaissance Survey of Upper Niu Valley, Niu Ridge, and Pu'u 'Ōpae Reservoir

The team parked the vehicle in the area of the reservoir and conducted a pedestrian survey along the upper reaches of Niu Valley, then out onto Niu Ridge, before making their way up below the reservoir (Figure 7). They discovered several interesting historical water-control features (e.g., Figures 8–11) which probably date to the time when sugarcane was irrigated with gravity flow through open ditches (from the time the cane lands were established and before pipes, PVC, and irrigation lines were used - of which there is ample evidence and remains of). Also seen were some random scattered heavy metal artifacts of undetermined function.

In sum, a pedestrian reconnaissance survey was conducted on approximately 200 acres of TMK: (4) 1-2-002:023 at Pu'u 'Ōpae on Kaua'i. Three archaeological sites were identified: 1) a series of military trenches; 2) the remains of a plantation camp; and 3) the Pu'u 'Ōpae Reservoir. If these sites are to be impacted by construction it is recommended that they are further documented with an archaeological inventory survey. In addition, an archaeological reconnaissance or inventory survey should be conducted for 100% of the project area in advance of construction, once the construction footprint is determined.

Thank you for the opportunity to conduct this important work; please feel free to contact us with any questions or concerns.

Steven Eminger and Windy McElroy
Keala Pono Archaeological Consulting

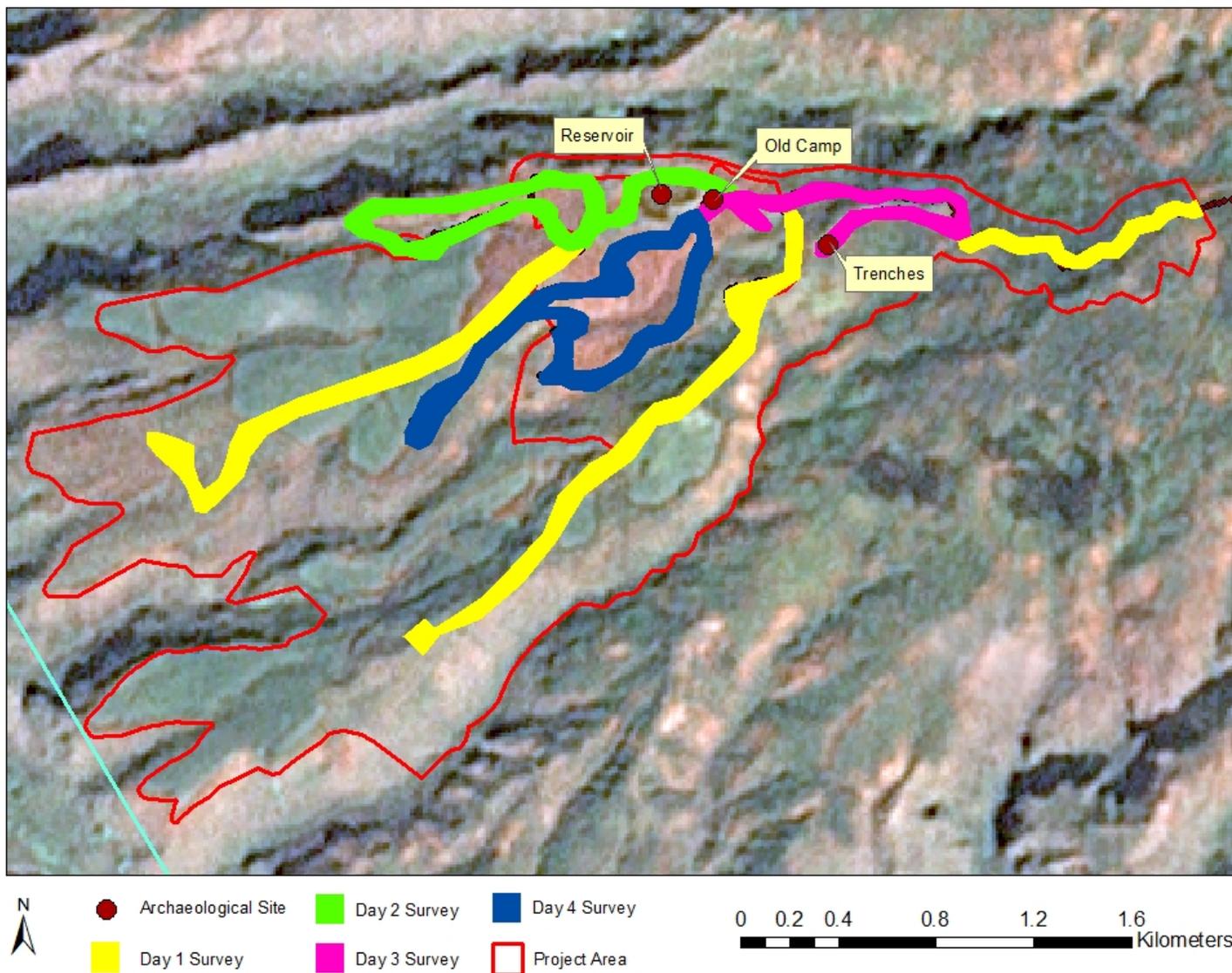


Figure 1. Pu'u 'Ōpae project boundary, survey areas color coded by day, and archaeological sites identified.

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Figure 2. Possible military trench.



Figure 3. Example of dirt road within the project area.

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Figure 4. Metal tank at the Old Camp.



Figure 5. Petroglyph on display at the Koke'e Natural History Museum.

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Figure 6. Steel cable remnant.



Figure 7. Pu'u 'Ōpae Reservoir.

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Figure 8. Water control feature associated with Pu'u 'Ōpae Reservoir.



Figure 9. Water control feature associated with Pu'u 'Ōpae Reservoir.

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Figure 10. Water control feature associated with Pu'u 'Ōpae Reservoir.



Figure 11. Water control feature associated with Pu'u 'Ōpae Reservoir.

Appendix E

Cultural Impact Assessment (Keala Pono)

**FINAL— Cultural Impact Assessment for the Pu‘u ‘Ōpae
Special Area Master Plan, Waimea Ahupua‘a, Kona District,
Island of Kaua‘i, Hawai‘i**

TMK: (4) 1-2-002:023 (por.)



Prepared For:

G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813



June 2020



Keala Pono Archaeological Consulting, LLC • PO Box 1645, Kāne‘ohe, HI 96744 • Phone 808.381.2361

**FINAL— Cultural Impact Assessment for the Pu‘u ‘Ōpae Special
Area Master Plan, Waimea Ahupua‘a, Kona District, Island of
Kaua‘i, Hawai‘i**

TMK: (4) 1-2-002:023 (por.)

Prepared For:

G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813



Prepared By:

Gina McGuire, MS
Kālenalani McElroy, MA
and
Windy McElroy, PhD

June 2020



MANAGEMENT SUMMARY

Keala Pono Archaeological Consulting prepared a cultural impact assessment (CIA) for TMK: (4) 1-2-002:023 (por.) in Waimea Ahupua‘a, Kona District, on the island of Kaua‘i, where Department of Hawaiian Home Lands kuleana lots are proposed. The current study took the form of background research and an ethnographic survey consisting of three interviews with community members, all of which are included in this report.

The background research synthesizes traditional and historic accounts and land use history for the Waimea area. Community consultations were performed to obtain information about the cultural significance of the subject property and the surrounding area, as well as to address possible concerns of community members regarding the effects of the proposed project on places of cultural or traditional importance.

As a result of this work, the cultural significance of the region has been made clear. Although much of the project area was disturbed by sugarcane cultivation in the 20th century, archival research revealed that a traditional heiau, village, and petroglyphs, as well as a plantation-era camp, access road, and irrigation ditch were located within the project boundaries.

Interviews with individuals knowledgeable about the project lands produced information on its rich cultural history. Interviewees identified hunting and gathering plants for lei-making as traditional practices occurring in the project area. Interviewees also identified several archaeological sites including historic constructions related to the plantations, military, or ranching activities, in addition to heiau, fire pits, traditional trails, adze quarries, and burial caves that may lie within the project area. An archaeological inventory survey is recommended to determine if vestiges of these or other sites remain in the project area.

The interviewees were concerned about potential adverse effects to cultural and spiritual sites and recommended avoidance by constructing new roads and waterlines over pre-existing roadways and ditches. Continuing to allow access to those hunting and gathering in the area was also mentioned. The interviewees also remarked on safety concerns regarding hunting and unexploded ordinance in the region which were left behind by the military. Two ways development could benefit the local community were mentioned: setting aside land for a tsunami evacuation center and donating removed trees to the community to use for carving and building material.

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INTRODUCTION

At the request of G70, Keala Pono Archaeological Consulting conducted a cultural impact assessment (CIA) for approximately 1,400 ac. (567 ha) of TMK: (4) 1-2-002:023 in Waimea Ahupua'a, Kona District, on the island of Kaua'i, where Hawaiian Home Lands kuleana lots are proposed. This CIA was designed to identify any cultural resources or practices that may occur in the area and to gain an understanding of the community's perspectives on the proposed activity on the property.

The report begins with a description of the study area and a historical overview of land use and archaeology in the ahupua'a. The next section presents methods and results of the ethnographic survey. Results are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary. Also included are appendices with documents relevant to the ethnographic survey, including full transcripts of the interviews.

Project Location and Description

TMK: (4) 1-2-002:023 is a 14,558.684-ac. (5891.690-ha) parcel owned by Hawaiian Home Lands that lies within Waimea Ahupua'a, Kona District, on the west side of Kaua'i. The property consists of rugged uplands, of which approximately 1,400 ac. (567 ha) will be considered as the project area (Figures 1 and 2). Unimproved access roads currently run through the parcel, and most land within the project area is undeveloped.

As outlined in the draft Pu'u 'Ōpae Farm and Irrigation Plan, a range of proposed uses are planned for the project. These include pastoral and agricultural endeavors, management of natural and cultural resources, and agricultural homesteading. A variety of infrastructure may be needed to develop the area into homestead lots. This may include water resources for fire and irrigation, as well as potable water; access roads and trails; wastewater management, stormwater, drainage, and flood control systems; as well as power and telecommunications services.

Physical Environment

Kaua'i Island is unique in many respects. It is the oldest, wettest, and most isolated of the eight main Hawaiian Islands. At roughly five million years old, Kaua'i is geologically older than the other main islands in the Hawaiian chain (Armstrong 1973). This maturity translates to a weathered landscape, with broad plains and deep soils. The island is also noted for high amounts of windward rainfall, and is even home to the wettest spot on earth, Mount Wai'ale'ale, which averages 485 in. (1,232 cm) of rain every year (Morgan 1996:199). However, the leeward (southwest) coast lies in the rain shadow of this peak and receives less than 20 in. (51 cm) of rain per year (Morgan 1996:199).

Situated at the northwestern end of the main Hawaiian chain, Kaua'i is 116 kilometers from its nearest neighbor, O'ahu, thus Kaua'i and its satellite island Ni'ihau are the most geographically isolated of the main islands (Morgan 1996:199). Moreover, the marine channel separating Kaua'i and Ni'ihau from O'ahu is known for rough conditions and likely hindered interaction between these two islands and the rest of the Hawaiian chain.

The project area lies at an elevation of roughly 800–2,100 ft. (244–640 m) in elevation and extends from 2.2–5.6 mi. (3.5–9.0 km) from the coastline. There are several streams that run through the project area. From north to south they are Ka'awaloa (intermittent), Niu (non-perennial), Wailau (non-perennial), Kuapa'a (non-perennial), and Hō'ea (intermittent). Rainfall in the project area averages approximately 27 in. (68 cm) per year (Giambelluca et al. 2013).

A variety of soils occur within the area of study (Figure 3). The following Puu Opae series soils are within the project lands: Puu Opae silty clay loam, 8–15% slopes (PwC), Puu Opae silty clay loam,

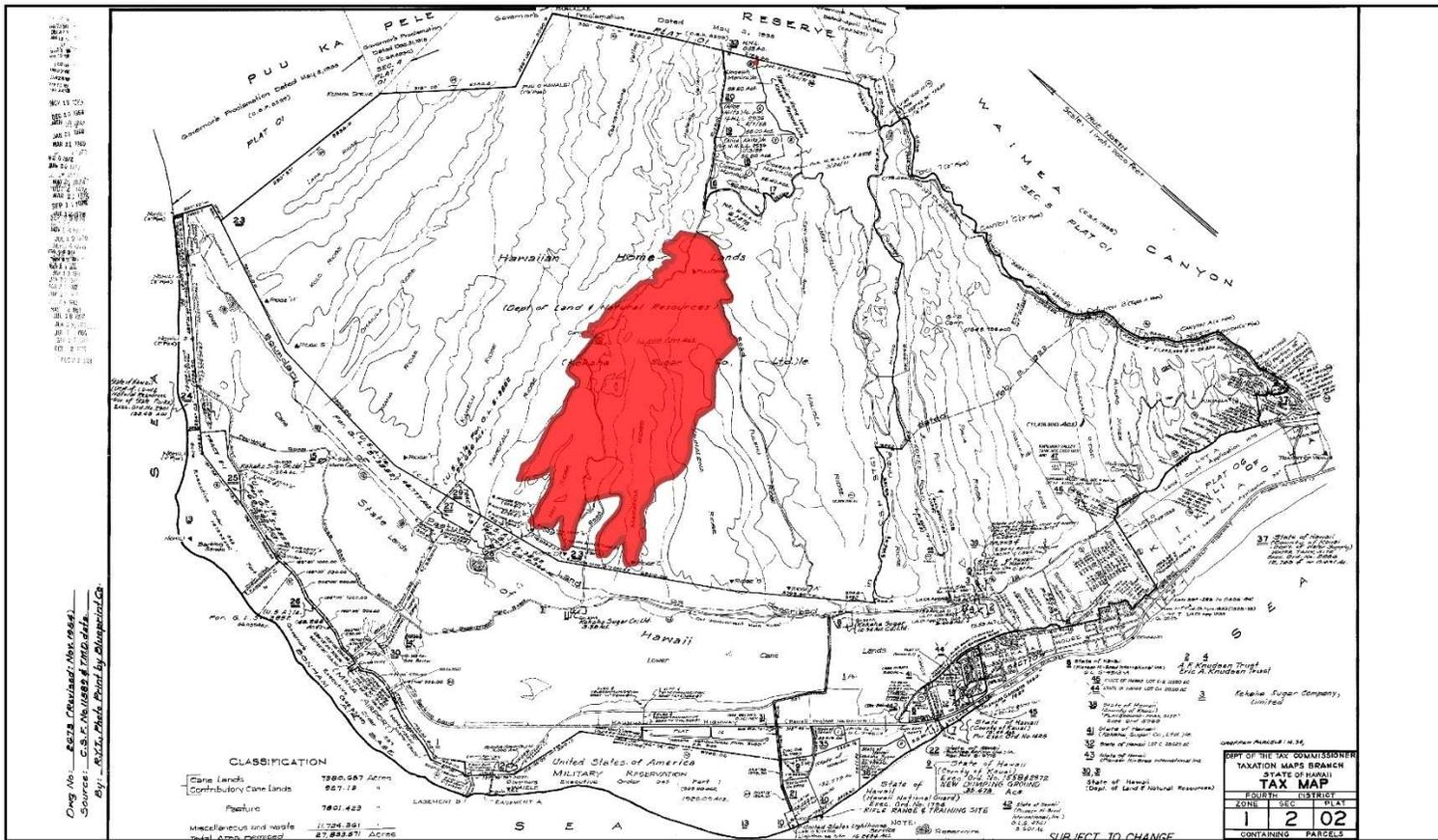


Figure 2. Project area shown on TMK plat (4) 1-2-002.

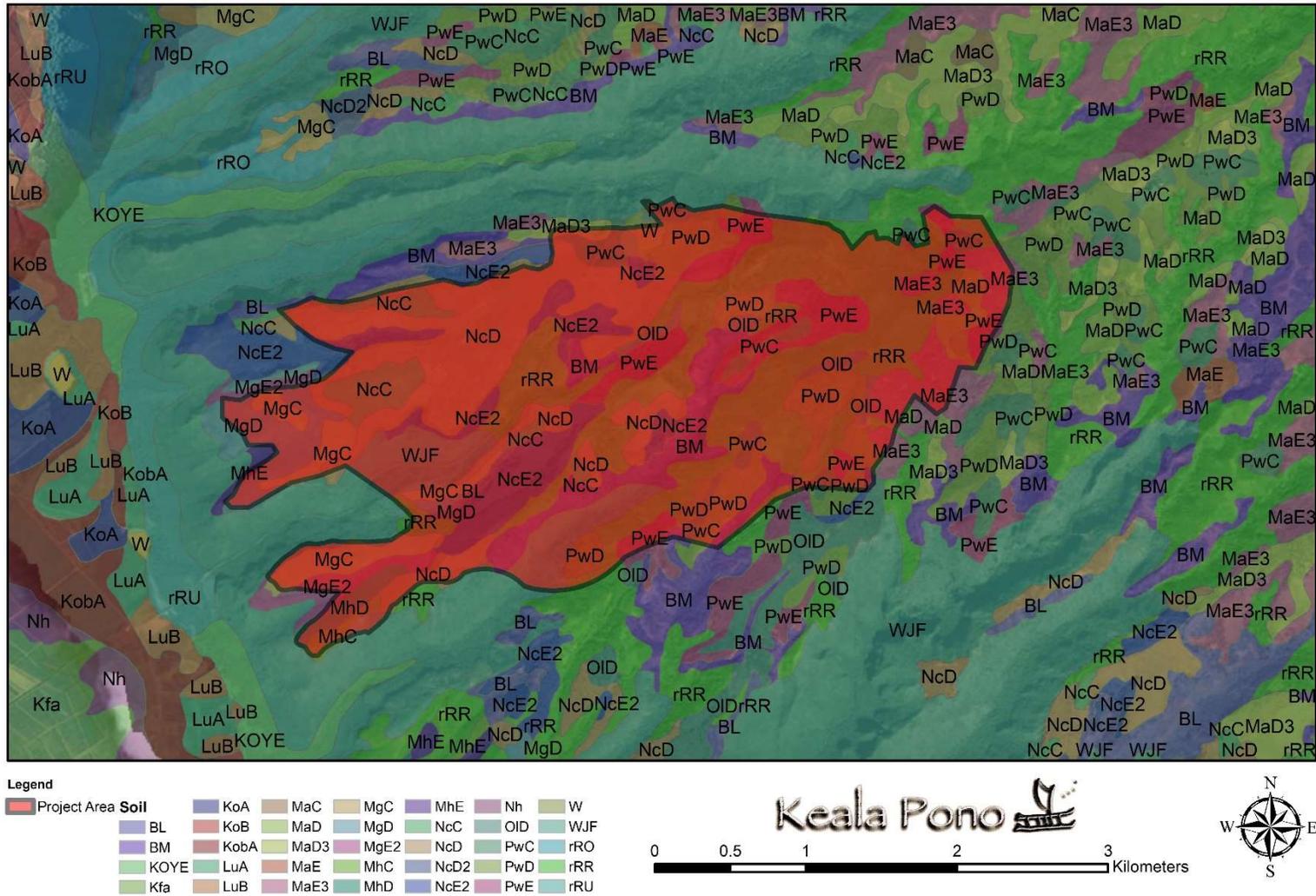


Figure 3. Soils in the vicinity of the project area. Data from Foote et al. (1972).

15–25% slopes (PwD), and Puu Opae silty clay loam, 25–40% slopes (PwE). Puu Opae soils are well-drained and located in moderately to steeply sloping uplands. They developed from weathering of igneous rock and are used for wildlife habitat, pasture, and woodlands (Foote et al. 1972:117). Geographically associated with the Puu Opae series are Mahana soils. Within the project area are Mahana silt loam, 20–35% slopes (MaE3), and Mahana silt loam, 12–20% slopes (MaD). These soils are also well-drained and found in uplands, but they developed from volcanic ash. In addition to the uses mentioned for Puu Opae soils, Mahana soils are also used for irrigated sugarcane agriculture and water supply (Foote et al. 1972:85).

The Makaweli soil series is also common in the project area. Specific to the project lands are Makaweli silty clay loam, 6–12% slopes (MgC), Makaweli silty clay loam, 12–20% slopes (MgD), Makaweli silty clay loam, 20–35% slopes, eroded (MgE2), Makaweli stony silty clay loam, 6–12% slopes (MhC), Makaweli stony silty clay loam, 12–20% slopes (MhD), and Makaweli stony silty clay loam, 20–35% slopes (MhE). These are also well-drained upland soils, and like the Puu Opae series, they developed from weathering of igneous rock. These soils are used for homesites, pasture, and irrigated sugarcane agriculture (Foote et al. 1972:90).

Niu series soils are also common to the project area, specifically the following: Niu silty clay loam, 6–12% slopes (NcC), Niu silty clay loam, 12–20% slopes (NcD), and Niu silty clay loam, 20–35% slopes, eroded (NcE2). Like the above soils, the Niu series are well-drained and found in uplands. They developed from weathering of igneous rock, possibly interspersed with volcanic ash. The Oli series in the project area is represented by Oli loam, 12–20% slopes (OID). Oli soils are well-drained and located in uplands. They were formed in volcanic ash that was deposited over igneous rock. Both the Niu and Oli series soils are used for woodland, pasture, wildlife habitat, and sugarcane agriculture (Foote et al. 1972:98, 102).

Also found within the project area are the following: Waiawa extremely rocky clay, 50–80% slopes (WJF), Rough broken land (rRR), Badland (BL), and Badland-Mahana complex (BM). The Waiawa soils are well-drained, very rocky, and developed in colluvium and from weathered igneous rock. They are used for wildlife habitat, pasture, and water supply (Foote et al. 1972:129). Rough broken land is very steep terrain that is broken by many intermittent drainages. These lands are used for wildlife habitat and watershed (Foote et al. 1972:119). Badlands are steep to very steep relatively barren land. This soil type is used for wildlife habitat and water supply (Foote et al. 1972:28). The Badland-Mahana complex is a mix of Badlands and Mahana silt loam, 20–35% slopes.

TRADITIONAL CULTURAL AND HISTORIC BACKGROUND

A brief historic review of the project vicinity is provided below, to offer a better holistic understanding of the use and occupation of the area. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., mo‘olelo, ‘ōlelo no‘eau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawai‘i State Library, the University of Hawai‘i at Mānoa libraries, the SHPD libraries, the Kaua‘i Historical Society, the Kaua‘i State Parks office, and online on the Office of Hawaiian Affairs website and the Waihona ‘Aina, Huapala, and Ulukau databases. Archaeological reports and historical reference books were among the materials examined.

Waimea in the Pre-Contact Era

Native traditions describe the formation (literally the birth) of the Hawaiian Islands and the presence of life on and around them, in the context of genealogical accounts... As this Hawaiian genealogical account continues, we find that these same god-beings, or creative forces of nature who gave birth to the islands, were also the parents of the first man (Hāloa), and from this ancestor, all Hawaiian people are descended. It was in this context of kinship, that the ancient Hawaiians addressed their environment (Maly and Maly 2003).

The history of Waimea begins with the history of Kaua‘i Island:

Kamāwaelualani was the ancient name of the island of Kaua‘i; Kaua‘i is the new name after the time of Wākea mā. Kaua‘i was one of the children of Wākea and Papa and became a new ancestor for the true people, kānaka pono‘ī, of Kamāwaelualani. Because of his good deeds and the great numbers of his descendants as well as the prosperity of the reign of Kaua‘i, Kamāwaelualani was renamed Kaua‘i. (Kamakau 1991:128–129)

Traditionally, the genealogy of humankind can be traced back to this ancient time, especially with the genealogies of the chiefs which are connected to the gods from the dawn of time. These genealogies have been chanted and passed down from generation to generation, preserving an important part in the traditional Hawaiian story of creation.

These pua ali‘i, exalted men and women, chiefs and descendants of chiefs, owned a genealogy that reached unbroken mai ka pō mai (from the time of darkness) to the present. These chiefs were considered to be directly descended from the gods themselves, from Kū, Kāne, Kanaloa, and Lono. These gods had created the first man and woman at ‘Aliō, the beach beside the mouth of the mighty Wailua river. This the genealogy of a chief that began with Kumuhonua [the first man] and continued unbroken from the time of darkness proved that he or she was sacred, godlike, invested with the power of life and death and ruled as the child of the gods. There were several such genealogies, but the one most often chanted for Kaua‘i’s pua ali‘i was the Kumuhonua genealogy. (Wichman 2003:1)

By at least one account, “the genealogy from Kumuhonua and his wife, Lalohonua, continues for thirty-six generations until the birth of Papa,” representing an estimated 1,000 years of history (Wichman 2003:2). This is the same Papa, also known as the earth mother, with whom the sky father Wākea are the ancestors of the Hawaiian people today.

Place Names

There are other means, besides chanted genealogies and their accompanied stories, by which Hawai‘i’s history has been preserved. One often overlooked source of history is the information

embedded in the Hawaiian landscape. Hawaiian place names “usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated... The place names provide a living and largely intelligible history” (Pukui et al. 1974:xii).

Whereas the boundaries of some places are difficult to discern, it appears that the footprint of the Pu‘u ‘Ōpae project stretches across the following valleys and ridges from west to east: the eastern edges of Ka‘awaloa Valley; Niu Ridge; Niu Valley; Makahoa Ridge; Wailau Valley; portions of Kaunalewa Ridge; and perhaps portions of Kuapa‘a Valley. Further upland, the Pu‘u ‘Ōpae project may even extend into the higher elevations of Pūlehu Ridge. It appears that Pu‘u ‘Ōpae is situated at the mauka convergence of Niu Ridge, Makahoa Ridge, and Kaunalewa Ridge.

Hawai‘i State GIS data places the project within the ahupua‘a of Waimea, and that is what will be used in this report. However, it should be noted that other sources place the study area within the ahupua‘a of Mānā and Wai‘awa (Wichman n.d.). According to *The Place Names of Kona: A District of the Island of Kaua‘i* (Wichman n.d.), Mānā Ahupua‘a, on the west, includes Ka‘awaloa, Niu, Makahoa, Wailau, and Kaunalewa. Mānā is bordered by Wai‘awa Ahupua‘a to the east. Wai‘awa Ahupua‘a includes Kuapa‘a and Pūlehu. Both Pu‘u ‘Ōpae and Pu‘u ‘Ōpaenui are said to be in Wai‘awa Ahupua‘a (Wichman n.d.). And Pu‘u ‘Ōpae in particular is said to be located on Pūlehu Ridge. Kekaha is located in Pōki‘i Ahupua‘a which is the next ahupua‘a to the east of Wai‘awa, and still further east of Kekaha is the mouth of the Waimea River which leads up into Waimea Canyon (Wichman n.d.).

Many of these places, as well as others in the general vicinity, are listed “Place Names of Hawaii” (Pukui et al. 1974) as quoted below. Their locations are illustrated in historic maps (see Figures 4–10).

Halemanu. Peak and stream, Waimea district, Kaua‘i. *Lit.*, bird house.

Hō‘ea... Valley, Waimea district, Kaua‘i. *Lit.*, to arrive.

Kahelu. Ridge, Waimea district, Kaua‘i. *Lit.*, the number *or* the scratch.

Kahelu Nui. Valley, Waimea district, Kaua‘i. *Lit.*, big Kahelu.

Kahoana. Valley, Waimea district, Kaua‘i. *Lit.*, the whetstone.

Kaua‘i. Island and county (33 miles long, 25 miles wide, with an area of 553 square miles...). Līhu‘e is the major town and the county seat. Epithet: Kaua‘i o Manokalanipō, Kaua‘i of Manokalanipō (an ancient chief, *lit.*, the innumerable dark heavens).

Kaunalewa... Land section and Ridge, Waimea district, Kaua‘i; a famous coconut grove was here... *Lit.*, swaying place (perhaps referring to coconuts).

Kaunu-Hua. Ridge, Waimea district, Kaua‘i. Peak (4,535 feet high)... The body of Pele is said to lie here. The name is abbreviated in some chants as Unuohua.

Kekaha. Land area... Waimea district, southwest, Kaua‘i. *Lit.*, the place.

Kōke‘e... Land division and stream, Waimea district, Kaua‘i. *Lit.*, to bend or to wind.

Kolo Ridge... Ridge near Mānā and hill in south central Kaua‘i... (said to be the legendary home of Pāka‘a and Kūapāka‘a)... *Lit.*, crawl or pull.

Makahoa...Ridge and *heiau* near Kaunalewa, Kaua‘i... *Lit.*, friendly point.

Mānā... Dry western end of Kaua‘i, where an older sister of Pele, Nāmakaokaha‘i (the eyes of Kaha‘i), introduced the kauna‘oa dodder. *Lit.*, arid.

Namahana. Peak (2,650 feet), land section, and valley. Hanalei District, Kaua‘i.

Niu. Ridge and valley, Waimea district, Kaua‘i... *Lit.*, coconut.

‘Ōhai‘ula... Ridge, Waimea district, Kaua‘i. *Lit.*, red ‘ōhai shrub.

Pōki‘i. Ridge, Waimea district, Kaua‘i. The old name was Pōki‘ikauna (chanting youngest brother or sister). Kapo, Pele’s sister, left her younger female relative, Mochauna (lie struck), here and she chanted a farewell. *Lit.*, youngest brother or sister.

Polihale. State park, beach, ridge, *heiau*, and land division, Waimea district, Kaua‘i, famous for its seaweed (*pahapaha*) used in leis, a practice said to have been introduced by Pele’s sister, Nāmakaokaha‘i. *Lit.*, house bosom.

Puehu. Ridge, Waimea district, Kaua‘i... *Lit.*, scattered.

Pūlehu. Ridge, Waimea district, Kaua‘i...*Lit.*, broiled.

Pu‘ukaPele... Peak (3,657 feet high), Waimea Canyon, Kaua‘i. Voices of Menehune here were believed audible on O‘ahu; Wāwā ka Menehune i Pu‘ukaPele ma Kaua‘i, pū‘oho ka manu o ka loko o Kawainui ma Ko‘olauloa, O‘ahu. Menehune speak at Pu‘ukaPele, birds at Kawai Nui pond at Ko‘olau Loa, O‘ahu, are startled... *Lit.*, the volcano hill.

Pu‘u‘ōpae. Hill, Līhu‘e district, Kaua‘i. *Lit.*, shrimp hill.

Wailau... Valley, Waimea district, Kaua‘i... *Lit.*, many waters.

Waimea... Land division, southwest Kaua‘i, where Captain Cook first landed (1778)... *Lit.*, reddish water (as from erosion of red soil).

Subsistence and Traditional Land Use

The publication *Native Planters in Old Hawaii: Their Life, Lore, and Environment* includes a section specifically dedicated to the Pu‘u ‘Ōpae area. This region is called the “Upland Determinant,” which is recorded to primarily be a forested zone used for the harvesting of trees for canoe-making. It is also noted that deforestation and erosion has pushed the heavily wooded portions to the higher elevations:

The Upland Determinant.

The country behind this broad sandy plain, the “sunset side” of the island, determines the shore plain’s character. Behind Mana and above Niu Ridge are two hills, Pu‘u ‘Opae and Pu‘u Moi... Here in the olden days trees were logged and worked into canoes. Above and beyond stretched the ascending rough approaches to the western Waimea Canyon rim, now deeply broken into by eroded, rocky gulches, and heavily wooded only in the upper reaches. In earlier times its western slopes were forested much lower down than today, as evidenced both by the traditions of canoe logging and the memory of modern man --- as well as by the remnants of forest still left after later erosion and deforestation had set in. (Handy et al. 1991:411)

It appears that this upland forested area was not a principal place of procuring water resources although water from the higher elevations undoubtedly flowed closely around it. The lowlands from the base of the upland determinant to the sea were saturated enough to create a marshy environment in some areas. By the time the Bishop Museum did its archaeological study of Kaua‘i, only a small swamp existed in the Mānā area. This study found, “the remnant of a great swamp that once extended many miles... [of which tradition stated] that the natives could paddle in it from the Barking Sands almost to Waimea” (Bennett 1931:6). The Mānā marsh is also mentioned by Handy et al. (1991:411):

The western [Waimea] canyon rim is not a watershed so far as the westward piedmont area is concerned, and contributes little in the way of subsistence water to the lands below...

Nevertheless, even stemming from ancient times, only two place names in the region (in addition to Wai‘awa before mentioned) included the word for water (wai) to indicate that useful stream water ever reached the lowland. These are Wailau, a small valley behind the Wai‘eli marsh which now has no water, and Waikamo‘o (Water of the Lizard), a valley which opens out onto the plain opposite the Mana ridge, at the northern end of the marsh. Until the swamp lands of Mana were drained there were sizable marshy lakes both north and south of this little valley, between the low pali and the sand.

Handy et al.’s (1991) publication notes that sweet potato was a major crop for subsistence in this western end of the island with some irrigated taro lands in the marshy areas and in the region closer to the Waimea delta. They also note that fishing was especially excellent in the oceans here, as well as in Waimea Stream (Handy et al. 1991:275).

...People of the adjacent arid shores of Kauai were better off than it might seem. Fishing was supremely good along the northwest Napali coast and excellent even in the southwest coastal waters, owing to the currents coming around the island. Also fresh-water fish were abundant in the great streams... From Waimea through Kekaha to Mana on western Kauai, the area was one in which there was normally scanty rainfall. Irrigated taro was grown on the flatlands below Waimea Canyon and in Kekaha, which had springs and marshy taro lands, and there was some taro in the swampy areas of Mana and Waieli. But the people here depended largely on sweet potatoes. (Handy et al. 1991:275)

The cultivation of kalo along the coastal areas of the Kona District of Kaua‘i was made largely possible by the marshy lands found along coastal Mānā, across Wai‘awa and Pōki‘i, all the way to the mouth of the Waimea River. A famous method of growing kalo in Mānā is described as the floating mounds of taro beds in the following ‘ōlelo no‘eau:

Mānā, i ka pu‘e kalo ho‘one‘ene‘e a ka wai.

Mānā, where the mounded taro moves in the water.

Refers to Mānā, Kaua‘i. In ancient days, there were five patches at Kolo, Mānā, in which deep-water mound-planting was done for taro. As the plants grew, the rootlets were allowed to spread undisturbed because they helped to hold the soil together. When the rainy season came, the whole area was flooded as far as Kalamaihihi, and it took weeks for the water to subside. The farmers built rafts of sticks and rushes, then dived into the water. They worked the bases of the taro mounds free and lifted them carefully, so as not to disturb the soil, to the rafts where they were secured. The weight of the mounds submerged the rafts but permitted the taro stalks to grow above water just as they did before the flood came. The rafts were tied together to form a large, floating field of taro. (Pukui 1983:232–233)

Despite this ‘ōlelo no‘eau proclaiming the ingenuity of the Mānā people’s kalo-growing, another ‘ōlelo no‘eau emphasizes that Mānā stood out as a region which actually rarely produced poi relative to other places. This ‘ōlelo no‘eau is as follows:

Ola i ka ‘ai uwahi ‘ole o ke kini o Mānā.

The inhabitants of Mānā live on food cooked without smoking.

Said of the people of Mānā, Kaua‘i, who in ancient days did very little poi-making, except in a place like Kolo, where taro was grown. The majority of the inhabitants were fishermen and gourd cultivators whose products were traded with other inhabitants of the island, even as far as Kalalau. Because all the taro cooking and poi-making was done elsewhere, the people of Mānā were said to live on “smokeless food.” (Pukui 1983:271)

It is interesting that while Mānā Ahupua‘a was noted to be a district with relatively little kalo cultivation, Kolo Valley was specifically named as “the place” where kalo was grown. Yet, Kolo Valley is not along the marshy coastal plain, but rather in the uplands. Similarly, the only upland area in Wai‘awa Ahupua‘a that is noted as a place of kalo cultivation is around Makahoe Heiau, where there was a village, the only one documented in upland Wai‘awa (Bennett 1931). Perhaps a similar special village was located at Kolo Valley in the uplands of Mānā Ahupua‘a. Kolo Valley was the site of Kapā‘ula Heiau. It would be possible that there is some kind of parallel significance between the kalo patches and village around Makahoe Heiau in upland Wai‘awa Ahupua‘a and the kalo patches and inferred settlement around Kapā‘ula Heiau in Kolo Valley in upland Mānā Ahupua‘a.

The kalo cultivation around Makahoe Heiau is specifically described as situated in the gulches coming off of Niu Ridge (Wichman n.d.). It would probably be accurate to say that in upland Wai‘awa Ahupua‘a, the kalo cultivation was technically done in Niu Valley while the heiau (Makahoe) was situated on the ridge (Niu). Following this model, it would be safe to say that in upland Mānā Ahupua‘a, the kalo cultivation was done in Kolo Valley while the heiau (Kapā‘ula) was situated on the ridge (Kolo). Interestingly, while archival research suggests that kalo cultivation was done in Kolo Valley, there is no Kolo Valley depicted on historical maps. There is only a Kolo Ridge, and the name for the valley below is ‘Ōhai‘ula Valley, or Kāhoaloha Valley on the other side of Kolo Ridge.

The Bishop Museum’s *Archaeology of Kauai* describes in great detail numerous habitation, agricultural, and ceremonial structures to include terraces, platforms, trails, burials, irrigation ditches and more, throughout the island. A few temples are documented around the current project area including Kahelu Heiau at the base of a hill in Mānā and Hooneenu Heiau along Kaunalewa Ridge. But Makahoe Heiau appears to be the one closest to and/or within the current project area. It is recorded as being a village site and heiau on Niu Ridge. Bennett gives a brief description of this site:

[Makahoe is] a small, platform village shrine. Thrum describes the village as “Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro lands besides the dry crops to depend on.” On the inland side of Niu ridge small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area. (Bennett 1931:102)

Thus, it could be argued that Bennett and Thrum’s observations (in Bennett 1931) differ from that of Handy et al. (1991). Nevertheless, outside of this Makahoe Heiau and village site, it should be remembered that the rest of the project area was important for harvesting trees for canoes. With this taken into consideration, perhaps there would have also been structures throughout the area for temporary habitation and workspaces for sharpening adzes and such.

Mo‘olelo

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as “mo‘olelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Mo‘olelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life... Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language” (Nogelmeier 2006:429–430).

There is a mo'olelo for Pu'u 'Ōpae and the Waimea area that is significant for its association with the menehune people. It is said that the menehune were "masters of stonework and engineering... [and they] built many heiau, fishponds, and irrigation systems for wetland farming" (Wichman 2003:9). Kaua'i has always been associated with the menehune more so than the other islands of Hawai'i (Handy et al. 1991:404).

The current project's upland area of Pu'u 'Ōpae is specifically mentioned in mo'olelo (Handy et al. 1991:411): "Behind Mana and above Niu Ridge are two hills, Pu'u 'Ōpae and Pu'u Moi, where tradition has it that King 'Ola paid off his menehune workmen with shrimp or fish delicacies." This story of Chief 'Ola, his counselor Pi'i, and the menehune led by their chief Papaenaena has been inscribed permanently in the landscape of this region of southwestern Kaua'i:

When Ola succeeded his father [Kū'alunuipaukūmokumoku] as ruler, he first wanted to enlarge the farming area of Waimea. The makai (seaward) portion between the ridges and the ocean would be rich farmland if it could be irrigated. The land was too far above the river level, for the farmers of that time only knew how to make water flow by gravity. Mauka (toward the mountain), Paliuli cliff blocked access to the river. To get water to flow around Paliuli, an irrigation 'auwai (channel) would have to be constructed twenty feet above the river's surface, a seemingly impossible feat. Ola sent his counselor Pi'i to ask the Menehune if they could build such an 'auwai.

The Menehune leader, Papaenaena studied the lay of the land and decided that indeed such an 'auwai could be built... The Menehune solved the problem caused by Paliuli by anchoring a wall in the riverbed itself and building it up against the cliff. They used cut stone blocks that were squared off. Some of these stones are five feet long, three feet wide, and three feet deep and came from a quarry several miles away on the other side of the river. Some blocks are joined, a peg carved from one block fits a hole drilled in another.

By dawn the 'auwai was finished. Papaenaena woke Ola as the first flow of water drenched him. This channel and the area it waters is still known as KīkīaOla (Container [acquired] by Ola).

Pi'i first tried to feed each Menehune one moi (threadfish), but he ran out before each Menehune got one. The Menehune agreed to give him one more day to gather enough food, and he ordered every shrimp that could be found in the streams to be gathered. Place names recall this event: Alapi'i (Pi'i's road), Hali'ōpae (Fetched Shrimp), and 'Ōpaepi'i (Pi'i's Shrimp). That following night, each Menehune received one shrimp as payment and was content. The hill where this payment took place is still called Pu'u'ōpae (Shrimp Hill). (Wichman 2003:10–11)

Oli and Mele

The noteworthiness of specific locales in Hawaiian culture is further bolstered by their appearance in traditional chants. An oli refers to a chant that is done without any accompaniment of dance, while a mele refers to a chant that may or may not be accompanied by a dance. These expressions of folklore have not lost their merit in today's society. They continue to be referred to in contemporary discussions of Hawaiian history, identity, and values.

Undoubtedly, printed compilations of traditional chants are but a scant glimmer of the multitude that were recited in the days of old. A search through a few contemporary compilations of traditional chants turned up only one that was specifically centered in Waimea, Kaua'i. This chant is classified as a mele inoa, or a name chant, for Queen Ka'ahumanu. In this mele, the well-known red dirt of

Waimea is depicted flowing from the stream and down to the sands. Here is the mele, as recorded in *Nā Mele Welo: Songs of Our Heritage* (Bacon and Napoka 1995:116–117).

‘Ike i ka Wai ‘Ula ‘Ili Ahi o Waimea

‘Ike i ka wai ‘ula ‘ili ahi o Waimea,
He wai ‘ula ia na ke Kiu wai ‘ahulu.
Ke oko ala i ka poli o ka pōhaku,
Mehe hana wai ala i ka houpo o ke kai,
Ke ‘ālapalapa i ke one o Luhi ē.
E luhi ‘oe a ua ne‘i i ka moe,
Inā ke aloha lā, he ‘ai liliha
Ua ‘ike ē.
Know the reddish-colored stream of Waimea,
A reddish water from the home of the cold Kiu breeze.
It ripples along over the bosoms of the rocks,
Reddening the bosom of the sea like menstrual blood,
Washing up on the sands of Luhi.
You may be weary of sleeping so long.
Love is here, a food that is rich,
This is known.

CONTRIBUTOR: Keluia Kailiena Kaluhiwa, Kailua, North Kona, Hawai‘i. O Kaua‘i kēia mele. [Mele is from Kaua‘i.]

NOTE: Mele inoa for Ka‘ahumanu.

‘Ōlelo No‘eau

Like oli and mele, traditional proverbs and wise sayings, also known as ‘ōlelo no‘eau, have been another means by which the history of Hawaiian locales have been recorded. In 1983, Mary Kawena Pukui published a volume of close to 3,000 ‘ōlelo no‘eau or Hawaiian proverbs/wise sayings that she collected throughout the islands. The introductory chapter of that book reminds us that if we could understand these proverbs and wise sayings well, then we would understand Hawai‘i well (Pukui 1983).

There are six ‘ōlelo no‘eau concerning Waimea that are recorded in Pukui’s compilation. Interestingly, one of these ‘ōlelo no‘eau points out a city of refuge for the people of Waimea; it is located at Kahamalu‘ihi. The other five ‘ōlelo no‘eau focus on the environment and natural resources of the Waimea region. One describes the Waimea rain as being a hard rain. Another describes the waters which turn red from the red dirt after a rain. Still another mentions the well-known reddish salt of Waimea. And the last two ‘ōlelo no‘eau suggest that the waters of Waimea are abundant with fish. Specifically noted are the ‘o‘opu, ‘ōpelu, and kawakawa. Here are the sayings as they appear in Pukui’s publication (1983:110, 146, 172, 179, 190, 318):

Ho‘i hou ka pa‘akai i Waimea.

The salt has gone back to Waimea.

Said when someone starts out on a journey and then comes back again. The salt of Waimea, Kaua‘i, is known for its reddish brown color.

Ka i‘a ho‘opā ‘ili kanaka o Waimea.

The fish of Waimea that touch the skins of people.

When it was the season for hinana, the spawn of ‘o‘opu, at Waimea, Kaua‘i, they were so numerous that one couldn’t go into the water without rubbing against them.

Ka ua nounou ‘ili o Waimea.

The skin-pelting rain of Waimea.

Refers to Waimea, Kaua‘i.

Ka wai ‘ula ‘iliahi o Waimea.

The red sandalwood water of Waimea.

This expression is sometimes used in old chants of Waimea, Kaua‘i. After a storm Waimea Stream is said to run red. Where it meets Makaweli Stream to form Waimea River, the water is sometimes red on one side and clear on the other. The red side is called wai ‘ula ‘iliahi.

Ke one kapu o Kahamalu‘ihi.

The sacred sand of Kahamalu‘ihi.

A city of refuge for those of Waimea, Mānā, and the Kona side of Kaua‘i.

Waikāhi o Mānā.

The single water of Mānā.

When schools of ‘ōpelu and kawakawa appeared at Mānā, Kaua‘i, news soon reached other places like Makaweli, Waimea, Kekaha, and Poki‘i. The uplanders hurried to the canoe landing at Keanapuka with loads of poi and other upland products to exchange for fish. After the trading was finished, the fishermen placed their unmixed poi in a large container and poured in enough water to mix a whole batch at once. It didn’t matter if the mass was somewhat lumpy, for the delicious taste of fresh fish and the hunger of the men made the poi vanish. This single pouring of water for the mixing of poi led to the expression, “Waikāhi o Mānā.”

Ka Makani a me Ka Ua: The Wind and the Rain

With their lives closely connected to the natural environment and physical surroundings, Hawaiian winds and rains were individually named and associated with a specific place, region, or island. In *Hānau Ka Ua*, Akana and Gonzales (2015:xv) explains that kūpuna “knew when a particular rain would fall, its color, duration, intensity, the path it would take, the sound it made on the trees, the scent it carried, and the effect it had on people.” The following wind and rain names associated with the project region offer further insight on kūpuna perspectives of the project area.

Several winds and rains are associated with Waimea, Kaua‘i:

Kili noe is a fine, misty rain. It is noted in a makena, or lamentation, for Queen Emma, where there is mention of ‘Elekeninui, a stream in Waimea:

‘Ike akula au i ka ua o Ko‘i‘ālana lā

Ka ua kili noe i ka maka o ka ‘ākōlea

E wiki ana ka huaka‘i malihini o pulu i ka ua

O ‘Elekeninui, nui maila kā ke anu o ia kuahiwi

I saw the rain of Ko‘iālana

The kili noe rain in the face of the ‘ākōlea fern

The tour is moving quickly to avoid the rain

Of 'Elekeninui, the cold of that mountain is extreme (Akana and Gonzales 2015:83)

Mokihana is a rain of Wailua, Kaua'i but is also the name of a stream and valley in Waimea, as well as the name of a fruit tree. This rain was also cited in a kanikau, or lamentation:

I Wailua ko'u hoa luhi e uē nei i Halehuki ē

Pulu ka 'uhane i ka ua Mokihana

Ke wehe lā i ke oho o ke kāwelu ē

At Wailua my weary companion cries, at Halehuki

The spirit is drenched in the Mokihana rain

Opening up the leaves of the kāwelu grass (Akana and Gonzales 2015:177)

Nahae is a rain of Alaka'i, Kaua'i, whose name means "to shred." This rain is noted in a mele māka'ika'i, or travel chant, for Queen Emma, where the Waimea valley Kauainanā is mentioned:

'Oiai 'o ka nanā 'o Kauainanā

'O ka mana o ka ua Nahae i Alaka'i

While the surly one is in Kauainanā

The power is in the shredding [Nahae] rain at Alaka'i (Akana and Gonzales 2015:180)

Kapa'ahoa is a rain and wind of Kaua'i that is cited in several accounts of Waimea, as in the following mo'olelo and kanikau:

'O Lu'anuu a Laka, 'o Lu'anuu ke keiki a Laka, 'o Hikāwaelena ka makuahine, he ali'i wahine 'o ia no ka ua Kapa'ahoa no Waimea i Kaua'i.

Lu'anuu of Laka, Lu'anuu is the son of Laka; Hikāwaelena is his mother; she is a chiefess of the Kapa'ahoa rain of Waimea in Kaua'i. (Akana and Gonzales 2015:66)

Ku'u kāne, e ku'u kāne ho'i

Ku'u kāne mai ka wai 'ula 'iliahi o Waimea

Wai nono 'ula a ka ua Kapa'ahoa

My beloved husband, oh, my dear husband indeed

My dear husband of the red sandalwood waters of Waimea

Red-glowing water of the Kapa'ahoa rain (kanikau for Kamehameha IV by Queen Emma; Akana and Gonzales 2015:66)

Waipao is a wind of Waimea. It is described as a cool breeze (Nakuina 2005:125).

The Kapa'ahoa rain is cited along with the Kiuwai'ahulu wind of Waimea in an oli composed by Ka'ahumanu:

Kau ke Kiuwai'ahulu o Waimea

Wai nono 'ula a ka ua Kapa'ahoa

I ho'olu'u a kohu i ka pili

A 'ula mai he'a ka uka o Kahana

The Kiuwai'ahulu wind of Waimea settles

Blushing water of the Kapa'ahoa rain

Dyed and stained by the closeness

Becoming red, stained red are the uplands of Kahana (Akana and Gonzales 2015:66–67)

Another rain of Waimea is Nounou‘ili, as described in the ‘ōlelo no‘eau noted previously:

Ka ua Nounou‘ili o Waimea

The skin-pelting [Nounou‘ili] rain of Waimea (Akana and Gonzales 2015:212)

The Kiu, Ko‘apuai‘a, and Nāulu rains are associated with Mānā, Kaua‘i:

E Kū, e Lono, e Kāne, Kanaloa

‘Akahi ‘oe a ‘ike i ka mole wai

I nā mole wai pūhae a ka makani

I nā lile wai ‘ono kau i ka pali

I nā muliwai loloa a ka ua Kiu

‘Oloī ka wai ‘oloke‘a i Mānā

Uhalu ‘ole ke kaha ‘ōkolo i ka helu

Kū, Lono, Kāne, Kanaloa

You are just now seeing the source of water

The water sources torn by the wind

The sparkling, delicious water placed on the cliffs

The long streams created by the Kiu rain

Narrow are the waters crisscrossing at Mānā

Innumerable are the places across which they crawl (Akana and Gonzales 2015:106)

Makemake au i ke inu wai o lalo

I ka ho‘onani mai a ke Ko‘apuai‘a

Pāpa‘anā kō‘ele‘ele Mānā

‘Eleu nō i ke kaha o Nohomalu ē, i laila

I wish to sip of the waters below

Enhanced by the Ko‘apuai‘a showers

Mānā shudders and clamors in haste

Rushing to the sheltered strands of Nohomalu, yes there (Akana and Gonzales 2015:106–107)

Hana ua wai Nāulu ‘o Kona

Hana ua wai Nāulu ‘o Mānā

I ho‘onani ‘ia e piha Keālia wai

Wai Kahelu, ua piha Kalanamaihiki

Na ka wai ua Kaunalewa

Maika‘i iho i ka wai Lolomauna

Kona produces the Nāulu rainwater

Mānā produces the Nāulu rainwater

That enhances and fills the spring of Keālia

The waters of Kahelu, Kalanamaihiki is filled

By the rainwater of Kaunalewa

Beautiful by the water of Lolomauna (Akana and Gonzales 2015:199)

A ua wai Nāulu ka uka o Mānā

Ke hahai lā i ka li‘ulā o Kaunalewa

The waters of the sudden Nāulu showers cover Mānā
Following the mirage of Kanalewa (Akana and Gonzales 2015:200)

Waimea in the Historic Era

When the first Westerners arrived in the Hawaiian archipelago in 1778, the islands were not yet united under one sovereign. At that time, Kaua‘i was under the rule of Chiefess Kamakahelei, granddaughter of Chief Pelei‘ōhōlani, who was the son of the great O‘ahu Chief Kūali‘i. By this time, Chief Kahekili was the ruler of Maui, Moloka‘i and Lāna‘i, and Chief Kamehameha was on his way to consolidate all the districts of Hawai‘i Island under his own rule. In 1783, Kahekili invaded O‘ahu and added it under his rule, and after Kahekili died in 1794, Kamehameha invaded the following year resulting in a victory which gave him control of all the islands from Hawai‘i to O‘ahu (Kamakau 1996, Kanahele 1995).

Back on Kaua‘i, Chiefess Kamakahelei had married Chief Ka‘eokūlani, a younger half-brother of Kahekili. It is with this tumultuous backdrop that Captain James Cook is recognized as the first westerner to arrive into the Hawaiian Islands. Cook’s first place of anchorage was offshore of Ka‘ahe at Waimea, Kaua‘i in January of 1778. Cook’s party came ashore at Waimea and was greeted by Chiefess Kamakahelei, and a few days later after resupplying with food and water, his ships sailed away.

[Captain Cook’s] longboat landed at the mouth of the Waimea river, on the beach of Luhi beside Lā‘au‘ōkala point. He was greeted by a huge crowd of people pushing and shoving to get a look at this, as many thought, living god come among them. People had come from Nāpali, Mānā, and Kīpū like a rushing stream during the night. Captain Cook wandered about Waimea for a time before returning to his ship... Kamakahelei presented gifts to Cook: hogs, chickens, bananas, taro, sweet potatoes, sugarcane, yams, fine mats, and tapa cloths. In return, Cook presented them with cloth, iron, a sword, knives, bead necklaces, and mirrors... A few days later, his ship loaded with water and fresh food, Captain Cook left Waimea. (Wichman 2003:96)

Records are not clear regarding what happened to Chiefess Kamakahelei. What is clear is that she had a son, Kaumuali‘i, and after an episode of contention with his older brother Keawe, Kaumuali‘i eventually became the ruler of Kaua‘i. While still a young ruler of Kaua‘i, Kaumuali‘i learned of the desire of Kamehameha to add Kaua‘i and Ni‘ihau to his kingdom which now stretched from Hawai‘i Island to O‘ahu. Luckily for Kaumuali‘i, Kamehameha put aside his intention to invade Kaua‘i and instead “sent word to Kaumuali‘i that he would be satisfied if the Kaua‘i chief would acknowledge Kamehameha as his sovereign and pay an annual tribute” (Wichman 2003:100–101). Kaumuali‘i accepted Kamehameha’s offer and remained the rightful ruler of Kaua‘i until his death in 1824 after which the kingdom of Kaua‘i was fully subsumed into the Kamehameha reign. Bennett sums up the political history of the island:

As to the actual history the most significant point is that Kauai remained politically independent up to 1824. The island was never conquered, though in 1810 Kaumualii ceded the island to Kamehameha I to prevent an invasion. With the death of Kaumualii in 1824 the independence of Kauai ceased. (Bennett 1931:8)

Early Historical Accounts of Waimea

Many of the earliest written accounts of the Waimea region came from Captain Cook’s crew and other Western explorers. One of the first descriptions of the area was penned by one of Cook’s lieutenants, James King in 1778. Interestingly, he describes the higher ground, such as that around the current project, as having good soil but devoid of cultivation:

The soil of the Valleys is of a blackish colour intermix'd with sand, & the ground about the Village is cut with ditches of Water intersecting in different parts & roads which are carv'd & seem artificially made. In the dryer places were plantations of Plantains and the paper mulberry trees, kept very clean and in good order, there were but few Coconut trees & those small, with fewer bread fruit trees. The Soil of the higher ground was of a red colour'd stiff consistence & very good, but almost void of cultivation... This higher ground is doubtless capable of cultivation, for the grass was very high. (King in Handy et al. 1991:409)

Cook himself wrote of what he saw at Waimea in 1784 describing the cultivation of taro, sweet potato, sugarcane, and bananas:

[The] moist ground, produces taro, of a much greater size than we had ever seen... and the higher ground furnishes sweet potatoes, that often weigh ten and sometimes twelve and fourteen pounds, very few being under two or three. What we saw of their agriculture, furnishes sufficient proofs that they are not novices in that art. The vale ground has already been mentioned as one continuous plantation of taro, and a few other things, which have all the appearance of being well attended to. The potato fields, and spots of sugar cane, or plantains, on higher ground, are planted with the same regularity; and always with some determinate figure, generally as a square or oblong; but neither of these, not the others, are enclosed in any kind of fence. (Cook in Handy et al. 1991:406)

Another Westerner, Nathaniel Portlock, in 1787, gave his account of the cultivation in Waimea noting the hospitality of the people there:

We proceeded up the valley (from Wymoa), attended by a number of the natives of both sexes, young and old, who behaved with the greatest hospitality and friendship, pressing me earnestly to go into every house we came to, and partake of the best fare in their power to give... This excursion gave me a fresh opportunity of admiring the amazing ingenuity and industry of the natives in laying out their taro and sugar cane grounds; the greatest part of which are made upon the banks of the river with exceeding good causeways made with stone and earth, leading up the valleys and to each plantation; the taro beds are in general a quarter of a mile over, dammed in, and they have a place in one part of the bank, that serves as a gateway. When the rains commence, which is in the winter season, the river swells with the torrents from the mountains, and overflows their taro beds; and when the rains are over and the rivers decrease, the dams are stopped up, and the water kept in to nourish the taro and sugar cane during the dry season; the water in the beds is generally about one foot and a half, or two feet, over a muddy bottom; the sugar cane generally in less water, grows very large and fine and is a great article of food with the native, particularly the lower class, the taro also grows frequently as large as a man's head, and is esteemed the best bread-kind they have. (Portlock in Handy et al. 1991:406)

In 1792, Menzies, a surgeon and naturalist on Captain Vancouver's ship, recorded his admiration for the agricultural efficiency of the Waimea area:

We walked to the confluence of these two streams [Waimea and Makaweli?] and found that the aqueduct which waters the whole plantation is brought with much art and labour along the bottom of the rocks from the north-west branch... Indeed the whole plantation is laid out with great neatness and is intersected by small elevated banks conveying streams from the above aqueduct to flood the distant fields on each side at pleasure, by which their esculent roots are brought to such perfection that they are the best of every kind I ever saw. (Menzies in Handy et al. 1991:407)

In sum, historical accounts of the late 1700s all describe Waimea as an abundant agricultural region. Taro was grown in the wet areas, while sweet potato was noted for the uplands. Coconut, sugarcane, breadfruit, and bananas were also mentioned.

Merchants and Missionaries

The Waimea area has indeed been a place of firsts. Not only did the first Westerner explorers make landfall in this region of Kaua‘i, but Waimea was also the site of the arrival of the first merchant ship, in 1786, and the first Protestant missionaries around two decades later (Collins 2007). Among the earliest merchants were Russian fur traders who built a fort at the mouth of Waimea River “with the permission of the King of Kauai” (Handy et al. 1991:407). Increasingly, “foreign trading vessels came more frequently and some of their trade items such as iron and tools were in use here and there [throughout the Waimea region]” (Handy et al. 1991:407).

Christian missionaries arrived on Waimea’s shores shortly after the merchant ships. In 1820, the Whitneys and the Ruggles, missionaries from New England, were the first to be welcomed by Kaua‘i’s royalty, and within a decade they built the first western-style houses in Waimea while teaching their faith and language to the population (Collins 2007).

When the first New England missionaries, Samuel and Mercy Whitney, and Samuel and Melicent Ruggles, landed in Waimea in 1820, King Kaumuali‘i and his wife, Deborah Kapule, welcomed them and soon were among the first Hawaiians to study English. In 1829, the building of the first three New England-style houses commenced in Waimea: one for Governor Kikioewa, one for Reverend Whitney, and one for Reverend and Mrs. Peter Gulick. (Collins 2007:15)

The first half of the 19th century saw an increase in New England-style structures, especially houses and churches. And perhaps, inconspicuously at the time, “a small, rudimentary Chinese [sugar] mill,” was set up in Waimea by William French in 1835 (Collins 2007:16). This would be a foreshadowing of the large-scale agricultural operations which would eventually come to Waimea and dominate the economy of the Hawaiian Islands by the end of the century.

Waimea and the Changes in Land Tenure

In the mid-1800s, during the reign of Kamehameha III, as the Hawaiian kingdom became increasingly exposed to outside influences, the Hawaiian monarchy faced a crossroads of major change. “The Constitution of 1840 confirmed that only two offices could convey allodial title. These were the *mō‘ī* and the *kuhina nui*. The *Māhele* was an instrument that began to settle the constitutionally granted vested rights of three groups in the dominium of the kingdom—*mō‘ī*, *ali‘i*, and the *maka‘āinana*” (Beamer 2014:143). However, the king felt the difficulty of governing a land where the influence of foreigners had been growing. Dr. David Keanu Sai describes this predicament:

Kamehameha III’s government stood upon the crumbling foundations of a feudal autocracy that could no longer handle the weight of geo-political and economic forces sweeping across the islands. Uniformity of law across the realm and the centralization of authority had become a necessity. Foreigners were the source of many of these difficulties. (Sai 2008:62)

“Several legislative acts during the period 1845–1855 codified a sweeping transformation from the centuries-old Hawaiian traditions of royal land tenure to the western practice of private land ownership” (Moffat and Fitzpatrick 1995:11). Most prominent of these enactments was the *Māhele* of 1848 which was immediately followed by the *Kuleana Act* of 1850.

The Mahele was an instrument that began to settle the undefined rights of three groups with vested rights in the dominion of the Kingdom --- the government, the chiefs, and the *hoa'āina*. These needed to be settled because it had been codified in law through the Declaration of Rights and laws of 1839 and the Constitution of 1840, that the lands of the Kingdom were owned by these three groups... Following the Mahele, the only group with an undefined interest in all the lands of the Kingdom were the native tenants, and this would be later addressed in the Kuleana Act of 1850. (Beamer 2008:194–195)

Although the Māhele had specifically set aside lands for the King, the government, and the chiefs, this did not necessarily alienate the *maka'āinana* from their land. On the contrary, access to the land was fostered through the reciprocal relationships which continued to exist between the commoners and the chiefs. Perhaps the chiefs were expected to better care for the commoners' rights than the commoners themselves who arguably might have been less informed of foreign land tenure systems. Indeed, the *ahupua'a* rights of the *maka'āinana* were not extinguished with the advent of the Māhele, and Beamer points out that there are “numerous examples of *hoa'āina* living on Government and Crown Lands Post-Mahele which indicate the government recognized their rights to do so” (Beamer 2008:274).

Hoa'āina who chose not to acquire allodial lands through the Kuleana Act continued to live on Government and Crown Lands as they had been doing as a class previously for generations. Since all titles were awarded, “subject to the rights of native tenants.” The *hoa'āina* possessed habitation and use rights over their lands. (Beamer 2008:274)

For those commoners who did seek their individual land titles, the process that they needed to follow consisted of filing a claim with the Land Commission; having their land claim surveyed; testifying in person on behalf of their claim; and submitting their final Land Commission Award to get a binding royal patent. However, in actuality, the vast majority of the native population never received any land commission awards recognizing their land holdings due to several reasons such as their unfamiliarity with the process, their distrust of the process, and/or their desire to cling to their traditional way of land tenure regardless of how they felt about the new system. In 1850, the king passed another law, this one allowing foreigners to buy land. This further hindered the process of natives securing lands for their families. There were no Land Commission Awards documented for the project area or its vicinity.

The Sugar Industry

Around the same time that the Māhele was changing the traditional land tenure system in the islands, the first large-scale sugar mill operations began to take hold in Waimea. In 1878, Valdemar Knudsen, a businessman from California, established what would later be known as the Kekaha Sugar Company on leases of Hawaiian crown lands in Kekaha, Mānā and Kōke'e (Wilcox 1996). The marshlands in Kekaha housed the remains of a traditional Hawaiian ditch that had been abandoned when a sandstone substrate was encountered (Wilcox 1996:92). Knudsen expanded the ditch in width and depth to drain the marsh, creating land for sugarcane that could be irrigated with groundwater (Wilcox 1996:92). By the early 1900s, the groundwater source had been depleted, and other irrigation solutions were being investigated.

At that time, Hans Peter Faye, nephew of Knudsen and originally from Norway, was the manager of the Kekaha Sugar Company. It was Faye who supervised construction of the Kekaha and Kōke'e Ditches to tap water from the Waimea River to feed the thirsty plantations below. Teams of Japanese tunnel specialists were brought in to construct the elaborate system of ditches and tunnels (HSPA 1880–1946). The Kekaha Ditch was begun in May 1906 and completed in September 1907 (Wilcox 1996:93). Originally called the Waimea Ditch, this construction is also known as the Waimea-

Kekaha Ditch, but most commonly referred to as the Kekaha Ditch. Wilcox (1996:93) describes the technical specifications of the ditch:

Originally the ditch was 20 miles long— 16 miles on the *mauka* lands and 4 on the lowlands— and it was later extended another 8 miles. Water was taken from the Waimea River at an elevation of 550 feet. Most of the unlined ditches and tunnels were driven through hard rock...A 2,190-foot steel inverted siphon, since replaced, crossed the Waimea River....The capacity was rated at 45 mgd, and average flow was 30 mgd. Four to five hundred additional acres above the ditch were put into cane, utilizing the hydropower to pump the water to the higher elevation.

Two historic maps were found that depict the project area in the late 1800s when the sugarcane industry was just starting to take root in the region. The first map dates to 1878 (Figure 4). Topographic features around Pu‘u ‘Ōpae are illustrated, and several place names such as Waiawa, Pokii, and Puu Lehu are labeled. A few structures are shown at the base of Pu‘u ‘Ōpae at Waiawa. The second map dates to 1891 (Figure 5). This map is more detailed, with many more place names shown. Pu‘u ‘Ōpae is illustrated as two peaks, “Puu opaenui” and Puu opaeki.” Places labeled in the immediate vicinity of the pu‘u are Moekehana, Kahuaapuu, Maialoa, Waiiau, and Kamelehuu.

Kekaha soon flourished into a bustling plantation village. The Hawai‘i Sugar Planter’s Association (HSPA 1880–1946) describes the setting in Kekaha in the early 1900s:

...The plantation had a railroad system of 15 miles of permanent track with two locomotives and cane was transported by flume from the mauka fields to collection points on the railway. The nine-roller mill at the factory produced 80 tons of sugar a day and the sugar bags were sent by rail to the steamship landing at Waimea. KSC used the cultivation contract system or piecework system whereby individuals or “gangs” cultivated certain fields and were paid according to the amount of cane harvested. Kekaha Sugar employed about 1000 people in the early 1900s and approximately 300 families lived in plantation houses. Serving the plantation population were four independent stores, Waimea Hospital, public schools, and the Foreign Church.

By 1909 the mauka cane lands were so extensive that the Kekaha Ditch could not sustain them along with the makai lands. The mauka portion of the ditch was extended an additional 280 feet above the intake, and a second powerhouse was constructed at the site of the original intake (Wilcox 1996:96). New lease agreements in the 1920s allowed for 2,000 additional acres of cane lands in the mauka region, with the fields to be watered by a new ditch system originating in the headlands of Waimea Canyon. In 1923, the Kekaha Sugar Company began construction on the Koke‘e Ditch for that purpose.

The Koke‘e Ditch extends into the current project area and is also known as the Great Mauka Ditch. Wilcox (1996:96) describes the ditch in detail:

This ditch diverted tributaries of the Waimea River in the Kokee area— starting at over 3000 feet elevation with the Mohihi and including the Waiakoali, Kawaikoi, Kauaikinana, and Kokee streams— and comprised forty-eight tunnels averaging 1000 feet, the longest being 3000 feet. The total length was 7 miles of tunnel and 12 miles of open ditch, measured to Kitano Reservoir. Water was running through the ditch by January 1925, and the final upper section of Mohihi was completed early the next year. Puu Lua Reservoir, the major storage facility for this system, was finished in 1927, with a 262-million-gallon capacity... The capacity of the ditch is still 55 mgd up to the reservoir (beyond that point it is 26 mgd); the average flow is 15 mgd.



Figure 4. Portion of an 1878 map showing the project area (Kitteridge 1878). Pu‘u ‘Ōpae is highlighted in red.

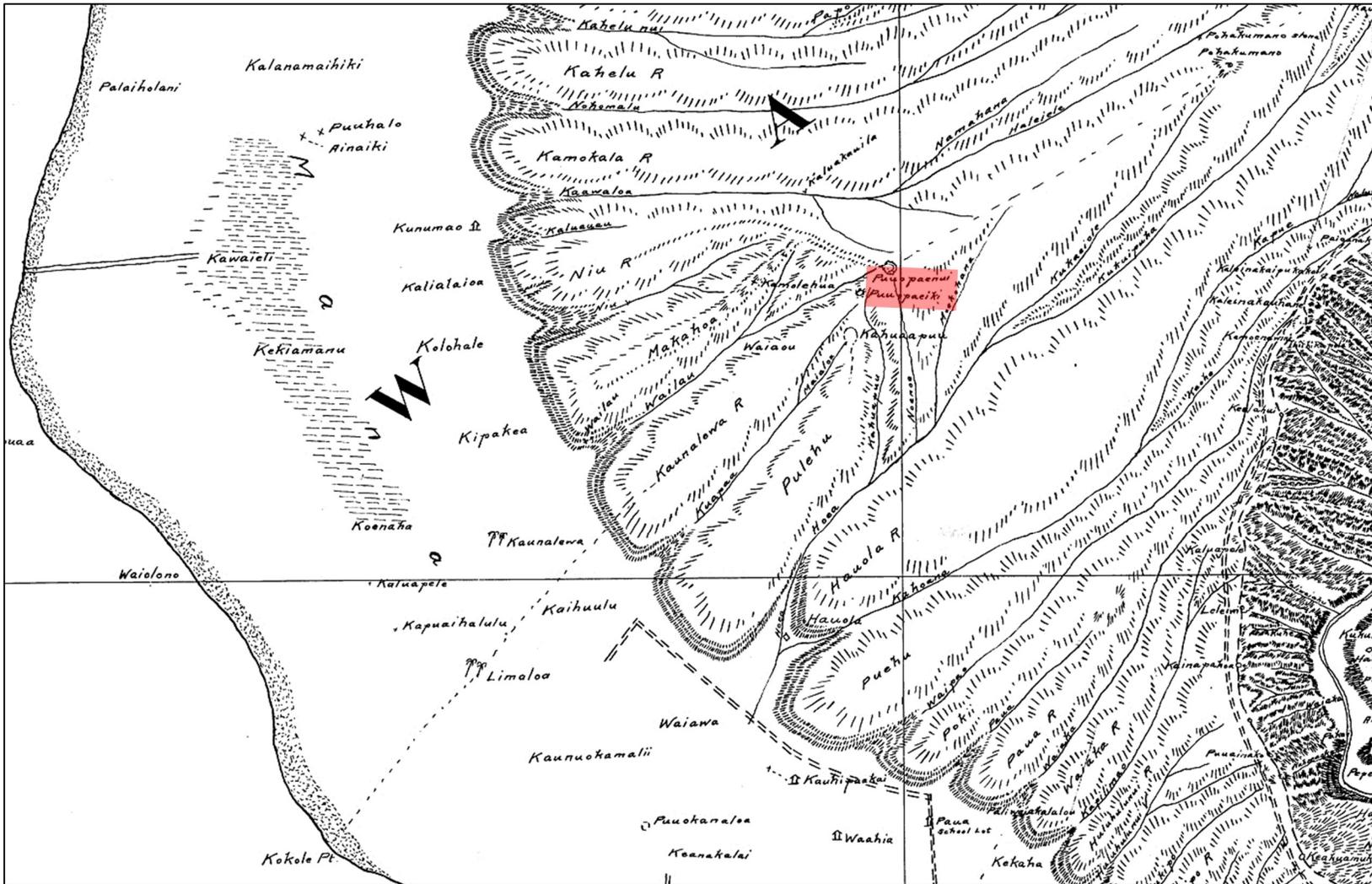


Figure 5. Portion of an 1891 map showing the project area (Imley 1891). Pu'u 'Ōpae (Nui and Iki) is highlighted in red.

Other sugar operations in the Waimea region would later include the Waimea Sugar Mill headed by the Rowell missionary family; and the Hawaiian Sugar Company operating on Makaweli land under Gay & Robinson. Also related to this economic development was the establishment of the Waimea Dairy in 1904 by Faye.

Kekaha Sugar Company is unique for several reasons. It is the only sugar plantation with most of its land leased from the State (Wilcox 1996:97). The plantation utilized a variety of terrain for its fields, from 2,010 feet in elevation to sea level (Wilcox 1996:96). The topography of Kekaha allowed for the plantation to grow cane on both the highest and lowest elevations of any irrigated sugarcane fields in the state (HSPA 1880–1946). At first the cane was carried down the steep ridge by flumes and by rail in the flat lowlands. It is said that the Kekaha lowlands were so flat that the railroad cars had no brakes installed (Wilcox 1996:96–97). Trucks replaced the Kekaha flumes and rail by 1947. In 1938, the Kekaha Sugar Company negotiated a new 21-year lease, and the *Honolulu Advertiser* newspaper claimed that this was “the Territory’s most valuable single piece of property” (HSPA 1880–1946). The Kekaha Sugar Company would become one of the highest yielding plantations in the state of Hawai‘i, with 14 tons per harvested acre recorded in 1983 (Wilcox 1996:97). In 1994 the Kekaha Sugar Company was consolidated by Amfac/JMB (Wilcox 1996:97).

Several maps from the 1900s were found, illustrating the development of the region, which was largely influenced by the sugar industry. A 1900 Hawaiian Government Survey map of the island of Kaua‘i depicts Pu‘u ‘Ōpae (Figure 6). Topographic features are illustrated, including the marshy area near Kekaha. A 1903 Hawaii Territory Survey map of the island shows more detail (Figure 7). More place names are labeled, and Kekaha Plantation lands and a large rice paddy are shown on the flats below the ridges and valleys. The project vicinity is outlined in yellow to designate grazing lands. A 1912 USGS topographic map provides even further detail (Figure 8). By this time, the flatlands are more developed, and the railroad is in place. A 1930 Kekaha Sugar Company map shows the extent of cane fields in the project area (Figure 9). The Pu‘u ‘Ōpae Reservoir and access roads were constructed by this time, and “Puu Opae Camp” is illustrated just above the reservoir. A 1954 land use classification map shows the extent of cane, pasture, and wasteland in the project area (Figure 10). The reservoir is also depicted.

Waimea at the Turn of the 20th Century and Beyond

The end of the century came to a turbulent end for the Hawaiian Islands. In 1893, the Hawaiian monarchy was overthrown by Western businessmen in the islands backed by the American military. Five years later, the United States claimed its annexation of the islands, and in 1900, President McKinley declared Hawai‘i to be a territory of the U.S.

For most of the 20th century, the sugar industry continued to dominate land use in the Waimea region. Other land-based economic enterprises took place in the form of rice farming and ranching, but these were of a relatively much smaller scale. In addition, the American military has utilized and continues to occupy certain Waimea lands for defense purposes. But as for the current project area, it has remained relatively undeveloped. Various mauka portions of the study area have been used for ranching activities, and they continue to be utilized for this purpose. Apart from that, many zones remain forested.

Previous Archaeology

Numerous archaeological studies have been conducted in the project region. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, O‘ahu as well as the Kaua‘i Historical Society and Division of State Parks in Līhu‘e, Kaua‘i (Figure 11 and Table 1).



Figure 6. Portion of a 1900 map showing the project area (Harvey 1900). Pu'u 'Ōpae is highlighted in red.

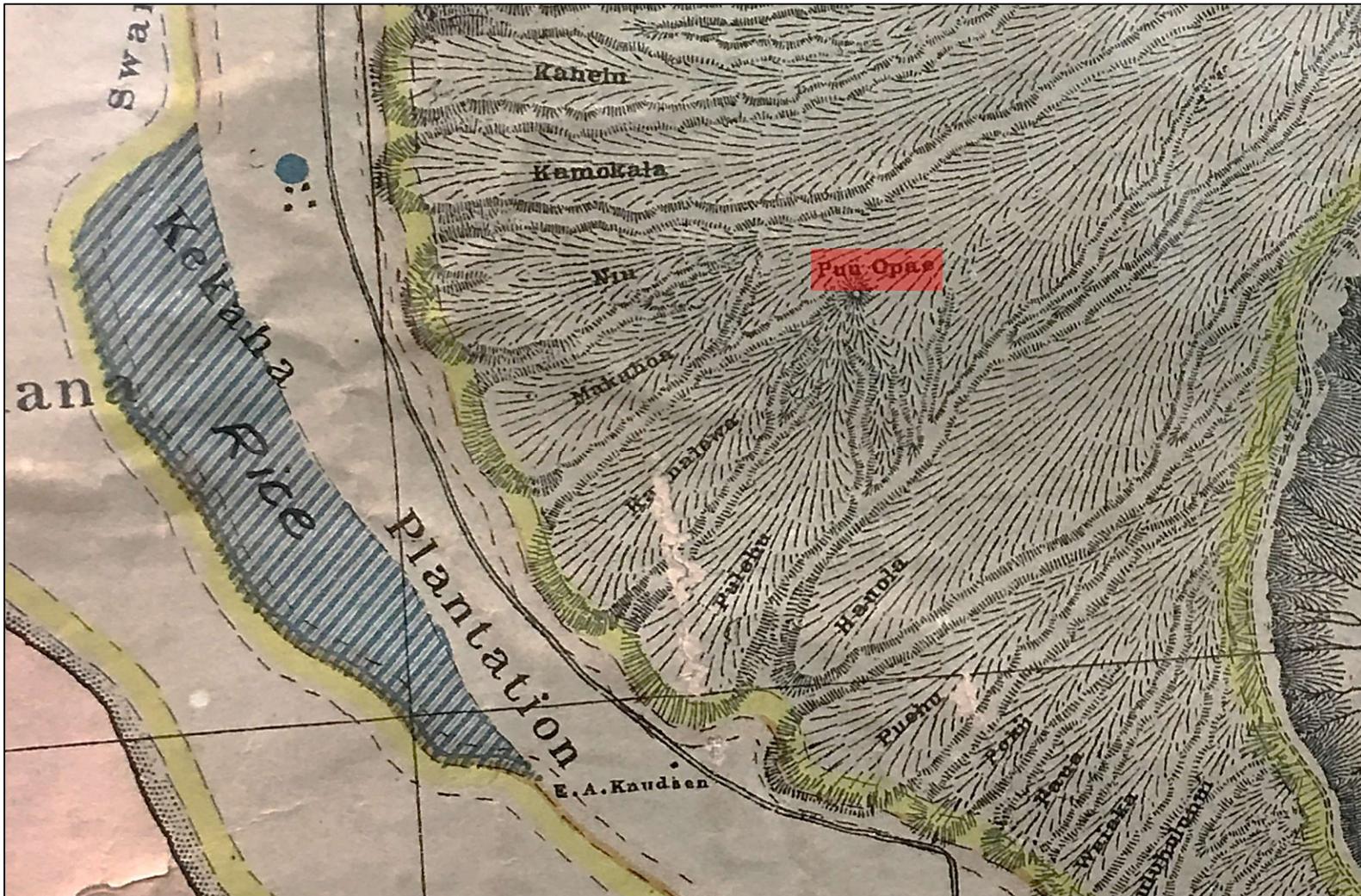


Figure 7. Portion of a 1903 map showing the project area (Wall 1903). Pu'u 'Ōpae is highlighted in red.

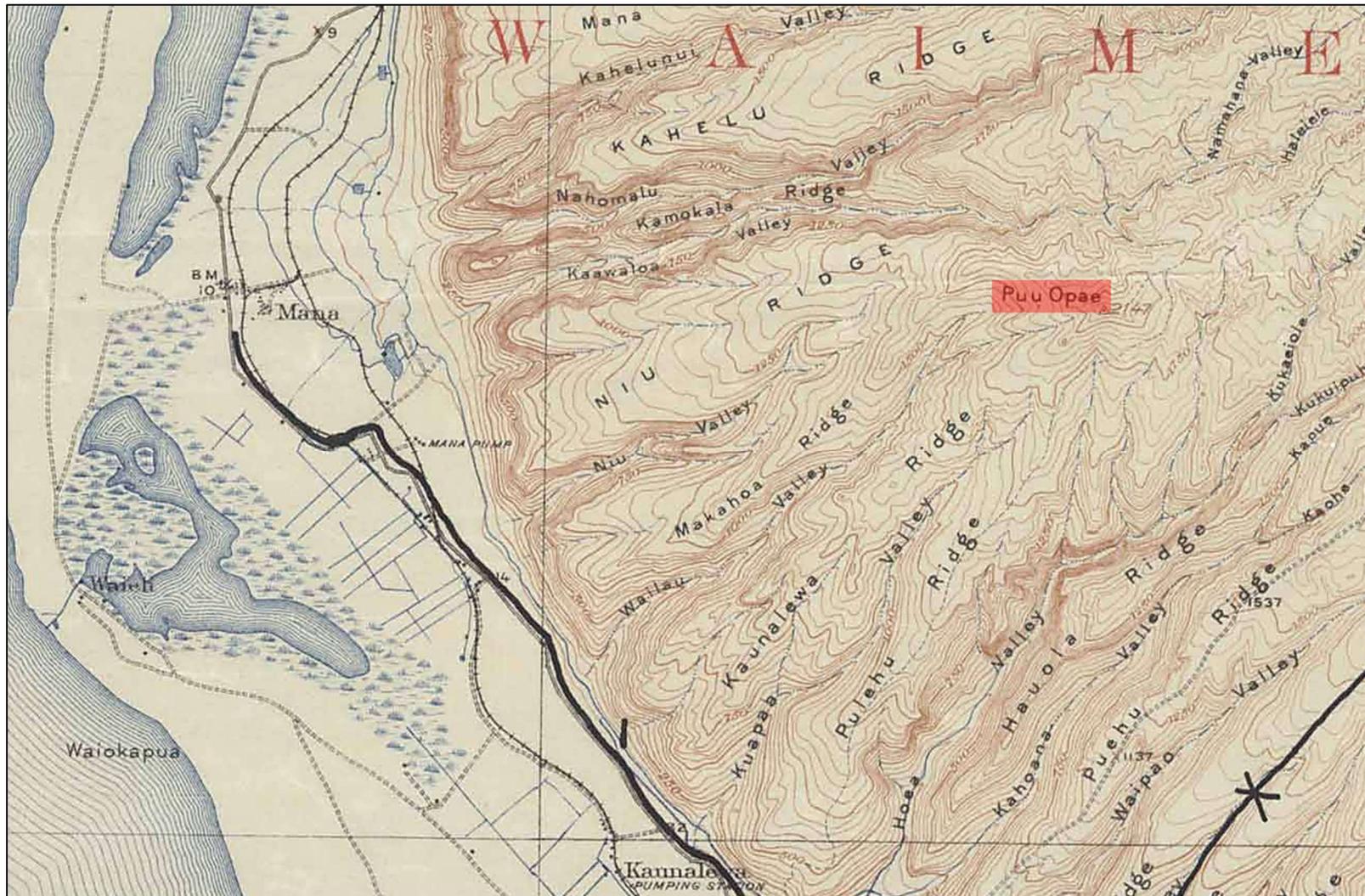


Figure 8. Portion of a 1912 map showing the project area (USGS 1912). Pu'u 'Ōpae is highlighted in red.

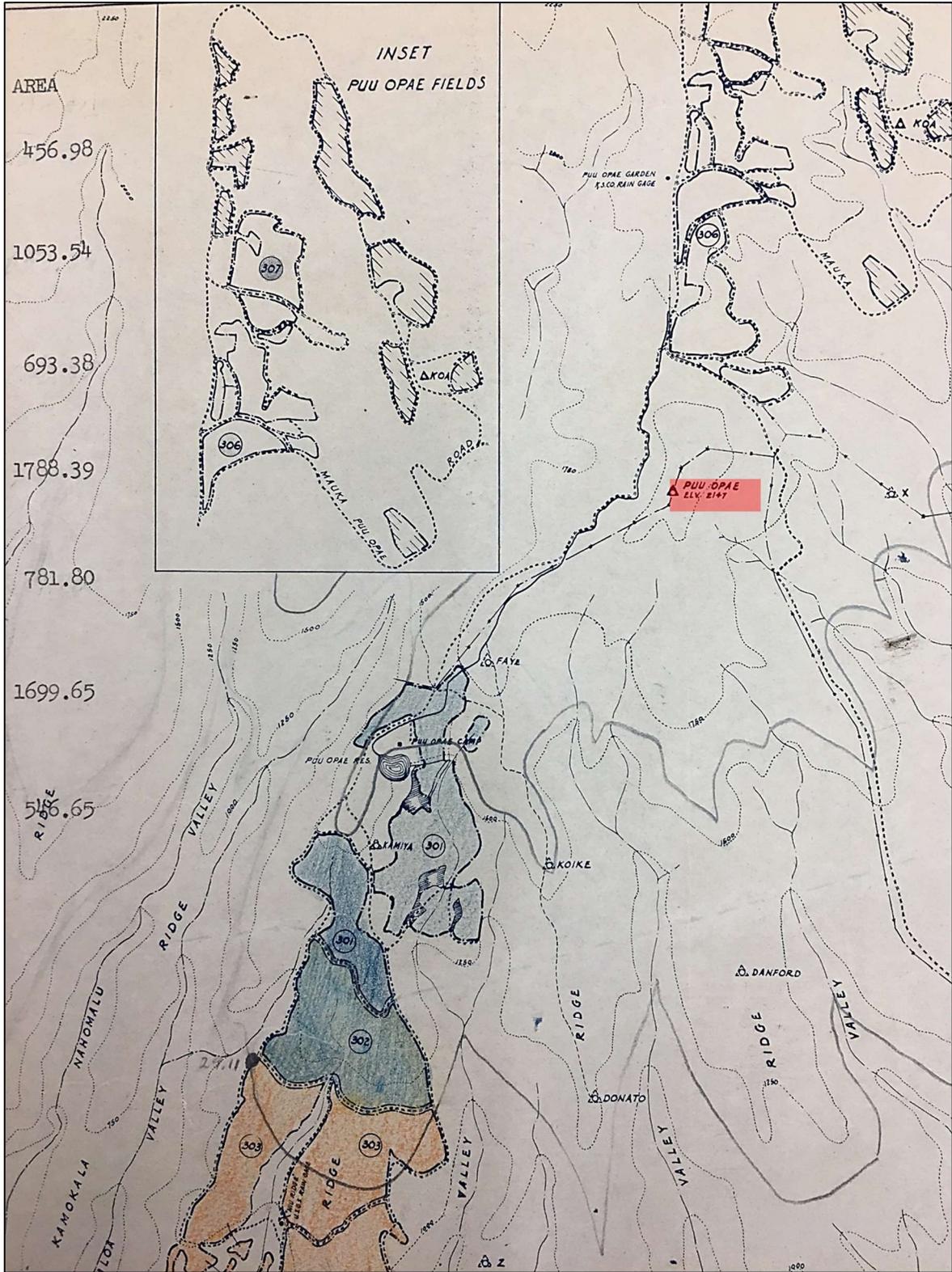


Figure 9. Portion of a 1930 map showing the project area (Kekaha Sugar Co. 1930). Pu'u Ōpae is highlighted in red. The blue zones designate “high mauka” fields, from 1,250–1,780 ft. in elevation, while the orange areas are the “middle mauka” fields, from 750–1,250 ft.

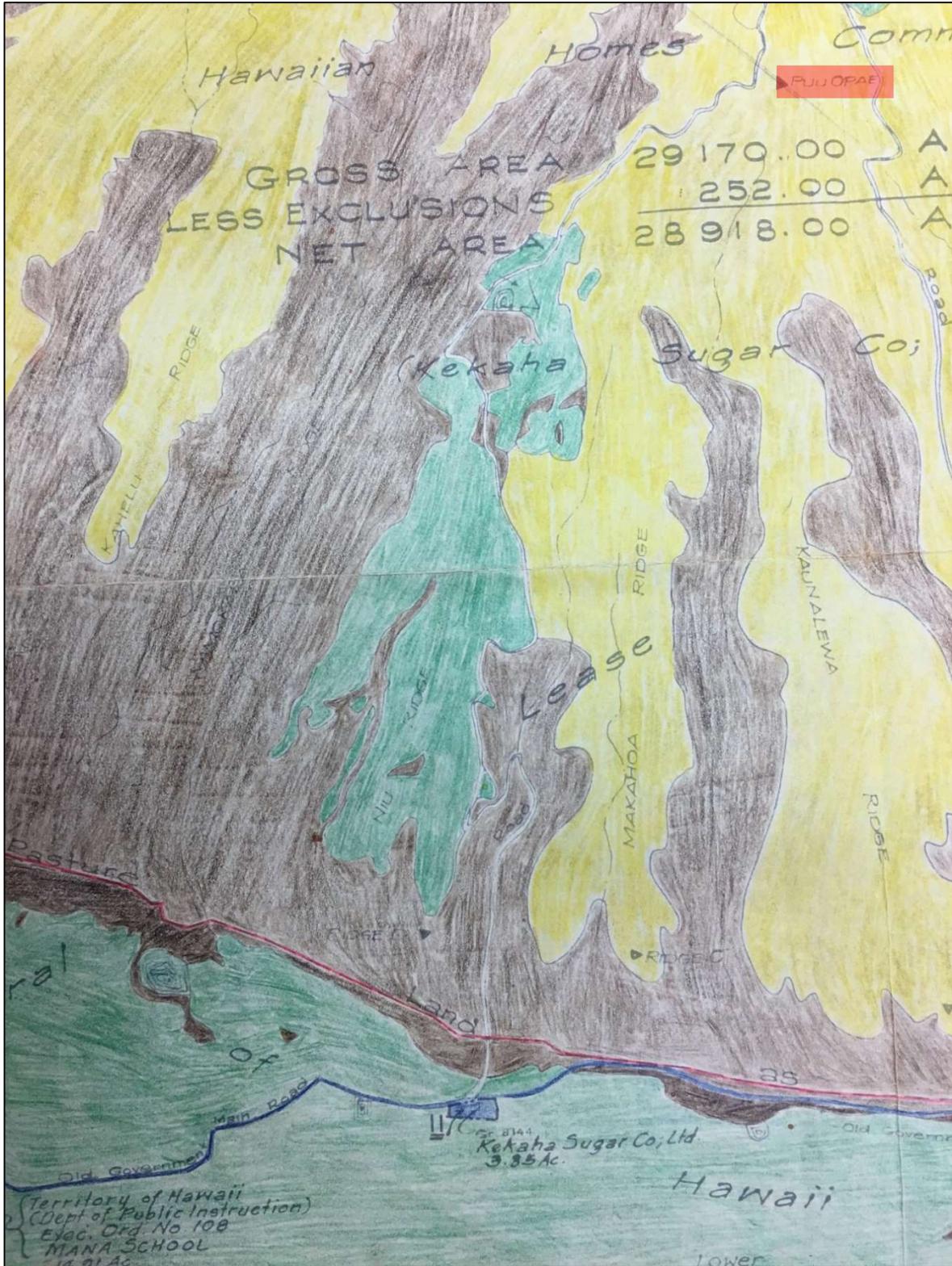


Figure 10. Portion of a 1954 map showing the project area (Territory of Hawaii 1954). Pu‘u ‘Opae is highlighted in red. Cane lands are colored in green, pasture in yellow, and wasteland in brown.

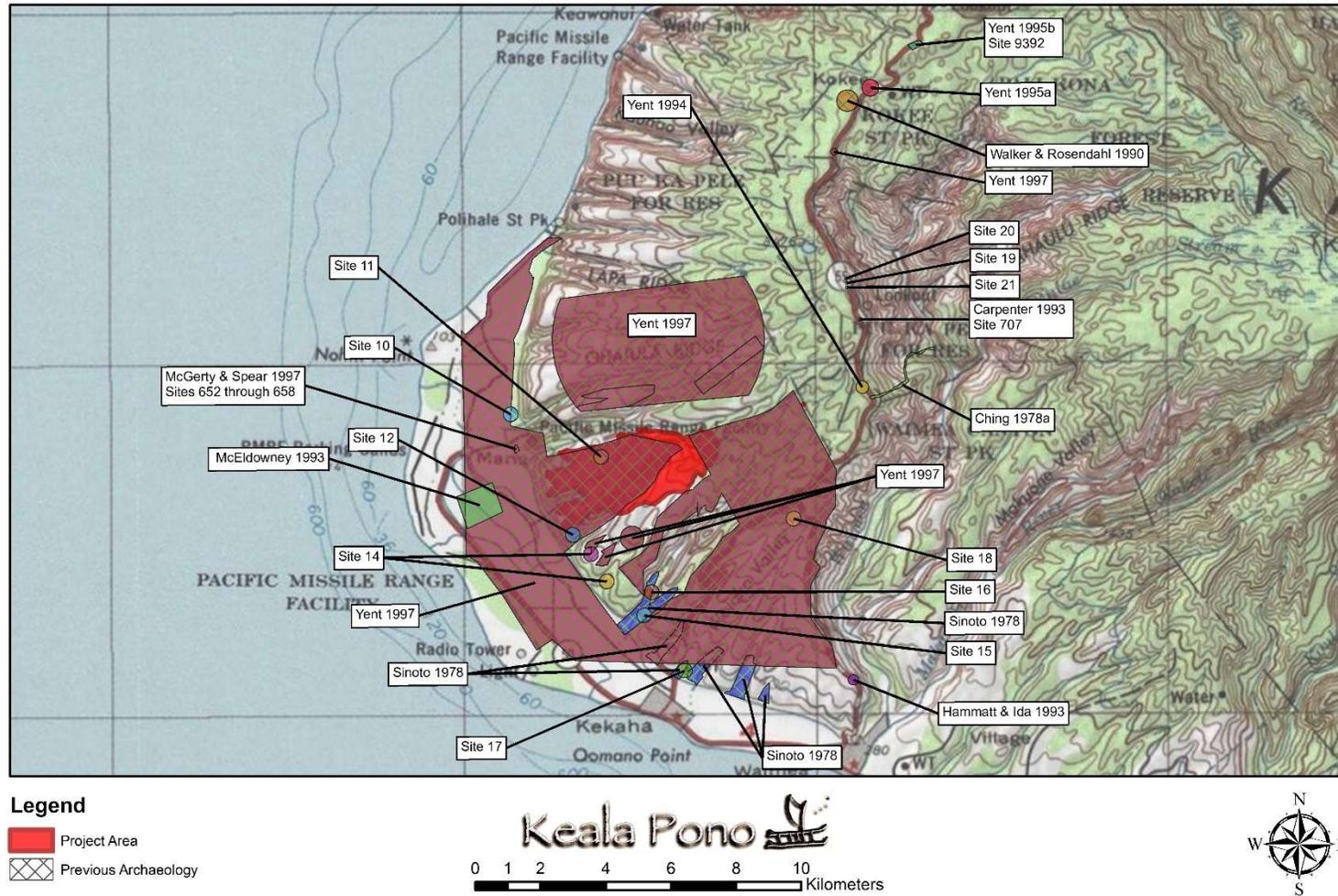


Figure 11. Previous archaeological research in the vicinity of the project area. Note that some projects discussed in the text are not illustrated because their exact location could not be determined.

Table 1. Previous Archaeology in the Project Area Vicinity

Author/Year	Location	Study	Findings
Thrum 1906	Island-Wide	Survey	Recorded four heiau, a village shrine, two platforms, and two flat sacred spaces in the project vicinity.
Bennett 1931	Island-Wide	Survey	Identified 12 sites in the project area vicinity: Sites 10 through 21, which include eight heiau, burial caves, habitation sites, and agricultural terraces.
Ching 1974	Pu‘u Ka Pele	Field Check	Relocated Sites 19 and 20; could not identify Site 21 but surmised that it was still present.
Ching 1978a and 1978b	Waimea Canyon	Reconnaissance Surveys	None.
Sinoto 1978	Eight Valleys in Kekaha	Reconnaissance Survey	Identified numerous ceremonial, habitation, and agricultural features. No SIHP numbers were assigned.
Kikuchi 1982	Makaha Ridge	Field Check	None.
Yent 1982	Proposed Kōke‘e Hydropower Site	Reconnaissance Survey	None.
Walker and Rosendahl 1990	Proposed Navy Radio Telescope Site	Inventory Survey	None.
Carpenter 1993	Waimea Canyon Lookout	Field Check	Identified one site, described as a single alignment of stones that define three sides of a ridgetop flat. The site was later designated as SIHP 50-30-06-707.
Chaffee and Spear 1993	Pu‘u Ka Pele	Inventory Survey	None.
Hammatt and Ida 1993	Kaleinamanu Ridge	Reconnaissance Survey	None.
McEldowney 1993	Mana Quarry	Survey	Recorded a complex that includes three platforms, an enclosure, and a rectangular boulder accumulation. No SIHP number was assigned.
McMahon 1993	Kōke‘e	Reconnaissance Survey	Identified SIHP 50-30-05-499, a boulder alignment.
Carpenter and Yent 1994	Kahuama‘a Flat		None.
Dowden and Rosendahl 1994	Kōke‘e Air Force Station, Makaha Ridge, and Halemanu	Inventory Survey	None.
Kawachi 1994	Kauhao Ridge	Field Check	None.

Table 1. (Continued)

Author/Year	Location	Study	Findings
Yent 1994	Kukui Communication Facility, Waimea Canyon State Park	Reconnaissance Survey	None.
Yent 1995a	CCC Camp, Kōke'e State Park	Survey	Documented the CCC Camp, which dated to the 1930s. The camp was later designated as SIHP 50-30-06-9392.
Yent 1995b	Kōke'e State Park	Survey	Recorded 11 features of a former Army campsite that dated to the 1940s. No SIHP number was assigned at that time.
McGerty and Spear 1997	Northwest of Kekaha	Inventory Survey	Documented seven sites: SIHP 50-30-05-652 through 658. They consisted of historic roads, a historic trash dump, and traditional agricultural features.
Yent 1997	Kekaha Game Management Area	Reconnaissance Survey	None.

The discussion below focuses on the uplands, therefore the coastal archaeological work of Kekaha and Mānā is not included. State Inventory of Historic Places (SIHP) numbers are prefixed by 50-30-10 unless otherwise noted

An early survey to identify heiau documented several ceremonial sites in the project vicinity (Thrum 1906). Most relevant is Makahoe (that Thrum calls “Makahoa”), which is likely located within the project area. It was said to be located at Niu, Kaunalewa, and was described as “a village shrine” (Thrum 1906:40). A site nearby is Ho‘one‘enu‘u, a heiau on the south side of Kaunalewa Gulch. It was walled with two tiers and paved platforms, and it is said that circumcision rites were performed there (Thrum 1906:40). Hauola is a heiau in Hō‘ea, Wa‘iawa. It was described as having heavy outer walls, two divisions, and evidence of house foundations near the entrance. Thrum (1906:39) remarked that this site was in the best condition of all the Kaua‘i heiau that he had seen. It was later documented as a place of refuge (Wichman n.d.). Also in the vicinity is an unnamed platform shrine in Wai‘awa. Another unnamed platform is situated at an elevation of 1,700 feet in Paehu, Pōki‘i. Also in Pōki‘i are two “flat sacred places,” Kopahu and Kaleinakauane, the latter of which was a leina, a leaping place for souls of the deceased (Thrum 1906:38). A heiau called Ahuloulu is located at the bottom of Pu‘u Ka Pele and consisted of three platforms. Kahelu is a heiau found at the “base of the hill” in Kahelu, Mānā (Thrum 1906:39). It was described as a 6 foot tall platform.

Another early survey identified 12 sites in the project area vicinity (Bennett 1931). These include SIHP 10–21, many of which were previously identified by Thrum:

Site 10. Kahelu heiau, at Kahelu near Mana and described by Thrum as, “A heiau of platform character at the base of the hill, about 6 feet high in front, not of large size.”

Site 11. Makahoe heiau and village site on Nui ridge, Kaunalewa.

A small, platform village shrine. Thrum describes the village as “Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro land besides the dry crops to depend on.” On the inland side of Niu ridge small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area.

Site 12. Hooneenu heiau, along the ditch line inland from the government road near the center of Kaunalewa ridge.

This heiau now consists of two sections roughly paved, each 15 by 35 feet, the back one 2 feet above the front. The lower platform is built up 4 feet in front, but the ditch line has cut through it causing much disturbance. It is made of the lava so plentiful around. Thrum describes it as consisting of two tiers 20 by 30 feet in size, one 6 feet above the other. He also mentions that it was a heiau for circumcision.

Site 13. Burial caves, on Kaunalewa ridge.

On Kaunalewa ridge there are a number of burial caves. In one there was a canoe containing a skeleton. The canoe was not large, was cut in half, and had the boards sewn together with grass cord. The burial was wrapped in tapa. A number of other bones were jumbled together in the back of the cave. In a cave nearby was a canoe burial wrapped in white, pink, and black tapa, as well as in some blue cotton cloth. There was a pillow of moss, and grass cords were tied clear around the canoe. The canoe was similar to the one mentioned above and seemed to be the other half of it. With this burial was found a feather kahili with a kauila wood handle. The feathers were from sea birds and dyed different colors. Another kahili was without a handle. Aside from these were two flat wooden plates about 10 inches in diameter. A small bundle of dog bones wrapped in stiff tapa was also found. There are on this ridge other caves with evidence of some use at one time. One cave contained a palaoa bone pendant but no other remains.

Site 14. Two small heiaus, near Waiawa, described by Thrum as a 12 by 20-foot shrine, and an 18 by 28-foot shrine.

Site 15. House sites and taro terraces, in Waiawa valley.

Some taro lines may still be seen in lower Waiawa valley. Many house sites are in evidence. They consist for the most part of leveled ground, faced in front with stone, or merely outlined with stone.

Site 16. Hauola heiau, in Hoes valley at the base of Hauola ridge.

The site is on a talus slope that extends upward from a stream gulch to the base of a ridge. Upstream from the structure is a natural amphitheater. On a large, well-paved platform... is placed a smaller unpaved platform, its back side marked by a facing terrace 3 feet in height. Thrum describes this smaller platform as the location of house sites and says that the passage along its southern wall was the entrance to the heiau. There is nothing to distinguish it now. The third platform at a higher level is inclosed [sic] at the back by a wall... This upper platform is excellently paved with flat lava slopes 15 to 20 inches wide and filled with river pebbles... At the front of this platform is a long, narrow pit with an inner wall 7 feet thick and an outer wall 5 feet thick... The heiau is made of the local stone, a reddish lava, some of which has been slightly waterworn. Coral is found on the paving. The walls are well built of selected pieces carefully piled.

Site 17. Burial caves, on Pokii ridge.

A number of caves that were used for burial have been rifled except for a few bones. In one there was a 3-inch matting of pili grass spread loosely on the floor.

Site 18. Heiau, on top of a small knoll with a commanding view of the country, five miles from the sea, at an elevation of 1700 feet, on the road to Kokee on Paehu ridge.

Thrum describes this site as follows: "The heiau is a simple platform on the top of a hill. It is built up on all sides with stonework, the whole space being then paved. The platform is a perfect parallelogram 40 by 60 feet; elevation above the sea about 1700 feet."

Site 19. Ahuloulu heiau, on the seaward side of the Puu Ka Pele crater cone at the edge of Waimea canyon.

This heiau consists of a walled enclosure the outside dimensions of which are 37 by 41 feet. The walls are 4 feet wide and badly broken. In front of this structure is a flat area about 50 by 50 feet without paving or boundaries. Back of the enclosure there is a paved platform 8 by 12 feet. This platform is backed by a large rock, the plugged-up holes in which indicate that it might have been used as a depository for umbilical cords.

Site 20. House sites, around the crater of Puu Ka Pele.

The remains of seven house sites are indicated by stones in line forming a terrace with a flat space behind. Some of these house sites measured 30 feet in width and 20 feet in depth. Some of the terracing stones were good-sized boulders. The dirt has washed down from above covering the original platform. On top of the crater cone there is a flat platform 30 feet by 30 feet, slightly terraced, in which river stones and coral are found.

Site 21. House sites, toward the sea from Puu Ka Pele on the north side of the road.

A series of house sites are located on top of a flat ridge, the edge of which is lined with stones for 50 feet or more. There are several cross divisions. Fireplaces consisting of four or more stones placed in a rectangle are in evidence on several of these divisions. (Bennett 1931:102-104)

A 1974 field check re-identified Ahuloulu Heiau (SIHP 19) and the Pu'u Ka Pele habitation complex (SIHP 20) (Ching 1974). It was believed that the other habitation complex in the area, SIHP 21, still existed, but it was not found due to thick vegetation. However, in a later field check by State Parks, both habitation complexes, SIHP 20 and 21 were re-identified as well as Ahuloulu Heiau, and all three were consolidated as one site called the Pu'u Ka Pele Complex (SIHP 19). Note that no report for this field check could be located but the information was recorded in later publications (Yent 1995a, 1995b, 1997).

In 1978, a reconnaissance survey throughout the rock borrow areas near Kekaha identified numerous ceremonial, habitation, and agricultural features (Sinoto 1978). In Waiaka, a rectangular stone cairn and a series of overhang shelters were recorded. In Wai'awa an open flume, concrete foundations, and narrow-gauge rails were noted. Also in this area, Bennett's (1931) Site 15 was described as "extensively disturbed by bulldozing," although remnant features were observed (Sinoto 1978:5). Also documented were a complex of terraces and walls probably associated with Site 15. In Kahoana, many terraces, enclosures, walls, and mounds were noted. In Hō'ea Valley, Hauola Heiau was recorded in excellent condition, and other "numerous small and crudely constructed sites" were reported (Sinoto 1978:6). No new SIHP numbers were assigned at the time of the survey.

A field check at the Waimea Canyon Lookout identified one site (Carpenter 1993). This was a remnant of a possible temporary habitation structure consisting of three alignments of stone. The site was later designated as SIHP 50-30-06-707.

A survey of approximately 15 acres of Mana Quarry identified one archaeological site (McEldowney 1993). The site was comprised of three platforms, an enclosure, and a rectangular boulder accumulation. No SIHP number was assigned at the time of the survey.

In 1993, an archaeological reconnaissance was conducted in Kōke'e for the Emergency Watershed Protection program (McMahon 1993). Only one archaeological feature was identified during this survey, SIHP 50-30-05-499, an alignment of boulders, possibly for agriculture, located at the makai end of the Polihale Ridge Road.

An archaeological survey for the Civilian Conservation Corps (CCC) Camp in Waimea identified one historic site (Yent 1995a). This is the camp itself, which dated to the 1930s. Of the 25 structures of the camp, 19 were still existing at the time of the survey, although many had been modified. The camp was later designated as SIHP 50-30-06-9392.

An archaeological survey was conducted at the former Army campsite on Kaunuohua Ridge (Yent 1995b). Although no pre-contact archaeological sites were identified, 11 historic-era features were documented, all of which were associated with the Army camp, originally constructed in the 1940s. No SIHP number was assigned at the time of the survey.

An archaeological inventory survey near Kekaha identified seven archaeological sites (McGerty and Spear 1997). SIHP 50-30-05-655 and 656 are historic roads. SIHP 654 is a trash dump containing a wide diversity of artifacts from the historic period. The other four archaeological properties were all agricultural in nature: SIHP 652, a rock mound; SIHP 653, a cluster of rock mounds; SIHP 657, several clusters of rock-faced terraces along with an 'auwai; and SIHP 658, another rock mound.

Various other archaeological studies yielded no findings. These include two reconnaissance surveys in Waimea Canyon State Park (Ching 1978a, 1978b), a field inspection at Makaha Ridge (Kikuchi 1982), a reconnaissance for the proposed Kōke'e Hydropower Project (Yent 1982), an archaeological inventory survey for the U.S. Navy's Radio Telescope Project (Walker and Rosendahl 1990), an archaeological inventory survey in the Pu'u Ka Pele Reserve (Chaffee and Spear 1993), an archaeological inventory survey at three locations including Makaha Ridge (Dowden and Rosendahl 1994), a reconnaissance of Kaleinamanu Ridge (Hammatt and Ida 1993), a reconnaissance in the Kahuama'a Flat area of Kōke'e State Park (Carpenter and Yent 1994), a field check of Kauhao Ridge (Kawachi 1994), a reconnaissance for the Koke'e Air Force Station (Yent 1994), and a reconnaissance of the Kekaha Game Management Area (Yent 1997).

Summary of Background Information

Waimea was a culturally significant area with many of the natural resources which supported traditional subsistence activities such as fishing and taro and sweet potato cultivation. The uplands of the project area were known as a zone for the harvesting of trees that were made into canoes. Heiau and village sites were also located in the study area, and a mo'olelo involving menehune explains how Pu'u 'Ōpae was named. The low, flat lands below the project area were once an extensive marsh.

Historically, sugar and rice cultivation and ranching were practiced in the project region, although sugar was the most successful by far. Reservoirs, ditches, plantation camps, roads, sugar mills, railroads, and other infrastructure were built to support this endeavor and the population of plantation workers that settled in Waimea.

Previous archaeological research has identified a number of heiau in the region, although only one, Makahoe, is thought to be within the current area of study. This was described as a village shrine. Petroglyphs are also associated with the traditional village of Makahoe. Other heiau, as well as agricultural, habitation, and human burial sites have been previously recorded for the region.

ETHNOGRAPHIC SURVEY

There are some things that cannot be found in the archives, in textbooks, or at the library. It is here, through the stories, knowledge and experiences of our kama‘āina and kūpuna, that we are able to better understand the past and plan for our future. With the goal to identify and understand the importance of, and potential impacts to, traditional Hawaiian and historic cultural resources and traditional cultural practices of Pu‘u ‘Ōpae, ethnographic interviews were conducted with community members who are knowledgeable about the project area.

Methods

This Cultural Impact Assessment was conducted during March 2020. Guiding documents for this work include The Hawai‘i Environmental Council’s Guidelines for Assessing Cultural Impacts, A Bill for Environmental Impact Statements, and Act 50 (State of Hawai‘i). Personnel involved with this study are Windy McElroy, PhD, Principal Investigator of Keala Pono Archaeological Consulting, and Gina McGuire, MS, Ethnographer.

Interviewees were selected because they met one or more of the following criteria: 1) was referred by Keala Pono Archaeological Consulting or G70; 2) had/has ties to the project area or vicinity; 3) is a known Hawaiian cultural resource person; 4) is a known Hawaiian traditional practitioner; or 5) was referred by other cultural resource professionals. Three individuals participated in the current study. Mana‘o and ‘ike shared during these interviews are included in this report.

Interviews were taped using a digital MP3 recorder. During the interviews, each person was provided with a map or aerial photograph of the subject properties, the Agreement to Participate (Appendix A), and Consent Form (Appendix B), and briefed on the purpose of the Cultural Impact Assessment. Research categories were addressed in the form of open questions which allowed the interviewee to answer in the manner that he/she was most comfortable. Follow-up questions were asked based on the interviewee’s responses or to clarify what was said. Two of the interviews were conducted in person, while one was done by telephone.

Transcription was completed by listening to recordings and typing what was said. A copy of the edited transcript was sent to each interviewee for review, along with the Transcript Release Form. The Transcript Release Form provided space for clarifications, corrections, additions, or deletions to the transcript, as well as an opportunity to address any objections to the release of the document (Appendix C). When the forms were returned, transcripts were corrected to reflect any changes made by the interviewee.

Several potential interviewees were contacted, resulting in three final interviews (Table 2). The ethnographic analysis process consisted of examining each transcript and organizing information into research themes, or categories. Research topics include: connections to the project lands, place names, archaeological sites, sites of spiritual significance, traditional practices, change through time, and concerns and recommendations for the project. Complete edited transcripts are presented in Appendices D–F.

Interviewee Background

The following section includes background information for each interviewee, in their own words. This includes information on their 'ohana and where the interviewee was born and raised. The interviewees are Leah Pereira, Eben Manini, and Sean Andrade.

Table 2. List of Individuals Contacted

Name	Affiliation	Method of Contact	Result of Contact
Leah Pereira	Lifetime resident of Waimea	Telephone, In Person	Interviewed
Eben Manini	Lifetime resident of Pu'u 'Ōpae	Email, In Person	Interviewed
Kunane Apoalani	Previous council chair of the Kaua'i/Ni'ihau Island Burial Council	Telephone	Declined
Aletha Kaohi	Kupuna, lifetime resident of Waimea	Email, Telephone	No Response
Sean Andrade	Pu'u 'Ōpae Lo'i Kalo restoration leader, Pu'u 'Ōpae Committee Chair, Kekaha Hawaiian Homelands Association	Telephone	Interviewed

Leah Pereira

I come from the family of Nahinu and Auhea, brother and sister in the 1600s...The grandmother was Kaipomelieke Koolua Nahinu. And she had a daughter and son and they got together and they married. They ended up with two living children, Napihe and Nakapaahu. Kamoali'i comes from Nakapaahu. I come from Napihe, the daughter. And they married Keawepoepoe's children. One of Keawepoepoe's sons was Kaianakakeawehaula. My son Kila's genealogy comes from Konaka, Keawepoepoe's line. I know the genealogy in my head. Napihe married a Pa'ahau. Her daughter, Kapalai married Kilakapaikukui. And then they had a son. He married a chiefess from Maui and then they had a son Kila. Kila married La'i from Ni'ihau. And then they had my great-grandmother, Malaia Kapaikukui. That's the candlenut. Then they had Moses. Moses married Helen, Kuwaolokele, and then had my dad, Isaac Kaleoaloha Mokina Ho'okano. Then me. That's my genealogy. But the Nahilu side, Kila's side comes from Keawepoepoe from the Big Island. In Kohala. There were three sons from Keawepoepoe, one was Nai'ole. And Nai'ole had a son. He fought Kamehameha at the battle of Nu'uano. And Kamehameha took that son. He was Kekuanaoa. And then he married him to Kinau. We come from that line. But he has other sons, Namaka'eha. That's Queen Lili'uokalani's line. And there's another line, the other son was the Kai'ena. So Nai'ole, that's where we come from. And my mom's Japanese, so I'm Hawaiian-Japanese. I graduated Waimea High School and lived in Waimea Town. I went to college at the Kapi'olani School of Nursing. Then we moved to Washington State, lived there a few... 'cause my husband graduated over there and we came back home. Three children.

Eben Manini

...My dad was Joseph Punilei Manini Sr. I'll do my dad's side. His dad was Benjamin Punihaka Manini. And then of course it goes back, back, back. My sister Erna, she's really the genealogy documents, how far back it goes. It goes back pretty deep. And then my mom's side. My mom was originally from O'ahu. Her family was originally from Maui. But before Maui, was from Nihoa. They were navigators as well. My dad claims that his

side was the navigators of Kaua'i only, separate kingdom, but my mom was through Kamehameha side, opposite direction, so I hold the blood of both sides and I'm stretched between both sides. And growing up with my light eyes I was always stretched between both sides. I was neither Native nor Caucasian. I was just something else. I learned how to grow up with it. Nowadays it's more common, but back then I was kind of by myself doing that.

On my dad's side, his side is really old, his family. Because if you go over to the North Shore there's an area called Hā'ena, and now they call that cave behind the beach, they call that Hā'ena Dry Cave, but actually that is truly, the name is Maninihoho, that's my family, Manini. That person is one of the ancient navigators that would come there. And he would run this, some of the people say they had a fire pit above the cave, that he would signal the people fishing or sailing to find the port. My dad said it wasn't fire, it was a glowing rock that would be a beacon or a lighthouse to navigate them into the channel. Or if they were passing the island they could see it so they could come to Kaua'i or go on to O'ahu if they want to keep journeying. So they were really the ancient ones that came and that's my dad's side of the family.

Again, I touched a little bit on my mom's side. Hers is the Kamehameha side. And even though my parents were married happily, just shy of 60 years before my mom passed, they would get into their squabbles at times, where you know, dad was, "You guys are Kamehameha, that's why you're hard head," and stuff, I think Kaua'i can be just as stubborn or worse at times [laughter]. But that kind of touches who I am and a little bit of my lineage, where I came from. And it goes further and further back. But for Kaua'i people, my sister Erna like I said, she keeps all the documentation. When my dad passed on, she shared part of the genealogy and posted it up in the area where we were meeting people so they can see who we are and how they tie into our family, because when most of the people came to it, almost a third of the island who came, all the old Hawaiian families, like, "Oh look, that's how we're related, is through that person and this person." My mom's side goes deep, Maui, O'ahu, all over, that's a little bit of the genealogy side.

Sean Andrade

I'm 51 years old. I grew up in Kalaheo, Kaua'i. My mom is from Waimea Valley. My dad is from Kalaheo. I went to Waimea High School. Graduated in '87. Well growing up, back when I was a younger kid, I don't know, you know, maybe eight, nine, ten years old, both my parents are part Hawaiian. I grew up not knowing much about being Hawaiian, as my parents grew up with the restrictions here on Kaua'i. I grew up not knowing a lot of our culture, you know? But I have both parents, they're still married. Both sides of our family have deep roots in Kaua'i from Wainiha Valley all in the North Shore all the way to Waimea Valley on the Westside.

Topical Breakouts

The following sections are extended quotations from the interviews, organized by topic. Interviewees provided information on connections to the project lands, place names, archaeological sites, sites of spiritual significance, traditional practices, change through time, and concerns and recommendations for the proposed Pu'u 'Ōpae Special Area Master Plan.

Connections to the Project Area

We spent our summers there. 'Cause my Uncle James Ho'okano, my dad's older brother, he had a homestead there. He had actually started off with Bistorio. His cousin, whose property was right next to his, was Alice Akita. And then Manini has my Uncle James'

property right now. The house is still standing, 'cause Eben still stays in that house. So Eben guys have that property now. Mr. Manini and my Uncle James, they worked at Robinson Ranch. So they were good friends. In the meantime when we were growing up as kids we spent a lot of summers there. And he couldn't raise cattle 'cause there wasn't enough water. The water was a problem there. So what happened was, he grew watermelons. So our duty was to cover the watermelons with grasses. It was really sweet. Big ones! Yeah, so we used to play around like that.... We learned from my Uncle James about historical sites and freshwater springs. He was a pathfinder, leader and also a commissioner. [Leah Pereria]

And then we acquired the abandoned lots that were there and that's how we came in, in the '60s, I think was the late '60s: '67, '68 we came in here... So I grew up in the '70s right behind our house, would play with our toys, there was i'iwi, 'apapane, frequently there in the trees I would play under... In modern times, like in the '70s, '80s, my dad had his own experiences on the property while cleaning the property with his dozer. He was very strong in Christianity, he didn't practice Hawaiian culture much. He was taught how the missionaries taught us, it was bad, it was not good, it was evil. Whatever they put in his head. He felt that way. I want to say, almost throughout his entire life. So he'd just go out and pray a Christian prayer and then he'd go and bulldoze all of the non-native trees.... And then on our property, where the green grass is, just behind it, there is this, according to my dad, there was this large gun that was placed there to shoot any oncoming ships that were out on the ocean. That particular area, I remember had daisies growing out of the ground and that was my first introduction to removing invasive species because he didn't want the daisies all on the property. [Eben Manini]

So, Gilroy Yorkman, who kinda helped start the project with Kawai Warren, he's my uncle. My Uncle Gilroy has been informing me a lot about what was going on. But back, eight years ago or so, when they first started things, he informed me about it but I'm super busy, involved with our community as far as youth athletics. And that sort of things. I coach a lot. And a lot of different age brackets. I did from elementary all the way through high school. And being that I have four kids, that's what kinda, drove me in that direction. As far as my spare time and what I do for our community. So although my uncle has been involved, he knows my schedule. Lately, I hold back because I've been burned out from coaching. I'm tired. I was looking for a new direction, and I got more involved with the program and with Kawai, to carry on the project. It's actually been maybe nine months since I've been actually, physically involved with this. [Sean Andrade]

So the work that we were doing at the time is trying to get water back down to the lo'i. So there's roughly five to six miles of ditch, you know, that Eben has water from. To water his cows from. So there was enough water for him when we started but there really wasn't enough water for us all the way down at the bottom. So it was Ryan Ho'okano, Kawai, and myself, there are some others that came in from time to time, that helped us in cleaning the ditch and getting water all the way down to the lo'i, actually to a catchment system to distribute the water. So I have to try to learn as much as I could from Kawai and the original plan that he had, that Kekaha Homesteads had. I really love what they were trying to do. I want to stay on that same vision that they had. So we got the water down to the catch basin. There was three lo'i that they did back in the day. They did do one row across of kalo. And that was towards the end of what we were doing, and Ryan moved back to O'ahu. Towards the end we finished up the first two lo'is and we got the lo'is planted. It's probably not the best, as we're learning, it's probably not the best situation. So we got that planted. We're dealing with cows coming in and stomping. In the sense that, it's ok, the animals they were here before us. You know? So it's like their backyard. Being there more often, I'm noticing that the cows are staying away, not coming through. We need to work on the fencing. We were really worried about pigs. But so far pigs are not a problem. I did put up electrical

fencing around the lo‘is. We just recently got the dirt in, we got three of them planted now. We’re still working the water, maintaining I should say, ‘cause we’re learning as we go. We recently, last weekend, started working on the dryland section that they set up three years ago. They also have dry and kalo. We recently got that in about a month ago, maybe. And last weekend we planted maybe a quarter of it so far. We’re making progress. Slow progress. But we’re making progress. Now we’re trying to build the community involvement. [Sean Andrade]

Place Names

So the mountain we’re looking at there is Pu‘u ‘Ōpae. It got its name from the original people that were here. If you ever heard of the project made on this island and possibly the state, of the menehune, indigenous people that came here before the Hawaiian people. They were actually here before the Hawaiian people. Some people question whether they’re Marquesan or someone else. [Eben Manini]

Again, Pu‘u ‘Ōpae, they called it Hawaiian Homes, some people call it Kekaha Game Management. It’s actually the ‘ili of Kikiaola, that’s the original name of this area, this location that we’re looking at. But the reason why the Pu‘u ‘Ōpae, is when the Native Hawaiians came over they needed projects to be built and the indigenous ones were really good at workmanship and building structures. So they were contracted to build, the menehune, and other structures on the island. Over on the east side, Nawiliwili they have Hale Koko, the menehune fishpond as well, which they built. The materials that they got came from this left side, from this valley here, and they carried the rocks all the way out to do the ditch in Waimea Valley, down closer to town. Then they also made the project over on the east side of the island. However, they were thought to be shy people, kind of lived away from everyone else, in the mountains. Which, apparently, they lived in these mountains, about where I’m at, on that property there. The old maps will show that there’s villages from about the green grass area below that, kind of in that saddle area and into the valley next over. They dwelled in that area. So the deal was, the Hawaiians below that needed the project for their water system, for their lo‘i, they contracted them, the deal was that they would give them shrimp in exchange. So they would exchange the shrimp for the food for the workmanship for they did. And that’s how it got its name for this area here. That’s kind of the main name structure of this one location. Pu‘u ‘Ōpae, Shrimp Mountain, because they would do that exchanging of food for the service of work that they did. Also, in history, they’ll say that they placed it in trees, the food, that they put it in the trees. [Eben Manini]

There’s also a name of the area here that has similar names to a type of kalo that also grows in trees as well. So it kind of makes sense, well they put the food in the tree but yet the area is also named for that too, kinda almost twists around in how history is written and how names are blended in... There were pathways that would lead from the ocean into the mountains. There’s another section up higher, even though it’s above Hawaiian Homes, it’s still in the same ahupua‘a that goes all the way down to the ocean. That area is called Pu‘u Moe. Moe could be of higher ranking, Moe could also be to lay down, to rest. Whatever we determine what it is. I haven’t made that determination because both ways, it seems important. There was a significant person, of high stature that would live there and reside there. [Eben Manini]

The pu‘u that goes over, there’s more mounds going down to the right side. Each one has a name. It’s almost like vents, over on Big Island, one vent and the next vent, it’s kinda staggered like that. And the view there is just amazing, looking out to Ni‘ihau, Lehua, looking over Polihale, looking out down below. [Eben Manini]

And our lot five area on the top, that area is called Pōhaku Manō, which is Shark Stone. On maps, it'll show in our property is Pōhaku Manō. There's a old, small fire pit and then on another pu'u just over, there's going to be a mound of rocks. My dad would just call it, Pahali, for the rock formation that's there. It's not huge, it's just small. [Eben Manini]

Makahoa Ridge, if you look on the left and you look up, you're going to see a little platform jutting out. This is on top of the mountain now. And that is the jumping off point of pō... And that's where the spirits go to the west and jump off of that into pō. Now, further down the road here in Waimea, between Waimea and Kekaha. They call this place hukipō. Where you pull the spirits. And it's right here up this hill. When you're going down the road and you look up the mountain, you'll see a lone mango tree and that's where hukipō is, where they try to hook the spirits back. [Leah Pereira]

Archaeological Sites

There's a big heiau, the big heiau by Nualolokai, no it's actually by Makahoa Ridge. Makahoa Ridge, if you're coming from the Manā side, you come straight down from Manā, and you go straight towards the mountain towards Makahoa Ridge. [Leah Pereira]

Pōhaku Manō is right about there [gestures]. The actual stone where they put their offerings on, is not on our property, it's over to the side. But the fire pit and the rock formation where the structure was is on our property. It's even on the maps. Some people will come here to look for the rock where they put their ho'okupu on, but it's not there. It's outside. Not everybody knows that. [Eben Manini]

There's not this first ridge, it's the second ridge over, it's kind of lower, before you get to the grass plains, there's a ridgeline going up there, there's a rock quarry below in the valley. Above this hill they would actually make artifacts. So the adze they would use to dig out the canoes, that was one of the quarries there. The plantations pushed it all away, when the quarry was there. But all of the chips of the stones were all scattered. I tried to preserve the area from preventing the motorcycle riders from just coming up and riding, because they're riding just to have fun but not knowing they're disrespecting the area because the walls that were there were leveled by the plantation. But we still have to respect what was there. [Eben Manini]

The adze quarry area, according to my dad, when you go up to Pu'u Moe, when you go up to Pu'u Moe cutoff, where they're going to do the hydro over there, just to the side of it, was a canoe hale area where they'd actually dig out the canoe. I know there's another book written, where they did it over by First Pavilion by 13 Mile Marker area, my dad says, this is the side they did it. There could have been multiple places. But, if you look at history, if there's a quarry for adze there, if myself and my family members have found broken or whole adze here, it was a working area. So more than likely this could be one, and the other one could be another. [Eben Manini]

Military came in, shortly after the war, I'm not sure the exact date, built fallout and bomb shelters on the property, kinda in the direction I'm pointing here. There's, I think, about nine shelters. Some of the shelters are Quonset hut styles that are underground. And then there's a large one with three separate tunnels that go right into the mountain, opening up into large caverns where there was ammunition, food, whatever they needed during the war era. That one house, you might faintly see a white structure by the tall Cook pine, that structure there, that used to be the guard shack. That structure was purchased by the Akita family. They moved it from here to there on their property and then eventually they transferred their property to Judy Steward and then Judy Steward passed away and nobody's there on that piece of property but we're below and above them for our parcels we have. But that same Quonset hut structure is almost historic. It is historic, 'cause it's

from the '40s. But it was relocated there from the original location under here. And what my dad told me was that the guards would be posted there the whole time to make sure no one would go up into the munition area to steal, rob, or any enemy coming in to contaminate whatever food they may have had in there. It was all secured though. [Eben Manini]

In the '70s the plantation made a road up there. And as a little boy I would walk up there to find bullets, shell casings. So the military would train here during the Korean War, Vietnam War, also World War II so they leave a lot of shell casings. And as a little boy, I liked to clean up all of the shell casings and play army. So we'd go out and gather all these things, my brother and I, and we would see structures, wall structures, along that mountainside. And then I think it was in the mid '70s, late '70s, the plantation was going to make a road there. My dad asked them not to but it's not on our property and they did it anyway. So they destroyed some of the walls that were there. My dad wasn't very happy always with the plantations. They destroyed a lot of cultural sites and things of significance for our people. Sometimes they'd destroy it so nobody could come back to claim it and they could do whatever they want with it. And it is a sad thing but it is what our state was. The plantations made the state. The people were on their own with their own government. They were overthrown and we just live in this day where we gotta survive with what's still there. [Eben Manini]

I brought some people from Group 70 [G70] in that area and just randomly walking, I wanted to show them these trenches that were dug out during World War II, that they probably had covers over and a big gun as well, shooting out into the ocean to protect the island from invasion from the Japanese, and as we were walking back I found a broken adze. The adze was smaller, more for cutting, about two, three inches long, broken and an inch and a half wide. And the whole bottom cutting part was still there, the bottom was cracked off. Sometimes the animals step on it, the cattle, then it breaks it and the other piece might be nearby... And I was like, "Yeah, you can just find it on the ground." If you're looking, you'll see it. Can be randomly anywhere, 'cause they were here. And even as you're gardening you might pull up something as well. So it's definitely there. [Eben Manini]

Sites of Mana and Spiritual Significance

Growing up, as a young child, I don't know what it is, but I always had a sense, I could almost feel things that surround us. And back in my teens I decided to turn it off and kind of not, try not to get those feelings, even my dreams. A lot of my dreams that I used to have, those deep dream that are deep within my brain were usually accurate and I will leave it at that. do have, I have déjà vu and recurring dreams, I can actually see the future? I guess? I don't know. It's weird. But I chose to turn it off, that connection, that deep dream and sense of spiritual awareness. I have... but I've been working on opening myself back up to the feelings and the dreams and the visions. The top entrance, when you're coming down the top entrance, there is some areas that I can feel a presence, you know. Mana. And definitely I'm not one of those that's afraid. I'm still growing and still trying to understand that part of this area real deeply... So, one weekend, my aunty Kalili, and she lives on the Big Island, she was visiting and wanted to come mauka. I knew that she was on island, I asked my, uncle and aunty Marilynn, if they wanted to go up, have lunch. My aunty wanted to talk story. As we eat lunch, the second lo'i, on the side that's closest to us, there was like a pipe break. Like a 2" water pipe break. So, me being in the industry, almost 30 years of plumbing, out of the corner of my eye, well first of all I hear a big burst. And out of the corner of my eye I see water shooting up above the first lo'i. So in my head, I'm like, "ah shoot, pipe break." And in a split second before the water comes back down, I think, "there is no pipe." So the water shot up about 12 feet, sounded like a pipe bursting. Came down

at an angle, maybe from six o'clock to eleven o'clock, maybe, the water just parted across the second lo'i. And we were like what was that, both my aunty's wasn't really paying attention. They looked up and looked at me, I was still looking. And as soon as we stopped eating I walked down to the lo'i where it burst and looked down. And the leaves of the grass in that area weren't wet and it should have been. And the part where, the opposite end of the water ended, it splashed, easily at least two feet on the other side of the lo'i. And that should have been wet. But maybe five minutes after I finished my lunch and I walked there; nothing was wet. But we don't know what that was. But we do know that happened. So, I need to go find out from some of the others. I don't know, but it was strange, definitely. [Sean Andrade]

There's several heiaus, there's one big one overlooking Nualolokai. That's way at the tip. And you can feel it when you go there. It's the wind, the essence. You can just feel it. It's just a different sensation. [Leah Pereira]

History wise, a main path was the pu'u, straight mauka, it's kind of the leadway. Almost like how we have freeways, they had their own routes. The routes there, even to this day, on certain moon phases, can be active. That's all I'll say. Some people believe in, if there's road crossings, spirits hanging out, you can have an accident. There's parts of this way that the road is on where I can be sensitive at times, where I can feel other energies. As if, you're standing next to me, and your energy is very mild. Right now, as I'm experiencing. There's other times, where they could be ten feet away and they want to push you aside 'cause you're in the way. Now, whether you're in the way of what they're doing or whether you're in the way of what they want to do, we're not sure. Like you're not accepted here, 'cause you're an outsider, or we're trying to do something here, so you need to move. But that's the energy and feelings that you get. Sometimes you get a cold chill down your spine, it's just like, I gotta leave. Something's not right. [Eben Manini]

The area here is very spiritual. Definitely feel a lot of energy around you. I have my pets, I keep dogs, and they let me know if something's not right. Something's not right, a stranger comes by, they'd bark or the cattle would be looking at the direction that something's just not in place. Not that something's wrong necessarily, just that something's not in place... There's other places on the property, that there's still very strong spiritually, where, if I would come back four, five years later, my dog would still growl at the same spot with his hair all standing up. And I can feel negative vibes there too. So I'm feeling it, he's alerting me, and again, you can come three years later and it's there again. So, it's kind of hard to explain what's there but there's these energies that can be around specifically in spots on this mountain. It's unexplainable but you know inside that maybe I shouldn't stay here long. Growing up here, I wasn't allowed to be in some areas with this energy that I'm feeling. It's almost, you get this feeling as if they're saying, "Why are you here? You don't belong here." Now that I'm older, and here more often, it's ok with me, it just kind of asks, "Why are you here?" But not to leave, that kind of feelings. My son, he knows the spots that he refuses to go to. I can be in an area where he'll say, "I'm getting out of here. I don't like it. I'm out of here." And he leaves. I'm okay, but it's like you have that warning feeling. There's this pu'u there that has a lot of energy [gesturing]. That's one of my concerns with any projects. [Eben Manini]

And when the plantations came in they actually piped water lines up above the villages, diverted the water right past the Native people and drying them out of water. There's a lot of sad stories about the Hawaiians and a lot sadness is with the 'āina. And sometimes the energy is there when you set foot on the property. Even, there's times where there's a tree that falls on the fence and I have to clear it because we have a ranch here. Your saw will just not cooperate. Or you'll start cutting, you can get slapped by a branch, bad things can happen. Even though you're being as safe as you can. So sometimes I'll just feel this vibe,

I just let it be and do it another day. I've learned the energies you feel in different parts of this road, on moon phases, sometimes can be stronger than others and I'll decide to remove the tree from the fence on maybe a separate moon phase. [Eben Manini]

Even though you have your agenda, your prayer, whatever, still be open to the surroundings 'cause they know best, they were here before us, if they're whispering. And they want to communicate, listen before they stop communicating. But yeah, definitely, I found one. There's another one, to the left and down, it's on this boulder. Someone made a shrine and I think they spread their ashes in the area. 'Cause when I go there, I can feel this energy, feels like a spirit just hanging out there, person's real calm though, it's not like aggressive. And sometimes there's flowers put inside of the shell standing up and sometimes there's not, so one person, actually went up there and said, "Oh I found this shell on the edge," and took it. And, "If you took it, you better put it back." 'Cause that's for one of the people that probably liked to frequent there, probably before I was born, that's all I'll say. So it's there and we don't touch it. [Eben Manini]

And then of course she walks around the property, walks the dogs, checks the cattle and stuff. And she told me when I came back from the trip,... "You know there's an onion patch down here?" And I'm like, "Onion patch?" She's like, "Yeah, there's an onion patch in the pasture." "No we used to grow onions in the garden by the house." And she said, "No, really there's an onion patch there, and it's there today." So we walk down there, we get to this spot. It's only like a 10 by 10 spot and I can smell the onions. And you walk away and there's no smell. You walk, come back, you smell it. There's no onions, there's only grass. My entire life, over 50 years I can remember. I'll be 56 next week. There was never any onions there. Never ever. But I can smell onions. This is this kind of window in time, what the heck is happening here? And it never was there, but it's there. She was like, "It only happens certain times of the month." Like phases. In the pasture was like that. [Eben Manini]

There's a story that goes back in our family. My mom was inquisitive in things. There's about three fire pits on our property. She, reading a lot of history books, museum history, and reading about how they would go in and dig up pits and find fish hooks and stuff, she decided that she might want to try and find a fish hook. So she went out and tried to find one. And my dad said, "You're not supposed to do that." But you know relationships can be, like I said, what's on your agenda, you're gonna do it. So she figures out she's gonna do this. So, this is the truth and to teach other people. So she had, I think was three of her children, I think was myself, my sister, and my brother, kinda helped her, so I remember kind of grabbing the shovel and stuff, the trowel and bringing it up. And I didn't dig though, but I was in the area, scuffing around, looking around. The next day she woke up with four giant bruises on her body. Almost looked like human bite marks on her body. So, my dad said, "It was one bite per participant." So, I don't want them digging that. I don't want no bites myself. Sometimes you might think, "Oh no, that's just a coincidence." I have learned when it happens multiple times in life, some things are coincidence some are not. Again, respecting what is there. I am not an archaeologist. I'm just showing them things that I'm concerned of and don't want them touching. [Eben Manini]

My dad had experienced once, we have an irrigation system, we have to check the intake, but we live down there, so sometimes there's no water coming through the pipes. So he has to go mauka to go clean it, if it's clogged with leaves or mud if it rains or if it's windy like today. So he saddled his horse and went up, comes down in the evening, animals get water. And he had one time, it was a certain moon phase, and that's why our family kind of respects moon phases, that as he was going up, his horse, which was a perfectly tame, well-trained horse, was jumping, and jumping. He was going, and jumping. And if you're a cowboy, or if at least if you know a little bit about horses, if your horse is jumpy, you

immediately check what's wrong. Maybe something's stuck at the girth, back girth, girth strap, the saddle, maybe the pad's pinching, maybe there's a kūkū or something poking, irritating the animal. So he checked, like checked it when he's putting it on. He feels, there's nothing there. Sometime, if has a long tail, a stick will get stuck in the tail, it'll poke 'em in the back of the heel, so he checks the tail, he pulls the tail up, everything's clear, 'cause he was a longtime cowboy. And he keeps going. And the horse keeps doing it. But what he notices is, the ears keep twitching, back and all around and the head's jerking around. Like it's nervous, it's scared... And he got to a point where the animal almost wanted to buck him off, so he decided he's going to turn around, he's not going to check the water today. And he comes back down, but he doesn't come back down on the road, 'cause as he's coming down the road the horse is jumping around again. He goes on the shoulder in the grass and the horse mellows out. And he comes all the way back down. And he told my mom by the time he got home he said, "Well, I'm going to check it tomorrow, 'cause Jaimee," Jaimee was the horse. "Jaimee was spooked, it felt like something was stabbing him or poking him with a spear." That's what it felt like, like someone was poking him with a stick, or ihe. Again, we learned from phases. We just learned that well, this is kinda that moon phase. So, we'll wait for tomorrow. We'll just let it be. It's not important to do it now. Yeah? And again, it's kind of that same sense, if you have a projection plan, and you want to get this done, but it's not on the date or the moon, it's not going to kill you to wait, just wait, just respect what's there. [Eben Manini]

Traditional Practices

Yeah, there was maile and mokihana. 'Cause where the maile grows, there usually was mokihana nearby. [Leah Pereira]

I know that, going back to the hunters part. There's illegal hunting in the area. I know people are still coming through. It's a hard thing to deal with. Because you have generations of, not only Hawaiians, other cultures, just in general, that are hunters. And they've been hunting in that area for kind of forever, so that's... sort of a battle. I don't want to say, keep people out. I'm not about that. I want to stop the illegal hunters from being in the safety/no hunting zones, the scary part of it is the safety aspect. [Sean Andrade]

We have wet and dry. 90 percent of it is lehua. We understand that it's the toughest of all to grow and care for. But we definitely want to stay with lehua. We do have some 'ele'ele. We do have some Tahitian dryland, some Pohnpei dryland, a little bit of stuff. For early consumption, instead of waiting for nine months. We're hoping to eat, to harvest, from the land. [Sean Andrade]

That used to be a beautiful native forest back in the day. That area's called Mokihana. And if you know about Kaua'i, maile and mokihana makes the lei for this island.... A lot of the property you're looking at, most of the native plants, have been disrupted. They ran cattle in here over a hundred years so they ate a lot of the vegetation that was here. Yet, from where we're standing, there's at least five locations that we're looking at here, little, micro-climates that have maile growing, but not a lot but it's there. The deer eat a lot of it too... But we definitely have a'ali'i, pūkiawe that can be used in lei making. I've used that before myself. 'Uki'uki. We don't have any kauila growing anymore. We had the last kauila tree growing on our property, the dead stuff is still there, it's standing, it snapped the whole tree in half. That one broke in the '92 hurricane and then no more kauila after that. But we can even take an introduced plant and put it in lei making. So, it's what you want as a designer, as a gatherer to put in. No one ever stopped anyone from gathering that I know of. But I know you can't just go out picking without proper permission and that's part of their protocol as well. I think, and hope, that they still allow people to do it and mālama the area

that they gather from. We have 'iliau here, if you've never seen it. The small, spiky, like the Dr. Seuss one, that's 'iliau. It's related to the silversword. [Eben Manini]

But there's an area where had a native plant, Hawaiians would use 'em to make saddle out of. Very resinous type wood. It grows on this land here, it grows on one spot. [Eben Manini]

My dad always taught me, he was a saddle-maker. Cowboy, saddle-maker, jack of all trades. He would say, "If you were to take this wood and put it into a saddle..." Say, if a tree falls down, if you leave it on the ground, then within five, ten years it's completely rotten, compost. It puts nutrients back in the soil, and said, "If you want the tree to live even longer if it fell, take a piece of it, put it into a piece of art. It'll continue to live on in history." So some of the saddles that he had, my brother has them down at his house, nearing hundred years old. I have a saddle that he made. About 70 years ago. I have that saddle. I still have it by the house. Anybody looks at it, "Ah, it's just a saddle." We know the history of it. And the history of it, we know where the maku came from, that's the front part, the horn. We know where the stick, where you sit on, where the seat came from. The rawhide if it's still on, we know which bull it came from. All the stories he shared with us. I didn't see the tree, I wasn't born, but through history I remember his story how he acquired this wood, and how long he took before he put into this work of art and then again it continues to live on. Even like poi boards too. That could be useful too and it goes in the history. [Eben Manini]

Change Through Time

Remember, from the early '70s, there was just an old wooden corral that was in that location. Now it doesn't even exist but the cowboys from back in the 1920s, they would roam cattle through this whole mountains and this area as well and that would be one of their areas, would be, corral the animals into, so they could control the amount they keep on the mountain and remove if they need to. So that was basically the main purpose. [Eben Manini]

The changes that I've seen, is we've gotten a lot drier. In three of the valleys on our property we had water, natural spring water... One valley was all year round. Two valleys would dry up in the summer and reactivate in the winter. Right now none of this flows through our property anymore. The spring that still produces water, still has water, it doesn't flow very far, maybe 100 or 200 yards from its source and then it just dries out into the ground 'cause it's so dry. And also, we have a lot of eucalyptus trees. Eucalyptus absorbs a lot of water similar to albizia. So they're pulling a lot of water and they'll just suck the whole area dry. So the water flow has lessened drastically. [Eben Manini]

The trees have changed. The '82 hurricane damaged a lot of trees, the '92 devastated the area. The only place that we still had native trees were in little valleys, little pockets. Not the main valley. The main valleys were like a funnel, everything was stripped dry. There was no leaves on any of the trees, even lantana was stripped dry. Everything. Only in little pockets. We lost a lot of our native canopy. We used to have 'ōhi'a lehua trees. We lost a lot of them. By our house there's still five more left. Below us, just in the shadow, off of the mountain, there used to be a beautiful ridgeline there. And the 'ōhi'a were large. For Kaua'i large is about a 55-gallon drum in diameter. That's very old. Well over a hundred years old, maybe even 200 years old. There were a lot of large ones there. Almost all of them got destroyed in the '92 hurricane so very few left. [Eben Manini]

So I grew up in the '70s right behind our house, would play with our toys, there was i'iwi, 'apapane, frequently there in the trees I would play under. After the '82 hurricane only 'apapane. After the '92, once in a great while 'elepaio. 'Elepaio is common to Kaua'i. Not so much on O'ahu. Right now I don't even hear 'elepaio down in my area, 'elepaio gonna

be closer to the Pōhaku Manō area where there's rainforest, there'll be more 'elepaio there. But i'iwi, 'apapane, all pau. Gone, in my lifetime. That quickly. It's gonna keep moving up the hill 'cause we didn't have mosquitoes at our house. In the late '70s we actually had to put a screen. Was an old ranch house with sliding window, then we had to put screen 'cause mosquitoes started to come in. Mosquitoes are slowly starting to get up the hill and even getting into Koke'e area. Most of the birds there will be affected too. What replaced a lot of the trees is eucalyptus, Monterey cypress, black wattle. Black wattle trees are really common. When the wind blows they break, it's really brittle. A lot of the pu'u now, majority is going to be black wattle on a lot of the pu'u along with silver oak. The lime green's gonna be the *Acacia koa*. The valley's now all strawberry guava. Definitely has changed a lot in the last forty, fifty years. [Eben Manini]

A lot of our practitioners have died. And we had in Hawaiian families that were here forever... we had two kahuna. One from Hanapepe Valley and one from Waimea Valley... [Leah Pereira]

Prior to that, when my grandchildren were growing up, we used to take a hike up there and spend the day there, we picnicked and stuff. And my husband would walk around 'cause he liked to go hunting. And so, I stayed down. I'd find a nice spot and stay with the kids. But it's very dry. There's nothing up there and yet before, when we were young, there was spots of green areas. 'Cause they used to have lots of maile up there, in the little valleys. We had tricklings of water and several people used to go up there and pick the maile. I don't think they have maile anymore. [Leah Pereira]

Changes that I can see is basically that, at least water is going back to the river. Not a lot of waste. I know with the hydro project, if it does go through it's going to make that even better as far as waste goes. They're talking about piping, so a closed system. That's going to be more efficient. I don't think there's any negative impacts from when I was younger to now. I think when I was younger, there was a lot more water, that's for sure. As I got older, there's less. Water's being diverted all over the place for agriculture. That kind of slowed down. I can almost see where it was when I was a child, with the river. So, at this point I think it's better. [Sean Andrade]

Concerns

'Cause people are hunting, and that's a concern. If we bring people in there to help us and start doing community days, whatever we're planning in the future, we gotta get the community involved. You know? That's the only thing I'm a little scared of. Having a school there helping us on the weekend and we get hunters in the area. That's the only thing I'm worried of, is how we let our community know we're out there. [Sean Andrade]

We played out there as kids... And during that time too, they had little ammunition dumps in there. Cars and trucks could go in there, they're so big. There's several in there. They're still there actually, it's in disrepair. Falling apart. [Leah Pereira]

Some of the hunters that go up there don't believe in my dad's stories. So once I went up there with a hunter, and I found the shrapnel on the ground. I picked up the shrapnel and I told him to keep it, "So you could spread your story that you saw the shrapnel. It didn't come from my dad or me, you saw me pick it up from right here, here, share the story"... My dad worked for the Robinsons on this side [gestures], that particular area, the Robinsons leased it out after the war, ran cattle on the property for some thirty odd years, then the state took it back and opened it up for the public for hunting. The theory was, gonna let animals step on it, gonna let the animal step on it instead of a human. And you gotta think about it, well, yeah, I guess so. But before Robinson came in, the military did was, they burnt the whole mountain area there, and that's what really killed off the native

forest that was there. All of the mokihana and the other native species. And then they went in, according to my dad, with minesweepers, swept the whole area and said, “Ok, it’s clear.” But yet, they still didn’t open it up to the public. As it grew back, they let Robinson run cattle in. Over the years that my dad was a cowboy there, I think he said on two occasions they found an ordinance and one of the two occasions, when the demolition crew flew over from O’ahu, they set a small charge next to it, one of it blew up, one of it didn’t. Was a 50/50 shot. It still could be live. But for sure on this side [gestures], that happened. Military was everywhere. It’s not just Kaho’olawe. And again, the old families know because they were alive and they pass it to the next generation. [Eben Manini]

I did mention already in some of the meetings, down below there’s probably gonna be deer problems so you’ve gotta figure out how to control your deer or goats. I’m sure eradication, everyone would be happy to do that but then it’s gonna be safety, whether it’s not shooting your neighbor, or your neighbor’s property. That has happened in the past. It’s all documented with our paperwork we filed. Someone shot my horse once. I thought it was done intentionally, I was pissed with everybody that would come in there illegally to hunt. [Eben Manini]

That’s one of my concerns with any projects. I told the hydroelectric guys, you know, you’re not putting anything on that mountain. At all. If you gonna try, I’m gonna fight you ‘til the day I die. I’m not gonna allow you to put anything there. [Eben Manini]

Recommendations

That’s one of my biggest concerns for the kuleana part, is making sure people know what they’re getting. We’ve got other projects like in Hanapepe, there’s land in Wailua, in Anahola, that’s easily accessible. And a lot of infrastructure that’s already there. So for our kūpuna, that’s on the list for 30 plus years, some of them may not be able to get up to Pu’u ‘Ōpae. I’m thinking DHHL should be focusing on those projects. Pursue the hydro project to see if it’s going to work, then decide if they’re going to do kuleana up there. [Sean Andrade]

Maintaining that, maintaining the beauty of the place, that’s one of the concerns. Keeping the beauty of the area. [Sean Andrade]

And I made it clear with them that we have to keep... the upper half, the northern part of the project is at Pu’u Moe. And I did mention to the people surveying, the original plan was that they were to keep it on or in the existing ditch line that’s there so it wouldn’t have any more impact on the surrounding areas. However, they need to go off of the path of the ditch in some areas just because of the way the route of the water line needs to be. So they staked out some areas; I never walked with them. They’re saying they’re going to keep it away from my house. My question was, please stay away from any intact native forests. If it’s a eucalyptus forest, it’s fine, if it’s native, even if it’s on the route, try to reroute it if you can. There were two areas specifically where they showed me on paper, their proposed area and I told them be cautious in two of the areas. They did the survey and then I saw the ribbons and flags right where I asked them not to put it in one spot. So I called up Dawn, she said she was gonna send the surveyor back out, he met up with me at that one location and I mentioned to him, “Where exactly is this gonna go, ‘cause it seems like it’s right through one of a fire mound, a charcoal mound.” He said he would just shimmy it over a little and see where it goes from there. [Eben Manini]

But I told them, this area, you have to be very cautious. And, accidents do happen, but this is an area, I don’t want any accidents. So, they gotta figure it out, what is needed there and how they’re gonna get by that one area. Can barely see it from this location but where these koa are and this eucalyptus, there’s actually one behind the eucalyptus, where these mounds

are, these fire pit mounds. There's about four or five there. Now just so happens, right next to the ditch, the existing ditch, there's a pit there but then there's a metal can there. So one of the guys said, "This might have been there through the war time, from the military." And I said, "I don't know. But I'm letting you know that this area here, is known to be a pathway." This kind of leads back to my topic earlier. There's some areas where the energy's stronger and some is not. The energy I'm feeling, is it ancient energy or modern energy? It's not for me to decide, but I'm letting them know if you're not putting it on the existing ditch, then be cautious of anything you touch there. It was also suggested if they were to dig down and take charcoal and earth matter and determine maybe the age, or what type of wood they were actually burning. I did mention to them that I don't want anybody digging in any of the pits. [Eben Manini]

Then going down, they said they're not going on the pu'u. But as they come around the corner and drop down to the reservoir there's an existing ditch, again they're supposed to put the line in the ditch. They said one section, they're gonna go off the ditch and I told them be careful 'cause there's an area there that's not good either. That one's bad, I had trouble with my horse in that area. He was just really acting up a lot. [Eben Manini]

But, so that was the two main areas that I had concerns of, was there, and the middle by the pits. And they know the top, it's supposed to go one certain spot, I hope they listen. Again, I just saying to go in that spot 'cause that's the existing area. If it was fine for the last, I think in 1922 or '25 they made this system. You know, going down... But if you put it on the same spot, I think you'll have less trouble in destroying archaeological sites that could be under brush, debris, like how we're seeing back here. Leaf litter, you can't tell anymore. [Eben Manini]

I've learned the energies you feel in different parts of this road, on moon phases, sometimes can be stronger than others and I'll decide to remove the tree from the fence on maybe a separate moon phase. So we learn every day in life, we learn from each other, whether you read about it or someone shares a story, of what phases are good for planting or working and sometimes we need to start to implement that too. It may not matter in the city, but out here I think it matters a lot. Because there's things that communicate with you when you're by yourself. So you gotta listen. If you don't listen, you're disrespecting. And sometimes when you don't listen, then it stops communicating. So we can't lose that sense of communication and trust that we're going to do whatever is right, whatever it might be. [Eben Manini]

I kinda put the word out in the community that if the hydro guys cut the trees, to talk to groups or organizations if there's some wood that they could use, to remove it before the heavy equipment come in, if they know that's the line they gonna cut. And they gonna clear it, you may as well try and use the wood.... That's my hope, that even if it's a small tree like this, you could still make something out of it. Giving it to a hālau, to an organization, that they could make something with it, at least they can say, this came about from the hydro project that came through but at least we get to use the wood and not just let it decompose back into earth. They can let the eucalyptus decompose back into earth. But not really a piece of wood that can be used for a tool or implement that can be preserved. [Eben Manini]

And I mentioned to them, when I was young had burials in one area. I went back to go look for some open caves. When I went back only had goats living in all the caves. All messy. I couldn't find any iwi anymore. But I told them it used to be a certain area, I sketched a map for them. They decided they're not gonna go there, they're gonna go down the valley instead. Just avoid that whole area completely. 'Cause they don't know and I don't know what was there. They just said they're gonna go another route, just avoid it. So in my

opinion they're trying their best to help to do the least impact possible. We hope that it's gonna be done correctly. [Eben Manini]

A tsunami center would benefit the whole west side community. 'Cause when there's a tsunami warning every year or so, the whole entire population has to evacuate, 'cause we all sea level yeah? There are no facilities: bathrooms or anything. And lot of them hang out by the road to Pu'u 'Ōpae, you know? So, they need a comfort station to get drinks and go to the bathroom. Maybe even shower. 'Cause we've spent many hours up there. And sometimes we go during the night, we come home 7:00 in the morning. When you're coming down the hill, there's toilet paper, all alongside the road. That's pretty disgusting, you know. 'cause there's no bathrooms and so, I asked Hawaiian Homes... give me 20 acres and we're gonna build a comfort station for tsunami evacuation. That would be number one on our plan. And they said, ok, but where are you gonna get the money? Don't worry, we have grant writers, they'll get the money. [Leah Pereira]

Summary of Ethnographic Survey

The interviewees shared their extensive knowledge and experiences of the Pu'u 'Ōpae area. Several place names were shared, including links to the legendary menhune people who once called this area home. Traditional practices identified for the area include the gathering of maile and mokihana, as well as the collecting of other plant materials by hula hālau. Lo'i kalo restoration is ongoing near the Pu'u 'Ōpae reservoir. Koa wood and other native trees traditionally used in paniolo saddle making were discussed as important natural resources in the valley. Hunting is also a subsistence practice that occurs in the project area.

Interviewees identified archaeological sites within the project area, such as, a heiau on Makahoa Ridge, fire pits, and quarries that were used for making adzes. Additional sites of significance include Pōhaku Manō and burial caves with iwi. Artifacts are often found from both the military era and from traditional times. Through many stories and sharing of their personal experiences, the interviewees showed that the area holds many spiritual sites that maintain high levels of mana, and communication with those that have come before. Some sites were noted to have consistency, with constant spiritual presence/communication, while others were noted to be connected to moon phases. It was recommended that these sites be respected and preserved in any future development.

Interviewees remarked on recent changes in Pu'u 'Ōpae including decreased levels of running water and thus, increased dryness, diminishing populations of native birds, loss of older native trees during high wind events, increasing numbers of non-native plant species, destruction of cultural sites during the plantation era, and passing of kūpuna with knowledge on the mo'olelo and histories of this area. It was recommended that any planning for this area be done with those that are familiar with the sites of mana or that are sensitive to these energies. It was also recommended that activity planning be done with reference to moon phases. When possible, development should avoid quarry sites, fire pits, and sites of remnant native forest. It was recommended that any roadways or water systems placed should follow pre-existing ditch/road tracks to avoid harming cultural and spiritual sites further. If native trees are cut down in the process of land clearing, the material should first be made available to the community for craftsmanship use. It was suggested that as part of giving back to the community, land should be made available for the development of a tsunami evacuation center that would benefit the whole west side community in times of tsunami warnings, as well as reduce the amount of littering by providing bathroom facilities to the community.

There are significant safety concerns regarding the possibility of unexploded ordinance and shrapnel that may remain scattered across the project area and may have been concealed over time by leaf

litter. Other concerns are inclusion of the hunting community to the planning of community events and development to ensure safety as well as concerns regarding sufficient water availability in the future. Above all, the interviewees ask for respect and reverence for this area during project planning.

SUMMARY AND RECOMMENDATIONS

Waimea Ahupua‘a has a long history of craftsmanship and human settlement, tracing back to the times of the legendary menehune. Important traditional archaeological sites include heiau, habitation areas, rock quarries, places of wa‘a production, transportation routes, and agricultural zones. In the historic period, Pu‘u ‘Ōpae was used for sugar and rice plantations, as well as ranching. The military also occupied the area and used it for target practice from World War II through the Cold War Era. Today, Pu‘u ‘Ōpae continues to be used for ranching, hunting, and plant gathering. This study highlights the unique history of Pu‘u ‘Ōpae and demonstrates the importance of this place to the community. Three interviews with community members were conducted so that they could share their mana‘o and help to identify any potential cultural resources or practices that might be affected by the proposed construction and offer recommendations on how these affects might be mitigated.

Cultural Resources, Practices, and Beliefs Identified

Archival research and ethnographic interviews compiled for the current study revealed that Waimea was a culturally significant area with many of the natural resources which supported traditional subsistence activities and habitation. In the project area, this would have centered on kalo and sweet potato farming. Previous archaeological research in Waimea has identified a number of heiau in the region, although only one, Makahoe, is thought to be within the current area of study. This was described as a village shrine and is associated with various petroglyphs. Other heiau, as well as agricultural, habitation, and human burial sites have been previously recorded for the region.

Archaeological sites were also identified within the project area by the interviewees. These include caves with iwi, fire pits, adze quarries, plantation-era sites, and heiau. Additional sites of significance include Pōhaku Manō, traditional trails, and pu‘u. Military bunkers and gun mounts were noted in the area, and there may also be shrapnel and unexploded ordinances left behind within the project area or nearby. Cultural sites were also mentioned by the interviewees, where mana or a spiritual presence can be felt, some during certain moon phases, and some at all times.

The interviewees identified several traditional cultural practices that are carried out in the project area today including hunting, as well as the gathering of maile and mokihana, and plants for lei making. Important natural resources were also identified, including fresh water, native and invasive forests, native birds, and lo‘i kalo.

Potential Effects of the Proposed Project

Interviewees were concerned that the project might affect quarry sites, fire pits, native forests, and other sites of mana. It was proposed that any new roads or waterlines be placed at an existing roadway or ditch to avoid any further damage to cultural and spiritual sites. One interviewee mentioned that gathering areas are currently accessible, however they hope this will still be the case after the proposed project is completed. Another concern mentioned during interviews was that hunting access may be affected. Concerns regarding future water availability were also raised, as this resource has become more and more scarce over the years.

Confidential Information Withheld

During the course of researching the present report and conducting the ethnographic survey program, no sensitive or confidential information was revealed. No confidential information was withheld from the current report.

Conflicting Information

No conflicting information was obvious in analyzing the gathered sources. On the contrary, a number of themes were repeated such as the name and location of Makahoe Heiau and mo'olelo about menehune. Information was generally confirmed by independent sources.

Recommendations/Mitigations

In general, the interviewees were concerned about the negative impacts to cultural and spiritual areas, though it was noted that some have been previously destroyed or damaged during the plantation era and modern ranching activities. It was proposed that any new roads or waterlines be placed at an existing roadway or ditch to avoid any further damage to these areas, and that fire pits not be excavated so that they remain preserved in place. Continued access to the area for those hunting and gathering was also mentioned.

To give back to the community, it was suggested that land should be made available for the development of a tsunami evacuation center that would benefit the whole west side of the island in times of tsunami warnings, as well as reduce the amount of littering by providing bathroom facilities to the area. One interviewee recommended that any trees cut down during the project be given to residents for carving, building, and other uses. Above all, the interviewees ask for respect and reverence for this area in its planning.

Summary and Conclusion

In sum, background research and oral history interviews identified several archaeological resources within and outside the project area that may be affected by the proposed project. An archaeological inventory survey is recommended to gather more information on the surface and possibly subsurface cultural resources within the study area. The community should be kept informed and their concerns and recommendations should be considered during all phases of the proposed work. Pu'u 'Ōpae is clearly valued, both for its traditional use and history as well as contemporary role in hunting, ranching, plant gathering, and lo'i restoration.

GLOSSARY

‘a‘ali‘i	<i>Dodonaea viscosa</i> , the fruit of which were used for red dye, the leaves and fruits fashioned into lei, and the hard, heavy wood made into bait sticks and house posts.
ahupua‘a	Traditional Hawaiian land division usually extending from the uplands to the sea.
‘āina	Land.
‘akōlea	<i>Athyrium microphyllum</i> syn. <i>A. poiretianum</i> , a fern native to Hawai‘i.
albizia	A genus of trees invasive to Hawai‘i, particularly <i>Falcataria moluccana</i> .
ali‘i	Chief, chiefess, monarch.
‘apapane	<i>Himatione sanguinea</i> , a species of Hawaiian honey creeper characterized by their black and red feathers. Found throughout the Hawaiian Islands.
‘auwai	Ditch, often for irrigated agriculture.
‘ele‘ele	Black; a variety of taro with a blackish leaf stem.
‘elepaio	<i>Chasiempis sandwichensis</i> , an endemic bird part of the flycatcher family.
eucalyptus	Forest trees of the genus <i>Eucalyptus</i> , more than 90 species of which have been introduced to Hawai‘i.
hale	House.
hālau	Meeting house for hula instruction or long house for canoes.
heiau	Place of worship and ritual in traditional Hawai‘i.
hinana	Young ‘o‘opu, traditionally caught in nets and a prized food fish.
hoa‘āina	Native tenants that worked the land.
ho‘okupu	Tribute, offering, religious gift.
hula	The hula (traditional Hawaiian dance), a hula dancer; to dance the hula.
‘i‘iwi	<i>Vistiaria coccinea</i> , Hawaiian honey creeper whose red feathers were used in feather work.
ihe	spear, javelin, dart.
‘ike	To see, know, feel; knowledge, awareness, understanding.
‘ili	Traditional land division, usually a subdivision of an ahupua‘a.
iliau	<i>Wilkesia gymnoxiphium</i> is an endemic plant related to the ‘āhinahina or silversword. It lives only in certain mountainous areas of Kaua‘i.
iwi	Bone.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.
kalo	The Polynesian-introduced <i>Colocasia esculenta</i> , or taro, the staple of the traditional Hawaiian diet.

kama‘āina	Native-born.
kanikau	Lamentation, dirge, mourning chant; to mourn, wail, chant.
kaula	The name for two types of buckthorn trees native to Hawai‘i (<i>Alphitonia ponderosa</i> and <i>Colubrina oppositifolia</i>). Produced a hard wood prized for spear and a variety of other tool making.
kawakawa	The bonito, or little tunny fish (<i>Euthynnus yaito</i>).
kawelu	The grass <i>Eragrostis variabilis</i> ; also a seaweed that resembles this grass.
koa	<i>Acacia koa</i> , the largest of the native forest trees, prized for its wood, traditionally fashioned into canoes, surfboards, and calabashes.
kuhina nui	Prime minister or premier. Ka‘ahumanu was the first kuhina nui. The position was abolished in 1864.
kukū	Thorn, spine, barb,; prickly, thorny; jabbed or pricked.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.
kupuna	Grandparent, ancestor; kūpuna is the plural form.
lantana	The historically introduced shrub, <i>Lantana camara</i> .
lehua	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments; a taro variety that makes red poi.
lei	Garland, wreath; necklace of flowers.
leina	To leap or spring. Leina ka ‘uhane or leina a ke akua were places where spirits leapt into the nether world.
lo‘i, lo‘i kalo	An irrigated terrace or set of terraces for the cultivation of taro.
Māhele	The 1848 division of land.
maile	<i>Alyxia olivaeformis</i> , a fragrant native shrub used for twining.
maka‘āinana	Common people, or populace; translates to “people that attend the land.”
makai	Toward the sea.
māka‘ika‘i	To stroll, visit, or tour; to look upon; spectator.
makena	Mourning, lamentation; to weep for joy, lament, or wail,;
mākū	The koki‘o, a variety of native hibiscus.
mālama	To care for, preserve, or protect.
mana	Divine power.
mana‘o	Thoughts, opinions, ideas.
mauka	Inland, upland, toward the mountain.
mele	Song, chant, or poem.
mele inoa	Name chant, composed to honor someone.

menehune	Small people of legend who worked at night to build structures such as fishponds, roads, and heiau.
mokihana	The <i>Pelea anisate</i> tree known to grow only on the Island of Kaua‘i. The fragrant green berries are used in leis.
mo‘olelo	A story, myth, history, tradition, legend, or record.
mō‘ī	King.
moi	The threadfish <i>Polydactylus sexfilis</i> , a highly prized food item.
‘ōhai	The monkeypod tree, <i>Samanea saman</i> .
‘ohana	Family.
‘ōhi‘a lehua	The native tree <i>Metrosideros polymorpha</i> , the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
‘ōlelo no‘eau	Proverb, wise saying, traditional saying.
oli	Chant.
‘ōpelu	Mackerel scad (<i>Decapterus pinnulatus</i> and <i>D. maruadsi</i>).
o‘opu	Fish of the families <i>Eleotridae</i> , <i>Gobiidae</i> , and <i>Bleniidae</i> .
palaoa, niho palaoa	Pendant fashioned from whale tooth worn by Hawaiian royalty.
pali	Cliff, steep hill.
paniolo	Cowboy.
pau	Finished.
pō	Night, darkness, the realm of gods.
poi	A staple of traditional Hawai‘i, made of cooked and pounded taro mixed with water to form a paste.
pūkiawe	Refers to a variety of native trees and shrubs (<i>Styphelia</i> [<i>Cyathodes</i>]).
pu‘u	Hill, mound, peak.
silver oak	The large tree <i>Grevillea robusta</i> .
silversword	<i>Argyroxiphium sandwicense</i> , known commonly as Āhinahina, found only in the higher elevations on the islands of Maui and Hawai‘i.
strawberry guava	The invasive tree <i>Psidium cattleianum</i> , originating in Brazil and brought to Hawai‘i in 1825. Fruit are edible and are used in juice, and the tree is used as an ornamental and for firewood.
ua	Rain, rainy, to rain.
‘uki‘uki	The <i>Dianella sandwicensis</i> plant has long, narrow leaves with clusters of white or bluish flowers. The blue berries were used to dye kapa.
wa‘a	Canoe, paddlers.

REFERENCES

- Akana, C.L. and K. Gonzales
2015 *Hānau Ka Ua Hawaiian Rain Names*. Kamehameha Publishing, Honolulu.
- Armstrong, R.W. (editor)
1973 *Atlas of Hawaii*. University of Hawai'i, Honolulu.
- Bacon, P.N. and N. Napoka (editors)
1995 *Na Mele Welo: Songs of Our Heritage*. Translated by M. K. Pukui. Bishop Museum Press, Honolulu.
- Beamer, B.
2008 *Na wai ka mana? 'Ōiwi Agency and European Imperialism in the Hawaiian Kingdom*. Diss. University of Hawai'i, Honolulu.
2014 *No Mākou Ka Mana Liberating the Nation*. Kamehameha Publishing, Honolulu.
- Bennett, W.C.
1931 *The Archaeology of Kauai*. Bishop Museum, Honolulu.
- Carpenter, A.
1993 *Fieldcheck of Archaeological Site, Waimea Canyon Lookout, Waimea Canyon State Park, Kaua'i*. Division of State Parks, Department of Land and Natural Resources, Honolulu.
- Carpenter, A. and M. Yent
1994 *Archaeological Reconnaissance Survey of a Portion of Kahuama'a Flat, Kōke'e State Park, Hanalei District, Island of Kaua'i (TMK:5-9-01:por.1 and por.16)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.
- Chaffee, D.B. and R.L. Spear
1993 *An Inventory Survey of a Parcel of Land in the Pu'u Ka Pele Forest Reserve, Waimea Canyon Park, Waimea Ahupua'a, Waimea, Island of Kaua'i (TMK:1-2-01:4 partial)*. Scientific Consultant Services, Inc., Honolulu.
- Ching, F.
1974 *Inventory of Historic Sites Records #50-30-01-19 through #50-30-01-22*. Department of Land and Natural Resources, Honolulu.
1978a *Archaeological Reconnaissance of Kukui Trail, Waimea Canyon State Park, Kona, Kaua'i Island*. State Historic Preservation Division, Honolulu.
1978b *Archaeological Reconnaissance of Proposed Mule Staging Area, Waimea Canyon State Park, Waimea, Kona, Kaua'i*. State Historic Preservation Division, Honolulu.
- Collins, L.F.
2007 "Waimea, Kaua'i." *Volume One: Hawai'i's Historic Corridors*. Historic Hawai'i Foundation, Honolulu.

- Dowden, S. and P. Rosendahl
 1994 *Archaeological Inventory Survey: Mountaintop Sensor Integration and Test Program Project Area, Land of Waimea, Waimea District, Island of Kauai (TMK:4-1-2-01:6;4-1-4-01:13;4-5-9-01:1.6)*. Paul H. Rosendahl, Inc., Hilo, Hawai'i.
- Foote, D., E. Hill, S. Nakamura, and F. Stephens
 1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. United States Department of Agriculture, Soil Conservation Service. Published in cooperation with the University of Hawaii Agricultural Experiment Station, Washington, D.C.
- Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price, Y.-L. Chen, P.-S. Chu, J.K. Eischeid, and D.M. Delparte
 2013 *Online Rainfall Atlas of Hawai'i*. Bulletin of the American Meteorological Society 94, 313–316, doi: 10.1175/BAMS-D-11-00228.
- Hammatt, H.H. and G.K. Ida
 1993 *Archaeological Assessment of Two Locations for a proposed State Agricultural Park Waimea, Kaua'i*. Cultural Surveys Hawai'i, Kailua, Hawai'i.
- Handy, E.S.C., E.G. Handy, and M.K. Pukui
 1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bishop Museum Press, Honolulu.
- Harvey, F.E.
 1900 *Map of the Island of Kauai Hawaiian Islands*. Hawaiian Government Survey. Register Map 1395. Scale: 5,000 feet = 1 inch.
- HSPA (Hawai'i Sugar Planter's Association)
 1880–1946 Register of the KEKAHA SUGAR COMPANY 1880–1946. Accessed online via the University of Hawai'i at Mānoa Special Collections, November 2017.
 <http://www2.hawaii.edu/~speccoll/p_kekaha.html>
- Imlay, L.E.
 1891 *Map of Kauai Compiled from Government Surveys and Private Surveys of Lands Belonging to Gay and Robinson*. Register Map 2246 Scale 3,000 feet = 1 inch.
- Kamakau, S.M.
 1991 *Tales and Traditions of the People of Old: Na Mo'olelo a ka Po'e Kahiko*. Translated by M.K. Pukui. Edited by D.B. Barrere. Bishop Museum Press, Honolulu.
- 1996 *Ke Kumu Aupuni*. 'Ahahui 'Ōlelo Hawai'i, Honolulu.
- Kanahele, G.S.
 1995 *Waikiki 100 B.C. To 1900 A.D.: An Untold Story*. The Queen Emma Foundation, Honolulu.
- Kawachi, C.
 1994 *Archaeological Field Check of Kauhao Ridge as Part of the Widening of Forestry Firebreaks Project, Waimea Canyon State Park*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

- Kekaha Sugar Co., Ltd.
1930 *Plantation Map of Kekaha Sugar Company Limited*. Civil Engineering and Survey Dept. Scale on Map.
- Kikuchi, W.
1982 *Field Inspection of Makaha Ridge, Waimea, Kaua'i*. State Historic Preservation Division, Honolulu.
- Kitteridge, C.S.
1878 Untitled map of the Waimea, Kaua'i vicinity. Register Map 1371. No scale.
- Maly, K. and O. Maly
2003 *He Wahi Mo'olelo No Ponahawai A Me Punahoa Ma Hilo: A Collection of Traditions and Historical Accounts for Ponahawai and Punahoa, District of Hilo, Island of Hawai'i (TMK 2-3-44:19; 2-3-49:53; 2-3-37:01)*. Kumu Pono Associates, Hilo, Hawai'i.
- McGerty, L. and R.L. Spear
1997 *An Archaeological Inventory Survey of a Parcel of Land Near Kekaha in the Ahupua'a of Waimea, District of Kona, Island of Kaua'i (TMK 1-2-02)*. Scientific Consultant Services, Inc., Honolulu.
- McEldowney, H.
1993 *Archaeological Survey for a Proposed Expansion of the Mana Quarry Site Mana, Waimea, Kauai TMK: 1-2-02:1*. State Historic Preservation Division, Honolulu.
- McMahon, N.A.
1993 *Archaeological Reconnaissance Survey for Emergency Watershed Protection along Ridge Roads in the Koke'e Uplands, Koke'e, Waimea District, Island of Kaua'i*. Department of Land and Natural Resources, Honolulu.
- Moffat, R.M. and G.L. Fitzpatrick
1995 *Palapala'aina: Surveying the Mahele*. Editions Limited, Honolulu.
- Morgan, J.R.
1996 *Hawai'i: A Unique Geography*. Bess Press, Honolulu.
- Nakuina, M.K.
2005 *The Wind Gourd of La'amaomao*. Revised Edition. Kalamakū Press, Honolulu.
- Nogelmeier, M.P.
2006 Commentary. *The Epic Tale of Hi'iakaikapoliopele*. Awaiaulu: Hawaiian Literature Project, Honolulu.
- Pukui, M.K.
1983 *Ōlelo No'eau: Hawaiian Proverbs & Poetical Sayings*. Bishop Museum Press, Honolulu.
- Pukui, M.K., S.H. Elbert, and E.T. Mookini
1974 *Place Names of Hawaii*. University Press of Hawai'i, Honolulu.
- Sai, D.
2008 *The American Occupation of the Hawaiian Kingdom: Beginning the Transition from Occupied to Restored State*. Diss. University of Hawai'i, Honolulu.

- Sinoto, A.
1978 *Cultural Reconnaissance of Rock Borrow Areas Near Kekaha, Kaua‘i, Hawai‘i*. Department of Anthropology, Bernice P. Bishop Museum, Honolulu.
- Territory of Hawaii
1954 Tax Map Fourth Division Zone 1 Sec 2 Plat 02. Classification of Lands, Withdrawl by Hawaiian Homes Commission. Scale 2,000 feet = 1 inch.
- Thrum, T.G.
1906 *Hawaiian Almanac and Annual for 1907*. Thomas G. Thrum, Honolulu.
- USGS (United States Geological Survey)
1912 *Topographic Map of the Island of Kauai*. Surveyed in 1910. Scale 1:2500. Contour Interval 50 feet.
- Walker, A.T. and R.H. Rosendahl
1990 *Archaeological Inventory Survey USN Radio Telescope Project Area, Land of Waimea, Waimea District, Island of Kauai*. Paul H. Rosendahl, Inc., Hilo, Hawai‘i.
- Wall, W.E.
1903 *Kauai Hawaiian Islands*. Hawaii Territory Survey. Scale on Map.
- Wichman, F.B.
n.d. *The Place Names of Kona: A District of the Island of Kaua‘i*. Frederick B. Wichman, Hanalei, Hawai‘i.

2003 *Nā Pua Ali‘i O Kaua‘i: Ruling Chiefs of Kaua‘i*. University of Hawai‘i Press, Honolulu.
- Wilcox, C.
1996 *Sugar Water Hawaii’s Plantation Ditches*. University of Hawai‘i Press, Honolulu.
- Yent, M.
1982 *Archaeological Reconnaissance: Proposed Kokee Hydropower Project, Kōke‘e State Park, Waimea Canyon State Park and Upper Kekaha, Waimea District, West Kaua‘i*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1994 *Archaeological Reconnaissance Survey: Kukui Facility Radio Communication Upgrade Koke‘e Air Force Station Waimea Canyon State Park Waimea, Kaua‘i TMK: 1-2-01:9*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1995a *Archaeological Survey: Civilian Conservation Corps (CCC) Camp, Kōke‘e State Park, Waimea, Kaua‘i (TMK:1-4-01:13)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1995b *Archaeological Survey: Former Army Camp Site, Kōke‘e State Park, Waimea, Kaua‘i (TMK:1-4-01)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

1997 *Archaeological Reconnaissance Survey: Kekaha Game Management Area, Waimea, Kaua‘i (TMK: 1-2-02)*. Division of State Parks, Department of Land and Natural Resources, Honolulu.

APPENDIX A: AGREEMENT TO PARTICIPATE

**Agreement to Participate in the Cultural Impact Assessment for the
Pu‘u ‘Ōpae Special Area Master Plan**

Gina McGuire, Ethnographer, Keala Pono Archaeological Consulting

You are invited to participate in a Cultural Impact Assessment (CIA) for the Pu‘u ‘Ōpae Special Area Master Plan in Waimea, on the island of Kaua‘i (herein referred to as “the Project”). The Assessment is being conducted by Keala Pono Archaeological Consulting (Keala Pono), a cultural resource management firm, on behalf of G70. The ethnographer will explain the purpose of the Assessment, the procedures that will be followed, and the potential benefits and risks of participating. A brief description of the Assessment is written below. Feel free to ask the ethnographer questions if the procedures need further clarification. If you decide to participate, please sign the attached Consent Form. A copy of this form will be provided for you to keep.

Description of the Project

This CIA is being conducted to collect information about the Project in the Waimea area on Kaua‘i Island through interviews with individuals who are knowledgeable about this area, and/or about information including (but not limited to) cultural practices and beliefs, mo‘olelo, mele, or oli associated with this area. The goal of this Assessment is to identify and understand the importance of any traditional Hawaiian and/or historic cultural resources, or traditional cultural practices within the Project. This Assessment will also attempt to identify any effects that the proposed development may have on cultural resources present, or once present within the Project area.

Procedures

After agreeing to participate in the Assessment and signing the Consent Form, the ethnographer will digitally record your interview and it may be transcribed in part or in full. The transcript may be sent to you for editing and final approval. Data from the interview will be used as part of the ethno-historical report for this project and transcripts may be included in part or in full as an appendix to the report. The ethnographer may take notes and photographs and ask you to spell out names or unfamiliar words.

Discomforts and Risks

Possible risks and/or discomforts resulting from participation in this Assessment may include, but are not limited to the following: being interviewed and recorded; having to speak loudly for the recorder; providing information for reports which may be used in the future as a public reference; your uncompensated dedication of time; possible misunderstanding in the transcribing of information; loss of privacy; and worry that your comments may not be understood in the same way you understand them. It is not possible to identify all potential risks, although reasonable safeguards have been taken to minimize them.

Benefits

This Assessment will give you the opportunity to express your thoughts and opinions and share your knowledge, which will be considered, shared, and documented for future generations. Your sharing of knowledge may be instrumental in the preservation of cultural resources, practices, and information.

Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected upon request. You may request, for example, that your name and/or sex not be mentioned in the Assessment material, such as in written notes, on tape, and in reports; or you may request that some of the information you provide remain off-the-record and not be recorded in any way. To ensure protection of your privacy, confidentiality and/or anonymity, you should immediately inform the ethnographer of your requests. The ethnographer will ask you to specify the method of protection and note it on the attached Consent Form.

Refusal/Withdrawal

At any time during the interview process, you may choose to not participate any further and ask the ethnographer for the tape and/or notes. If the transcription of your interview is to be included in the report, you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

APPENDIX B: CONSENT FORM

Consent Form

I, _____, am a participant in the Cultural Impact Assessment for the Pu‘u ‘Ōpae Special Area Master Plan (herein referred to as “the Project”). I understand that the purpose of the Assessment is to conduct oral history interviews with individuals knowledgeable about the Project and the surrounding area of Waimea on Kaua‘i Island. I understand that Keala Pono Archaeological Consulting and/or G70 will retain the product of my participation (digital recording, transcripts of interviews, etc.) as part of their permanent collection and that the materials may be used for scholarly, educational, land management, and other purposes.

_____ I hereby grant to Keala Pono and G70 ownership of the physical property delivered to the institution and the right to use the property that is the product of my participation (e.g., my interview, photographs, and written materials) as stated above. By giving permission, I understand that I do not give up any copyright or performance rights that I may hold.

_____ I also grant to Keala Pono and G70 my consent for any photographs provided by me or taken of me in the course of my participation in the Assessment to be used, published, and copied by Keala Pono and G70 and its assignees in any medium for purposes of the Assessment.

_____ I agree that Keala Pono and G70 may use my name, photographic image, biographical information, statements, and voice reproduction for this Assessment without further approval on my part.

_____ If transcriptions are to be included in the report, I understand that I will have the opportunity to review my transcripts to ensure that they accurately depict what I meant to convey. I also understand that if I do not return the revised transcripts after two weeks from the date of receipt, my signature below will indicate my release of information for the draft report, although I will still have the opportunity to make revisions during the draft review process.

By signing this permission form, I am acknowledging that I have been informed about the purpose of this Assessment, the procedure, how the data will be gathered, and how the data will be analyzed. I understand that my participation is strictly voluntary, and that I may withdraw from participation at any time without consequence.

Consultant Signature	Date

Print Name	Phone

Address	

Thank you for participating in this valuable study.

APPENDIX C: TRANSCRIPT RELEASE

Transcript Release

I, _____, am a participant in the Cultural Impact Assessment for the Pu‘u ‘Ōpae Special Area Master Plan (herein referred to as “the Project”) and was interviewed for the Assessment. I have reviewed the transcripts of the interview and agree that the transcript is complete and accurate except for those matters delineated below under the heading “CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS.”

I agree that Keala Pono Archaeological Consulting and/or G70 may use and release my identity, biographical information, and other interview information, for the purpose of including such information in a report to be made public, subject to my specific objections, to release as set forth below under the heading “OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS.”

CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS:

OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

Participant Signature	Date
Print Name	Phone

Address

APPENDIX D: INTERVIEW WITH LEAH PEREIRA

TALKING STORY WITH

LEAH PEREIRA (LP)

February 29, 2020 / 2:30 PM/ Aunty Leah's Son's House, Waimea

Interview by Gina McGuire (GM)

GM: To set the audio recording, today I'm here with Aunty Leah. We're talking about Pu'u 'Ōpae. It's the 29th of February. For the first question, could you tell us a little bit about yourself, where you grew up and went to school?

LP: I went here, I went to high school right down the hill. I was here in Waimea, the hospital's right down the road.

GM: And could you talk a little bit about your 'ohana background?

LP: I come from the family of Nahinu and Auhea, brother and sister in the 1600's. I know it sounds funny but at that time it's... [hand gesture]. The grandmother was Kaipomelieke Koolua Nahinu. And she had a daughter and son and they got together and they married. They ended up with two living children, Napihe and Nakapaahu. Kamoali'i comes from Nakapaahu. I come from Napihe, the daughter. And they married Keawepoepoe's children. One of Keawepoepoe's sons was Kaianakakeaweahaula. My son Kila's genealogy comes from Konaka, Keawepoepoe's line. I know the genealogy in my head. Napihe married a Pa'ahau. Her daughter, Kapalai married Kilakapaikukui. And then they had a son. He married a chiefess from Maui and then they had a son Kila. Kila married La'i from Ni'ihau. And then they had my great-grandmother, Malaia Kapaikukui. That's the candlenut. Then they had Moses. Moses married Helen, Kuwaolokele, and then had my dad, Isaac Kaleoaloha Mokina Ho'okano. Then me. That's my genealogy. But the Nahilu side, Kila's side comes from Keawepoepoe from the Big Island. In Kohala. There were three sons from Keawepoepoe, one was Nai'ole. And Nai'ole had a son. He fought Kamehameha at the battle of Nu'uaniu. And Kamehameha took that son. He was Kekuanaoa. And then he married him to Kinau. We come from that line. But he has other sons, Namaka'eha. That's Queen Lili'uokalani's line. And there's another line, the other son was the Kai'ena. So Nai'ole, that's where we come from. And my mom's Japanese, so I'm Hawaiian-Japanese. I graduated Waimea High School and lived in Waimea Town. I went to college at the Kapi'olani School of Nursing. Then we moved to Washington State, lived there a few... 'cause my husband graduated over there and we came back home. Three children.

GM: Maika'i! Could you talk a little bit about how you came to know the Pu'u 'Ōpae area?

LP: We spent our summers there. 'Cause my Uncle James Ho'okano, my dad's older brother, he had a homestead there. He had actually started off with Bistorio. His cousin, whose property was right next to his, was Alice Akita. And then Manini has my Uncle James' property right now. The house is still standing, 'cause Eben still stays in that house. Did you go up there?

GM: Yep!

LP: Did you see the house?

GM: No, not today.

LP: So Eben guys have that property now. Mr. Manini and my Uncle James, they worked at Robinson Ranch. So they were good friends. In the meantime when we were growing up as kids we spent a lot of summers there. And he couldn't raise cattle 'cause there wasn't enough water. The water was a problem there. So what happened was, he grew watermelons. So our duty was to cover the watermelons with grasses. It was really sweet. Big ones! Yeah, so we used to play around like that. But the land was real dry. There's several heiaus, there's one big one overlooking Nualolokai. That's way at the tip. And you can feel it when you go there. It's the wind, the essence. You can just feel it. It's just a different sensation.

GM: Growing up every summer, getting to know the place, how did you learn about the area?

LP: We played out there as kids. We learned from my Uncle James about historical sites and freshwater springs. He was a pathfinder, leader and also a commissioner. And during that time too, they had little ammunition dumps in there. Cars and trucks could go in there, they're so big. There's several in there. They're still there actually, it's in disrepair. Falling apart.

GM: Do you have any mele, oli, mo'olelo that you could share?

LP: No. We weren't really into the Hawaiian thing, 'cause we went to missionary school. So we were taught not to speak Hawaiian, well I had to go to Japanese school. Japanese was ok, but you couldn't speak Hawaiian.

GM: No worries Aunty. From when you were a child as compared to now, how have you seen the area change?

LP: Well we did go up there several times. We took a tour to see. Prior to that, when my grandchildren were growing up, we used to take a hike up there and spend the day there, we picnicked and stuff. And my husband would walk around 'cause he liked to go hunting. And so, I stayed down. I'd find a nice spot and stay with the kids. But it's very dry. There's nothing up there and yet before, when we were young, there was spots of green areas. 'Cause they used to have lots of maile up there, in the little valleys. We had tricklings of water and several people used to go up there and pick the maile. I don't think they have maile anymore. If anyone would know, it would be Eben. Yeah, there was maile and mokihana. 'Cause where the maile grows, there usually was mokihana nearby.

GM: Are there any other historical sites we should be aware of?

LP: I don't think they're going to be touching any of the places where they have those. 'Cause it's really remote areas. I don't think they'll get close to those areas. I don't think that's too much of a worry.

GM: Ok. And do you think the development would disrupt any areas of cultural significance or practice?

LP: Not really, 'cause it's really out of the way. I don't think so.

GM: You mentioned maile and mokihana, but are there any other gathering practices in this area?

LP: A lot of our practitioners have died. And we had in Hawaiian families that were here forever... we had two kahuna. One from Hanapepe Valley and one from Waimea Valley. They were like, more

for the knowledge and prayers and healing. That kind of stuff. They were the ones that used to do, you know my uncle and dad guys used to do disagreements, they'd come to the house and settle. They call it ho'oponopono. So our family practiced that, so that's why we're very close. Our family's very close. That's about it. I'm half Japanese, half Hawaiian but we were more Hawaiian 'cause we spent a lot of time with our cousins. You know? The Japanese side, they didn't live here. So that's probably why. So, music, songs, all that kind of stuff was in our family. That's about it.

GM: Is there anything you'd like to see in the future to lessen adverse effects on cultural practices in the area?

LP: Yes. I'd like to see, seven years I asked DHHL, "give me twenty acres of land." There's 15,000 acres back there. Give me 20 acres because we need a tsunami center. A tsunami center would benefit the whole west side community. 'Cause when there's a tsunami warning every year or so, the whole entire population has to evacuate, 'cause we all sea level yeah? There are no facilities: bathrooms or anything. And lot of them hang out by the road to Pu'u 'Ōpae, you know? So, they need a comfort station to get drinks and go to the bathroom. Maybe even shower. 'Cause we've spent many hours up there. And sometimes we go during the night, we come home 7:00 in the morning. When you're coming down the hill, there's toilet paper, all alongside the road. That's pretty disgusting, you know. 'cause there's no bathrooms and so, I asked Hawaiian Homes. Jodi Masanaguchi was the chairman at that time and we had a meeting. They have a lot of witnesses that I presented this at our general plan for Kekaha. So I asked them, give me 20 acres and we're gonna build a comfort station for tsunami evacuation. That would be number one on our plan. And they said, ok, but where are you gonna get the money? Don't worry, we have grant writers, they'll get the money. 'Cause in Kekaha, when they gave me three acres, we built enterprise center. 'Cause we didn't have any place to meet. They're surrounded by a homestead but there's no place for them to go to have a meeting or anything. So that's what they use the enterprise center for. They even use it for funerals of all things. I found two grant writers. It was Lilia Kapuniaia from Papakolea and Jade and they found the money through the Kauai Community College. It just so happened that they funneled the money through there and built that center in Kekaha.

GM: That's how.

LP: Yeah. At the meeting I also told Bernard Carvalho, we met with him soon after that. I said, "You know, the United States Navy Base, their people gotta move out too. They gotta come out of there and go up the mountain too when there's tsunami. So what happens is, they will also benefit from this." And the Navy and Kekaha community, they always work well together, so. Not only Waimea, but also Kekaha and Manā will also benefit. We also up there, I included in my regional plan, a satellite for police and fire department. 'Cause right now our fire department is down in Waimea Town next to Big Save. And our police station is down there too but they happen to go up by the school. But they still need a... 'cause there's so much crime going on, drugs and everything. That's a good idea I think.

GM: Are there any other community concerns that folks might have about the area and cultural practices?

LP: No, you know. Except for, people, I remember going to meetings and they were talking about the tunnels that they dug in the army? They were gonna use it for bomb shelters. But it's really not feasible, 'cause it's falling in. It's actually really dangerous. I don't think it's feasible. Hanapepe and maybe the west side community have discussed ideas about making a tsunami center but they cannot make it, because they're not beneficiaries. You gotta be a beneficiary. That's a lot of land up there.

What is 20 acres? Two years ago, we went to Chiefess Kamaka‘ele School and we had a community meeting with Department of Hawaiian Homes. I said, you know I’ve been waiting seven years, you guys still didn’t give me the land for tsunami center. I’m a nobody, but I have an idea in my head. And so, I said, now I’m asking for 30. But you know, at Kekaha I asked for five and got three but I took it.

GM: And um, are there any other people we should talk to?

LP: You should. Anthony Kauahi would be a good person, ‘cause he worked with the plantations and they were always up on the hill. He was one of the supervisors. So, he knows all the inroads and the little trails and everything. I’m sure he was up there a lot too as a hunter and a worker. He would be good. He lives right down the street from me. You can drop him a line.

GM: Thank you! I was wondering if you might have the contact information for Alice Akita?

LP: Oh yeah. Alice Akita died. She’s my aunt. She was Maka‘awa‘awa. Her daughter, Elena is ninety-something years old and she still lives in Kekaha. She used to be the post mistress for Kekaha post office.

GM: Ok, thanks for letting me know.

LP: And Alice Akita’s house is right next to Eben’s. There’s a fence line, ‘cause at that time my Uncle James and Aunt Alice was next door. She wanted him there all the time. So, we always grew up visiting each other. I just remember looking forward every summer we spent up there. But my uncle, certain times of the year, ‘cause he was asthmatic. Actually, he was one of the early commissioners, and this was 1950s. So his name was James Ho‘okano, and he was one of the DHHL commissioners for Kauai. A lot of our summers we spent on different parts of the island, ‘cause my dad’s family were paniolos. They worked for Robinson Ranch so we spent a lot of time in Wainiha, down in Hanalei, in Koke‘e, and up in Waimea Valley ‘cause we all had horses. We were fortunate to have horses. That was a good thing. I would call Eben the caretaker for that valley, ‘cause you know, he’s the only one who’s in there. But I wouldn’t be there, it’s too dangerous. You never know what’s going to happen.

There’s a big heiau, the big heiau by Nualolokai, no it’s actually by Makahoa Ridge. Makahoa Ridge, if you’re coming from the Manā side, you come straight down from Manā, and you go straight towards the mountain towards Makahoa Ridge. Makahoa Ridge, if you look on the left and you look up, you’re going to see a little platform jutting out. This is on top of the mountain now. And that is the jumping off point of po. You heard of po?

GM: Yeah.

LP: Yeah. And that’s where the spirits go to the west and jump off of that into po. Now, further down the road here in Waimea, between Waimea and Kekaha. They call this place hukipo. Where you pull the spirits. And it’s right here up this hill. When you’re going down the road and you look up the mountain, you’ll see a lone mango tree and that’s where hukipo is, where they try to hook the spirits back. It’s folklore but then it’s passed on from generation to generation orally. And see, I’m the genealogist for my family, ‘cause I could remember a lot of names and dates. That’s about it. I just remembered that. Makahoa Ridge.

GM: Is there anything else you’d like to add?

LP: No, that's it.

GM: Mahalo nui for your time Aunty.

APPENDIX E: INTERVIEW WITH EBEN MANINI

TALKING STORY WITH

EBEN MANINI (EM)

February 29, 2020 / 10:30 AM / Top of Koke'e Road, Waimea, Kaua'i

Interview by Gina McGuire (GM)

GM: I'm here with Uncle Eben. It's February 29th, and we're looking out at Pu'u 'Ōpae.

EM: So the mountain we're looking at there is Pu'u 'Ōpae. It got its name from the original people that were here. If you ever heard of the project made on this island and possibly the state, of the menehune, Indigenous people that came here before the Hawaiian people. They were actually here before the Hawaiian people. Some people question whether they're Marquesans or someone else. My dad's history, his genealogy goes back deep on this island. So, our family, he claimed, on my dad's side, came from South America, Central America. And then migrated here. So at the time the Hawaiians came over with their navigator being Hawai'i Loa, which made them Hawaiians, they would document in stories in 'ōlelo, and then later translated, that had people on these islands 200 years before they arrived. So, kind of questions the migrations but all of that reflects back to this history of this land here.

Again, Pu'u 'Ōpae, they called it Hawaiian Homes, some people call it Kekaha Game Management. It's actually the 'ili of Kikiaola, that's the original name of this area, this location that we're looking at. But the reason why the Pu'u 'Ōpae, is when the Native Hawaiians came over they needed projects to be built and the indigenous ones were really good at workmanship and building structures. So they were contracted to build, the menehune, and other structures on the island. Over on the east side, Nawiliwili they have Hale Koko, the menehune fishpond as well, which they built. The materials that they got came from this left side, from this valley here, and they carried the rocks all the way out to do the ditch in Waimea Valley, down closer to town. Then they also made the project over on the east side of the island. However, they were thought to be shy people, kind of lived away from everyone else, in the mountains. Which, apparently, they lived in these mountains, about where I'm at, on that property there. The old maps will show that there's villages from about the green grass area below that, kind of in that saddle area and into the valley next over. They dwelled in that area. So the deal was, the Hawaiians below that needed the project for their water system, for their lo'i, they contracted them, the deal was that they would give them shrimp in exchange. So they would exchange the shrimp for the food for the workmanship for they did. And that's how it got its name for this area here. That's kind of the main name structure of this one location. Pu'u 'Ōpae, Shrimp Mountain, because they would do that exchanging of food for the service of work that they did. Also, in history, they'll say that they placed it in trees, the food, that they put it in the trees.

There's also a name of the area here that has similar names to a type of kalo that also grows in trees as well. So it kind of makes sense, well they put the food in the tree but yet the area is also named for that too, kinda almost twists around in how history is written and how names are blended in. Anyways, just wanted to share that point. There were pathways that would lead from the ocean into the mountains. There's another section up higher, even though it's above Hawaiian Homes, it's still in the same ahupua'a that goes all the way down to the ocean. That area is called Pu'u Moe. Moe could be of higher ranking, Moe could also be to lay down, to rest. Whatever we determine what it is. I haven't made that determination because both ways, it seems important. There was a significant person, of high stature that would live there and reside there.

GM: Mauka this side?

EM: Mauka this way [gesturing]. If you don't have an overall map it would be hard to see, but that's ok, at least you have a visual. So from here it'll go all the way down, over this mountain, and all the way down on the next valley over. So the next valley over is where the project will be, right behind this pu'u. It was checked on about a year ago and they're still doing checks. We did plant, vegetation surveys for native plants, there's supposed to be opening some areas for Native Hawaiians. And they're also supposed to be doing hydroelectric system that goes to this area. Where they're gonna start the hydroelectric system is the Koke'e ditch system. When it flows down, that is Pu'u Moe right there. So all I mentioned to the people doing surveys, is kind of keep it to one spot and don't be digging all over the place. 'Cause it was never really explored, that area.

Remember, from the early '70s, there was just an old wooden corral that was in that location. Now it doesn't even exist but the cowboys from back in the 1920s, they would roam cattle through this whole mountains and this area as well and that would be one of their areas, would be, corral the animals into, so they could control the amount they keep on the mountain and remove if they need to. So that was basically the main purpose. Pu'u Moe up there, comes further down, right above this direction here [gestures]. It's gonna be on the edge of our property. We have a few lots, not in the middle, but down below. And our lot five area on the top, that area is called Pōhaku Manō, which is Shark Stone. On maps, it'll show in our property is Pōhaku Manō. There's a old, small fire pit and then on another pu'u just over, there's going to be a mound of rocks. My dad would just call it, Pahali, for the rock formation that's there. It's not huge, it's just small.

Unlike other islands throughout the state, the workmanship is huge on the other islands. Kaua'i, we know, they kind of did their own thing, it's much smaller. So sometimes, they say, menehune is small, whatever, I never saw one personally, so I couldn't say. But I've heard stories from the old uncles that I've had, that they're not small. "They're not small," that's all they say. "They're not small." But whatever they might be, whatever size, who knows, we can suspect what we see. We don't know truly if that's what we see.

My dad, when he was in his prime, he was my height, my size, a little larger than me, in fact he was a lot larger than me, his arms was way bigger. But before he passed away he was almost down to my shoulder. So if you see a spirit or a spirit form of a menehune, you might think is, did you see the person in his prime or was he in his older age? 'Cause we usually shrink over time. Again, we don't know. The area here is very spiritual. Definitely feel a lot of energy around you. I have my pets, I keep dogs, and they let me know if something's not right. Something's not right, a stranger comes by, they'd bark or the cattle would be looking at the direction that something's just not in place. Not that something's wrong necessarily, just that something's not in place. Had my oldest dog I have now. When he first was a puppy, he'd growl and bark a lot. And then over time he just wouldn't. Then when I had puppies from him, they would do the same. So, I question myself of what I see or what I witness, what they see, is it ok because they see it so often they become accustomed to it? And if it's not a threat, then they don't growl or bark. There's other places on the property, that there's still very strong spiritually, where, if I would come back four, five years later, my dog would still growl at the same spot with his hair all standing up. And I can feel negative vibes there too. So I'm feeling it, he's alerting me, and again, you can come three years later and it's there again. So, it's kind of hard to explain what's there but there's these energies that can be around specifically in spots on this mountain. It's unexplainable but you know inside that maybe I shouldn't stay here long. Growing up here, I wasn't allowed to be in some areas with this energy that I'm feeling. It's almost, you get this feeling as if they're saying, "Why are you here? You don't belong here." Now that I'm older, and here more often, it's ok with me, it just kind of asks, "Why are you here?" But not to

leave, that kind of feelings. My son, he knows the spots that he refuses to go to. I can be in an area where he'll say, "I'm getting out of here. I don't like it. I'm out of here." And he leaves. I'm okay, but it's like you have that warning feeling.

There's this pu'u there that has a lot of energy [gesturing]. That's one of my concerns with any projects. I told the hydroelectric guys, you know, you're not putting anything on that mountain. At all. If you gonna try, I'm gonna fight you 'til the day I die. I'm not gonna allow you to put anything there. In the '70s the plantation made a road up there. And as a little boy I would walk up there to find bullets, shell casings. So the military would train here during the Korean War, Vietnam War, also World War II so they leave a lot of shell casings. And as a little boy, I liked to clean up all of the shell casings and play army. So we'd go out and gather all these things, my brother and I, and we would see structures, wall structures, along that mountainside. And then I think it was in the mid '70s, late '70s, the plantation was going to make a road there. My dad asked them not to but it's not on our property and they did it anyway. So they destroyed some of the walls that were there. My dad wasn't very happy always with the plantations. They destroyed a lot of cultural sites and things of significance for our people. Sometimes they'd destroy it so nobody could come back to claim it and they could do whatever they want with it. And it is a sad thing but it is what our state was. The plantations made the state. The people were on their own with their own government. They were overthrown and we just live in this day where we gotta survive with what's still there. A lot of people are still passionate yet. I can be super passionate at times and then other times I just gotta be realistic of what is best for everyone and not just one group of people anymore. Life is too short to be bickering on it over and over again. But we still have to respect what was there, even if it was destroyed and if it's still there we need to try and preserve it and give love and aloha to that area. That's basically the main hits from this mountain. Pōhaku Manō is right about there [gestures]. The actual stone where they put their offerings on, is not on our property, it's over to the side. But the fire pit and the rock formation where the structure was is on our property. It's even on the maps. Some people will come here to look for the rock where they put their ho'okupu on, but it's not there. It's outside. Not everybody knows that.

GM: It's on the OHA side?

EM: It's in the Hawaiian Homelands side. Again, there's things that are on this mountain that are so important, and yet, 10,000 acres should be awarded to the beneficiaries and very little is being done. They're rolling the ball now in at least trying to put more people on. My concern is by the time they get here, I may not be here to show them places of significance that at least I know of. I'm not the only one that knows of things. Other families know of other places on the mountain. We may or may not be related but we all have our stories of the locations, of the things we know, that is important. We cannot just go out and just destroy it because it was here for hundreds or even thousands of years. We gotta continue to respect it.

The pu'u that goes over, there's more mounds going down to the right side. Each one has a name. It's almost like vents, over on Big Island, one vent and the next vent, it's kinda staggered like that. And the view there is just amazing, looking out to Ni'ihau, Lehua, looking over Polihale, looking out down below. Again, you need hours really to get down and around. If we were to leave here and just drive straight, we'd have to get through at least three gates. All locked gates. And it takes maybe an hour to get there. But, again, we're not doing that, but at least you get a visualization of the journey and the things that you'll see. On the far end to the left, this is Waiawa, Wahiwa, some people call it. That was where Queen Emma came over to rest before she journeyed up into the Alaka'i Swamp. For the history of more modern times, with Queen Emma. Again, she either came

up on the ridgeline from 550 or she came up alongside the pu‘u and went straight up to the canyon and then straight up to the Alaka‘i Swamp.

History wise, a main path was the pu‘u, straight mauka, it’s kind of the leadway. Almost like how we have freeways, they had their own routes. The routes there, even to this day, on certain moon phases, can be active. That’s all I’ll say. Some people believe in, if there’s road crossings, spirits hanging out, you can have an accident. There’s parts of this way that the road is on where I can be sensitive at times, where I can feel other energies. As if, you’re standing next to me, and your energy is very mild. Right now, as I’m experiencing. There’s other times, where they could be ten feet away and they want to push you aside ‘cause you’re in the way. Now, whether you’re in the way of what they’re doing or whether you’re in the way of what they want to do, we’re not sure. Like you’re not accepted here, ‘cause you’re an outsider, or we’re trying to do something here, so you need to move. But that’s the energy and feelings that you get. Sometimes you get a cold chill down your spine, it’s just like, I gotta leave. Something’s not right. Myself, my brother, we can smell sometimes the odor, of someone’s body odor. They’re present right there. [gestures]. But I’ve learned over the years, not to be afraid because they were here before me, it’s like I’m here now. And maybe after I leave this life, I may still be here. So, again, respecting the space.

There’s not this first ridge, it’s the second ridge over, it’s kind of lower, before you get to the grass plains, there’s a ridgeline going up there, there’s a rock quarry below in the valley. Above this hill they would actually make artifacts. So the adze they would use to dig out the canoes, that was one of the quarries there. The plantations pushed it all away, when the quarry was there. But all of the chips of the stones were all scattered. I tried to preserve the area from preventing the motorcycle riders from just coming up and riding, because they’re riding just to have fun but not knowing they’re disrespecting the area because the walls that were there were leveled by the plantation. But we still have to respect what was there. Majority of the motorcycle riders, they’ll listen, some of them won’t. And they just do what they want to do. Again, disrespecting what’s there. Sometimes they’ll make comments, like, "Who the heck is him? He don’t own that place, he doesn’t have say." But they don’t understand is, I’m not there to kick them out, I’m there to try to preserve what we still have. ‘Cause the next generation, they might try to restore it.

I’ve participated in some of the restoration projects too. It’s not just that I’m Native Hawaiian, do my part, I try to exercise other ways in which I can still be effective in helping another project and still at the same time, preserve here. ‘Cause maybe one day someone will respect the history, the ‘ōlelo, and stories that we have here. I can be as passionate as I can be at times and I’m human at times too, but the fact is, is that each valley here had running water in it. And when the plantations came in they actually piped water lines up above the villages, diverted the water right past the Native people and drying them out of water. There’s a lot of sad stories about the Hawaiians and a lot sadness is with the ‘āina. And sometimes the energy is there when you set foot on the property. Even, there’s times where there’s a tree that falls on the fence and I have to clear it because we have a ranch here. Your saw will just not cooperate. Or you’ll start cutting, you can get slapped by a branch, bad things can happen. Even though you’re being as safe as you can. So sometimes I’ll just feel this vibe, I just let it be and do it another day. I’ve learned the energies you feel in different parts of this road, on moon phases, sometimes can be stronger than others and I’ll decide to remove the tree from the fence on maybe a separate moon phase. So we learn every day in life, we learn from each other, whether you read about it or someone shares a story, of what phases are good for planting or working and sometimes we need to start to implement that too. It may not matter in the city, but out here I think it matters a lot. Because there’s things that communicate with you when you’re by yourself. So you gotta listen. If you don’t listen, you’re disrespecting. And sometimes when you don’t listen,

then it stops communicating. So we can't lose that sense of communication and trust that we're going to do whatever is right, whatever it might be.

Modern times, that's for the older stories that I know. In modern times, like in the '70s, '80s, my dad had his own experiences on the property while cleaning the property with his dozer. He was very strong in Christianity, he didn't practice Hawaiian culture much. He was taught how the missionaries taught us, it was bad, it was not good, it was evil. Whatever they put in his head. He felt that way. I want to say, almost throughout his entire life. So he'd just go out and pray a Christian prayer and then he'd go and bulldoze all of the non-native trees. A lot of eucalyptus trees, silver oaks. Silver oak trees were majority, now we have different species that were introduced by the state. Accidentally or sometimes intentionally. But when he would clean the areas, sometimes he'd have a voice in the back of his head, saying like, "Don't clean there." Sometimes he'd say, "I just want to take out a few trees just to open it up." And then something bad might happen to his equipment. He had his theory about different parts of the property. "Just don't build nothing there," or, "try to avoid that area because there's bad energies." He felt that even though sometimes he prayed, sometimes it would still overwhelm or overpower what he's doing. So he would always say, in his belief, Christ is as strong as everything else, but we also gotta remember too, how we keep our temple, your body, are you pure as well as our Lord would be when we go out and do our work? Or when it says not to clean it, is the message coming from our savior or coming from a spirit. So be more mindful, yeah? Of our surroundings.

But it's really powerful here. I'm hoping it still stays the same for me when more people come up here, 'cause we could lose it. My son himself says, "things might stop communicating with you and me," 'cause it communicates with him as well. If we're walking and if there's an artifact just lying on the ground, sometimes it forces me, like I'm not going to the right here, I'm just going the left, and something kind of calls me off to the right, and oh! there's an artifact there. Did it kind of pull you there? For my son, it almost calls him, like, "Oh, I'm over here." Kinda that sense, for me, it just guides me, I kind of hear the voice but I can kind of feel the energy pulling like a magnet. So, yeah, he's found a bunch of artifacts. So have I, my siblings, you know my brothers, my dad. We've all found different artifacts, which just goes to prove that yeah, people were here. Not just living down at the ocean. And again, it's the mountain people and the ocean people. Everybody had their own thing, as long as it was balanced out, everybody was happy.

But these are a lot of the things that have happened over the years. Military came in, shortly after the war, I'm not sure the exact date, built fallout and bomb shelters on the property, kinda in the direction I'm pointing here. There's, I think, about nine shelters. Some of the shelters are Quonset hut styles that are underground. And then there's a large one with three separate tunnels that go right into the mountain, opening up into large caverns where there was ammunition, food, whatever they needed during the war era. That one house, you might faintly see a white structure by the tall Cook pine, that structure there, that used to be the guard shack. That structure was purchased by the Akita family. They moved it from here to there on their property and then eventually they transferred their property to Judy Steward and then Judy Steward passed away and nobody's there on that piece of property but we're below and above them for our parcels we have. But that same Quonset hut structure is almost historic. It is historic, 'cause it's from the '40s. But it was relocated there from the original location under here. And what my dad told me was that the guards would be posted there the whole time to make sure no one would go up into the munition area to steal, rob, or any enemy coming in to contaminate whatever food they may have had in there. It was all secured though.

And then on our property, where the green grass is, just behind it, there is this, according to my dad, there was this large gun that was placed there to shoot any oncoming ships that were out on the

ocean. That particular area, I remember had daisies growing out of the ground and that was my first introduction to removing invasive species because he didn't want the daisies all on the property. So even though it was, we came up here in the late '60s, we were pulling weeds from up there in the late '60s, 'cause he didn't want daisies taking over the whole pasture, this sand and things were, that was where the gun would shoot out. So part of the pu'u, where you see it's scarred and brown? There's shrapnel in that area there. Also where that second hump is, on that face going down there, there's shrapnel there. I found one unexploded ordnance when I was young and I got good lickins for bringing it home. Again, being a young boy, not knowing what I found, I was so happy I found something, and I was carrying it home. Basically was a shell that was gutted out. So if the shell was shot out, the explosive inside was removed. So apparently, they found this unexploded ordnance and it was removed correctly. It was a dud, even though it was live once. And the dud casing was there. And I brought it home and my dad good lickins 'cause I dug it out of the ground and if it was live I would have died. So again, this is things where, we need to be aware of what's on the property because if someone just comes in, and, "this is my land, I've got my award, I've been waiting over a 100 years!" And now dig, and now you're dead, my goodness, could we have prevented this? Yes.

So I just talking story. Whatever you put in this report, I wish you the best but I tell people this so at least the word might get out. Because if I tell some dignitaries, they'll plug their ears, 'cause that's not what they want to hear, they just want to put people back on. They had their own agenda and sometimes they're not listening to the little person on the side. As I get older, this is what I share, that the whisper could be very important. Even though you have your agenda, your prayer, whatever, still be open to the surroundings 'cause they know best, they were here before us, if they're whispering. And they want to communicate, listen before they stop communicating. But yeah, definitely, I found one. There's another one, to the left and down, it's on this boulder. Someone made a shrine and I think they spread their ashes in the area. 'Cause when I go there, I can feel this energy, feels like a spirit just hanging out there, person's real calm though, it's not like aggressive. And sometimes there's flowers put inside of the shell standing up and sometimes there's not, so one person, actually went up there and said, "Oh I found this shell on the edge," and took it. And, "If you took it, you better put it back." 'Cause that's for one of the people that probably liked to frequent there, probably before I was born, that's all I'll say. So it's there and we don't touch it. Three though was found on this hill, and another person found one down in the valley. He was dirt bike riding illegally, came across it, took it home. So we know three at least, across the whole shelf that was shot out.

So this projectile that was shot out of the gun, and then it hits and supposed to explode. This is the projectile that flies out, probably fifty pounds or so. These are the things as modern humans that we need to be aware, if we see pieces of shrapnel as we're working the 'āina, that hey, there could be an unexploded one there. So be cautious or maybe don't cultivate that area. Just let animals roam on the surface. And hope for the best. This left side, you came up Waimea Canyon Drive, but this middle section out here, it's all brown, looks like grass. That used to be a beautiful native forest back in the day. That area's called Mokihana. And if you know about Kaua'i, maile and mokihana makes the lei for this island. But that particular area according to my dad during World War II, the military was in there heavily, target practicing. So there were a lot of unexploded ordinances that could be there as we speak.

Some of the hunters that go up there don't believe in my dad's stories. So once I went up there with a hunter, and I found the shrapnel on the ground. I picked up the shrapnel and I told him to keep it, "So you could spread your story that you saw the shrapnel. It didn't come from my dad or me, you saw me pick it up from right here, here, share the story." Again, whether they want to share the story or not, it's their choice. My dad worked for the Robinsons on this side [gestures], that particular area,

the Robinsons leased it out after the war, ran cattle on the property for some thirty odd years, then the state took it back and opened it up for the public for hunting. The theory was, gonna let animals step on it, gonna let the animal step on it instead of a human. And you gotta think about it, well, yeah, I guess so. But before Robinson came in, the military did was, they burnt the whole mountain area there, and that's what really killed off the native forest that was there. All of the mokihana and the other native species. And then they went in, according to my dad, with minesweepers, swept the whole area and said, "Ok, it's clear." But yet, they still didn't open it up to the public. As it grew back, they let Robinson run cattle in. Over the years that my dad was a cowboy there, I think he said on two occasions they found an ordinance and one of the two occasions, when the demolition crew flew over from O'ahu, they set a small charge next to it, one of it blew up, one of it didn't. Was a 50/50 shot. It still could be live. But for sure on this side [gestures], that happened. Military was everywhere. It's not just Kaho'olawe. And again, the old families know because they were alive and they pass it to the next generation. Those are some of the things I can think of that could be helpful.

GM: It's super helpful!

EM: It has some significance for stories. The adze quarry area, according to my dad, when you go up to Pu'u Moe, when you go up to Pu'u Moe cutoff, where they're going to do the hydro over there, just to the side of it, was a canoe hale area where they'd actually dig out the canoe. I know there's another book written, where they did it over by First Pavilion by 13 Mile Marker area, my dad says, this is the side they did it. There could have been multiple places. But, if you look at history, if there's a quarry for adze there, if myself and my family members have found broken or whole adze here, it was a working area. So more than likely this could be one, and the other one could be another. But a lot of the documentary history that a lot of the missionary descendants have written is more there and the state tends to just go in that direction and not listen to Native people, 'cause maybe they think we're just making it up or we're just not respected in the way where they appreciate us to write a book or share a story. That's life. It's all I can say. Probably in your generation things will get easier because there won't be just one type of race, everybody will be mixed up and it doesn't matter whether someone knew more, it's like hey, we're all related and we gotta respect each other. But that was definitely one of the spots too, the quarry, canoes up in there, bring the canoes all the way down. [gestures]. If you were to pull it here, there would be pali under here. But you know the route I'm showing you there, they could definitely slide a wa'a all the way down. Definitely can. That's the energy area there, you know certain days, it's like, I don't want to be here.

My dad had experienced once, we have an irrigation system, we have to check the intake, but we live down there, so sometimes there's no water coming through the pipes. So he has to go mauka to go clean it, if it's clogged with leaves or mud if it rains or if it's windy like today. So he saddled his horse and went up, comes down in the evening, animals get water. And he had one time, it was a certain moon phase, and that's why our family kind of respects moon phases, that as he was going up, his horse, which was a perfectly tame, well-trained horse, was jumping, and jumping. He was going, and jumping. And if you're a cowboy, or if at least if you know a little bit about horses, if your horse is jumpy, you immediately check what's wrong. Maybe something's stuck at the girth, back girth, girth strap, the saddle, maybe the pad's pinching, maybe there's a kükū or something poking, irritating the animal. So he checked, like checked it when he's putting it on. He feels, there's nothing there. Sometime, if has a long tail, a stick will get stuck in the tail, it'll poke 'em in the back of the heel, so he checks the tail, he pulls the tail up, everything's clear, 'cause he was a longtime cowboy. And he keeps going. And the horse keeps doing it. But what he notices is, the ears keep twitching, back and all around and the head's jerking around. Like it's nervous, it's scared, kinda like a scared dog or cat trying to get on. Yet you're walking on a dirt road that's kinda 25, 30 feet wide with a shoulder that's 10 feet wide and maybe 7 or 8 feet grass the other. And it's not like you

can see anything, he didn't see anything, but maybe the animal did. And he got to a point where the animal almost wanted to buck him off, so he decided he's going to turn around, he's not going to check the water today. And he comes back down, but he doesn't come back down on the road, 'cause as he's coming down the road the horse is jumping around again. He goes on the shoulder in the grass and the horse mellows out. And he comes all the way back down. And he told my mom by the time he got home he said, "Well, I'm going to check it tomorrow, 'cause Jaimee," Jaimee was the horse. "Jaimee was spooked, it felt like something was stabbing him or poking him with a spear." That's what it felt like, like someone was poking him with a stick, or ihe. Again, we learned from phases. We just learned that well, this is kinda that moon phase. So, we'll wait for tomorrow. We'll just let it be. It's not important to do it now. Yeah? And again, it's kind of that same sense, if you have a projection plan, and you want to get this done, but it's not on the date or the moon, it's not going to kill you to wait, just wait, just respect what's there. Those are some of the stories that I could share.

GM: I do have a couple questions.

EM: Yeah.

GM: You touched on it a lot already, but I don't know if you want to talk a little bit more about your 'ohana background?

EM: Ok, yeah, so. I can at least go back to my grandfather. Again, my name's Eben Manini, and my dad was Joseph Punilei Manini Sr. I'll do my dad's side. His dad was Benjamin Punihaka Manini. And then of course it goes back, back, back. My sister Erna, she's really the genealogy documents, how far back it goes. It goes back pretty deep. And then my mom's side. My mom was originally from O'ahu. Her family was originally from Maui. But before Maui, was from Nihoa. They were navigators as well. My dad claims that his side was the navigators of Kaua'i only, separate kingdom, but my mom was through Kamehameha side, opposite direction, so I hold the blood of both sides and I'm stretched between both sides. And growing up with my light eyes I was always stretched between both sides. I was neither Native nor Caucasian. I was just something else. I learned how to grow up with it. Nowadays it's more common, but back then I was kind of by myself doing that.

On my dad's side, his side is really old, his family. Because if you go over to the North Shore there's an area called Hā'ena, and now they call that cave behind the beach, they call that Hā'ena Dry Cave, but actually that is truly, the name is Maniholo, that's my family, Manini. That person is one of the ancient navigators that would come there. And he would run this, some of the people say they had a fire pit above the cave, that he would signal the people fishing or sailing to find the port. My dad said it wasn't fire, it was a glowing rock that would be a beacon or a lighthouse to navigate them into the channel. Or if they were passing the island they could see it so they could come to Kaua'i or go on to O'ahu if they want to keep journeying. So they were really the ancient ones that came and that's my dad's side of the family.

Again, I touched a little bit on my mom's side. Hers is the Kamehameha side. And even though my parents were married happily, just shy of 60 years before my mom passed, they would get into their squabbles at times, where you know, dad was, "You guys are Kamehameha, that's why you're hard head," and stuff, I think Kaua'i can be just as stubborn or worse at times [laughter]. But that kind of touches who I am and a little bit of my lineage, where I came from. And it goes further and further back. But for Kaua'i people, my sister Erna like I said, she keeps all the documentation. When my dad passed on, she shared part of the genealogy and posted it up in the area where we were meeting people so they can see who we are and how they tie into our family, because when most of the people

came to it, almost a third of the island who came, all the old Hawaiian families, like, "Oh look, that's how we're related, is through that person and this person." My mom's side goes deep, Maui, O'ahu, all over, that's a little bit of the genealogy side.

GM: Right on. We've covered most of my questions, but if you want to talk specifically about how the development might affect access to specific sites of cultural practice or significance you want to identify. And you did that a little bit already.

EB: I did, and again, the starting of the project right off of the highway is Pu'u Moe. And I made it clear with them that we have to keep... the upper half, the northern part of the project is at Pu'u Moe. And I did mention to the people surveying, the original plan was that they were to keep it on or in the existing ditch line that's there so it wouldn't have any more impact on the surrounding areas. However, they need to go off of the path of the ditch in some areas just because of the way the route of the water line needs to be. So they staked out some areas; I never walked with them. They're saying they're going to keep it away from my house. My question was, please stay away from any intact native forests. If it's a eucalyptus forest, it's fine, if it's native, even if it's on the route, try to reroute it if you can. There were two areas specifically where they showed me on paper, their proposed area and I told them be cautious in two of the areas. They did the survey and then I saw the ribbons and flags right where I asked them not to put it in one spot. So I called up Dawn, she said she was gonna send the surveyor back out, he met up with me at that one location and I mentioned to him, "Where exactly is this gonna go, 'cause it seems like it's right through one of a fire mound, a charcoal mound." He said he would just shimmy it over a little and see where it goes from there.

I don't know what size they're gonna have in here, I was shocked when I saw what happened on O'ahu with rail, didn't believe. But again, I might be thinking of a five-ton machine that's gonna straddle their way through this area, but it could be a 50-ton machine. I don't know yet, they haven't told me. But I told them, this area, you have to be very cautious. And, accidents do happen, but this is an area, I don't want any accidents. So, they gotta figure it out, what is needed there and how they're gonna get by that one area. Can barely see it from this location but where these koa are and this eucalyptus, there's actually one behind the eucalyptus, where these mounds are, these fire pit mounds. There's about four or five there. Now just so happens, right next to the ditch, the existing ditch, there's a pit there but then there's a metal can there. So one of the guys said, "This might have been there through the war time, from the military." And I said, "I don't know. But I'm letting you know that this area here, is known to be a pathway."

This kind of leads back to my topic earlier. There's some areas where the energy's stronger and some is not. The energy I'm feeling, is it ancient energy or modern energy? It's not for me to decide, but I'm letting them know if you're not putting it on the existing ditch, then be cautious of anything you touch there. It was also suggested if they were to dig down and take charcoal and earth matter and determine maybe the age, or what type of wood they were actually burning. I did mention to them that I don't want anybody digging in any of the pits. There's a story that goes back in our family. My mom was inquisitive in things. There's about three fire pits on our property. She, reading a lot of history books, museum history, and reading about how they would go in and dig up pits and find fish hooks and stuff, she decided that she might want to try and find a fish hook. So she went out and tried to find one. And my dad said, "You're not supposed to do that." But you know relationships can be, like I said, what's on your agenda, you're gonna do it. So she figures out she's gonna do this. So, this is the truth and to teach other people. So she had, I think was three of her children, I think was myself, my sister, and my brother, kinda helped her, so I remember kind of grabbing the shovel and stuff, the trowel and bringing it up. And I didn't dig though, but I was in the

area, scuffing around, looking around. The next day she woke up with four giant bruises on her body. Almost looked like human bite marks on her body. So, my dad said, "It was one bite per participant." So, I don't want them digging that. I don't want no bites myself. Sometimes you might think, "Oh no, that's just a coincidence." I have learned when it happens multiple times in life, some things are coincidence some are not. Again, respecting what is there. I am not an archaeologist. I'm just showing them things that I'm concerned of and don't want them touching.

Then going down, they said they're not going on the pu'u. But as they come around the corner and drop down to the reservoir there's an existing ditch, again they're supposed to put the line in the ditch. They said one section, they're gonna go off the ditch and I told them be careful 'cause there's an area there that's not good either. That one's bad, I had trouble with my horse in that area. He was just really acting up a lot. I think it might have been, I brought some people from Group 70 in that area and just randomly walking, I wanted to show them these trenches that were dug out during World War II, that they probably had covers over and a big gun as well, shooting out into the ocean to protect the island from invasion from the Japanese, and as we were walking back I found a broken adze. The adze was smaller, more for cutting, about two, three inches long, broken and an inch and a half wide. And the whole bottom cutting part was still there, the bottom was cracked off. Sometimes the animals step on it, the cattle, then it breaks it and the other piece might be nearby. I didn't poke around to find that 'cause I wasn't there to look for artifacts. But I said, "Oh, here's an artifact." So they actually took pictures of it. And they said, "Is it just like that, you can just find it out here?" And I was like, "Yeah, you can just find it on the ground." If you're looking, you'll see it. Can be randomly anywhere, 'cause they were here. And even as you're gardening you might pull up something as well. So it's definitely there.

But, so that was the two main areas that I had concerns of, was there, and the middle by the pits. And they know the top, it's supposed to go one certain spot, I hope they listen. Again, I just saying to go in that spot 'cause that's the existing area. If it was fine for the last, I think in 1922 or '25 they made this system. You know, going down. Even though some history goes later. According to my dad, 'cause my family was cowboys for the Knudsens that ran cattle here. They said, "No, no, they started the ditch already at that time." So the date isn't always accurate on when they started it or when they completed it. Maybe it was right but not the start up time. Had teams all over the place digging. But if you put it on the same spot, I think you'll have less trouble in destroying archaeological sites that could be under brush, debris, like how we're seeing back here. Leaf litter, you can't tell anymore.

On this side of the island it's different from even Kalalau Valley. Kalalau Valley, you can definitely see three, four foot-high walls. This slope is all lower stuff, smaller. Kinda menehune, smaller, whatever it might be, they wanted to do less destruction of nature and just do a little bit impact of their presence. Who knows? I wasn't there [laughter]. But again, we just feel as we go. But for the ditch part, that was my main concern on the routing of it. I did also ask them is, before they start clearing, they have to walk through the area with archaeologists or anybody with Hawaiian background that knows how to see more things. If I have time, I'd be willing just to join them too. If my son has time, he can look too. He can feel and sense just like me too. Anybody else, from the community too, wants to help. And just walk, I'd invite anybody to come that can feel. Our neighbors now, we have neighbors below us, they're starting a project with the Kekaha Hawaiian Homes group. One of their leaders mentioned that there was a young man with them and this young man doesn't like certain parts of the road, 'cause he doesn't feel right. And I said to the person, the leader, "He's right." He said, "What do you mean he's right?" 'Cause I feel the same thing too. But apparently he either went back to his 'ohana on O'ahu or Maui for a project or something. So he's not with them right now but I really wanted to talk story with him.

GM: Do you have his name?

EM: I can get his name. Yeah, the leader told me, he kind of senses certain things. I'll try get his name and at least phone number. Go let him know you talked story with me and you talked story with Aunty. And then maybe he might be more comfortable. 'Cause this is a person who didn't grow up here but he feels that. Yeah. One of the spots, had we gone down, there's a gate. You gotta stop there. And over there, guarantee going get something. Off and on, you going get something there. Sometimes it's feeling, sometimes it's smell. Jokingly saying this, my two brothers drink; I don't drink alcohol. But my dad and my brother was there one time and my brother was describing to my dad exactly what he smelled. My dad said, "You're drunk, you don't know what you're talking about." But he was specific. And this is what's kind of crazy when you think about it, is he described an odor that smelled like someone's foot odor and the foot odor was in a rubber boot smell. Specific. I was listening to him, I was like, "You gotta be kidding me." And then as my dad, "He's drunk, he don't know what he's talking about, I never smell nothing!" And you know on and on and on. I'm like, "Ok." But I didn't criticize him. Like my dad was criticizing him. I didn't criticize, I'm like, I smell other things there but never that. Sometimes it's a light body odor, sometimes it's a strong body odor, sometimes I smell like flowers and there's no flowers there. There's like perfume, a flower in a hair. And it can vary on moon phase and time of day. Sometimes it's not only at night, it's day time too.

So, it goes like this for, man, almost 12, 14 years, and then one night I'm going home, I open the gate and I smell it. And I'm like wow, this is what my brother talked about. So I open the gate, everything. In my mind, I'm like, "Oh, sorry, I just coming through, not to make trouble or anything." It's all in your mind, not out loud. My brother swear out loud, I don't swear, I just talk. And then I go through and then the smell's not with me. So I see my brother about a week later and I go find him, and I'm like, "Hey, I met one of your friends." And he goes, "What friend?" "Your friend by the gate." He looks at me and my dad's there listening and he goes, "What gate?" "The mauka gate." He looks, "Oh you when smell the rubber boots?" "Exactly." Here's my dad looking like, "You too?!" He knows I don't drink. So he goes, "I guess must be right, then." I think it's a phase.

I dated a gal before, she used to live here and then she moved to the mainland. I would go camping, remote camping, working with endangered plants, invasive plants, and birds. So I'd be away sometimes a week at a time, we'd fly out in the mountain, we'd stay in the mountain. She'd live by herself there during the week, she goes to work. And then of course she walks around the property, walks the dogs, checks the cattle and stuff. And she told me when I came back from the trip, is that, "You know there's an onion patch down here?" And I'm like, "Onion patch?" She's like, "Yeah, there's an onion patch in the pasture." "No we used to grow onions in the garden by the house." And she said, "No, really there's an onion patch there, and it's there today." So we walk down there, we get to this spot. It's only like a 10 by 10 spot and I can smell the onions. And you walk away and there's no smell. You walk, come back, you smell it. There's no onions, there's only grass. My entire life, over 50 years I can remember. I'll be 56 next week. There was never any onions there. Never ever. But I can smell onions. This is this kind of window in time, what the heck is happening here? And it never was there, but it's there. She was like, "It only happens certain times of the month." Like phases. In the pasture was like that.

Again, all the years I go in and out of the gate, sometimes it's timing or moon, I only smelled that rubber boot once. But he smelled it too. He insisted. It's not a bad thing. And some people are taught that way. I was brought up how my dad taught me, the Christian way. And after meeting this wonderful woman that I was with for a short time in my life, she taught me more of my culture than

I learned growing up. 'Cause again a lot of my culture was taken away. 'Cause even in school we couldn't speak Hawaiian when I went to public school here. We were spanked if we spoke Hawaiian. So a lot of my culture was removed and then she kind of helped open up more of my mind, my feelings, and I think that's kind of how I got to experience a little more in life. She used to dance hula. So I think that helps to be more aware of your surroundings. Everything in life has reasons and purposes. I'm glad I had that little bit of opportunity to learn a little bit about the property from her when nobody else from my family ever mentioned it was an onion patch there.

But this whole area was a garden in the '40s. A lot of spots in there, not the whole mountain, but spots of it were victory gardens. So when we were attacked by Japan, they knew the shipping could be manipulated and we don't get produce to the islands, so they made gardens throughout this mountain. Maybe about 14 or 15 gardens throughout this hill. Large gardens, maybe five times the size of a football field in some areas. Some maybe three times. But my dad folks growing up, in elementary, when the vegetables were ready to be harvested, they would load up in the back of flatbed trucks, they would bring the kids up in the mountains to pick all of the produce and then they bring it all back down to the schools and the public so they have food. So this mountain definitely sustained the island in some given time in history. In the '40s. And then they, when they pulled out they didn't need the garden anymore. They just put grass through. A lot of kikiu grass is going through the areas and it's nice and open. And that's what the military would use to land their choppers in in the '70s. They would camp in those areas too when they were training in preparation for Vietnam. Definitely had gardens. Who knows, maybe that was a garden and that's the person who's there, taking care of the garden that we smelled the onions. I don't know. Respecting what's there and at least, enjoying, for making us aware that this was a garden once. And be more respectful for the area that you walk on.

GM: Is there anyone else you would recommend to talk story with?

EM: If you need the genealogy side, I'm sure you could hit up Erna and she could give you the genealogy side. I know I asked somebody, for Mrs. Akita. Alice Akita, that was my dad's classmate. I wanted her to contribute about the property. 'Cause they were the original ones, her mom was the original ones from the 1950s to get the first awards. There was five families that got the first awards. And then, all but one pulled out. Only Akita was there when we came on the property. And then we acquired the abandoned lots that were there and that's how we came in, in the '60s, I think was the late '60s: '67, '68 we came in here. But they were there from the '50s so they might have their own stories as well. I know Leah (Perreira), she is related to Na'umu, which is the lady who took over from Akita, old time Hawaiian families, the 'ohana. Everyone has their own stories about the 'āina. So she has her story but, yeah, Alice Akita, she married Ted Zanger. I'm not sure if she keep Zanger or if she doesn't. Maybe Leah has a contact number. I don't know her very well, I only knew her growing up as Auntie. And then later on they moved out, and gone. Never really see her much anymore. We don't cross paths. Her 'ohana is from Kekaha. But I was brought up in Waimea and here so I don't really go Kekaha too much. But that would be a possible. The young man, he can talk about modern experiences he's had of working the 'āina. And that's good too, 'cause this is the next generation that will possibly experience it and I can try to ask. He's quiet but this is part of opening up in life. I was extremely shy too and now I can't shut up, so, it's all good. My friend told me, "Well you definitely make up for all of the years you were shy."

GM: Are there any oli, mele, mo'olelo that you would recommend documenting for this area?

EM: I grew up without the 'ōlelo but we know for a fact that from up here where the Pōhaku Manō is, the pit, you can see Lehua, Ni'ihau, Ka'ula. Lehua's on the right side, that's Ni'ihau. From shore,

you cannot see the land mass all the way out there but they're like a mile or so apart. We can walk over there, I don't know if can see today, it's a little hazy, Ka'ula in between on a clear day. It's about 17 miles behind Ni'ihau. And all of this can be seen on certain hills on the property. And that's where these fire pits are. And this fire pit that I'm questioning, you can see all of the property where they're gonna develop and all the way out to Lehua so it's almost like it's significant. Then you can see all the way down, not quite to Polihale but you see in that vicinity going down to the dunes, down in Manā. All of these points, it's important points if someone had made something old, with stars or landmarks or something, and it kind of lines up that way. But unfortunately, I don't know any of the chants or things. Maybe Aunty Alethia Kaohi, I recommended her name too. She knows a lot of stories too, her dad was a historian. So, and then she was a librarian for many years until she retired. She works, still works in Waimea. I always see her on the road now and then, still active.

GM: Right on. You talked a little bit about farming and ranching in the area, as well as lo'i restoration, but are there any other cultural gathering practices here?

EM: You know, any place in the mountains has importance, especially if you're doing hula for a specific location or ahupua'a. A lot of the property you're looking at, most of the native plants, have been disrupted. They ran cattle in here over a hundred years so they ate a lot of the vegetation that was here. Yet, from where we're standing, there's at least five locations that we're looking at here, little, micro-climates that have maile growing, but not a lot but it's there. The deer eat a lot of it too.

GM: There's deer up here?

EM: Yeah, black tailed deer. Was introduced in like '59. But yes, we have koa, in this location some of it is *Acacia koa* but some of it is Kaua'i koa as well. So it's a little more dwarf-style, it hardens out more quickly. But it doesn't grow super tall like Big Island here, more twisty, curly. There's still 'ōhi'a lehua. Kaua'i didn't only call it lehua. There's lehua in different names in lehua. Lehua this, or lehua that. Another specific to it. Most people it's just 'ōhi'a lehua. But we have that. Most of it is red. Some of it is salmon. The ROD is already on this island so we don't know what it will affect but when the first stages of it, when it started on Big Island, the state was coming to Kaua'i to gather, 'cause it is *Metrosideros polymorpha*, meaning of many kinds, so they're hoping Kaua'i has more sub-species of this type of plant. So they were gathering seeds from a lot of locations. But I know each side of the island, it's there. So we're just hoping it doesn't wipe out the entire forest like how Big Island is 'cause we have sub-species to the plant.

I think even hula dancers now, they're restricting how much they harvest of it knowing it's not as common as it used to be. But we definitely have a'ali'i, pūkiawe that can be used in lei making. I've used that before myself. 'Uki'uki. We don't have any kauila growing anymore. We had the last kauila tree growing on our property, the dead stuff is still there, it's standing, it snapped the whole tree in half. That one broke in the '92 hurricane and then no more kauila after that. But we can even take an introduced plant and put it in lei making. So, it's what you want as a designer, as a gatherer to put in. No one ever stopped anyone from gathering that I know of. But I know you can't just go out picking without proper permission and that's part of their protocol as well. I think, and hope, that they still allow people to do it and mālama the area that they gather from.

We have 'iliau here, if you've never seen it. The small, spiky, like the Dr. Seuss one, that's 'iliau. It's related to the silversword. That one's real tiny but if you go up the road to about the nine mile marker, here we're at about six and a half. There's 'Iliu Nature Loop, there's an ancient trail goes down to the canyon. On that top, it flourishes in that area a lot. It'll bloom kinda mid- to late-summer, beautiful bloom on the top of it. Pretty, pretty plant. Lot of people don't use that in lei making. Not

to say you couldn't, if there's 'ōlelo related to 'Iliau Nature Loop, it grows all throughout this region here. And then there's a rare one that's small like this, it'll bloom small like this, it actually only grows on three ridges on this low elevation. And one of the botanists was supposed to walk with me down once on the DHHL lease. But that never panned out. The timing wasn't right. I suspected, 'cause it blooms when it's small. And this one will bloom when it gets taller. They think it might be part of the endangered one but not hundred percent sure. But it's a lot of jumps they want to go through, 'cause if they come they gotta get permission through DHHL and then they gotta give 'em their date and I gotta get off work to take 'em, and it never really worked out. But there's an area where had a native plant, Hawaiians would use 'em to make saddle out of. Very resinous type wood. It grows on this land here, it grows on one spot. And then the other location was on the east side of the island but then one died out. So they had interest in that one to at least take cuttings from it or air layers, but again DHHL has to work with them. If someone's trying to acquire a permit they're not very fast. It's faster if you go through State Parks or DLNR. As long as you know what you're taking and not something else. Other gathering people do it as hunter/gatherers.

GM: And people are still hunting here?

EM: The rim is legal on certain days and seasons. This area has been a safety zone since the mid '70s. People still hunt in it. You can only ask them not to. And below is public hunting and then across this is also DHHL and they allow hunting on that side too. So there's black tip deer, there's goats on that side. There's some goats under here. And then bird hunting. Pig, right now is pig season. Bird season just ended. Some people hunt illegally. I guess every place does that. Every island has their own hunter/gatherers that just take. You take all the time, not gonna have. I think that's mostly it. I did mention also, I kinda put the word out in the community that if the hydro guys cut the trees, to talk to groups or organizations if there's some wood that they could use, to remove it before the heavy equipment come in, if they know that's the line they gonna cut. And they gonna clear it, you may as well try and use the wood. I suggested that. I don't know if you have anything in your report that you can mention.

GM: Yeah, can.

EM: That's my hope, that even if it's a small tree like this, you could still make something out of it. Giving it to a hālau, to an organization, that they could make something with it, at least they can say, this came about from the hydro project that came through but at least we get to use the wood and not just let it decompose back into earth. They can let the eucalyptus decompose back into earth. But not really a piece of wood that can be used for a tool or implement that can be preserved. My dad always taught me, he was a saddle-maker. Cowboy, saddle-maker, jack of all trades. He would say, "If you were to take this wood and put it into a saddle..." Say, if a tree falls down, if you leave it on the ground, then within five, ten years it's completely rotten, compost. It puts nutrients back in the soil, and said, "If you want the tree to live even longer if it fell, take a piece of it, put it into a piece of art. It'll continue to live on in history." So some of the saddles that he had, my brother has them down at his house, nearing hundred years old. I have a saddle that he made. About 70 years ago. I have that saddle. I still have it by the house. Anybody looks at it, "Ah, it's just a saddle." We know the history of it. And the history of it, we know where the maku came from, that's the front part, the horn. We know where the stick, where you sit on, where the seat came from. The rawhide if it's still on, we know which bull it came from. All the stories he shared with us. I didn't see the tree, I wasn't born, but through history I remember his story how he acquired this wood, and how long he took before he put into this work of art and then again it continues to live on. Even like poi boards too. That could be useful too and it goes in the history.

From the start, my dad wasn't in favor of the hydro, he was worried they'd take all the water. I was in conservation for about 12 years of my life professionally. I met a lot of volunteers, partners, throughout the world. If we had a hydro it would have less turn out that's destroying our ozone. I try to look at the bigger picture. I know it may not benefit everyone but does the number add up to most of the people? And I feel like it does. They promised they'll give us water, they promised they'd give my dad water. We're still limited. Dad won the court case in the '90s. I still have the same amount in the '60s although they promised other things. Again, what in life will be fulfilled and what is not. Before my dad died he said, "I know you for it but they gonna hog all the water." And I said, "You never even get your court case you won 20 years ago." And he gets mad at me but I look at the picture differently. Is that, so it won't benefit us, but it'll benefit everybody else. Not just on this island, we're helping the planet 'cause we're not burning the fuel that's causing pollution. So we gotta look, well I try to look at a larger picture and not just what's in front of me. I've learned this because I've worked with people throughout the world that have different point of views, different experiences. It helped me to foresee what's coming. I know the water's supposed to be shared with any other Native Hawaiian that acquires the property. There should be water for them. The electricity, they're already saying they're going to have to live off the grid, it's down lower. And that's not for everyone. But I use photovoltaic panels myself so I know what it's like and more people are doing it.

GM: You mentioned water, electricity, but are there any other community or cultural concerns about the project area?

EM: As far as the community, directly, no one has come out directly in opposition. I've been to a couple town meetings on the topic. Coming in to listen and part of my listening, is what I spoke to the planners two or three years ago, they're kind of staying directly on track, what I suggested to avoid spots, to make sure they share, and everything else I felt at that time was of importance. As time goes on, more things can come out, we'll see how they address it. But most of the people, they're complaining that if they put the pipe in, the animals won't have water. And I suggested years ago that they put out water troughs in the areas. As far as where we're going to be, we're going to have water troughs for the birds, for animals. But we'll see what happens on the lower section, 'cause there's going to be a huge reservoir.

Some of the concerns, the people had there is if they farm, what they're gonna do is push the water from the mid-elevation reservoir down to sea level. And then during the day using solar to push it back up. In this cycle, they're afraid that the water might be salinified with sea water. So if they use this water, it may kill their crops. That was a concern they had. It was addressed that they would line the lower reservoir so brackish water won't come in and contaminate the water. And if it is sea water, it's basically gonna rot their pipes from the inside. I don't think they'd want that as well. That was a concern. They could also use the water from the top that's pure, that's not mixed with the brackish water.

Another thing was, for hunters, oh the hunters didn't want to lose their hunting privileges for the area. I mentioned to some of the hunters is that, it was always DHHL land from the 1920s. It was your privilege to have enjoyed it all of these years. But for the people who have been waiting for their land, you need to respect their opportunity. And when I speak to them privately, it makes sense. They're gonna lose it, but they're related to this other person anyway. It's not like you're out completely. You can't hunt but you still can enjoy the land. That's some of the arguments too. I have concerns on the State side 'cause the State has been fencing off a lot of our watershed, preserving our watershed, which is great, I was part of that too. But what they lean towards, is they fence off for the general public and the land that was preserved for the Native Hawaiians, they say, "Oh DHHL

gotta allow more hunting over there." And I'm looking at them like, hang on now, that is what that is for.

It's a fine line in balance from game management and conservationists. They can never get along. And I've worked with both in the State with partnership and I know a lot of the Kaua'i ones personally. Some of them were interns who worked with me. It's very sensitive, is all I can say. You see how dry it is? Very arid, yeah? There's not a lot of food source here. There's no earthworms, they gotta go back to the swamp. When they fenced the swamp, now the pigs can't migrate back up to the swamp. Now they're stuck in the middle. Going more towards the towns. They're digging up lower elevation areas, deer are eating up gardens in Waimea. Because now they're losing area here. A lot of people don't see this. And they're going to learn how to survive, even if they gotta eat your gardens.

I did mention already in some of the meetings, down below there's probably gonna be deer problems so you've gotta figure out how to control your deer or goats. I'm sure eradication, everyone would be happy to do that but then it's gonna be safety, whether it's not shooting your neighbor, or your neighbor's property. That has happened in the past. It's all documented with our paperwork we filed. Someone shot my horse once. I thought it was done intentionally, I was pissed with everybody that would come in there illegally to hunt. When I finally calmed down about three years later, and spoke to a person that's much older than me, he said, "Eben, I heard somebody shot your horse." "Yeah, so mad, I'm gonna catch that guy." So mad, everybody that came in there, I chased them down. I was chasing them at night with flashlights. I'd kick them out 'cause I was so angry. He said, "I think was a mistake Eben." They'll go with the spotlight, if they see the eyes glowing, they just shoot right at the glowing eyes. I was very angry. I reported it too. He said if they see the glow they shoot at the glow and they probably didn't know it was a horse until they went up and, "Oh crap, it's someone's horse." And they probably jumped in and ran away, too late now. And then nobody wanted to admit who did it. But that's why I was so angry, I would chase everybody out who would come up there. And that's why I never got another horse. No sense. All that effort, you bond with it and someone comes and shoots it.

Occasionally they'll tax cattle. Tax meaning, they just want to kill it. My dad would chase them down, try to prosecute it. I use social media with my son, if I catch them with my son, I'll ask them what is their name, honestly, they'll tell me their name. If they're Hawaiian I'll tell them how we're related. And then, I let them know, if you really need the meat, get a hold of my son, so if you really need meat, we'll bring it your house. I want to kill the one I want, not you killing the one I don't want to kill. Sometimes they kill a cow with a calf, the calf is gonna die 'cause they don't have a mom. Where I could kill a steer and give them the meat. But they don't know what they're killing, they're just killing whatever they can see 'cause they want to eat. And I understand, there's a lot of people without jobs and they gotta eat. But if you really need that bad, you can contact us and we'll give it to you. But I think of the impacts that I was worried about, as they go lower they were originally gonna go down the ridge and over. And I mentioned to them, when I was young had burials in one area. I went back to go look for some open caves. When I went back only had goats living in all the caves. All messy. I couldn't find any iwi anymore. But I told them it used to be a certain area, I sketched a map for them. They decided they're not gonna go there, they're gonna go down the valley instead. Just avoid that whole area completely. 'Cause they don't know and I don't know what was there. They just said they're gonna go another route, just avoid it. So in my opinion they're trying their best to help to do the least impact possible. We hope that it's gonna be done correctly.

GM: My last questions is how the area's changed from when you were keiki to now?

EM: The changes that I've seen, is we've gotten a lot drier. In three of the valleys on our property we had water, natural spring water coming out of the water almost all year round. One valley was all year round. Two valleys would dry up in the summer and reactivate in the winter. Right now none of this flows through our property anymore. The spring that still produces water, still has water, it doesn't flow very far, maybe 100 or 200 yards from its source and then it just dries out into the ground 'cause it's so dry. And also, we have a lot of eucalyptus trees. Eucalyptus absorbs a lot of water similar to albizia. So they're pulling a lot of water and they'll just suck the whole area dry. So the water flow has lessened drastically.

The trees have changed. The '82 hurricane damaged a lot of trees, the '92 devastated the area. The only place that we still had native trees were in little valleys, little pockets. Not the main valley. The main valleys were like a funnel, everything was stripped dry. There was no leaves on any of the trees, even lantana was stripped dry. Everything. Only in little pockets. We lost a lot of our native canopy. We used to have 'ōhi'a lehua trees. We lost a lot of them. By our house there's still five more left. Below us, just in the shadow, off of the mountain, there used to be a beautiful ridgeline there. And the 'ōhi'a were large. For Kaua'i large is about a 55 gallon drum in diameter. That's very old. Well over a hundred years old, maybe even 200 years old. There were a lot of large ones there. Almost all of them got destroyed in the '92 hurricane so very few left.

So I grew up in the '70s right behind our house, would play with our toys, there was i'iwi, 'apapane, frequently there in the trees I would play under. After the '82 hurricane only 'apapane. After the '92, once in a great while 'elepaio. 'Elepaio is common to Kaua'i. Not so much on O'ahu. Right now I don't even hear 'elepaio down in my area, 'elepaio gonna be closer to the Pōhaku Manō area where there's rainforest, there'll be more 'elepaio there. But i'iwi, 'apapane, all pau. Gone, in my lifetime. That quickly. It's gonna keep moving up the hill 'cause we didn't have mosquitoes at our house. In the late '70s we actually had to put a screen. Was an old ranch house with sliding window, then we had to put screen 'cause mosquitoes started to come in. Mosquitoes are slowly starting to get up the hill and even getting into Koke'e area. Most of the birds there will be affected too. What replaced a lot of the trees is eucalyptus, Monterey cypress, black wattle. Black wattle trees are really common. When the wind blows they break, it's really brittle. A lot of the pu'u now, majority is going to be black wattle on a lot of the pu'u along with silver oak. The lime green's gonna be the *Acacia koa*. The valley's now all strawberry guava. Definitely has changed a lot in the last forty, fifty years.

GM: Well, that's all the questions I have, unless there's anything you'd like to add.

EM: No, no.

GM: Thank you so much for your time, Uncle.

APPENDIX F: INTERVIEW WITH SEAN ANDRADE

TALKING STORY WITH

SEAN ANDRADE (SA)

March 31st, 2020 / 10:30 AM / via telephone

Interview by Gina McGuire (GM)

GM: Today I'm on the phone with Uncle Sean Andrade. We're talking about the Pu'u 'Ōpae project area. Uncle, could you start by talking a little bit about yourself?

SA: So my name is Sean Andrade. I'm 51 years old. I grew up in Kalaheo, Kaua'i. My mom is from Waimea Valley. My dad is from Kalaheo. I went to Waimea High School. Graduated in '87.

GM: Right on. Do you want to talk a little bit about your family background?

SA: Well growing up, back when I was a younger kid, I don't know, you know, maybe eight, nine, ten years old, both my parents are part Hawaiian. I grew up not knowing much about being Hawaiian, as my parents grew up with the restrictions here on Kaua'i. I grew up not knowing a lot of our culture, you know? But I have both parents, they're still married. Both sides of our family have deep roots in Kaua'i from Wainiha Valley all in the North Shore all the way to Waimea Valley on the Westside. I grew up, as far as culturally goes, I wish I had more guidance maybe as a young adult. I wish I had more of a drive myself back then. As far as culturally goes, we were trying to live the American dream.

GM: Going off of that, how are you connected or how did you learn about the Pu'u 'Ōpae area?

SA: So, Gilroy Yorkman, who kinda helped start the project with Kawai Warren, he's my uncle. My Uncle Gilroy has been informing me a lot about what was going on. But back, eight years ago or so, when they first started things, he informed me about it but I'm super busy, involved with our community as far as youth athletics. And that sort of things. I coach a lot. And a lot of different age brackets. I did from elementary all the way through high school. And being that I have four kids, that's what kinda, drove me in that direction. As far as my spare time and what I do for our community. So although my uncle has been involved, he knows my schedule. Lately, I hold back because I've been burned out from coaching. I'm tired. I was looking for a new direction, and I got more involved with the program and with Kawai, to carry on the project. It's actually been maybe nine months since I've been actually, physically involved with this.

GM: Do you want to talk a little bit more about the kind of work that you do with them?

SA: So right now, Kawai has also been part time with the whole project. And a lot of things happening personally with him too. So the last eight, nine months we've been working side to side up until December, I want to say. And he's kind of been taking a break. And he actually is taking a break. We kind of made that official, January, I think it was. So the work that we were doing at the time is trying to get water back down to the lo'i. So there's roughly five to six miles pf ditch, you know, that Eben has water from. To water his cows from. So there was enough water for him when we started but there really wasn't enough water for us all the way down at the bottom. So it was Ryan Ho'okano, Kawai, and myself, there are some others that came in from time to time, that helped us in cleaning the ditch and getting water all the way down to the lo'i, actually to a catchment system to distribute the water. So I have to try to learn as much as I could from Kawai and the original plan

that he had, that Kekaha Homesteads had. I really love what they were trying to do. I want to stay on that same vision that they had. So we got the water down to the catch basin. There was three lo'i that they did back in the day. They did do one row across of kalo. And that was towards the end of what we were doing, and Ryan moved back to O'ahu. Towards the end we finished up the first two lo'is and we got the lo'is planted. It's probably not the best, as we're learning, it's probably not the best situation. So we got that planted. We're dealing with cows coming in and stomping. In the sense that, it's ok, the animals they were here before us. You know? So it's like their backyard. Being there more often, I'm noticing that the cows are staying away, not coming through. We need to work on the fencing. We were really worried about pigs. But so far pigs are not a problem. I did put up electrical fencing around the lo'is. We just recently got the dirt in, we got three of them planted now. We're still working the water, maintaining I should say, 'cause we're learning as we go. We recently, last weekend, started working on the dryland section that they set up three years ago. They also have dryland kalo. We recently got that in about a month ago, maybe. And last weekend we planted maybe a quarter of it so far. We're making progress. Slow progress. But we're making progress. Now we're trying to build the community involvement.

GM: Is it all dryland kalo?

SA: We have wet and dry. 90 percent of it is lehua. We understand that it's the toughest of all to grow and care for. But we definitely want to stay with lehua. We do have some 'ele'ele. We do have some Tahitian dryland, some Pohnpei dryland, a little bit of stuff. For early consumption, instead of waiting for nine months. We're hoping to eat, to harvest, from the land. That's where we're at now. Cleaning the ditch, caring for the area, dealing with the animals. Cows, others. Goats. There's actually erckels, they are a problem for us. As we're trying to fertilize, they're eating the roots and the kalo. We're gonna try get some traps. If a pair or a mom and dad, they're trying to teach their offspring, then it's going to be endless. So we can either catch them or move them out or do something with them. We'd like to catch them for sure. That's kind of what we're dealing with right now up there.

GM: Are you guys finding artifacts? Is this where lo'i were traditionally?

SA: I don't know. I don't think it was traditional lo'i. I'm pretty sure it's not. I was told, in the valley, it may have been. in the valley but we're up top, just above the reservoir, so we're at high land. And even the ditchway, the ditchway is not traditional. It's a plantation ditchway. We're trying to utilize their piping as well. In the field system, there's three ridges. So we're looking at that too and trying to get water to the land. I think that's going to be a problem. Especially about DHHL thinking about doing kuleana up there. It's not the right time to do it. For many reasons. So if the hydro does go, and the infrastructure comes in, accessibility would be easy. Especially for our kūpuna that are already on the list. Because the people that are on the list are older, a lot elder. The hard thing about being there and getting there, is it's tough. It's not easy. So the hydro, if it does go through, then that will give access to our kūpuna, make it easier for them. The other hard thing that I'm seeing with the area, especially for the kuleana, they're going to have to know that there may not be any water. 'Cause what I'm finding with working the ditch and the amount of water we're getting, the ditch that's, if the hydro goes, there may be quite a bit of water. Of water storage. If the hydro does not go, the ditchway is not capable of handling any more water than the 500,000 gallons we're getting a day. And from what I am seeing what we're utilizing with our three lo'is and now on the dryland section. It's going to be tough to get water to the 1,400 acres. There will probably barely be enough for, and this is just me guessing now, from what I can see, the 231 acre project and the amount of water coming down now, as it is, we may be lucky enough to develop the whole thing like the original plan with the amount of water we're getting. The ditchway requires major work to get more

water down. If we're going to irrigate the entire area, from what was done in the past, the plantations were at six million gallons a day. This is nowhere near close to handling that. What they did on the ridges was, so this week this ridge got water. Next week this other ridge had water. So they'd rotate the water. That's one of my biggest concerns for the kuleana part, is making sure people know what they're getting. We've got other projects like in Hanapepe, there's land in Wailua, in Anahola, that's easily accessible. And a lot of infrastructure that's already there. So for our kūpuna, that's on the list for 30 plus years, some of them may not be able to get up to Pu'u 'Ōpae. I'm thinking DHHL should be focusing on those projects. Pursue the hydro project to see if it's going to work, then decide if they're going to do kuleana up there.

GM: That makes a lot of sense.

SA: It probably would have been a good idea if I could show you. It would make a lot more sense if I could show you.

GM: Other than the water availability decreasing, are there any other changes you've noticed in the area from when you were keiki even?

SA: I haven't had time to think about that so much. As far as water availability, I know the water diverts back to the river, which is great. I love that. Changes that I can see is basically that, at least water is going back to the river. Not a lot of waste. I know with the hydro project, if it does go through it's going to make that even better as far as waste goes. They're talking about piping, so a closed system. That's going to be more efficient. I don't think there's any negative impacts from when I was younger to now. I think when I was younger, there was a lot more water, that's for sure. As I got older, there's less. Water's being diverted all over the place for agriculture. That kind of slowed down. I can almost see where it was when I was a child, with the river. So, at this point I think it's better.

GM: That's good to hear. Are you aware of any mo'olelo, mele, or oli associated with Pu'u 'Ōpae.

SA: I actually, I don't. Actually within the community, I'm the chair for the Pu'u 'Ōpae committee on the Kekaha Hawaiian Homelands Association. I'm kind of filling in for Kawai. I recall one of the engineers from the G70 group, I think his name is either Kawika or Kaipo, I'm not positive. In one of his presentations he said they did find, I'm interested in talking to him because I'm interested in learning about it. That should give us a lot of history about the area. 'Cause I don't know the history.

GM: No worries. Do you know of any traditional sites or historical sites that are on the property area?

SA: No, I don't. I know that Eben would probably be that person. I've heard stories of some sites but I'm not personally familiar. I haven't gotten that far to sit down, especially with Eben, 'cause he's probably the most knowledgeable of that area. Some of our kūpuna, I also want to sit down with them and learn where we should, or should not be.

GM: No worries. This is a little bit along the same lines, but if you think the project will affect any places of cultural significance or access to places of cultural significance?

SA: Off the top of my mind today, the access part of it, no. But that's not to say I do know, but I don't think so. Plantations used those roads for years, so I don't know.

GM: Would you like to talk about any experience with the energy or mana of the area?

SA: Growing up, as a young child, I don't know what it is, but I always had a sense, I could almost feel things that surround us. And back in my teens I decided to turn it off and kind of not, try not to get those feelings, even my dreams. A lot of my dreams that I used to have, those deep dreams that are deep within my brain were usually accurate and I will leave it at that. It's weird. But I chose to turn it off, that connection, that deep dream and sense of spiritual awareness. I have. And by turning it off, I now noticed looking back that my nationality has taken over guiding me... I'm Hawaiian, Portuguese, and Chinese. So, the Portuguese in me, I love that side of raising animals, cows, and stuff. And the Chinese part of me, that little bit of me takes control of everything. The Hawaiian in me can't come out. I'm more than half Hawaiian but I've been working on opening myself back up to the feelings and the dreams and the visions. The top entrance, when you're coming down the top entrance, there is some areas that I can feel a presence, you know. Mana. And definitely I'm not one of those that's afraid. I'm still growing and still trying to understand that part of this area real deeply.

There was one instance. So my Uncle Gil, I check in with him a couple times a week, you know talk story. So, one weekend, my aunty Kalili, and she lives on the Big Island, she was visiting and wanted to come mauka. I knew that she was on island, I asked my, uncle and aunty Marilynn, if they wanted to go up, have lunch. My aunty wanted to talk story. As we eat lunch, the second lo'i, on the side that's closest to us, there was like a pipe break. Like a 2" water pipe break. So, me being in the industry, almost 30 years of plumbing, out of the corner of my eye, well first of all I hear a big burst. And out of the corner of my eye I see water shooting up above the first lo'i. So in my head, I'm like, "ah shoot, pipe break." And in a split second before the water comes back down, I think, "there is no pipe." So the water shot up about 12 feet, sounded like a pipe bursting. Came down at an angle, maybe from six o'clock to eleven o'clock, maybe, the water just parted across the second lo'i. And we were like what was that, both my aunty's wasn't really paying attention. They looked up and looked at me, I was still looking. And as soon as we stopped eating I walked down to the lo'i where it burst and looked down. And the leaves of the grass in that area weren't wet and it should have been. And the part where, the opposite end of the water ended, it splashed, easily at least two feet on the other side of the lo'i. And that should have been wet. But maybe five minutes after I finished my lunch and I walked there; nothing was wet. But we don't know what that was. But we do know that happened. So, I need to go find out from some of the others. I don't know, but it was strange, definitely.

GM: Thanks for sharing that.

SA: It was like a big pipe breaking. And that much water just gushing out of the ground. So the spiritual part of the place, I'm still learning. I'm still trying to open up to receive it, the spiritual part. We'll see. There's a lot of parts of the islands that are spiritual, that I've gotten feelings from.

GM: Your work is with lo'i, but are there any other gathering practices in the area that we should be aware of?

SA: I know that there's a lot of hunters in the area. They've been going there for years. Circling back to the project and what DHHL has for their project... they wanted to do a full cultural center for learning with orchards, they wanted to do a pastoral section, then they wanted to do crops and reforestation. So, within our project, I was asked to do the pastoral section. That's what I do, I raise cows. So, I'm jumping in with that. You know looking back at my childhood my tutu man, used to raised taro in Wainiha Valley and I didn't pay attention. So I'm not really the kalo expert, I'm far from that. I'm just kind of picking up where everyone left off. You know, I'm learn the hard way.

GM: Would there be anything that could be done to lessen impacts on cultural practices or the area?

SA: I know that, going back to the hunters part. There's illegal hunting in the area. I know people are still coming through. It's a hard thing to deal with. Because you have generations of, not only Hawaiians, other cultures, just in general, that are hunters. And they've been hunting in that area for kind of forever, so that's kind of a—and I'm sure DHHL knows—the hunting part is sort of a battle. I don't want to say, keep people out. I'm not about that. I want to stop the illegal hunters from being in the safety/no hunting zones, the scary part of it is the safety aspect. 'Cause people are hunting, and that's a concern. If we bring people in there to help us and start doing community days, whatever we're planning in the future, we gotta get the community involved. You know? That's the only thing I'm a little scared of. Having a school there helping us on the weekend and we get hunters in the area. That's the only thing I'm worried of, is how we let our community know we're out there.

GM: That's important. Earlier you mentioned concerns of water in the future, are there any other community or cultural concerns that we should know of?

SA: For me it's the water. Overall community and/or cultural wise not so much, but I'm afraid that the place could turn into a dump. That people just come up there... agriculture takes a lot of work. It's not easy. Maintaining that, maintaining the beauty of the place, that's one of the concerns. Keeping the beauty of the area.

GM: My last question is if you would recommend talking to any other people as part of this process.

SA: There's some kūpuna, you should talk to them as well. I think my uncle.

GM: Okay, mahalo nui. That's all of I have unless there's anything you want to add on.

SA: Mmm, no, not off hand.

GM: Ok, thank you so much for your time Uncle!

Appendix F

Informational Briefing to Hawaiian Homes Commission

HAWAIIAN HOMES COMMISSION
Minutes of August 20, 2018
Meeting held at the Līhu`e State Bldg., Lihu`e, Hawai`i

Pursuant to proper call, the 702nd Regular Meeting of the Hawaiian Homes Commission was held at the Lihu`e State Building, 3060 Eiwa Street, Rooms A-C, Lihu`e, Kaua`i, beginning at 10:00 a.m.

PRESENT Jobie M. K. Masagatani, Chairman
Zachary Z. Helm, Moloka`i Commissioner (arrived 10:37 a.m.)
Wallace A. Ishibashi, East Hawai`i Commissioner
David B. Ka`apu, West Hawai`i Commissioner
Michael P. Kahikina, O`ahu Commissioner
Wren Wescoatt, O`ahu Commissioner

EXCUSED Randy K. Awo, Maui Commissioner
Vacant, Kaua`i Commissioner
Vacant, O`ahu Commissioner

COUNSEL Craig Iha, Deputy Attorney General

STAFF William Aila Jr., Deputy to the Chairman
Paula Aila, Contact and Awards Division Manager
Kahana Albinio, Acting Land Management Division Administrator
Dean Oshiro, Acting Homestead Services Division Administrator
Niniau Simmons, NAHASDA Manager
Norman Sakamoto, Acting Land Development Division Administrator
Kaleo Manuel, Acting Planning Program Manager
Andrew Choy, Planner
Leah Burrows-Nuuanu, Secretary to the Commission
Cedric Duarte, ICRO Manager
Debra Aliviado, Customer Service Manager
Julie Cachola, Planner
Nancy McPherson, Planner
Mark Yim, Land Agent

ORDER OF BUSINESS

CALL TO ORDER

Chair Masagatani called the meeting to order at 10:04 a.m.
Five (5) members were present at roll call. Commissioner Helm was on his way. The Kaua`i and Oahu Commission seats were vacant.

APPROVAL OF AGENDA

MOTION/ACTION

Moved by Commissioner Ishibashi, seconded by Commissioner Ka`apu, to approve the agenda.
Motion carried unanimously.

APPROVAL OF MINUTES

MOTION/ACTION

Moved by Commissioner Ka`apu, seconded by Commissioner Ishibashi, to approve the Minutes of January 2015. Motion carried unanimously.

PUBLIC TESTIMONY ON AGENDIZED ITEMS

ITEM A-1 Alison Lewis Re: Item D-2 thru D-6

Alison Lewis testified on agenda items D2 thru D-6 commenting on the constitutionality of the administrative rule changes that require mortgages and credits to receive land awards.

ITEMS FOR INFORMATION

WORKSHOPS

OFFICE OF THE CHAIRMAN

ITEM C-1 Mutual Aid and Assistance Agreement with the County of Kaua`i

RECOMMENDATION

None. For information only.

Corporate Counsel from the County of Kaua`i, M. Trask, regarding the Mutual Aid and Assistance Agreement stated that Kaua`i County would do the work, comply with the permit, procurement and contract requirements; get the money from the remainder of the \$100 million, the Act 12 money that Legislative appropriates to the Governor. Kaua`i County will follow all the rules, assessments have been done and, Kaua`i will send the invoices to DHHL. DHHL can apply for the reimbursement from FEMA and keep the money, the 75% reimbursement. Kaua`i will need the ROE from DHHL to do the work.

GENERAL AGENDA

REQUESTS TO ADDRESS THE COMMISSION

ITEM J-1 Kilipaki Vaughan – Anahola Fire Station Update

Deputy Fire Chief for the Kaua`i Fire Department K. Vaughan expressed the need for resources to help cut the time of travel when fires are raging. KFD needs a landing zone for the helicopter, 3 acres for a training center, ocean safety and mechanics resources. An MOU from the Fire Department has been forwarded to the Commission from the Kaua`i District Office. The hope is that the next administration will help to carry the MOU through.

WORKSHOPS

PLANNING OFFICE

ITEM G-4 Update on Kaua`i Regional Plan Priority Projects

RECOMMENDED MOTION/ACTION

None. For information only.

Acting Planning Office Manager K. Manuel and Planner Robert Freitas presented the following:

DISCUSSION

B. Freitas stated that the two primary residential areas on the Kaua`i Island Plan are Anahola at Pi`ilani Mai Kekai and at Hanapepe which is in the process of being master planned for a second phase. The focus for the Regional Plan is Anahola, West Kaua`i and Hanapepe. For Anahola's Kuleana Homestead Master Plan, the contract is out but the scoping for the project should occur in

the next 2-3 months, which will involve getting the community and applicants input. Update for the West Kaua'i Regional Plan was the renewable pumped hydro project which DHHL is working in partnership with KIUC. This project helps to open up the Pu'upai lands for water and road access. The Hanapepe Master Plan includes a residential and agricultural homestead lot mix and is in the process of being done now.

ITEM G-2 DHHL Kaua'i Water Projects and Issues

RECOMMENDED MOTION/ACTION

None. For information only.

Acting Planning Office Manager K. Manuel presented the following:

DISCUSSION

K. Manuel reported that the Waialua Well was cased and capped, and the well is completed. The 52-acres of land is going through master planning regarding what kind of homesteading to do. The Waialua River has two main tributaries flowing into it, the North Fork and the South Fork; North Fork side is State lands and the South Fork side is private ag lands. The Waialua River, which is a connection of the Wai'ale'ale and Waikoko tributaries, the North Fork, has enough water to meet DHHL's water needs. DHHL's Planning submittal to CWRM is to reserve 1.2 million gallons of water per day. CWRM's interpretation is that DHHL should get water from the Hanama'ulu Stream.

ITEM G-3 Update on Pu'u 'Ōpae Special Area Master Plan (SAMP), Waimea, Kaua'i, TMK (4) 1-2-002:023

RECOMMENDED MOTION/ACTION

None. For information only.

Acting Planning Office Manager K. Manuel presented the following:

DISCUSSION

K. McKeague of Group70 stated that they will be coming to the Commission at least three times: (1) for the approval of the Special Area Master Plan (2) for the Settlement Plan and, (3) seeking the FONSI on the Draft EA on the Settlement Plan. The goal is to get all this done by June 2019. The intent of the Special Area Master Plan is to bring the KIUC and the Hydroelectric Projects together; inclusive of the Kikaha Homestead Associations' Kuleana Homes program. Looking at the Planning criteria and keeping within the financial design constraints, G70 takes into consideration slope, less than 15% is best for roadways and structures, however, more than 15% slope can be a financial burden. G70 is aware of the wild fires in the area and looking at the need for water and fire protection. A concern is the limited access into the property from the mauka and makai sides. There are 3 access roads primarily for 4-wheel drive: DLNR road, DHHL road which is rough and the Marine Road which is a rugged terrain road deemed a third alternative access. All the KIUC promises must be kept, reservoir improvements, roadway improvements; if not kept, all becomes cost prohibitive. KIUC makes it happen, G70 can make it happen as well. The EA takes about 6-9 months, however, G70 would like to try and meet the timetable in 6 months. The EA steps include: notification, provision of a draft, 30-day review for the draft, release of the final with the FONSI, and usually a 30-day legal challenge period.

ITEMS FOR DECISION MAKING

CONSENT AGENDA

HOMESTEAD SERVICES DIVISION

RECOMMENDED MOTION/ACTION

Acting Homestead Services Division Administrator Dean Oshiro presented the following: Motion to approve the Consent Agenda as listed in the submittal.

DISCUSSION

Chair Masagatani asked Commissioners if there were any Items from the Consent Agenda that they wanted to move to the Regular Agenda.

Commissioner Ka`apu requested that Items D-15 to D-19 be moved to the Regular Agenda.

- ITEM D-2** Approval of Consent to Mortgage (see exhibit)
- ITEM D-3** Approval of Streamline Refinance of Loans (see exhibit)
- ITEM D-4** Approval to Schedule Loan Delinquency Contested Case Hearings (see exhibit)
- ITEM D-5** Approval of Refinance of Loans (see exhibit)
- ITEM D-6** Ratification of Loan Approvals (see exhibit)
- ITEM D-7** Approval of Homestead Application / Cancellations (see exhibit)
- ITEM D-8** Commission Designation of Successors to Application Rights – Public Notice 2015, 2017 (see exhibit)
- ITEM D-9** Approval of Designation of Successors to Leasehold Interest (see exhibit)
- ITEM D-10** Approval of Assignment to Leasehold Interest (see exhibit)
- ITEM D-11** Approval of Amendment of Leasehold Interest (see exhibit)
- ITEM D-12** Approval to Issue Non-Exclusive Licenses for Rooftop Photovoltaic Systems for Certain Lessees (see exhibit)
- ITEM D-13** Commission Designation of Successor – **ABRAHAM S. TORRES, JR.**, Residential Lease No. 4556, Lot No. 12, Nanakuli, Oahu
- ITEM D-14** Request to Schedule a Contested Case Hearing – **ADAM KAIWI, JR.**, Residential Lease No. 8187, Lot No. 52, Waimanalo, O`ahu

MOTION/ACTION

Moved by Commissioner Wescoatt, seconded by Commissioner Helm, to approve the motions as stated in the submittals. Motion carried unanimously.

REGULAR AGENDA

OFFICE OF THE CHAIRMAN

- ITEM C-1 Resolution 297 – Honoring Commissioner Kathleen Puamaeole Chin**

RECOMMENDED MOTION/ACTION

Deputy William Aila presented the Resolution 297, Honoring Commissioner Kathleen Puamaeole Chin for her service to the Hawaiian Homes Commission

MOTION/ACTION

Moved by Commissioner Kahikina, seconded by Commissioner Wescoatt, to approve the motion as stated in the submittal. Motion carried unanimously.

MOTION/ACTION

Chair Masagatani noted the Commission will convene into executive session. Moved by Commissioner Awo, seconded by Commissioner Kahikina, to convene in executive session pursuant to Section 92-5(a)(4), HRS, to consult with its attorney on questions and issues pertaining to the Commission’s powers, duties, privileges, immunities, and liabilities. Motion carried unanimously.

EXECUTIVE SESSION IN 11:55 a.m.

The Commission anticipates convening in executive meeting pursuant to Section 92-5(a)(4), HRS, to consult with its attorney on questions and issues pertaining to the Commission’s powers, duties, privileges, immunities, and liabilities on these matters.

1. Commission’s Duty in Implementing HAR Section 10-3-36 - Transfer of Homestead Leases

EXECUTIVE SESSION OUT 1:05 p.m.

ITEMS FOR INFORMATION

GENERAL AGENDA

REQUEST TO ADDRESS THE COMMISSION

ITEM J-4 Bronson Lovell – Anahola Health and Wellness Program

B. Lovell stated that the Keala Foundation is a 501 3C, non-member, insured organization seeking DHHLs permission to use the building on HHL to provide a free, safe environment for the youth.

ITEMS FOR DECISION MAKING

REGULAR AGENDA

HOMESTEAD SERVICES DIVISION

RECOMMENDED MOTION/ACTION

Acting Homestead Services Division Administrator D. Oshiro presented the following:

- ITEM D-15** Request to Schedule a Contested Case Hearing – **DANIEL PERREIRA, JR.**, Residential Lease No. 4637, Lot No. 68, Waianae, Oahu
- ITEM D-16** Request to Schedule Contested Case Hearing – **RAY R. RAPOZO, JR.**, Residential Lease No. 4343, Lot No. 59, Anahola, Kauai, Hawaii
- ITEM D-17** Request to Schedule Contested Case Hearing – Lease Violation, **HARRIDEEN L. AMBROSE**, Residential Lease No. 5410, Lot No. 16, Paukūkalo, Maui, Hawaii
- ITEM D-18** Request to Schedule Contested Case Hearing - Lease Violation, **BENJAMIN R. VICTORINO, JR.**, Residential Lease No. 8204, Lot No. 10, Paukūkalo, Maui, Hawaii
- ITEM D-19** Request to Schedule a Contested Case Hearing – Authorization to Proceed to Public Notice Under Section 209, HHCA, Due to Nonresponsive Designated Successor – **MYRTLE T. FUJIMOTO (Deceased), DARCY T. FUJIMOTO (Designated Successor)**, Residential Lease No. 1497, Lot No. 4, Waiakea, Hawai`i

MOTION

Moved by Commissioner Kahikina, seconded by Commissioner Ishibashi, to approve the motion as stated in the submittal.

DISCUSSION

Commissioner Ka`apu noticed the items were all requests for contested case hearings and asked if they were all requests originated from the lessees or the Department.

D. Oshiro stated, D-15 and D-16 are lessee originated and D-17, 18 and 19 are staff/Department originated.

- ITEM D-15** Request to Schedule a Contested Case Hearing – **DANIEL PERREIRA, JR.**, Residential Lease No. 4637, Lot No. 68, Waianae, Oahu
- ITEM D-16** Request to Schedule Contested Case Hearing – **RAY R. RAPOZO, JR.**, Residential Lease No. 4343, Lot No. 59, Anahola, Kauai, Hawaii
- ITEM D-17** Request to Schedule Contested Case Hearing – Lease Violation, **HARRIDEEN L. AMBROSE**, Residential Lease No. 5410, Lot No. 16, Paukūkalo, Maui, Hawaii
- ITEM D-18** Request to Schedule Contested Case Hearing - Lease Violation, **BENJAMIN R. VICTORINO, JR.**, Residential Lease No. 8204, Lot No. 10, Paukūkalo, Maui, Hawaii
- ITEM D-19** Request to Schedule a Contested Case Hearing – Authorization to Proceed to Public Notice Under Section 209, HHCA, Due to Nonresponsive Designated Successor – **MYRTLE T. FUJIMOTO (Deceased)**, **DARCY T. FUJIMOTO (Designated Successor)**, Residential Lease No. 1497, Lot No. 4, Waiakea, Hawai`i

ACTION

Motion carried unanimously.

LAND MANAGEMENT DIVISION

- ITEM F-1 Annual Renewal of Right of Entry Permit(s), Kaua`i Island (see exhibit)**

RECOMMENDED MOTION/ACTION

Acting Land Management Division Administrator K. Albinio presented the following: Motion that the HHC approve the following actions while developing a process for making short term agriculture and pastoral land distributions available to beneficiaries.

MOTION

Moved by Commissioner Ka`apu, seconded by Commissioner Helm, to approve the motion as stated in the submittal.

DISCUSSION

K. Albinio expressed that LMD is still working with the vendor to establish a method and approach to fair market rent when they determine the ROE and apply those across the board. Thirty-one permits being renewed, 19 are beneficiaries, nine permittees have industrial use, and the rents are going to be increased. He explained that LMD must stay within the boundaries of Chapter 171.

The conversation focused on the commercial use of DHHL properties.

ACTION

Motion carried unanimously.

PLANNING OFFICE

ITEM G-1 Acceptance of Beneficiary Consultation Report for Proposed Water Rate Increase for the DHHL Anahola Farm Lots Water System

RECOMMENDED MOTION/ACTION

Acting Planning Office Manager K. Manuel presented the following:
Motion to accept the Beneficiary Consultation Report as a public record of beneficiary input and feedback relative to the proposed water rate increase for the DHHL's Anahola Farm Lots Water System. Acceptance of the report does not indicate concurrence or approval of any staff recommendations that may appear herein.

MOTION

Moved by Commissioner Ishibashi, seconded by Commissioner Helm, to approve the motion as stated in the submittal.

DISCUSSION

K. Manuel stated only three beneficiaries attended the consultation meeting, and no comments were received during the comment period. It is possible to train beneficiaries to become water operators but to get certified to become a Water Operator, and they would need access to a water system to learn on.

ACTION

Motion carried unanimously.

ITEMS FOR INFORMATION

GENERAL AGENDA

REQUEST TO ADDRESS THE COMMISSION

ITEM J-2 Agnes Kini-Marti – KA Farmers Hui Request

A. Kini-Marti is requesting to renew the KA Farmers Hui lease of one acre and looking to renovate for a commercial kitchen.

K. Juggles, Vice-President for Princess Kahanu Homesteads in Lualualei brought forward two issues of concern: (1) Traffic calming. Speeding within the community, need speed bumps, and raised crosswalks, (2) Request is to acquire one of the adjacent lots to Princess Kahanu so a bigger community center can be built.

WORKSHOPS

LAND DEVELOPMENT DIVISION

ITEM E-1 Soil Testing at Kekaha Residential Lots, Unit 4

S. Matsunaga of LDD reported that the subsurface testing for two lots was negative and did not exceed the State's Environmental Action Levels. Testing for fruit and vegetables was also negative. A new Soil Management Plan will be submitted by the end of year. Tar was found in lot #3; the tar was removed, the ground filled with clean soil and construction done for the grade adjustment.

PLANNING OFFICE

ITEM G-5 Summary of Response to Proposed Legislative Action Request for 2019 & Draft Legislative Proposal

RECOMMENDED MOTION/ACTION

Acting Planning Office Manager K. Manuel and Legislative Analyst Lehua Kinilau-Cano presented the following:

DISCUSSION

L. Kinilau-Cano reported on proposals to the Legislature, none of which required new legislation. (1) To pass the bill to lower the blood quantum. The bill passed and is awaiting Congressional consent. (2) allow individuals in Waialua Nui to lease lands (3) cell transfer study (4) funding request from Kanehili for their community center (5) make permanent DHHL's affordable housing credit.

Commissioner Wescoatt proposed that DHHL does not need to comply with the State's competitive rules if it is with a beneficiary owned vendor. Another proposal is to obligate the counties to begin performing maintenance on the infrastructure immediately, even if they haven't accepted it yet; for all DHHL roads, sewers, and lights.

RECESS

4:12 p.m.

HAWAIIAN HOMES COMMISSION

Minutes of August 21, 2018

Meeting held at the Lihue State Bldg., Lihue, Hawaii

PRESENT Jobie M. K. Masagatani, Chairman
Zachary Z. Helm, Molokai Commissioner
Wallace A. Ishibashi, East Hawaii Commissioner
David B. Ka'apu, West Hawaii Commissioner
Michael P. Kahikina, O'ahu Commissioner
Wren Wescoatt, O'ahu Commissioner

EXCUSED Randy K. Awo, Maui Commissioner
Vacant, Kauai Commissioner
Vacant, O'ahu Commissioner

COUNSEL Craig Iha, Deputy Attorney General

STAFF William Aila Jr., Deputy to the Chairman
Paula Aila, Contact and Awards Division Manager
Kahana Albinio, Acting Land Management Division Administrator
Dean Oshiro, Acting Homestead Services Division Administrator
Niniau Simmons, NAHASDA Manager
Norman Sakamoto, Acting Land Development Division Administrator
Stewart Matsunaga, Land Development Agent
Kaleo Manuel, Acting Planning Program Manager
Andrew Choy, Planner
Leah Burrows-Nuuanu, Secretary to the Commission
Cedric Duarte, ICRO Manager
Debra Aliviado, Customer Service Manager
Lehua Kinilau-Cano, Legislative Analyst
Nancy McPherson, Planner
Halealoha Ayau, Water Specialist

ORDER OF BUSINESS

Roll Call

Chair Masagatani called the meeting to order at 9:09 a.m.

Six (6) members were present at roll call. The Kauai and Oahu Commission seats were vacant.

PUBLIC TESTIMONY ON AGENDIZED ITEMS

ITEM A-1 Charles Bronco Re: Palakiko Farm

C. Bronco and his grandson, Henaku Berturaku, are farmers in Kekaha who don't have enough water for their trees and lo'i. He and his grandson are getting their water from Kekaha Ditch; however, when the hydroelectric pump gets turned off or shut for maintenance, they don't have enough water. They requested that the State entities get together to help them exercise their rights to the water. He and his grandson are looking to a solar pump because when the electricity gets shut down, they don't have water. NRCS and USDA are willing to help them financially; however, they need the rights and DHHL's help.

ITEM A-2 Keohukui Kauihana Re: Lawful Hawaiian Government

K. Kauihana stated that the Hawaiian Islands belong to the Hawaiian Kingdom and not the United States because of the illegal military overthrow of the Hawaiian Monarchy.

ITEMS FOR DECISION MAKING

REGULAR AGENDA

OFFICE OF THE CHAIRMAN

ITEM C-3 Adoption of the HHC Investment and Spending Policies relating to DHHL Trust Funds

RECOMMENDED MOTION/ACTION

Administrative Services Officer Rodney Lau presented the following:

Recommends that the Hawaiian Homes Commission adopt the HHC Investment and Spending Policies relating to DHHL Trust Funds.

MOTION

Moved by Commissioner Ishibashi, seconded by Commissioner Helm, to approve the motion as stated in the submittal.

DISCUSSION

Chair Masagatani thanked the Commissioners who assisted and gave their time to bring this into fruition. The Trust Fund was received in 1995, and now it's 2018. It took 23 years to get here, and DHHL finally has something to work with. Mahalo Rodney Lau and the late Kahele Richardson.

ACTION

Motion carried unanimously.

PLANNING DIVISION

ITEM G-6 Approval of Water Rate Increase for DHHL Anahola Farm Lots Water System

RECOMMENDED MOTION/ACTION

Water Specialist Halealoha Ayau presented the following:

Motion to approve the Water Rate Increase for the Anahola Farm Lots Water System, which shall take place effective July 1, 2019.

MOTION

Moved by Commissioner Wescoatt, seconded by Commissioner Ka`apu, to approve the motion as stated in the submittal.

DISCUSSION

The current rates expire June 30, 2019, until new rates are approved by the Hawaiian Homes Commission. In fiscal year 2016, the Anahola Water System operated at a loss of close to \$182,000. The huge losses indicate a deficiency in the current water rates and to some extent, the failure of systems and operational management. The recommendation is to increase the rates incrementally over ten years.

ACTION

Motion carried unanimously.

ITEM C-2 To Authorize the Chairman to enter into and/or participate in a Mutual Aid and Assistance Agreement with the County of Kaua'i

RECOMMENDED MOTION/ACTION

Deputy William Aila presented the following:

Motion to approve an agreement between the County of Kaua'i and the Department of Hawaiian Home Lands to respond to disaster-related emergencies and provide services that the Department may request of the County of Kaua'i, in addition, request that the Commission delegate to the Chairman the authority to negotiate and approve the final agreement and any extensions that may be necessary.

MOTION

Moved by Commissioner Wescoatt, seconded by Commissioner Ka`apu, to approve the motion as stated in the submittal.

DISCUSSION

Chair Masagatani wants it to be part of the record that the agreement includes authorization to enter DHHL lands for doing assessments and any necessary cleanups.

ACTION

Motion carried unanimously.

ANNOUNCEMENTS AND ADJOURNMENT

NEXT MEETING

The next regular meeting Keaukaha, Hawai'i, September 16, 17, & 18, 2018.

MOTION/ACTION

Moved by Commissioner Ka`apu, seconded by Commissioner Ishibashi, to adjourn the meeting. Motion carried unanimously.

ADJOURNMENT

10:00 a.m.

Respectfully submitted:

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

Prepared by:

Leah Burrows-Nuuanu, Commission Secretary
Hawaiian Homes Commission

APPROVED BY:

The Hawaiian Homes Commission at its regular monthly meeting on:

Jobie M.K. Masagatani, Chairman

DRAFT

HAWAIIAN HOMES COMMISSION
Minutes of April 21, 2020, via Teleconference
DHHL Main Office, Hale Pono‘i, Kapolei, O‘ahu, Hawai‘i

Pursuant to proper call, the meeting of the Hawaiian Homes Commission was held via teleconference, moderated by Chairman William Aila Jr. and Commission Secretary Leah Burrows-Nuuanu, from Hale Pono‘i, 91-5420 Kapolei Parkway, Kapolei, O‘ahu, Hawai‘i, beginning at 9:30 a.m.

PRESENT William J. Aila Jr., Chairman
Randy K. Awo, Maui Commissioner (via teleconference)
Zachary Z. Helm, Moloka‘i Commissioner (via teleconference)
David B. Ka‘apu, West Hawai‘i Commissioner (via teleconference)
Michael L. Kaleikini, East Hawai‘i Commissioner (via teleconference)
Russell K. Kaupu, O‘ahu Commissioner (via teleconference)
Pauline N. Namu‘o, O‘ahu Commissioner (via teleconference)
Dennis L. Neves, Kauai Commissioner (via teleconference)
Patricia A. Teruya, O‘ahu Commissioner (via teleconference)

COUNSEL Ryan Kanaka‘ole, Deputy Attorney General (via teleconference)

STAFF Tyler I. Gomes, Deputy to the Chairman
Leah Burrows-Nuuanu, Secretary to the Commission
Andrew Choy, Action Planning Manager
Kahana Albinio, Acting Land Management Division Administrator
Juan Garcia, Acting Homestead Services Division Administrator
Cedric Duarte, Information & Community Relations Officer
Stewart Matsunaga, Acting Land Development Division Administrator
Paula Aila, Finance and Development Specialist
Shanen Cruz, Legal Assistant
Jamilia Epping, Information Specialist

ORDER OF BUSINESS

CALL TO ORDER

Chair Aila called the meeting to order at 9:53 a.m. Eight (8) members were present via teleconference at roll call.

Pursuant to the Governor’s March 16, 2020, Supplementary Proclamation in response to the COVID-19 pandemic, Hawai‘i Revised Statutes (“HRS”) Chapter 92 regarding public agency meetings and records are currently suspended through May 15, 2020, to the extent necessary to enable boards to conduct business without holding meetings open to the public and to allow state agencies the ability to more effectively provide emergency relief and engage in emergency management functions. At this time, we do not have the capability to create an audience live listening feature. A recording of the meeting will be posted to the DHHL website as soon as possible.

APPROVAL OF AGENDA

MOTION/ACTION

Moved by Commissioner Teruya, seconded by Commissioner Neves, to approve the agenda. Motion carried unanimously.

APPROVAL OF MARCH 16, 2020 MEETING MINUTES

MOTION/ACTION

Moved by Commissioner Teruya, seconded by Commissioner Awo, to approve the Commission's March 16, 2020 Minutes. Motion carried unanimously.

APPROVAL OF MARCH 24, 2020 EMERGENCY MEETING MINUTES

MOTION/ACTION

Moved by Commissioner Teruya, seconded by Commissioner Neves, to approve the Commission's March 24, 2020 Emergency Meeting Minutes. Motion carried unanimously.

PUBLIC TESTIMONY ON AGENDIZED ITEMS (via weblink only)

Testimony on agendized items was submitted in writing via the Department of Hawaiian Home Lands website at www.dhhl.hawaii.gov/hhc/hhc-contact. Testimonies received by yesterday's 4:30 p.m. deadline were forwarded to Commissioners. Testimonies received after the deadline will be stamped "Late" and submitted to the Commissioners after the meeting is adjourned.

Commissioners should have received public testimonies by email from Robin Danner, Kūhiō Lewis, Homelani Schaedel. Also attached by email are the J-Agenda Submittals from Kekoa Enomoto, Skylee Canon, and Cora Schnackenberg.

ITEMS FOR DECISION MAKING

CONSENT AGENDA

HOMESTEAD SERVICES DIVISION

- ITEM D-2 Approval of Consent to Mortgage (see exhibit)
- ITEM D-3 Approval of Streamline Refinance of Loans (see exhibit)
- ITEM D-4 Approval of Homestead Application Transfers / Cancellations (see exhibit)
- ITEM D-5 Approval of Designation of Successors to Leasehold Interest and Designation of Persons to Receive the Net Proceeds (see exhibit)
- ITEM D-6 Approval of Assignment of Leasehold Interest (see exhibit)
- ITEM D-7 Approval of Amendment of Leasehold Interest (see exhibit)
- ITEM D-8 Approval to Issue Non-Exclusive Licenses for Rooftop Photovoltaic Systems for Certain Lessees (see exhibit)
- ITEM D-9 Cancellation of Lease – WILLIAM G. AKI, Agriculture Lease No. 2375, Lot No. 8, Hoolehua, Molokai and Lot No. 11a, Kalamaula, Molokai
- ITEM D-10 Cancellation of Lease – ARTHUR M. LEE, Agriculture Lease No. 7910, Lot No. 14, Hoolehua, Molokai

RECOMMENDED MOTION/ACTION

Acting Homestead Services Division Administrator Juan Garcia presented the following: Motion to approve the Consent Agenda D-2 through D-10, as listed in the submittal.

MOTION/ACTION

Moved by Commissioner Ka'apu to approve the Consent Agenda stated in the submittal.						
Seconded by Commissioner Neves						
Commissioner	1	2	'AE (YES)	A'OLE (NO)	KANALUA ABSTAIN	EXCUSED
Commissioner Awo			X			
Commissioner Helm						Muted
Commissioner Ka'apu	X		X			
Commissioner Kaleikini			X			
Commissioner Ka'upu			X			
Commissioner Namu'o			X			
Commissioner Neves		X	X			
Commissioner Teruya			X			
Chairman Aila			X			
TOTAL VOTE COUNT			8			
MOTION: <input type="checkbox"/> UNANIMOUS <input checked="" type="checkbox"/> PASSED <input type="checkbox"/> DEFERRED <input type="checkbox"/> FAILED						
Motion passes with eight (8) Yes votes						

REGULAR AGENDA

OFFICE OF THE CHAIRMAN

ITEM C-1 Acceptance of 2020-2021 Native Hawaiian Housing Block Grant Annual Housing Plan

RECOMMENDED MOTION/ACTION

NAHASDA Manager Lehua Kinilau-Cano presented the following: Motion to accept the 2020-2021 Native Hawaiian Housing Block Grant (NHHBG) Annual Housing Plan.

DISCUSSION

L. Kinilau-Cano stated that part of the compliance with 24 CFR Part 1006, Title VIII of the Native American Housing Assistance and Self-Determination Act (NAHASDA), the Department of Hawaiian Home Lands (DHHL) must file an approved annual housing plan (AHP) with the U.S. Department of Housing and Urban Development (HUD). As part of that process, the department releases the draft housing plan. DHHL has submitted a request to HUD to submit its AHP by April 30, 2020, to allow for the commission's acceptance at this meeting. The housing plan would go into effect on July 1, 2020, through June 30, 2021.

DHHL tried to keep the housing plan similar to the last plan; a lot of it is continuing what the department already has on the books. She felt it was prudent given the limited options beneficiaries have to provide feedback on the plan.

Notable changes to the AHP:

- Continued reduction in CIP activities as most of the infrastructure is completed in areas where NHHBG had been expended over the past five years, and no new NHHBG money exist to start new CIP developments.
- Expansion of rental assistance in response to COVID-19.
- Remaining balances are encumbered in existing contracts and projected homeowner financing.

There is approximately \$16.6 million in the account; a lot of funds are in existing contracts and homeowner financing.

MOTION

Moved by Commissioner Neves, seconded by Commissioner Awo, to accept the 2020-2021 Native Hawaiian Housing Block Grant (NHHBG) Annual Housing Plan.

Commissioner Kaleikini asked what the process for allocating additional funds for CIP projects going forward is. L. Kinilau-Cano stated there was a time when the State Legislature was giving the Department less funding, more of the NAHASDA money was going toward CIP projects. Things have reversed, and the Legislature is funding more CIP projects, so NAHASDA funds are going more toward homeowner financing.

MOTION/ACTION

Moved by Commissioner Neves to accept the 2020-2021 Native Hawaiian Housing Block Grant (NHHBG) Annual Housing Plan.						
Seconded by Commissioner Awo						
Commissioner	1	2	'AE (YES)	A'OLE (NO)	KANALUA ABSTAIN	EXCUSED
Commissioner Awo		X	X			
Commissioner Helm			X			
Commissioner Ka'apu			X			
Commissioner Kaleikini			X			
Commissioner Ka'upu			X			
Commissioner Namu'o			X			
Commissioner Neves	X		X			
Commissioner Teruya			X			
Chairman Aila			X			
TOTAL VOTE COUNT			8			
MOTION: <input checked="" type="checkbox"/> UNANIMOUS <input type="checkbox"/> PASSED <input type="checkbox"/> DEFERRED <input type="checkbox"/> FAILED						
Motion passes with nine (9) Yes votes						

ITEM C-2 Authorize (1) the establishment of the DHHL COVID-19 Emergency Rental Assistance Program utilizing Native Hawaiian Housing Block Grant (NHHBG) funds to provide rental assistance to eligible families; (2) use of up to seven million dollars in NHHBG funds to start the COVID-19 Emergency Rental Assistance Program; and (3) DHHL to increase funding for the program as demand and funding permits.

RECOMMENDED MOTION/ACTION

NAHASDA Manager Lehua Kinilau-Cano presented the following:

- (1) Authorize the establishment of the DHHL COVID-19 Emergency Rental Assistance Program utilizing Native Hawaiian Housing Block Grant (NHHBG) funds made available in accordance with the Native American Housing Assistance and Self-Determination Act (NAHASDA) and other federal laws including Public Law 115-141, the Consolidated Appropriations Act, 2018, which provided that NHHBG funds may be used to provide rental assistance to eligible Native Hawaiian families both on and off the Hawaiian Home Lands.
- (2) Authorize the Department of Hawaiian Home Lands to utilize up to (\$7,000,000.00) seven million dollars of NHHBG funds to start the program and allow the department to increase funding for the program in response to demand and as NHHBG funding or other supplemental funding permits, by informing the Hawaiian Homes Commission.

MOTION

Moved by Commissioner Awo, seconded by Commissioner Neves, to approve the motion as stated in the submittal.

DISCUSSION

Commissioner Helm stated there are three beneficiaries on Moloka'i who have NAHASDA demolition rebuild homes that have been put on hold for now. He asked if this program affects the completion of those projects. L. Kinilau-Cano stated these funds would not affect those projects. If those beneficiaries are already in the pipeline, these funds will not be taken from that project.

Commissioner Neves asked if there is an opportunity for more funding because seven million won't go far. L. Kinilau-Cano stated she and Deputy Gomes spoke with Senator Schatz staff, and although no commitments were made, if there is a high demand for this project, there may be an opportunity for supplemental funding through future Congressional COVID packages, or possibly increasing the future funding. They want to see what the response to the program is like. This program covers the gap group of waitlisters who don't have any other assistance should they fall behind, and they need help with their housing.

Commissioner Neves asked for clarification on the residency requirement. There are waitlisters not living in Hawai'i. L. Kinilau-Cano stated that the Hawai'i Delegation is looking at ways to help their constituents in the State of Hawai'i. If there is a high demand for waitlisters outside of Hawai'i, staff can look at what options are available.

Commissioner Teruya asked who will administer the program or whether the department was looking for an outside vendor. Chair Aila stated it would likely be an outside vendor who specializes in getting the funds dispersed as quickly as possible. Under the Governor's emergency proclamation, certain procurement procedures have been waived to get the funds dispersed quickly. The submittal delegated authority to the Chair and staff to negotiate with the vendor.

Commissioner Teruya asked if the staff has any vendors in mind. Chair Aila stated there are a few organizations, but the staff is still conducting its due diligence. Commissioner Teruya stated she would support the action and asked that the Chairman consider beneficiary based organizations that are able to execute the program.

Commissioner Awo supported the program and agreed with it being for Hawai'i waitlisters. He stated that seven million dollars are not much.

Commissioner Helm asked what the application process would look like. L. Kinilau-Cano stated the vendor would come up with the process, but the department will try to emphasize the message that the program requires lots of documentation because of the federal funding. Beneficiaries may find the documentation request challenging, but that is the requirement of where the funds are coming from.

Commissioner Kaleikini asked how beneficiaries would be notified about the program. L. Kinilau-Cano stated after the Commission's approval, a press release will be issued, the website will provide information, and a mailer will be sent out. If more outreach is needed, the department has the option of radio spots or newspaper ads.

MOTION/ACTION

Moved by Commissioner Awo to approve the motion, as stated in the submittal.						
Seconded by Commissioner Neves						
Commissioner	1	2	'AE (YES)	A'OLE (NO)	KANALUA ABSTAIN	EXCUSED
Commissioner Awo	X		X			
Commissioner Helm			X			
Commissioner Ka'apu			X			
Commissioner Kaleikini			X			
Commissioner Ka'upu			X			
Commissioner Namu'o			X			
Commissioner Neves		X	X			
Commissioner Teruya			X			
Chairman Aila			X			
TOTAL VOTE COUNT			9			
MOTION: <input checked="" type="checkbox"/> UNANIMOUS <input type="checkbox"/> PASSED <input type="checkbox"/> DEFERRED <input type="checkbox"/> FAILED						
Motion passes with nine (9) Yes votes						

LAND MANAGEMENT DIVISION

ITEM F-1 Approval and authorization to consider rent relief requests submitted by various lessees, licensees, and permittees statewide as a result of the COVID-19 Pandemic and emergency orders implemented by the Governor and various Mayors in response to COVID-19.

RECOMMENDED MOTION/ACTION

Acting Land Management Division Administrator Kahana Albinio presented the following: Motion that the Hawaiian Homes Commission approve and consider rent relief requests submitted by various lessees, licensees, and permittees statewide as a result of the COVID-19 Pandemic and emergency orders implemented by the Governor and various Mayors in response to COVID-19.

DISCUSSION

Commissioner Kaapu is concerned about what documents are required in the application process. The department will likely receive fewer funds from the Legislature, so trust funds may already have to be used. He wouldn't want to give someone who has the ability to pay, a six-month deferral. There should be a good basis for granting deferrals. The lessees should know what the expectations are at the front. Chair Aila stated Ka Makana Alii had submitted a list of which vendors are paying rents.

Commissioner Kaapu stated he has no problem with deferring rents for beneficiary licensees. Chair Aila stated that some of the licenses or general leases expire prior to the timeframe of the submittal, it has been difficult to do a one-size-fits-all program. It may end up being a case-by-case process.

Commissioner Neves stated he agrees with Commissioner Kaapu that more financial documentation should be required.

Commissioner Teruya stated she supported the motion and thanked the department for reaching out to commercial licensees.

Commissioner Kaapu asked that the Commission be provided an update of those who requested assistance and how much was provided.

MOTION/ACTION

Moved by Commissioner Awo to approve the motion, as stated in the submittal.						
Seconded by Commissioner Namu'o						
Commissioner	1	2	'AE (YES)	A'OLE (NO)	KANALUA ABSTAIN	EXCUSED
Commissioner Awo	X		X			
Commissioner Helm			X			
Commissioner Ka'apu			X			
Commissioner Kaleikini			X			
Commissioner Ka'upu			X			
Commissioner Namu'o		X	X			
Commissioner Neves			X			
Commissioner Teruya			X			
Chairman Aila			X			
TOTAL VOTE COUNT			9			
MOTION: <input checked="" type="checkbox"/> UNANIMOUS <input type="checkbox"/> PASSED <input type="checkbox"/> DEFERRED <input type="checkbox"/> FAILED						
Motion passes with nine (9) Yes votes						

ITEM F-2 Annual Renewal of Right of Entry Permit(s), Moloka'i Island

RECOMMENDED MOTION/ACTION

Acting Land Management Division Administrator Kahana Albinio presented the following: Motion that the Hawaiian Homes Commission approve the following actions while developing a process to making short-term agricultural and pastoral land dispositions available to beneficiaries:

- A) Renew all Moloka‘i Island Right of Entry Permit(s) as listed on Exhibit “A” and identified by approximate location on the Molokai Island Map Exhibit “A-1” that are in compliance and issued temporary approvals, as of May 1, 2020.
- B) The annual renewal period shall be on a month-to-month basis for up to twelve (12) months, but no longer than April 30, 2021, or at the next scheduled HHC meeting on Moloka‘i island whichever occurs sooner.
- C) Authorize the Chairman to negotiate and set forth other terms and conditions that may be deemed to be appropriate and necessary.

MOTION

Moved by Commissioner Neves, seconded by Commissioner Kaapu, to approve the motion as stated in the submittal.

DISCUSSION

Commissioner Neves stated his concern for the lack of details about whether the permittees are in compliance. On Kaua‘i there are problems with ROEs, and no one is really visiting the permittees to determine if they’re doing what they’re supposed to.

MOTION/ACTION

Moved by Commissioner Neves to approve the motion, as stated in the submittal.						
Seconded by Commissioner Kaapu						
Commissioner	1	2	‘AE (YES)	A’OLE (NO)	KANALUA ABSTAIN	EXCUSED
Commissioner Awo			X			
Commissioner Helm			X			
Commissioner Ka‘apu		X	X			
Commissioner Kaleikini			X			
Commissioner Ka‘upu			X			
Commissioner Namu‘o			X			
Commissioner Neves	X			X		
Commissioner Teruya			X			
Chairman Aila			X			
TOTAL VOTE COUNT			8	1		
MOTION: <input type="checkbox"/> UNANIMOUS <input checked="" type="checkbox"/> PASSED <input type="checkbox"/> DEFERRED <input type="checkbox"/> FAILED						
Motion passes with eight (8) Yes votes, one (1) No vote.						

ITEMS FOR INFORMATION AND DISCUSSION

GENERAL AGENDA

- J-1 Skydee Canon – Kalani Lease**
- J-2 Kekoa Enomoto – Paupena Community Development Corporation**
- J-3 Cora Schnackenberg – Ahonui Homestead Association**

Chair Aila stated the J Agenda listees submitted written testimony, which was provided to Commissioners. He asked if there were any questions regarding the testimonies. There were none.

WORKSHOPS

PLANNING OFFICE

ITEM G-1 For Information Only – Hanapēpē, Kaua‘i Homestead Development Plan Draft Environmental Assessment

RECOMMENDED MOTION/ACTION

None. For Information Only.

Acting Planning Manager Andrew Choy presented the following:

The purpose of the informational briefing is to update the HHC on the status of the planning process for the Hanapepe Homestead Community; to present summary highlights of the Draft Environmental Assessment (DES), and to notify Commissioners of the Draft Environmental Assessment (DEA) prior to publication in the Office of Environmental Quality Control’s Environmental Notice Bulletin.

DISCUSSION

Commissioner Neves wanted to make sure there are considerations about additional access to the development area, specifically looking for areas available to cross between the lots A. Choy stated there is a preliminary recommendation in one of the slides of the Draft EA.

ITEM G-2 For Information Only – Anahola, Kaua‘i Kuleana Settlement Plan, and Draft Environmental Assessment

RECOMMENDED MOTION/ACTION

None. For Information Only.

Acting Planning Manager Andrew Choy presented the following:

The purpose of the informational briefing is to update the HHC on the status of the planning process for the Anahola Kuleana Homestead Settlement; to present summary highlights of the Draft Environmental Assessment (DES), and to notify Commissioners of the Draft Environmental Assessment (DEA) prior to publication in the Office of Environmental Quality Control’s Environmental Notice Bulletin.

DISCUSSION

Commissioner Awo commented that the department is mindful of the challenges that continue to unfold in Kahikinui.

Commissioner Kaapu asked what the expected roll-out date might be. A. Choy stated they expect the environmental assessment to be presented to the Commission in July. The implementation will need to be discussed internally as there are a few programmatic issues, and there need to be some site improvements before the project can move forward. The department needs to coordinate with the Green Energy team with whom the Commission approved a right-of-entry permit last September to clear out the albizia trees.

Commissioner Kaleikini asked if the assessment work of the environmental assessment is considered essential during the COVID-19 process. All of the fieldwork was completed in 2019.

Commissioner Neves stated the removal of the albizia trees has opened up the area and maybe cause for another topical review and possibly a redesign of the lots. He asked if the report is

adjustable based on community input, and suggested a community storage area. He added that he has concerns about trespassing and security in the area. A. Choy stated the community activities are sited closer to the access points should the community decide to do as economic development activity like a farmers market in the future.

ITEM G-3 For Information Only -- Pu‘u ‘Ōpae, Kaua‘i Kuleana Settlement Plan and Draft Environmental Assessment

RECOMMENDED MOTION/ACTION

None. For Information Only.

Acting Planning Manager Andrew Choy presented the following:

The purpose of the informational briefing is to update the HHC on the status of the planning process for the Pu‘u ‘Ōpae, Kaua‘i Kuleana Settlement Plan; to present summary highlights of the Draft Environmental Assessment (DES), and to notify Commissioners of the Draft Environmental Assessment (DEA) prior to publication in the Office of Environmental Quality Control’s Environmental Notice Bulletin.

DISCUSSION

Commissioner Kaapu asked what the department is expecting the community to do with 10-acre pastoral lots and how the project is being integrated with Kawai Warren’s project. A. Choy stated pastoral lots were requested by the beneficiaries who attended the community meeting. It could be used for subsistence pastoral uses. The main source of water is ditch water from the Pu‘u Opae reservoir. The partnership with KIUC minimizes the department's investment in the area.

Commissioner Kaleikini asked how is KIUC’s involved. A. Choy stated KIUC would be making improvements to the ditch system as well as providing 600 mg of water per day for both Kawai Warren’s project and DHHL’s future projects. They are also responsible for the maintenance of the main road to and from Puu Opae. There are monthly payments, as well.

Commissioner Neves asked about the timeline. A. Choy stated there are programmatic issues as well and some site improvements before implementation.

REGULAR AGENDA

HOMESTEAD SERVICES DIVISION

- ITEM D-1 HSD Status Reports**
A - Homestead Lease and Application Totals and Monthly Activity Reports
B – Delinquency Report
C – DHHL Guarantees for USDA-RD Mortgage Loans

Commissioner Neves asked for information on which lessees elected to defer loan payments.

MOTION/ACTION

Moved by Commissioner Neves, seconded by Commissioner Helm to convene in an executive session pursuant to Section 92-5(a)(4), HRS, to consult with its attorney on questions and issue pertaining to the Commission’s powers, duties, privileges, immunities, and liabilities. Motion carried unanimously.

Commissioner Teruya asked to be excused from the meeting to attend to a prior commitment.

EXECUTIVE SESSION IN 11:15 AM

The Commission anticipates convening in executive meeting pursuant to Section 92-5(a)(4), HRS, to consult with its attorney on questions and issues pertaining to the Commission's powers, duties, privileges, immunities, and liabilities on these matters.

1. Update on Honokaia Non-Potable Water System Settlement

EXECUTIVE SESSION OUT 11:35 AM

ANNOUNCEMENTS AND ADJOURNMENT

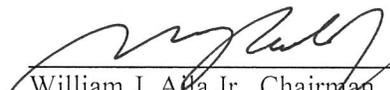
Chair Aila thanked Commissioners for participating.

MOTION/ACTION

Moved by Commissioner Neves, seconded by Commissioner Awo, to adjourn the meeting.
Motion carried unanimously.

ADJOURNMENT 11:39 A.M.

Respectfully submitted:



William J. Aila Jr., Chairman
Hawaiian Homes Commission

Prepared by:


Leah Burrows-Nuuanu, Commission Secretary
Hawaiian Homes Commission

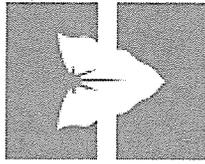
APPROVED BY:

The Hawaiian Homes Commission at its regular monthly meeting on:

May 19, 2020

Attachments

1. Public Testimony – Homelani Schaedel
2. Public Testimony – Kūhiō Lewis, President/CEO CNHA
3. Public Testimony – Robin Danner



PUBLIC TESTIMONY on AGENDIZED ITEMS

Hawaiian Homes Commission Meeting April 21, 2020 via Weblink

April 17, 2020

Hawaiian Homes Commission
Department of Hawaiian Home Lands
91-5420 Kapolei Parkway
Kapolei, HI 96707

Re: C2- DHHL COVID-19 Emergency Rental Assistance Program

Aloha Chair Aila and members of the Commission,

I am Homelani Schaedel, President of Malu'ōhai Residents' Association, mahalo for this opportunity to share comments.

On March 24, 2020 with approval from the Hawaiian Homes Commission (HHC), the Department of Hawaiian Home Lands (DHHL) announced deferment of its' direct loan mortgage payments of 6 months for lessees. Coupled with the Coronavirus Aid, Relief, and Economic Security (CARES) Act both actions provide relief for beneficiaries who are lessees.

We appreciate and are pleased to know the Department of Hawaiian Home Lands (DHHL) administration and its' NAHASDA staff is addressing our waitlist beneficiaries who have lost their jobs and/or source of income due to COVID-19.

Aware that Native Hawaiian Housing Block Grant (NHHBG) funds available through the Native American Housing Assistance and Self-Determination Act (NAHASDA) have requirements that will impede the process, we offer the following:

- . Given current workplace conditions, planning, internal support and teamwork among DHHL staff is crucial in assisting the vendor to expedite the program.
- . The selected vendor must have proven experience, technical resources, staffing capacity, and ability to manage the daunting documentation process effectively and efficiently. In addition, the vendor should be familiar with DHHL's initiatives and culturally sensitive when assisting our beneficiaries.
- . Announcement of this program to waitlist beneficiaries should include the minimum criteria, including income and documentation required to qualify for the program that is clear and concise. Not to discourage applicants, but rather to quickly assist those who have the greatest need and prepared to do the work to help themselves, as Prince Kuhio intended for all of us.

The need for kokua is urgent, we ask for your favorable support of the recommended motion.

Me ka mahalo nui
E mālama no kākou i ko kākou po'e kānaka



91-1270 Kinoki Street
Kapolei, HI 96707
808-596-8155
www.hawaiiancouncil.org

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
Commission Meeting
April 21, 2020

To: Chairman and Members, Hawaiian Homes Commission

From: Kuhio Lewis, President & CEO, Council for Native Hawaiian Advancement 

Subject: TESTIMONY - DHHL COVID-19 Emergency Rental Assistance Program – Item C-2

The Council for Native Hawaiian Advancement supports the establishment of the DHHL COVID-19 Emergency Rental Assistance Program and the allocation of up to seven million dollars (\$7,000,000.00) of Native Hawaiian Housing Block Grant (NHHBG) funds to start the program.

The Council for Native Hawaiian Advancement (CNHA) is a member-based 501(c)3 non-profit organization with a mission to enhance the cultural, economic, political, and community development of Native Hawaiians. CNHA is a national network of Native Hawaiian organizations and a strong voice on public policy. CNHA is a Native Community Development Financial Institution (CDFI) certified by the US Treasury department and a HUD-Certified Housing Counseling agency. We provide access to capital, financial education and individualized financial counseling services with a focus on low and moderate-income families. CNHA serves as a National Intermediary, providing grants and loans targeting underserved communities in Hawaii.

CNHA currently operates the Kahiau Community Assistance Program and the Ho‘āla Assistance Program, providing emergency financial assistance to Native Hawaiians and all Hawaii residents respectively. Over the past three months, CNHA has deployed nearly \$300,000 in emergency funds to cover mortgage, rent and utility payments for Hawaii families, with an estimated 85% of distributed funds going to support Native Hawaiian applicants. Despite these payments, the need for assistance continues to grow exponentially. As of April 20, 2020, CNHA has logged over 2,000 Native Hawaiian households expressing need for financial assistance. Beneficiaries need effective and efficient programming that can expedite payments and prevent further financial instability and long-term impacts to their self-sufficiency.

We have witnessed first-hand the implications of a burdensome program where criteria do not account for the realities of COVID-19 impacts on beneficiaries. With that in mind, CNHA offers the following comments and recommendations on criteria and eligibility proposed for this program:

- Native Hawaiian as defined by the HHCA currently on the Applicant Waiting List. Given the current situation with COVID-19, DHHL is unable to process applications in a timely fashion for any Native Hawaiian as defined by the HHCA not currently on the Applicant Waiting List.
 - *CNHA Comments/Recommendations:*
 - *CNHA supports this requirement and recommends validating this information either through documentation provided by the applicant or internal verification by the administering agency. (i.e. Applicants name is published on the applicant waitlist website, or a letter verifying the applicant has been deemed eligible for a DHHL lease)*
 - *DHHL should still consider waitlist applicants that are a part of the household but not necessarily listed as the “head of household” (per tax returns)*

- A reduction of income or loss of income/job as a result of COVID-19.
 - *CNHA Comments/Recommendations:*
 - *The following forms of verification should be acceptable from either the head of household or the waitlisted applicant to satisfy this requirement:*
 - *Letter from employer notifying applicant of reduced hours or layoff*
 - *One month of pay stubs that show a decline in income*
 - *Bank statements that show a decline in automatic payroll deposits*
 - *Unemployment approval letter from DLIR*

- An eligible household is one whose total household annual income does not exceed 80% AMI as defined by HUD for the NHHBG program.
 - *CNHA Comments/Recommendations:*
 - *The definition of “household” can provide challenges on its own. CNHA recommends that DHHL use the Head of Household’s 2019 tax return to determine AMI eligibility. If 2019 tax returns are not available, then a 2018 tax return can substitute this requirement. Tax transcripts should also be an accepted form of household income verification.*
 - *Additional documentation should be considered if the applicant has had a significant adjustment to the household, including but not limited to birth certificates, death certificates, marriage certificates, or divorce certificates.*

- The rental unit for which assistance is being requested is the individual’s primary residence located in the State of Hawaii.
 - *CNHA Comments/Recommendations:*
 - *CNHA agrees with this criteria and suggests validating this through documents that would already be collected through this process, including tax returns or rental/lease agreements.*
 - *If the beneficiary is not listed on either the tax returns or the rental/lease agreement, documentation should be collected to prove legal/familial relation to the head of household (i.e. birth certificates, marriage certificates)*

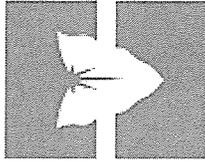
- The maximum monthly rent for a household to pay may not exceed 30% of the family’s monthly adjusted income. For example, if a household receives no income the household is responsible for 0% of the rent due and the Rental Assistance Program will be responsible for 100% of the rent due. If a household receives \$1000 adjusted income per month, the household will be responsible for a portion of the rent due up to no more than 30% of their monthly adjusted income or \$300, the rest of the payment will be provided by the Rental Assistance Program.
 - *CNHA Comments/Recommendations:*
 - *This requirement can be satisfied and calculated based on information contained on the tax returns that the applicant will be required to submit.*

- The maximum fair market rent that will be considered is as established by HUD’s fair market rent guidelines. The Landlord is asked to consider waiving any rent owing above the fair market rent guidelines during the period for which DHHL COVID-19 emergency rental assistance is provided.
 - *CNHA Comments/Recommendations:*

- *This information can be collected through a copy of the applicant's rental/lease agreement.*
- Not more than six (6) consecutive months of payment for rent. An additional six (6) months may be made available on a case-by-case basis subject to funding.
 - *CNHA Comments/Recommendations:*
 - *CNHA recommends the collection of a monthly "Statement of No Change" verifying that the applicant's status remains the same. Changes in the applicant's or head of household's financial status or living situation must be disclosed and considered for eligibility prior to distributing follow-up payments.*

In light CNHA's experience in working closely with the native Hawaiian community, supporting a broad network of service provider across the state as an intermediary, and its familiarity in navigating an emergency assistance program, CNHA in partnership with our network of providers - is interested in helping to administer this program. **We strongly urge the Commission to approve the creation of the DHHL COVID-19 Emergency Rental Assistance Program and thoroughly consider beneficiary serving organizations ready and willing to execute this program.**

Mahalo for the opportunity to submit testimony on this matter.



PUBLIC TESTIMONY on AGENDIZED ITEMS

Hawaiian Homes Commission Meeting April 21, 2020 via Weblink

Sent: Tuesday, April 14, 2020 8:16 PM

Subject: HHC Contact: Submit Written Testimony

To:

HHC Secretary

First Name: Robin

Last Name: Danner

Phone:

8086520140

Email:

Robin@hawaiianhomesteads.org

Subject:

Submit Written Testimony

Message:

On the Emergency COVID 19 Rental Assistance Item.

1. Beneficiary consultation by sending out drafts of program details prior to scheduling an action item, is a best practice that beneficiaries have consistently requested decade after decade. To use the email lists to garner input would be amazing.
2. Recommend that any COVID 19 program include waitlist beneficiaries in making rental payments.
3. Recommend that any COVID 19 program include HHCA beneficiaries with businesses that need rental assistance to pay rental expenses to keep their businesses open.
4. Request a copy of the program description to better understand how "rental assistance" helps a lessee.
Mahalo!

Be safe everyone!

Appendix G

Preliminary Engineering Report

PRELIMINARY ENGINEERING REPORT

Pu'u 'Ōpae

July 8, 2020

Prepared for:

State of Hawai'i – Department of Hawaiian Home Lands

Prepared by:



111 South King Street, Suite 170
Honolulu, HI 96813
Phone: (808) 523-5866
Fax: (808) 523-5874

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1 Introduction

1.1 Project Background and Description

In 2014, the *Kekaha Hawaiian Homestead Association* (KHHA) conceptualized a Farm and Irrigation Project (FIP) for the Department of Hawaiian Home Lands (DHHL) Pu‘u ‘Ōpae property with the intent of building a “cultural pu‘uhonua (a place of refuge)” where Hawaiians are connected to land and water. The vision for Pu‘u ‘Ōpae Homestead Farm Lots consists of infrastructure improvements, test crops, reforestation, an educational training center (agricultural university), and agricultural homestead lots.

In 2017, the DHHL contracted G70 to prepare a master plan and settlement plan for the DHHL’s Pu‘u ‘Ōpae property, utilizing the FIP and other available information, site visits, and specialty studies. The master plan will define the parameters of development of a portion of DHHL’s Waimea lands.

1.2 Purpose

The purpose of this report is to assess existing roadways, non-potable water, wastewater and drainage systems to determine the extent of proposed infrastructure improvements necessary to support “Kuleana” homesteading, and potentially settlement, on approximately 1,423 acres of DHHL property in Waimea, Kaua‘i. “Kuleana Homesteads” are defined in the Hawai‘i Administrative Rules (HAR) §10-3-30 – Kuleana Homestead Leases. The program was designed to allow for the award of homestead lots in otherwise unimproved areas, in which there would be excessive cost to develop the tract for any particular reason, including physical characteristics and the distance from available infrastructure.

As such, this report provides evaluation of the following items under the lens of the Kuleana Homestead Lease program:

- Assessment of existing civil infrastructure
- Projected infrastructure demands and requirements
- Identification of potential infrastructure improvements

A Kuleana homestead lot may or may not include a residence, and only requires an unpaved right-of-way to the lot. In general, all lessee improvements on the lot must meet applicable State and County building codes governing land use, building, health, and safety, until such time that the Kuleana Homestead’s association may determine its own codes and permitting requirements. Currently, any improvement on DHHL Kuleana lots must be designed, stamped, and signed by a licensed Architect or Engineer.

Other land use constraints are also incorporated into this report. Over the past few years, the DHHL has been involved in mediation negotiations with respect to the regional use of water, as much of the water is sourced from the Kōke‘e Ditch System and passes through multiple properties and feeds multiple users. As such, a 2017 Water Mediation Agreement between various parties has been instituted.

The agreement helps define the parameters of the proposed hydroelectric power project by the Kaua‘i Island Utility Cooperative (KIUC), which proposes to utilize much of the same infrastructure as the proposed Pu‘u ‘Ōpae Homestead project. As part of the mutually beneficial agreement between KIUC, the DHHL, and others, KIUC will rehabilitate and maintain existing infrastructure such as the Pu‘u ‘Ōpae Reservoir and associated irrigation ditches and access roads on DHHL’s property. This report assumes that the KIUC power project, while in its infancy, will be completed in the next few years prior to the proposed homesteading of the DHHL property.

1.3 Site Location

The project property is located in Waimea, on the west side of the Island of Kaua‘i and is designated as Tax Map Key: (4) 1-2-002:023 with a total land area of 14,556-acres.

See Figure 1 – Vicinity Map.

1.4 Proposed Project

The project consists of the development of Kuleana homestead lots and other community and agricultural improvements on approximately 1423 acres within DHHL’s larger parcel. The proposed land uses will generally follow the KHHA’s FIP, but modifications and slight differences are included based upon DHHL requirements as well as review of available infrastructure and topography. To date, components of the project include:

- An Agricultural Training Facility (agricultural university)
- Community Venue
- 240 homestead lots (residential and/or non-residential)
- General agriculture (orchard or pastoral)
- Reforestation

1.5 Existing Uses

The property was historically leased to and used by the Kekaha Sugar Company (KSC) for sugar cane production during the plantation era circa 1900. Water from the Waimea watershed was used to irrigate highland sugar cane fields located just below Pu‘u ‘Ōpae reservoir through the late 1990s.

The former KSC agricultural infrastructure still exists today. However, the cane fields are vacant and no longer in use.

The KHHA has an existing lease from DHHL for 231 acres (Section 1) of the FIP area. Therefore, land use within this area is under KHHA license and not included in this report. Uses within the Section 1 area include some general agricultural area, the reservoir itself, the community venue and agricultural training facility, and some reforestation areas. No individual Kuleana homesteads are proposed in this first section. Such uses in Section 1 will be incorporated into the master plan, as available to all users of the Pu‘u ‘Ōpae property, while the master plan focuses on the development of approximately 240 Kuleana homestead lots, and additional general agriculture and reforestation areas. **See Figure 1 – Vicinity Map.**

2 Roads and Access

2.1 Existing Conditions

2.1.1 Existing Off-Site Roads (Non-DHHL)

All access points to the project site are controlled with locked gates. Primary access to the project site is currently provided mauka of the property, off Kōke‘e Road (Hawai‘i Route 550) between mile markers 9 and 10. This portion of Kōke‘e Road is a paved two-lane road owned and maintained by the State Department of Transportation. The entry road to the project site off Kōke‘e Road runs through land owned by the State Department of Land and Natural Resources and managed by two different divisions—Division of State Parks and Division of Forestry and Wildlife. This road is an unpaved dirt road approximately 12’-wide.

Other main access points exist off of the makai property boundary through Niu Valley and Waiawa Valley off Mānā Road. Mānā Road is a gravel roadway located on state land managed by the State of Hawai‘i Agribusiness Development Corporation (ADC). The ADC leases Mānā road, along with agricultural lands in the area to the Kekaha Agricultural Association (KAA), a tenant association formed in 2003. KAA is a dues-paying membership with agricultural members including Syngenta, Wine of Kaua‘i, Pioneer, and BASF Corporation. Alternative access to Niu Valley and Waiawa is possible off of Old Mānā Road or Old Government Road, which is an older dirt road mauka of and parallel to Mānā Road. It is similarly located on state land managed by the ADC. **See Figure 1 – Vicinity Map.**

2.1.2 Existing On-site Roads (DHHL)

All existing on-site roads within DHHL property are unpaved, 4-wheel drive roads, many of which originated in the 1920’s for sugar cane and irrigation operations by the Kekaha Sugar Company. Aerial imagery taken in February 2018 indicates various existing dirt roads criss-crossing over the project area and within DHHL’s entire property consisting of 14,556 acres in total.

The existing dirt roads on DHHL property provide access to the Pu‘u ‘Ōpae project site. The primary on-site roads include the Unnamed road from Kōke‘e Road that passes through land owned and managed by the Department of Natural Land and Resources (DLNR) and Niu Valley Road from the makai property boundary.

The unnamed road off Kōke‘e Road first leads to DHHL’s pastoral lots mauka of project area, occupied by one tenant, and then leads to the Pu‘u ‘Ōpae project area. The road is a one-lane unpaved dirt road approximately 12’-wide.

Niu Valley Road is an existing one-lane dirt road exhibiting erosion with significant deep ruts. Rocks and boulders make passage slow and dangerous. The road traverses a steep valley wall between the upper Pu‘u ‘Ōpae plain and the bottom of the valley and crosses over one gully with an existing box culvert. The elevation difference is approximately 900 feet. Due to the steep (greater than 50%) slopes, the road is highly susceptible to erosion.

Other available access also includes Marine Road or Hunter’s Road through Waiawa Valley at the makai property boundary, accessible off of Mānā Road. Marine Road is used by hunters despite difficult passage, including steep slopes, broken concrete sections, large rocks and boulders, and significant rutting and erosion.

Historically, access to the site was also provided off of lower Kōke‘e Road through Black-gate Road. The road is within DHHL property and was observed to be in major need of repair due to erosion. Black-gate Road does not appear currently in use due to severe erosion and disrepair.
See Figure 1 – Vicinity Map

2.2 Proposed Roads, Access and Parking

2.2.1 Off-Site Roads

The primary access to the project site will continue to consist of the use of the two off-site main roads, Kōke‘e Road and Mānā Road. Proposed use of Mānā Road or Old Mānā Road for the Niu Valley access requires coordination between KHHA and KAA. As lessee, KAA needs to submit a proposed Right-Of-Entry (ROE) agreement to the ADC for review and approval.

KIUC’s project includes minor repairs and upgrades as well as maintenance of the unpaved roads off Kōke‘e Road and the short section of Niu Valley Road at Mānā Road. The roads will remain unpaved and DHHL will continue to use these main access points to the project site.

2.2.2 On-Site Roads

Proposed onsite roadways within DHHL property to and within the project site will include use of existing unpaved roads. The primary access path will run east-west across the site, connecting Niu Valley Road with the unnamed road off Kōke‘e Road.

KIUC's project includes minor road improvements to this primary east-west accessway consisting of repairs, re-grading, and installation of culverts to address erosion issues. The roads will remain as unpaved, compacted gravel roads requiring 4-wheel drive vehicles, but will be improved and maintained such that KIUC can adequately access their facilities as part of the hydroelectric project.

New dirt roadways within the Pu‘u ‘Ōpae boundary may be constructed once Kuleana homestead lots are delineated, to provide access to each lot, as required under HAR §10-3-30 – Kuleana Homestead Leases. The lessee is then required to participate in the maintenance of the right-of-way to the Kuleana homestead tract.

At a minimum, the DHHL Pu‘u ‘Ōpae project area will have two access points. Such access points may be used for emergency purposes as well, including evacuation as needed. However, because the roadways are unpaved and consist of steep inclines or sharp turns, emergency vehicle access will continue to be limited.

3 Water Infrastructure

3.1 Existing Conditions

3.1.1 Existing Potable Water Systems

There is no existing County of Kaua‘i or DHHL potable water system within the project area or vicinity.

3.1.2 Existing Non-Potable Water System (Kōke‘e Ditch Irrigation System)

Non-potable water (agricultural irrigation water) is provided by the Kōke‘e Ditch Irrigation System (KODIS). KODIS consists of three storage reservoirs and a 21-mile long irrigation ditch/tunnel system originally constructed by the Kekaha Sugar Company (KSC) in 1927. Water is diverted at intake structures from perennial streams (Waikoali, Kawaikoi, Kaua‘ikanana, and Kōke‘e Streams) within the upper reaches of the Waimea River watershed. Water is transmitted first to Pu‘u Lua Reservoir then to the Pu‘u Moe Divide where the irrigation ditch splits into two separate ditches and water is divided toward Pu‘u ‘Ōpae and Kitano Reservoirs.

See Figure 1 – Vicinity Map.

In 2004, the state Department of Land and Natural Resources transferred management of the former KSC infrastructure to the ADC. Per a Memorandum of Agreement (MOA) with the KAA, the infrastructure is used and maintained by the KAA (Investigation of Kōke‘e and Kekaha Ditch Irrigation Systems, DLNR October 2016).

Today, Kitano Reservoir is decommissioned due to vandalism after the March 14, 2006 Ka Loko Reservoir disaster. KODIS currently does not deliver water into the Pu‘u ‘Ōpae reservoir due to damage to and lack of maintenance of the irrigation ditch, as well as the planned diversion of the

water to pasture lands upstream of the reservoir. Water is diverted because of a recent investigation into the structural capacity of the Pu‘u ‘Ōpae Reservoir, determining that the reservoir strength is compromised. Pu‘u Lua reservoir is still in use, but at a lower capacity than originally designed. The reservoir is used for storage as well as for recreational trout fishing (stocked by the Department Land and Natural Resources) and for emergency wildland fire use.

Table 3.1.2: KODIS Storage Reservoirs

Reservoir	Original storage capacity (million gallons)	Current Condition	Owner
Pu‘u Lua	262		DLNR
Pu‘u ‘Ōpae	88	Disconnected	DHHL
Kitano	36	Decommissioned	----

The portion of KODIS within the project property consists of unlined earthen irrigation ditch and the Pu‘u ‘Ōpae storage reservoir. The Pu‘u ‘Ōpae reservoir is situated at an elevation of 1570 feet above mean sea level (RMH Digital elevation model, February 2018). The reservoir spans approximately 10 acres with a maximum depth of 50 feet.

3.1.3 Kōke‘e Ditch Irrigation System Flow Rates

Surface flow data was obtained from the U.S. Geological Survey’s (USGS) National Water Information System for the site name: Kōke‘e Ditch. The gauge is located at elevation 3,310 feet above mean sea level, above the Pu‘u Lua Reservoir and much further mauka of the project site. However, this was the closest gauge to the property, and no uses are expected between the gauge and the project area.

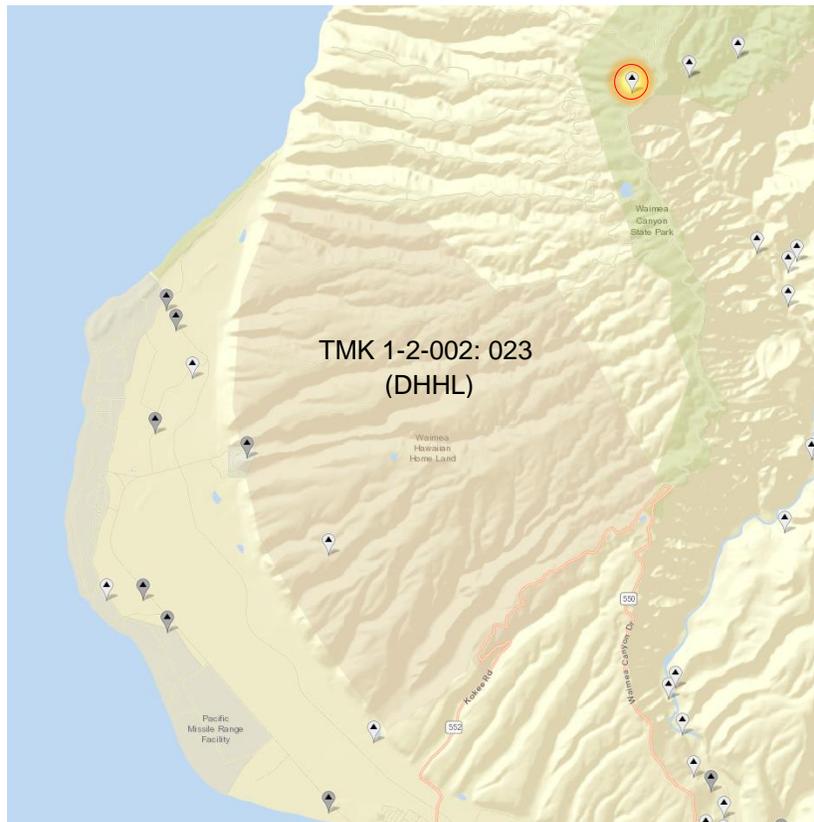


Figure 2 – USGS Kōke‘e Ditch Gauge

Monthly mean flow in cubic feet per second (cfs) was available from January 1927 through December 1982 for a total span of 56 years. Monthly mean flow is the average of daily flows collected in a particular month. For example, the USGS data reported an average daily flow of 29 cfs (or 18.0 million gallons per day) in the month of January.

Table 3.1.3: USGS Kokee Ditch Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean Mean Flow (mgd)	18.0	19.6	21.9	22.3	18.1	12.4	14.8	11.5	8.4	10.1	16.1	17.7

3.1.4 Rainfall Data

The project site elevations range between 2200 and 850 feet above mean sea level. Rain gauge data was obtained from the National Oceanic Atmospheric Administration (NOAA) Climatic Data Center for station names: Kanalohuluhulu 1075 (GHCND:USC00513099) and Hukipo 945 (GHCND:USC00512161). The Kanalohuluhulu rain gauge is located at elevation 3291 feet above mean sea level (msl) and approximately 8 miles mauka of the project site. The Hukipo rain gauge is located at elevation 244 feet above msl and approximately 5 miles makai of the project site. Daily rainfall data in inches is available at the Kanalohuluhulu site from January 1, 1955 through December 31, 2013 for a total span of 59 years. Rainfall data at the Hukipo site is available from January 1, 1950 through December 31, 2000 for a total span of 51 years.

■ Daily Summaries Station Details

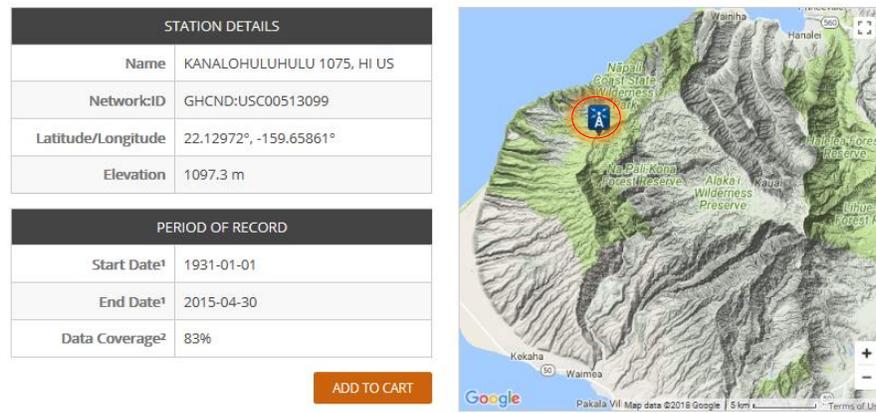


Figure 3 - NOAA Kanalohuluhulu 1075 Station Location

The rainfall data was processed for effective rainfall needed for irrigation of crops, which is important for farmers and the homesteaders. Effective rainfall is considered as rainfall up to 0.8 inches per day with the remaining rainfall assumed going to runoff or deep percolation beyond plant uptake. Effective rainfall was then applied across the project area to calculate average rainfall available for crops in million gallons per day (mgd) for each month.

Table 3.1.4: Summary of NOAA Rainfall Data for Kanalohuluhulu 1075 Station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg Rainfall (inches)	11.59	8.10	7.49	4.73	3.18	1.89	2.17	2.36	2.20	4.51	7.47	10.59	66.27
Avg Effective Rainfall (inches)	6.31	5.21	4.81	3.70	2.62	1.74	2.05	2.08	2.07	3.18	4.44	5.85	44.07
Avg Daily Rainfall Volume* (mgd)	9.17	8.34	7.00	5.56	3.82	2.62	2.98	3.03	3.12	4.62	6.68	8.52	65.46

* Over 1,661 acres (Existing pastoral lot useable area + KHHA license + Puu Opae Homestead project area)

■ Daily Summaries Station Details

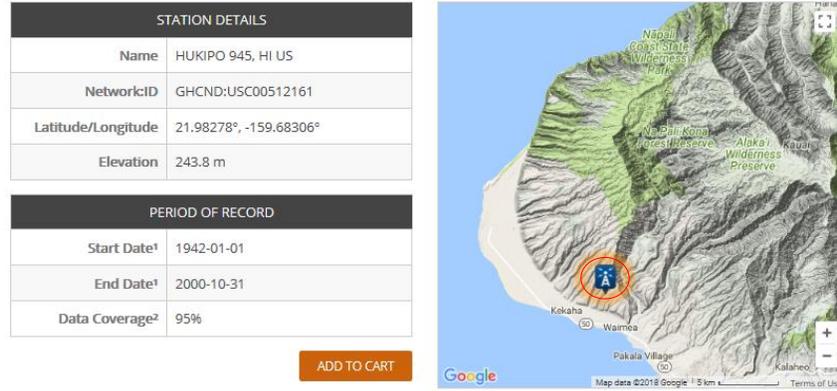


Figure 4 - NOAA Hukipo 945 Station Location

Table 3.1.5: Summary of NOAA Rainfall Data for Hukipo 945 Station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Avg Rainfall (inches)	4.52	2.75	2.47	1.36	1.20	0.35	0.59	0.99	1.04	2.55	3.03	4.09	24.93
Avg Effective Rainfall (inches)	2.68	1.85	1.54	0.93	0.84	0.33	0.49	0.68	0.86	1.51	1.64	2.00	15.33
Avg Daily Rainfall Volume* (mgd)	3.90	2.95	2.24	1.40	1.22	0.49	0.71	0.99	1.29	2.19	2.46	2.92	22.74

* Over 1,661 acres (Existing pastoral lot useable area + KHHA license + Puu Opae Homestead project area)

3.2 Proposed Water System Infrastructure

3.2.1 Proposed Potable Water Systems

Potable water systems are not proposed for permanent residential / settlement purposes at this time. Kuleana homesteaders may possibly treat and disinfect non-potable water from the irrigation system for individual potable use. Water treatment systems will need to meet requirements contained in *HAR §11-20 – Rules Relating to Public Water Systems* if the water system ultimately serves at least 15 service connections or at least 25 individuals daily for 60 days out of the year.

It is anticipated that homesteaders would either 1) treat their water from available irrigation water sources, or 2) haul their own potable water in from other sources.

As part of *HAR §10-3-30 – Kuleana Homestead Leases*, the provision of potable or irrigation water is not required for the issuance of a Kuleana homestead lease.

3.2.2 Proposed Non-potable Water Systems

However, understanding that water is critical to supporting life, the DHHL should consider providing non-potable water to each Kuleana homestead lot in the Pu‘u ‘Ōpae project area,

even if not required. Utilization of the existing non-potable water systems should make such an effort relatively simple and at a reasonable cost.

The existing KODIS system is expected to remain in place to service the Pu‘u ‘Ōpae property and proposed homesteading improvements. Based upon the *Mediation Agreement for the Waimea Watershed Area (2017)*, upon which the DHHL, KIUC, ADC, KAA, and the West Kaua‘i Watershed Alliance are all party to, 6.903 million gallons per day (mgd) is reserved for the DHHL Pu‘u ‘Ōpae users and potential homesteaders. This reservation must be split amongst DHHL’s users within the several existing pastoral lots (only one lessee), as well as the master planned project at Pu‘u ‘Ōpae. DHHL has also submitted a modified petition to the CWRM further detailing allocations of the 6.903 mgd, of which, 0.773 mgd will be reserved for a planned “Mauka Village”, and 6.130 mgd will be allocated to the Pu‘u ‘Ōpae lands and existing pastoral lots.

As part of the mediation agreement, KIUC has a reservation of 11 mgd to support its hydroelectric project, which ultimately includes the reservation for the Pu‘u ‘Ōpae master planned area as well as any other DHHL water needs that may be granted by the State of Hawai‘i Commission of Water Resource Management (CWRM). The intent of this reservation is to ensure both 1) that KIUC may accomplish its renewable energy project and 2) reduce the diversion of water in to the Kekaha Ditch system. It is therefore important to note that KIUC’s reservation encompasses all of DHHL’s reservation and should be considered a partner in development at Pu‘u ‘Ōpae.

Such reservations of water are considered “rolling averages” which means an average to account for intra and inter-annual fluctuation. They also assume that Interim Instream Flow Standards (IIFS) minimum flow rates are maintained in the region’s streams.

3.2.3 Proposed Non-potable Water Infrastructure Improvements

As part of KIUC’s hydroelectric power project, KIUC proposes to replace approximately 34,200 feet of existing unlined irrigation ditch from the Puu Moe Divide to Pu‘u ‘Ōpae and Mānā Reservoirs with a closed pipe system. The system will primarily be underground with the portion of pipe travelling down the bluff from Pu‘u ‘Ōpae to Mānā Reservoir anchored at grade. Such improvements will improve the system efficiency and reduce waste.

See Figure 5 – Conceptual Master Plan

Because the system will be within a closed conduit pipe, the existing DHHL pastoral lots mauka of Pu‘u ‘Ōpae will be provided with a storage tank off of the piped system, upon which DHHL lessees can withdraw water (*KIUC 2017*).

The KIUC project will also rehabilitate the Pu‘u ‘Ōpae Reservoir structural stability such that it can hold up to its original 88 million gallon capacity and to current Hawai‘i Dam Safety Regulation standards. Once constructed, KIUC will assume operation and maintenance of this portion of the KODIS.

The DHHL Kuleana homestead development at Pu‘u ‘Ōpae will need to draw its water from a DHHL provided irrigation pipe that connects to the Pu‘u ‘Ōpae reservoir. Once the reservoir is improved by KIUC, a new direct water line connection to the reservoir, including filtration systems, shall be installed to draw water from the reservoir. A new piped irrigation system will then provide non-potable water to the Kuleana homestead lots. Each lot will be provided with a meter and connection sized appropriately for the lot’s anticipated use (agriculture – crops or pastoral) and size. The non-potable water system from the Pu‘u ‘Ōpae Reservoir should be underground to prevent damage and due to high pressures the system may also experience. Two pressure service zones may be required to support the development (including a new reservoir or holding pond at the lower elevations of the project site).

See Figure 5 – Conceptual Master Plan

3.2.4 DHHL Water Demands and Water Reservation

Conservative estimated water demands are based primarily on the proposed land use as well as on consumption by the anticipated number of people and farm animals. Land use was assumed to be very similar to what was proposed in the FIP, which consisted of general agriculture use including farming, pastoral use, lo‘i, an agriculture university, and residential use.

The following land uses and associated demands in gallons per acre per day were used in the KHHA FIP. G70 reviewed these demands against standards or studies and find the estimates are conservative. For example, the minimum estimate for lo‘i crop demand provided by the University of Hawai‘i College of Tropical Agriculture and Human Resources (CTAHR) is 50,000 gallons per acre per day. The conservative estimate of 150,000 gallons per acre per day (GAD) in the FIP is based on higher demand considering the low rainfall rates of the Waimea area. The estimate for residential use is also equivalent to County of Kaua‘i’s *Water System Standards* for fully occupied single-family dwellings on Kaua‘i, though some lots may not have residences and all lots will have an agriculture component.

While settlement, including the permanent habitation of homestead lots in Pu‘u ‘Ōpae, is desired, such improvements and requirements are not yet needed for Kuleana homestead lots. However, in this demand estimate, it is assumed that 240 Kuleana homestead lots (0.5 acre) are awarded at build-out and that all have a permanent residence on-site.

Table 3.2.4: Water Use Demands

Area: Existing pastoral lots 1 - 5				Land area: 476 acres
Land Use	GAD	Acres	MGD	Notes
Pastoral	3,800	476	0.500	One current lessee (Eben Manini) on lots
Animal care	--	--	--	
Sub-total		476	0.500	Water use capped at 0.5 MGD per the modified petition
Area: KHHA license				Land area: 231 acres
Land Use	GAD	Acres	MGD	Notes
Lo'i	150,000	10	1.500	Minimum = 64,000 GAD per CTAHR
Orchard	2,500	38	0.095	
Community/Gathering	2,000	13	0.026	
Aqua-culture	18,000	2	0.036	
Pastoral	3,800	57	0.217	
Reforestation	2,000	74	0.148	Reforested areas will not be permanently irrigated. Irrigation will be reduced significantly once reforested areas take hold. Reforested areas located above Pu'u 'Ōpae reservoir will not have a water source.
Animal Care	--	--	0.003	
Pu'u 'Ōpae Reservoir	0	10	0	
Roads	--	27	--	
Sub-total		231	2.025	
Area: Pu'u 'Ōpae homestead lots				Land area: 1192 acres
Land Use	GAD	Acres	MGD	Notes
Agricultural	2,500	424	1.060	Equivalent to Hawai'i Water System Standards for Kaua'i Agriculture
Pastoral	3,800	118	0.448	
Homesteading	2,000	120	0.240	Kuleana Homestead Lots = 0.5 acres, anticipated 240 lots = 120 acres in homesteading. 2,000 GAD per FIP.
Reforestation	2,000	523	1.046	
Animal Care	--	--	0.005	
Roads	--	7	--	
Subtotal		1192	2.799	Adjusted project boundary
Grand Total Land Use + People + Animals		1,899	5.324	Existing pastoral lots + KHHA license + Puu Opae homestead lots

Per the Mediation Agreement for the Waimea Watershed Area entered into on April 18, 2017, DHHL is granted a 6.903 million gallons per day (mgd) water reservation from KODIS. The proposed Pu'u 'Ōpae development as well as the existing pastoral lots are anticipated to require approximately 5.324 mgd. Within the remaining 1.579 mgd, 0.773 mgd will be allocated to the planned Mauka Village along Koke'e Road. The mediation agreement further states that DHHL has the right to file, at later dates, additional water reservations for the Waimea Watershed.

Based on estimates for the DHHL Pu‘u ‘Ōpae Master plan, the current water reservation is sufficient to meet existing and proposed water demands.

3.2.5 Irrigation and Agricultural Water Balance

It is important to understand the water demands and available water from the *Mediation Agreement for the Waimea Watershed Area* (2017), as both such flow rates are “rolling” averages for the year, accounting for fluctuation and assuming minimum stream flows are met.

As part of the Pu‘u ‘Ōpae Master Plan, a cursory review and agricultural water balance was then reviewed on a monthly basis. The analysis includes full buildout at the Pu‘u ‘Ōpae project area, including residences in each of the anticipated 240 Kuleana homestead lots, per the demand table above.

Table 3.2.5: Water Balance

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Effective rainfall (mgd) Hukipo Station^a	4.02	3.23	2.27	1.40	1.22	0.49	0.71	0.99	1.31	2.22	2.46	3.03
KODIS Mean Flow^b (mgd)	18.0	19.6	21.9	22.3	18.1	12.4	14.8	11.5	8.4	10.1	16.1	17.7
DHHL Water Reservation from Kokee Ditch (mgd)	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9	6.9
Land Uses Demand (KHHA FIP)	(4.824)											
Land Uses Demand (Existing)	(0.914)											
Balance at Reservoir^c	5.06	4.11	3.40	2.57	2.38	1.66	1.87	2.15	2.45	3.36	3.63	4.08

a. Effective rainfall totals assumes the first 0.8 inches of rainfall

b. KODIS Mean Flow for reference only

c. Balance at Reservoir = Effective Rainfall + DHHL Water Reservation – KHHA FIP Demand – Existing Demand

Based upon the available water from KODIS and DHHL’s reservation of flow rates (6.903 mgd) combined with rainfall (at either the upper or lower elevations), the data indicates the combined non-potable water sources are sufficient to meet the total estimated demand of 5.74 mgd for the existing pastoral lots, the KHHA licensed area and the proposed Pu‘u ‘Ōpae homestead lots. In the summer months of September and October, it is expected that, while there is sufficient water to support the Pu‘u ‘Ōpae project, a full 11 mgd reservation for KIUC will not be available. In partnership with KIUC, usage of water on-site may need to be controlled at the benefit of both KIUC and the DHHL.

Storage within Pu‘u ‘Ōpae Reservoir at 88 million gallons (MG) will also help to offset intra and inter-seasonal variations in rainfall and KODIS ditch flows.

Flow rates within the water balance above are based upon ditch gauge data from 1982 and rainfall data from a gauge in location slightly different than the project area. Conservatively, it should be anticipated that the ditch system is not functioning (increased waste) as it did in 1982 and rainfall patterns are changing with global climate shifts. Water conservation measures should be taken into account when fully planning an agricultural and irrigation water master plan and farm plan.

3.2.6 Fire Protection

Emergency water systems for fire protection must rely on aerial water drops from County of Kaua‘i Fire Department assets. There will be no fire protection system on-site such as fire hydrants. Pu‘u ‘Ōpae and Puu Lua Reservoirs should be upgraded to allow the fire department adequate access to provide dipping services. All lessee improvements must also abide by all applicable State and County codes related to land use, building, health, and safety.

4 Wastewater Infrastructure

4.1 Existing Conditions

There are no existing County of Kaua‘i sewer systems near the project property. The nearest wastewater treatment plant is Waimea Wastewater Treatment Plant (County) over 4 miles away. The project property is located above the State Underground Injection Control (UIC) line. Wastewater in the area is typically treated and disposed of through the use of a private Individual Wastewater System (IWS) for uses less than 1,000 gallons per day (gpd) in total wastewater generation, or a Wastewater Treatment Works (WWTW), the latter having more stringent design criteria, permitting and operating requirements.

The project property is also located within a state agricultural zone. As such, any building in this zone may be exempt from *HAR §11-62 – Wastewater Systems* Sub-sections 2 and 3 if buildings or facilities are essential to the operation of an agricultural enterprise.

4.2 Proposed Wastewater

Wastewater systems for planned residences and the community center and common areas should be planned in accordance with *HAR §11-62*. Although residences are not a requirement of Kuleana homestead lots, it is anticipated that the DHHL lessees would likely construct their own residences in accordance with the Kuleana Homesteading Lease program, meaning all improvements are subject applicable State and County codes and permits.

See Figure 5 – Conceptual Master Plan.

4.2.1 Domestic Wastewater Projection

Based on *HAR §11-62 – Wastewater Systems Table I*, the project will generate an average daily wastewater flow of approximately 48,000 gallons per day (GPD) at full build-out. This estimate is based on 240 units with 2 bedrooms at 200 gallons per day). The community center, common areas, agricultural university, and other uses in Section 1 should be planned by the KHHHA, under their current license agreement (lease) with DHHL.

Under *HAR §11-62*, an IWS would be allowed to serve the proposed residences. However, once the development of an area exceeds fifty (50) single family residential lots or dwelling units, a WWTW may be required if the developments consist of a density of more than 1 dwelling per acre. While each lot is planned to be 0.5 acres in size, the overall development itself is nearly 1963 acres in total for 240 Kuleana homestead lots. Confirmation that IWS' are appropriate will be the responsibility of the lessee.

Due to the nature of the Kuleana homestead lease program, it is expected that occupancy will be highly variable, resulting in a highly variable daily wastewater flow projection throughout the week.

4.2.2 Wastewater Collection and Treatment

Wastewater collection and treatment components will be designed in compliance with *HAR §11-62 – Wastewater Systems*.

4.2.3 Wastewater Disposal/Reuse

Several options are available for disposal of treated effluent:

- Infiltration – infiltration trenches, absorption beds, ponds
- Discharge – Direct discharge into oceans or streams
- Re-use – Non-potable irrigation

Infiltration of treated effluent can be utilized if it is not considered an injection well and it is designed in compliance with *HAR §11-62 and §11-23*. Due to environmental concerns, as well as distance from the ocean and streams, direct discharge into oceans and streams are not proposed. Wastewater reuse (e.g., subsurface irrigation of areas surrounding the wastewater treatment center) can be utilized if designed in accordance with the *Guidelines for the Treatment and Use of Recycled Water* (DOH WWB; May 5, 2002).

4.2.4 Agricultural Wastewater Management

All agricultural waste shall be handled in a manner that is compliant with *HAR §11-62* and the *State of Hawai'i Department of Health's* (DOH) Guidelines for Livestock Waste Management. Additional requirements may be implemented by the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), for which there is a West Kaua'i Soil and Water Conservation District (SWCD). Typically, thresholds on the number of animals and

types of animals raised upon the homestead lots may trigger different requirements within the two agencies.

5 Drainage Infrastructure

5.1 Existing Conditions

5.1.1 Existing Soil Conditions

Based on the *Soil Survey of the Island of Hawai‘i* (USDA, 1973), most of the project area proposed to be set aside for crops and homesteading consists of Makaweli silty clay loam with 6% to 35% slopes. The remaining area consists of Niu silty clay loam with 6% to 35% slopes.

Other areas include severely eroded Mahana silt loam at 12 to 35% slopes and Badland-Mahana complex as well as Pu‘u ‘Ōpae silty clay loam at 8 to 40% slopes and Waiawa extremely rocky clay at 30 to 80% slopes. The soils present at the project site exhibit the properties in Table 5.1.1, below.

See Figure 6 – Soil Map.

Table 5.1.1 – Soil Properties

Soil Type	Makaweli silty clay loam 6 to 35%	Niu silty clay loam 6 to 35%	Mahana silt loam 12 to 35%	Pu‘u ‘Ōpae silty clay loam 8 to 40%
Hydrologic Soil Group	Group C – slow infiltration	Group B – moderate infiltration	Group B – moderate infiltration	Group C – slow infiltration
Runoff Class	Medium to high	Medium to high	Medium	Medium to high

5.1.2 Existing Topography and Drainage Patterns

Ortho-imagery data taken at approximately 1,500 feet above ground level and at a resolution of 2 cm was collected for the project area by Resource Mapping Hawai‘i (RMH). The aerial images were processed and used to create a digital elevation model (DEM) from which contours and a topographic map were generated of the project area.

As depicted in **Figure 7 – Topographic Map (2018 DEM)**, the project property generally slopes to the west and discharges onto the adjacent property through several valleys along the western property line. The major discharge occurs through Niu Valley where an existing culvert was observed along the existing Niu Valley Road. Elevations within the project area range from 850 feet above mean sea level (msl) to 2,200 feet above msl.

5.1.3 Existing Flood Hazards

Based on the effective Federal Management Agency’s Flood Insurance Rate Maps (FIRM), the project site is located within Flood Zone X, defined as “Areas determined to be outside the 0.2% annual chance floodplain”. The preliminary FIRM that has not yet been accepted by the County also identifies the project area as within Flood Zone X.

5.2 Potential Drainage Requirements

At a minimum, proposed drainage improvements will be designed in compliance with the County’s *Storm Drainage Standards* (DPW; October 1970). Pre-development flow patterns and flow rates will generally match post-development conditions with runoff continuing to discharge overland into adjacent properties and into the large valleys and drainage channels, as the improvements generally do not consist of impervious areas.

Minor grading and installation of road culverts will be required to mitigate the erosion currently exhibited at the site. The location of Kuleana homestead lots considers the impact from flood hazards. The development is anticipated to avoid the installation of large flood conveyance systems.

However, irrigation and runoff cutoff ditches along fields, lots, and roadways will likely be constructed in accordance with NRCS Standard Practice Codes (Best Management Practices). New roadway crossings with piping or culverts will need to be installed at locations where flood waters may cross roadways. The existing culvert on Niu Valley Road should be improved to handle daily and construction / maintenance traffic (by KIUC), and in general, erosion control measures should be installed along the sides of roadways where possible. Roads must be consistently maintained by either dropping gravel stabilization as needed, or through pavements if sections are steep and often washed out.

Individual lessees will be responsible for constructing drainage improvements on their specific lot and improvements should be designed to minimize downstream impacts.

6 Master Plan Lot Scheme

Based upon the infrastructure assessment provided above, several criteria were used in siting of the Kuleana homestead lots and developable areas shown in Figure 5 – Conceptual Master Plan. The following list of items were considered:

Criteria	Value
Topography	Less than 15% Slopes, away from drainage ways and flood hazards.
Proximity to Roadways	Existing or new Dirt Roads.
Size	1/2(0.5)-Acre Lots and 1-acre Lots
Proximity to Water	Pu‘u ‘Ōpae Reservoir & KODIS
KIUC Improvements	Location of proposed pipelines and easement
Construction Cost	Focus on Pu‘u ‘Ōpae Ridge. Southerly ridge could be developed in other phases.

As indicated, fire protection and wastewater service were not heavily considered in the siting of the lots. It is anticipated that IWS’ will service each individual Kuleana homestead lot and that County of Kaua‘i Fire Department accepts such improvements utilizing air assets for firefighting purposes only.

Two lot schemes are provided—one at half-acre per lot density and another at 1-acre per lot density. The lots in the former layout are approximately 100’-wide by 218’-long and 110’-wide by 396’-long in the latter layout.

7 Summary

The DHHL properties in Waimea consist of a 14,556 acre parcel in Waimea, on the island of Kaua‘i. The Pu‘u ‘Ōpae project area encompasses approximately 1963 acres of the property and will include the following list of projects:

- Training facility (agricultural university)
- Community venue
- 240 homestead lots (residential and/or non-residential)
- General agriculture (orchard or pastoral)
- Reforestation

There are existing unpaved roads within the project site and vehicular access around the site is through the use of off-road 4x4 vehicles. Access to the property will continue to be through existing driveways off of Mānā Road through Niu Valley and Kōke‘e Road. The two access points will be connected in the east-west direction with a internal system of dirt roads.

Potable water service is unavailable the general area. In lieu of providing potable water service improvements to accommodate projected domestic water demand, agriculture water from the

Kōke‘e Irrigation Ditch system could be individually treated/distributed on-site for potable use. Alternatively, homesteaders will obtain and transport potable water from off-site.

Agricultural / irrigation water services will be provided by the Kōke‘e Irrigation Ditch system and Pu‘u ‘Ōpae Reservoir.

There are no existing County sewer systems near the project property. IWS will generally serve the homestead lots as residences may developed on-site.

The project property generally slopes to the west and discharges onto the adjacent property through several valleys and drainage channels along the western property line. Pre-development flow patterns and flow rates will generally remain in post-development conditions with runoff continuing to discharge overland into adjacent properties.

8 References

Hawai‘i Water System Standards Table 100-18 Domestic Consumption Guidelines
<http://hawaiidws.org/3%20about%20water/3b%20econ/Watersystemstandard.pdf>

University of Hawai‘i College of Tropical Agriculture and Human Resources
<https://www.ctahr.hawaii.edu/site/Info.aspx>

Water Needs for sustainable taro culture in Hawai‘i [RES-140-29]
<https://www.ctahr.hawaii.edu/oc/freepubs/pdf/RES-140-29.pdf>

University of Hawai‘i at Mānoa – Geography Department

Evapotranspiration of Hawai‘i
<http://evapotranspiration.geography.hawaii.edu/interactivemap.html>

Giambelluca, T.W., X. Shuai, M.L. Barnes, R.J. Alliss, R.J. Longman, T. Miura, Q. Chen, A.G. Frazier, R.G. Mudd, L. Cuo, and A.D. Businger. 2014. Evapotranspiration of Hawai‘i. Final report submitted to the U.S. Army Corps of Engineers—Honolulu District, and the Commission on Water Resource Management, State of Hawai‘i.

U.S. Geological Survey National Water Information System
<https://waterdata.usgs.gov/hi/nwis/>

Kekaha Hawaiian Homestead Association, *Pu‘u ‘Ōpae Farm and Irrigation Project*

County of Kaua‘i – *Rules Relating to Storm Drainage*

County of Kaua‘i – *Water System Standards*

HAR - wastewater

HAR - DHHL

HAR – Potable Water

Investigation of Kōke‘e and Kekaha Ditch Irrigation Systems, DLNR October 2016

National Oceanic Atmospheric Administration (NOAA) Climatic Data Center

KIUC 2017

HAR §11-62 and §11-23

Guidelines for the Treatment and Use of Recycled Water (DOH WWB; May 5, 2002)

State of Hawai‘i Department of Health’s (DOH) Guidelines for Livestock Waste Management.



Soil Survey of the Island of Hawaii (USDA, 1973)

NRCS

Appendix H

Draft Environmental Assessment Comment Letters

Barbara Natale

Subject: RE: DOH Clean Air Branch Comments on Draft EA for Pu'u 'Ōpae Kuleana Homestead Settlement Plan

From: Cab General <Cab.General@doh.hawaii.gov>

Sent: Wednesday, June 24, 2020 8:26 AM

To: Cachola, Julie-Ann <julie-ann.cachola@hawaii.gov>; Kawika McKeague <kawikam@g70.design>

Subject: DOH Clean Air Branch Comments on Draft EA for Pu'u 'Ōpae Kuleana Homestead Settlement Plan

Aloha

Thank you for the opportunity to provide comments on the subject project.

Please see our standard comments at:

<https://health.hawaii.gov/cab/files/2019/04/Standard-Comments-Clean-Air-Branch-2019.pdf>

Please let me know if you have any questions.

Barry Ching
Clean Air Branch
Hawaii Department of Health
(808) 586-4200

**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.

s

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 cab@doh.hawaii.gov	Indoor Radiological Health Branch (808) 586-4700
--	---

April 1, 2019



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Mr. Barry Ching
State of Hawai'i
Department of Health, Clean Air Branch
Via email: cab@doh.hawaii.gov

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Ching,

Thank you for your comment letter dated June 24, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

The project will not require an air pollution control permit, nor does it include construction or demolition activities that involve asbestos. We acknowledge that effective air pollution control measures should be installed to prevent or minimize any fugitive dust emissions caused by construction work affecting the surrounding areas. *Chapter 3.8, Air Quality*, of the Final EA lists proposed mitigation measures to minimize the potential for impacts on the surrounding areas. We acknowledge the list of proposed air pollution control measures provided by your office, and will include them in *Chapter 3.8* of the Final EA.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal

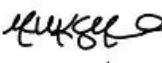


STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

June 12, 2020

REF: RFD.5371.2

TO: Kawika McKeague, AICP, Principal
Group 70 International, Inc.

FROM: M. Kaleo Manuel, Deputy Director 
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment (DEA) Puu Opae Kuleana Homestead Settlement Plan, Waimea
Ahupuaa, Waimea District, Kauai

FILE NO.: RFD.5371.2
TMK NO.: (4) 1-2-002:023 (por.)

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/cwrn>.

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.

- 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 projected water demands for the project, both potable and non-potable, should be identified and the calculations used to estimate demands should be provided. Water conservation and efficiency measures to be implemented should also be discussed. The report should discuss the 2017 State Water Projects Plan, which was updated exclusively for DHHL lands and water needs, and the degree to which this proposed project is consistent with the 2017 study.

If you have any questions, please contact Lenore Ohye of the Commission staff at 587-0216



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

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

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Manuel,

Thank you for your comment letter dated June 30, 2020 (Ref: RFD.5371.2) concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

Potential land erosion due to the construction and operations of the Kuleana Homestead Settlement have been addressed in the EA. During construction, soil erosion will be minimized through compliance with the City's grading ordinance and provisions of the DOH's Water Quality Standards (Chapter 11-54, HAR) and Water Pollution Control requirements (Chapter 11-55, HAR), as applicable. Should a grading permit be required, grading work will comply with the prevailing Rules Relating to Water Quality (City Administrative Rules 20-3). Standard BMPs to minimize impacts will be detailed in subsequent construction plans. BMP's may include phasing of construction activities, limiting site disturbance, use of temporary silt fencing and screens, and thorough watering of disturbed areas after construction activity has ceased for the day and on weekends.

We acknowledge your recommendation to use alternative water sources, install water efficient fixtures and implement water efficient practices throughout the development. As discussed in the EA, the Kuleana Homestead Program places responsibility for development of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land. Per HAR §10-3-30, DHHL will only be responsible to survey and stake the project area to determine the metes and bounds descriptions of each Kuleana Homestead Lot and prepare an unpaved right-of-way to the awarded lots. The future Pu'u 'Ōpae Kuleana Homestead Association will develop its own zoning, building, health and safety codes and permitting processes for the Settlement (subject to approval by the Hawaiian Homes Commission). The Association will determine the types of water fixtures and conservation practices that they deem are appropriate.

Mr. Kaleo Manual
Deputy Director
State of Hawai'i, Department of Land and Natural Resources
June 24, 2020
Page 2 of 2

Chapter 3.10.1 of the Draft EA describes the plans for supplying potable and non-potable water to the Project area. The Preliminary Engineering Report located in Appendix G in the Draft EA identifies and provides the calculations used to estimate water demands for the Project. Table 3.2.4, Water Use Demands, provides a summary of water uses and demand by Land Use. The Final EA will include a discussion of the 2017 State Water Projects Plan as recommended. DHHL will continue to coordinate with the County of Kaua'i and the Engineering Division of the State Department of Land and Natural Resources to incorporate the Project into applicable water and development plans.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

A handwritten signature in black ink, appearing to read 'Mark Kawika McKeague', with a long horizontal flourish extending to the right.

Mark Kawika McKeague, AICP
Principal

DAVID Y. IGE
GOVERNOR



CURT T. OTAGURO
COMPTROLLER
AUDREY HIDANO
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)20.086

JUN - 3 2020

Mr. Kawika McKeague, AICP, Principal
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Draft Environmental Assessment (DEA)
Puu Opaе Kuleana Homestead Settlement Plan
Waimea Ahupuaa, Waimea District, Kauai
TMK: (4) 1-2-002:023 (por.)

Thank you for the opportunity to provide comments for the subject project. This project does not impact any of the Department of Accounting and General Services' facilities, and we have no comments to offer at this time.

If you have any questions, please call Mr. Dennis Chen of the Public Works Division at (808) 586-0491.

Sincerely,


CHRISTINE L. KINIMAKA
Public Works Administrator

DYKC:mo



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Ms. Christine L. Kinimaka
Public Works Administrator
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, HI 96810-0119

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Ms. Kinimaka,

Thank you for your comment letter dated June 3, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

We acknowledge that the Department of Accounting and General Services has no comments to offer at this time as the project does not impact any of your managed facilities or properties.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 10, 2020

LD 552/Log no 2689

MEMORANDUM

TO: **DLNR Agencies:**

- Division of Aquatic Resources (via email: Kendall.L.Tucker@hawaii.gov)
- Division of Boating & Ocean Recreation
- Engineering Division (via email: DLNR.Engr@hawaii.gov)
- Division of Forestry & Wildlife (via email: Rubyrosa.T.Terrago@hawaii.gov)
- Division of State Parks
- Commission on Water Resource Management (via email: DLNR.CWRM@hawaii.gov)
- Office of Conservation & Coastal Lands
- Land Division – Kauai District (via email: DLNR.Land@hawaii.gov)
- Historic Preservation (via email: DLNR.Intake.SHPD@hawaii.gov)

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

SUBJECT: **Pu'u 'Opae Kuleana Homestead Settlement Plan,
Draft Environmental Assessment (DEA)**

LOCATION: Waimea Ahupua'a, Waimea District, Island of Kauai
TMK: (4) 1-2-002:023 (por.)

APPLICANT: **Group70 International, Inc., on behalf of the State of Hawai'i
Department of Hawaiian Home Lands**

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on May 23, 2020 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, at the following link:

http://oeqc2.doh.hawaii.gov/The_Environmental_Notice/2020-05-23-TEN.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **June 19, 2020**. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Barbara Lee via email at barbara.j.lcc@hawaii.gov. Thank you.

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: _____
 Print Name: DAVID G. SMITH, Administrator
 Division: Division of Forestry and Wildlife
 Date: Jun 22, 2020

Attachments
Cc: Central Files



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

June 22, 2020

MEMORANDUM

Log no. 2689

TO: RUSSELL Y. TSUJI, Administrator
Land Division

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

SUBJECT: Division of Forestry and Wildlife Comments for Pu'u 'Ōpae Kuleana Homestead Settlement Plan, Draft Environmental Assessment (EA)

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding review of the Draft EA for the Pu'u 'Ōpae Kuleana Homestead Settlement Plan in Waimea on Kaua'i, Hawai'i, TMK: (4) 1-2-002:003 (por.). The proposed project consists of designating 251 homestead lots (11 pastoral and 240 subsistence agriculture) on 1,421 acres of land. The proposed plan is to provide unpaved roadways for access to lots and is using the land for subsistence agriculture, pastoral, community use and special district purposes.

We appreciate the inclusion of mitigation measures in the Draft EA intended to avoid construction and operational impacts to State listed species such as the Hawaiian hoary bat and nēnē. DOFAW provides the following additional comments on the potential of the proposed work to affect listed species in the vicinity of the project area.

State listed waterbirds such as the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), and Hawaiian Common Gallinule (*Gallinula chloropus sandvicensis*) have the potential to occur in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any of these species are present during construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, please contact the Kaua'i DOFAW Office at (808) 274-3438.

DOFAW is concerned about attracting vulnerable birds to areas that may host nonnative predators such as cats and rodents. Additionally, improvements to the land parcel are likely to increase the human activity and may generate more predator attractants. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents, and provide covered trash receptacles.

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, or invasive plant parts that could harm our native species and

ecosystems. We recommend consulting the Kaua'i Invasive Species Committee at (808) 821-1490 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. Gear that may contain soil, such as work boots and vehicles, should be thoroughly cleaned with water and sprayed with 70% alcohol solution to prevent the spread of Rapid 'Ōhi'a Death and other harmful fungal pathogens.

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 for guidance on selection and evaluation for landscaping plants.

A vegetation survey should be conducted prior to commencing work due to the potential presence of rare and endangered plants at the proposed Pu'u 'Ōpae Homestead site. DOFAW recommends surveying for rare and endangered plants that may occur in the area. If any of these species are found, please notify DOFAW at (808) 587-0166.

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 Lauren Taylor, Protected Species Habitat Conservation Planning Coordinator at (808) 587-0010 or lauren.taylor@hawaii.gov.

Sincerely,



DAVID G. SMITH
Administrator



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Mr. David G. Smith, DOFAW Administrator
State of Hawai'i, Department of Land and Natural Resources
Division of Forestry and Forest and Wildlife
1151 Punchbowl Street, Room 325
Honolulu, HI 96813

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Smith,

Thank you for your comment letter dated June 22, 2020, LD552, concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

We acknowledge your recommendation to incorporate seabird friendly lighting guidelines throughout the development to avoid grounding of birds from artificial light. As discussed in the EA, the Kuleana Homestead Program places responsibility for development and management of infrastructure in the hands of beneficiaries in return for availability and early access to unimproved land. Per HAR §10-3-30, DHHL will only be responsible to survey and stake the project area to determine the metes and bounds descriptions of each Kuleana Homestead Lot and prepare an unpaved right-of-way to the awarded lots. The future Kuleana Homestead Association will develop its own zoning, building, health and safety codes and permitting processes for the Settlement (to be approved by the Hawaiian Homes Commission). The Association will determine the types of lighting to implement at homesites and Community Use areas. A discussion of the DLNR guidelines related to seabird-friendly light styles will be incorporated into Chapter 3.7, Biological Resources, of the Final EA.

We understand that the Nēnē has been downlisted to "threatened" under the Federal Endangered Species Act, but remains listed as "endangered" under the State of Hawai'i endangered species law, codified in Chapter 195D, Hawai'i revised Statutes. Chapter 3.7, Biological Resources will be updated in the Final EA to distinguish this classification. Chapter 3.7 will also include a discussion of mitigation measures to prevent Nēnē from entering construction zones.

Mr. David G. Smith
DOFAW Administrator
State of Hawai'i, Department of Land and Natural Resources
June 24, 2020
Page 2 of 2

We understand that other State-listed waterbird species not observed as part of the Project's Biological Survey have the potential to occur at the Project Site, inclusive of the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), and Hawaiian Common Gallinule (*Gallinula chloropus sandvicensis*). Improvements to the existing reservoirs and ditch system within the Project site could provide additional habit opportunities for these species and increase their probability of occurrence in the area. The Final EA will include a discussion of these State-listed waterbirds that may inhabit the region encompassing the Project site as well as mitigation measures to be implemented so as to protect these species during construction and activities.

Per HAR §10-3-30, the future Kuleana Homestead Association will be responsible for the management of natural resources once settlement occurs. Once the lots are awarded the Association will develop appropriate mitigation and conservation programs subject to approval by the Hawaiian Homestead Association. Mitigation may include actions to minimize predator presence, mitigate the spread of Rapid 'Ōhi'a Death, and prevent the spread of invasive species; however, these programs must ultimately be determined and codified by the Association.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70



Mark Kawika McKeague, AICP
Principal

DAVID Y. IGE
GOVERNOR



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

JADE T. BUTAY
DIRECTOR

Deputy Director
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

IN REPLY REFER TO:
DIR 0495
HWY-PS 2.3104

June 30, 2020

Mr. Mark Kawika McKeague
Principal
Group 70 International, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. McKeague:

Subject: Draft Environmental Assessment
Puu Opae Kuleana Homestead Masterplan – Waimea, Kauai, Hawaii
Tax Map Key No.: (4) 1-2-002: 023 (por.)

Thank you for your letter dated May 22, 2020 to review the subject project on the preparation of a Draft Environmental Assessment (DEA) required by Chapter 343, Hawaii Revised Statutes, due to the use of State lands and State funds. The proposed 1,421-acre settlement owned by the State of Hawaii Department of Hawaiian Home Lands consists of 240 farm lots with residential dwellings, a total of 11, 10-acre Pastoral lots, as well as 302 acres to be used as parks, community agricultural uses and cultural/recreational uses on the remainder portions of the land. The settlement serves lease beneficiaries for 99 years.

The project site will have 2 main access points with locked gates and are approximately 1.5 miles from the State Kaunualii Highway (Route 50). The primary access point will be off Kokee Road (Route 550) with this portion of the road (mile markers 9 and 10) owned by State jurisdiction. The site's secondary access point will be off Mana Road located on state land managed by the Hawaii Agribusiness Development Corporation.

The Hawaii Department of Transportation has the following comments:

1. A Traffic Impact Analysis Report should be included in the Final Environmental Assessment and should be prepared by a Professional Engineer with State license and traffic expertise.

- 1.1. The study area should include the following intersections: a) Old Mana Road and Kokee Road, b) Mana Road and Kokee Road, c) Kokee Road and Waimea Canyon Drive, d) Kaumualii Highway and Kekaha Road, e) Waimea Canyon Drive and Kaumualii Highway, f) Kokee Road and project access.
 - 1.2. The study should provide an analysis to identify any project impacts to the State facilities (State Kaumualii Highway, Waimea Canyon Drive and Kokee Road), as well as any mitigation measures that may be required.
 - 1.3. With respect to Kokee Road and the project access, the study should identify any recommended improvements or mitigations relating to vehicular safety concerns relating to sight distance and turning radius.
2. The DEA and the Traffic Study should include a discussion on the anticipated uses of the 302 acres of land set aside for community centers, agricultural and cultural uses opened to the general public, in particularly, the expected days and times or frequency to be used for high-volume public gatherings and events.

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. Please reference file review number PS 2020-083.

Sincerely,



JADE T. BUTAY
Director of Transportation

c: Office Environmental Quality Control



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Mr. Jade T. Butay, Director of Transportation
State of Hawai'i, Department of Transportation
898 Punchbowl Street
Honolulu, HI 96813

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Butay,

Thank you for your comment letter dated June 30, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

Draft EA Chapter 2.2, Community Use and Shared Common Spaces, and Chapter 2.3, Community Management and Economic Development, discusses a range of uses that could potentially be implemented in the areas designated as Community Use. These potential uses were determined based on needs and opportunities identified in the DHHL Kaua'i Island Plan, the West Kaua'i Regional Plan, and through extensive beneficiary consultation. The specific uses within the planned Community Use areas are not defined in this EA and will be determined by the future Kuleana Homestead Association. As such, we cannot estimate, with any certainty, the potential traffic impacts associated with these areas.

At the time DHHL applies for any required DOT permits for the Project, DHHL will provide relevant data that is collected and analyzed in accordance with DOT standards. Potential impacts and proposed mitigation strategies will be determined at this time.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal

Barbara Natale

Subject: FW: Kuleana Homestead Settlement Plan

From: Kathy Keala <kathyk@oha.org>
Sent: Friday, June 19, 2020 10:56 AM
To: Cachola, Julie-Ann <julie-ann.cachola@hawaii.gov>
Cc: Kamakana Ferreira <kamakanaf@oha.org>
Subject: [EXTERNAL] Kuleana Homestead Settlement Plan

Aloha Julie-Ann,

The Office of Hawaiian Affairs is receipt of your letter of May 18, 2020 regarding the DEA Pu'u 'Ōpae Kuleana Homestead Settlement Plan; Waimea, Kona, Kaua'i. OHA apologizes for the late response. A voice mail was left on June 10th which you can disregard.

The DEA mentions there are traditional heiau, village shrine, burial caves, and petroglyphs, and other findings outside of the project area. Management/protection of any unknown historic property within each respective parcel would be the responsibility of the family within whose parcel a site may lie. Although a limited Archaeological Reconnaissance Survey was completed as a part of the Settlement Plan study, future lessees of the Kuleana Homesteading Lots would be required to comply with HRS Chapter 6E and the applicable administrative rules for any project that may require a State or County permit or approval. This seems like a huge responsibility and burden on the homesteader.

It was noted that an archaeological inventory survey was recommended by Keala Pono to gather more information on the surface and possibly subsurface cultural resources within the project area. OHA concurs with this recommendation as there is not sufficient information to determine there will be no adverse effects.

Please feel free to contact me should you have any questions.

Mahalo,
Kathy

Kathryn Keala
Compliance Specialist
Office of Hawaiian Affairs
560 N. Nimitz Hwy., Suite 200, Honolulu, HI 96817
Phone: (808) 594-0272 E-mail: kathyk@oha.org





111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Ms. Kathy Keala
Compliance Specialist
Office of Hawaiian Affairs
560 N. Nimitz Hwy., Suite 200
Honolulu, HI 96817

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Ms. Keala,

Thank you for your comment letter dated June 19, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

We understand that it would be a large burden for lessees of the Kuleana Homesteading Lots to comply with the State's historic preservation process for future project that may require a State or County permit or approval. As noted in Section 3.13 of the EA, the majority of the historic sites that were identified in the archaeological survey lie outside areas targeted for lease awards. The Department will work with State Historic Preservation Division (SHPD) to ensure future development will not have an adverse effect on any undiscovered historic or cultural resources. At the time DHHL applies for any required State or County permits requiring SHPD approval, the Department will provide relevant identification studies and appropriate mitigation strategies in accordance with state standards.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal



DEPARTMENT OF PLANNING
THE COUNTY OF KAUAI

DEREK S. K. KAWAKAMI, MAYOR
MICHAEL A. DAHLIG, MANAGING DIRECTOR

KA'ĀINA S. HULL
DIRECTOR

JODI A. HIGUCHI SAYEGUSA
DEPUTY DIRECTOR

JUN 23 2020

G70
111 South King Street, Suite 170
Honolulu, HI 96813
Attn: Kawika McKeague, AICP, Principal

RE: DHHL Pu'u 'Ōpae Kuleana Homestead Settlement Plan Draft Environmental Assessment TMK (4)-1-2-002:023 (por.), Waimea District on the island of Kaua'i

Dear Mr. McKeague:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the Pu'u 'Ōpae Kuleana Homestead Settlement Plan. According to the DEA, the plan aims to establish a Pu'u 'Ōpae Kuleana Homestead Settlement by subdividing a portion of the land owned by the Department of Hawaiian Home Lands in the Mana region. The subdivision will include 251 homestead lots (240 half-acre subsistence agricultural lots, 11 ten-acre pastoral lots), 63 acres of Supplemental Agriculture, 302 total acres for Community Use (including 150 acres for KHHA), and 702 total acres (including 81 acres for KHHA) designated as "Special District".

Pursuant to the HHCA §206, Hawaiian Home Lands are not subject to County zoning or other land use controls. However, the County encourages the Department of Hawaiian Home Lands to review the County's General Plan and use it as an aid during project development. The General Plan was updated in 2018 and is the County's guiding land use policy.

The Planning Department appreciates the DEA's assessment of consistency with the General Plan, Special Management Area, and Comprehensive Zoning Ordinance. We offer the following comments:

5.10 Kaua'i County General Plan

In addition to the five policies mentioned in the Section 5.10 of the DEA, the General Plan includes other objectives and actions that are relevant to the project. They are described below:

Housing Sector Objectives and Actions (General Plan, pg. 122)

The Housing Sector includes a "Hawaiian Home Lands" subsection. The subsection's objective is to support the Department of Hawaiian Home Lands in their mission to provide housing to their beneficiaries. The relevant action is to respect and support the mission of DHHL to prioritize planning for their beneficiaries.

Opportunity and Health for All Sector Objectives and Actions (General Plan, pg. 200)



Community access is addressed in the "Improving Access to Subsistence and Recreational Activities" subsection. The subsection's objective is to actively protect, restore, and increase access to the places where recreational and subsistence activity occur. Given the project's proximity to State-owned land within the conservation district, there is an opportunity to further the following actions:

- Inventory and improve hunting access to Forest Reserves and government trails.
- Increase opportunities for access to subsistence hunting, fishing, and gathering.

5.11 County of Kauai Comprehensive Zoning Ordinance

No additional comments.

5.12 Special Management Area Rules and Regulations

No additional comments.

5.13 West Kauai Community Plan

The Waimea-Kekaha Development Plan has not been updated in several decades. However, the draft West Kauai Community Plan is under review at the Kauai County Council. One of the preliminary goals in the Mana region is to support the continued cultural legacy and economic potential of agricultural production in the Mana region, including the land owned by HDOA-ADC and DHHL. Pu'u 'Ōpae Kuleana Homestead Settlement Plan for subsistence farming/ranching and homesteading for the Hawaiian community is consistent with the policies, goals, and objectives set forth in the current draft of the West Kauai Community Plan.

Other Comments

- How will the project be impacted by the timeline for KIUC's project to retrofit and reconstruct the Pu'u 'Ōpae reservoir and irrigation system?
- Is there a cost estimate that represents the financial burden for a typical homesteading beneficiary to deliver irrigation water to their subsistence farming or pastoral lot?

We hope these comments are useful as you finalize the environmental assessment for the Anahola Kuleana Homestead Settlement Plan. Should you have any questions, please contact the Planning Department at (808) 241-4050.

Mahalo,

Ka'aina Hull

Ka'aina Hull (Jun 23, 2020 12:11 HST)

Ka'aina S. Hull

Planning Director



111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Mr. Ka'aina Hull, Planning Director
County of Kaua'i, Department of Planning
4444 Rice Street, Suite A473
Līhu'e, HI 96766

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Hull,

Thank you for your comment letter dated June 23, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

We appreciate you sharing the additional objectives and actions from the General Plan that are relevant to the Project. Chapter 5.9, Kaua'i County General Plan, of the Final EA will be updated to include additional discussions relating to the General Plan inclusive of: Housing Sector Objectives and Actions and Opportunity and Health for All Objectives and Actions. We also acknowledge that the Project is consistent with the goals of the Draft West Kaua'i Community Plan.

With regards to the KIUC hydroelectric project, awarding of the lots will be contingent upon the completion of KIUC's project to retrofit and reconstruct the Pu'u 'Ōpae reservoir and irrigation system.

Table 2-5 in the FEA provides a cost estimate that represents the financial burden for a typical homesteading beneficiary.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal



ENGINEERING DIVISION
DEPARTMENT OF PUBLIC WORKS
THE COUNTY OF KAUA'I

DEREK S. K. KAWAKAMI, MAYOR
MICHAEL A. DAHLIG, MANAGING DIRECTOR

TROY K. TANIGAWA
ACTING COUNTY ENGINEER

MICHAEL H. TRESLER
ACTING DEPUTY COUNTY ENGINEER

June 18, 2020

G70
111 S. King Street, Suite 170
Honolulu, HI 96813
Attention: Kawika McKeague

SUBJECT: Draft Environmental Assessment (DEA) Pu'u 'Ōpae Kuleana Homestead
Settlement Plan, Waimea Ahupua'a, Waimea District, Kaua'i,
TMK (4) 1-2-002:023 (por.)
PW 05.20.034

Dear Mr. McKeague:

This is in response to a letter dated May 22, 2020 requesting the Department of Public Works review on the subject Draft Environmental Assessment (DEA). We have the following comments on following sections of the DEA:

1. Section 3.6 Natural Hazards, Floodplain and Tsunami Inundation. Although the settlement area is in Zone X on the FIRM, the project area contains valleys, gullies, and drainage ways that are subject to flooding.
2. Section 3.10.3 Anticipated Impacts and Proposed Mitigation. Amend the first sentence to read as follows: "At a minimum, proposed drainage improvements will be designed in compliance with the **Storm Water Runoff System Manual, July 2001.**"

Thank you for providing this opportunity for consultation on this pending project. We look forward to receiving a copy of the DEA. Should you have any questions, please contact Paul Togioka at (808) 241-4889.

Sincerely,

Michael Moule, P.E.
Chief, Engineering Division

SI/PT

cc: Design and Permitting Section





111 S. King Street June 24, 2020

Suite 170

Honolulu, HI 96813

808.523.5866

www.g70.design

Mr. Michael Moule, P.E.
Chief, Engineering Division
County of Kaua'i
Department of Public Works
4444 Rice Street, Suite 175
Līhu'e, HI 96766

Subject: Chapter 343, Hawai'i Revised Statutes Environmental Assessment
Response to Draft Environmental Assessment Comment Letter
Pu'u 'Ōpae Kuleana Homestead Settlement Plan
Waimea Ahupua'a, Waimea District, Kaua'i
TMK (4)-1-2-002:023 (por.)

Dear Mr. Moule,

Thank you for your comment letter dated June 18, 2020 concerning the Chapter 343, Hawai'i Revised Statutes (HRS) Draft Environmental Assessment (EA) for the proposed Pu'u 'Ōpae Kuleana Homestead Settlement Plan project, located in Waimea Ahupua'a, Waimea District, Kaua'i, Hawai'i.

As stated in Chapter 3.6, Natural Hazards, Floodplain and Tsunami Inundation, of the DEA, the Settlement Area is within Zone X on the FIRM. We understand that the valleys, gullies, and drainageways throughout the property could be subject to potential flooding. These areas have been assigned with the DHHL Land Use designation of Special District and will not be awarded for homesteading or include the development of any structures. Chapter 3.6 will be updated in the Final EA to reflect the potential flood hazard in these waterways.

We acknowledge your note to amend the text in DEA Chapter 3.10.3, Anticipated Impacts and Proposed Mitigation. The Final EA will specify that proposed drainage improvements will be designated in compliance with the Storm Water Runoff System Manual, July 2001.

The Final EA will be published in the Office of Environmental Quality Control's *The Environmental Notice* which can be found online at: http://oeqc2.doh.hawaii.gov/_layouts/15/start.aspx#/Doc_Library/Forms/AllItems.aspx. Please enter *title* with a colon at the end, immediately followed by *Pu'u 'Ōpae* in the search box to locate the Final EA. We appreciate your input and participation in this review process.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Mark Kawika McKeague, AICP
Principal

