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GOVERNOR OF
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

Nov 12, 2021

Ms. Mary Alice Evans, Director
Environmental Review Program
Office of Planning and Sustainable Development
Department of Business, Economic Development and Tourism
235 S. Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Ms. Evans:

With this letter, we hereby submit the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the "West Kauai Field Operations Facility, Hanapēpē, Waimea, Kaua'i," to be published in the next available edition of *The Environmental Notice*. The proposed project involves a portion of Tax Map Key (4) 1-8-008: 020 on the island of Kaua'i.

The Draft Environmental Assessment was published in the March 8, 2021 edition of *The Environmental Notice*. Comments received during the public comment period and DLNR's responses are included in the FEA-FONSI. In accordance with the Board of Land & Natural Resources approval on July 9, 2021, Item L-1, authority was delegated to the Chairperson to approve an EA and issue a FONSI. Therefore, the FEA and FONSI determination has been approved by the Chairperson on November 11, 2021. The FEA-FONSI will be attached and submitted to the Environmental Review Program via the Office of Environmental Quality Control online submission platform.

Should you have any questions, please contact Ms. Dani Yoo, Project Engineer via email to dani.yoo@hawaii.gov.

Sincerely,

SUZANNE D. CASE
Chairperson

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Friday, November 12, 2021 3:28:40 PM

Action Name

West Kauai Field Operations Facility, Hanapepe, Waimea, Kauai

Type of Document/Determination

Final environmental assessment and finding of no significant impact (FEA-FONSI)

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds

Judicial district

Waimea, Kaua‘i

Tax Map Key(s) (TMK(s))

(4) 1-8-008: 020

Action type

Agency

Other required permits and approvals

Numerous

Proposing/determining agency

Department of Land and Natural Resources

Agency contact name

Dani Yoo

Agency contact email (for info about the action)

dani.yoo@hawaii.gov

Email address or URL for receiving comments

dani.yoo@hawaii.gov

Agency contact phone

(808) 587-0258

Agency address

1151 Punchbowl Street, Room 221
Honolulu, HI 96813
United States
Map It

Was this submittal prepared by a consultant?

No

Action summary

The State of Hawai‘i, Department of Land and Natural Resources is proposing to construct a new field operations base yard for efficient and economical response to emergency incidents, as well as daily management operations. The proposed facility will include office space, a conference room, restrooms, showers, secured storage space for confiscated items, parking, fueling facilities, and a nursery to raise endangered plants, and a pen for endangered geese. Due to funding availability, the project will be completed in phases.

Reasons supporting determination

Refer to Section 5.0 Findings and Determination of the FEA.

Attached documents (signed agency letter & EA/EIS)

- West-Kauai-Field-Operations-Facility_Final-EA-vF.pdf
- J43CK30A_West-Kauai-Field-Operations-Facility_FEA_FONSI-Transmittal-part-2-signed.pdf
- J43CK30A_West-Kauai-Field-Operations-Facility_FEA_FONSI-Transmittal-part-1-signed.pdf

Shapefile

- The location map for this Final EA is the same as the location map for the associated Draft EA.

Action location map

- Project-Site.zip

Authorized individual

Dani Yoo

Authorization

- The above named authorized individual hereby certifies that he/she has the authority to make this submission.

WEST KAUA'I FIELD OPERATIONS FACILITY

FINAL ENVIRONMENTAL ASSESSMENT/ FINDING OF NO SIGNIFICANT IMPACT

NOVEMBER 2021

Prepared for: State of Hawaii,
Department of Land
and Natural Resources

Prepared by: SSFM International, Inc.

SSFM International

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WEST KAUAʻI FIELD OPERATIONS FACILITY

HANAPĒPĒ, WAIMEA, KAUAʻI

TMK: (4) 1-8-008: 020 (por.)

FINAL ENVIRONMENTAL ASSESSMENT/ FINDING OF NO SIGNIFICANT IMPACT

Prepared Pursuant to:
Chapter 343, Hawaiʻi Revised Statutes and
Title 11, Chapter 200.1, Hawaiʻi Administrative Rules, Department of Health,
State of Hawaiʻi

Proposing Agency:
State of Hawaiʻi
Department of Land and Natural Resources

Prepared by:
SSFM International, Inc.

October 2021

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1.0 INTRODUCTION

The State of Hawai‘i, Department of Land and Natural Resources (DLNR), is proposing to construct a new Field Operations base yard located in Hanapēpē on the Island of Kaua‘i. The proposed project will be located on an existing State-owned parcel off of Lele Road and is identified as Tax Map Key (TMK): (4) 1-8-008: 020. The proposed project site consists of a 10-acre portion of parcel 020 which is currently vacant but was once cultivated for sugar cane.

There are no DLNR facilities on the west side of Kaua’i that can support daily operations and responses to emergencies for the western half of Kaua‘i, which includes Kōke’e, Waimea Canyon and Polihale State Park. Currently, DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for the following DLNR divisions:

- Division of Aquatic Resources
- Division of Conservation and Resources Enforcement
- Division of Forestry and Wildlife
- Division of Boating and Ocean Recreation
- Division of State Parks
- State Historic Preservation Division
- Engineering Division
- Land Division

Providing a staging area for personnel and equipment at a facility on the west side will significantly improve response times to emergencies, minimizing wildfire damage, result in reduced volume of fire suppression, quicker enforcement action, and improved monitoring in managing public safety. The proposed facility will also serve as a temporarily shelter for DLNR 24/7 emergency crews and would provide a logistical location for refueling of equipment, restocking of supplies, and reducing driver fatigue.

When completed, the new facility will provide DLNR divisions with the infrastructure to enhance and support current programs, extend public outreach and service, and provide additional facilities for emergency situations. At this time, future project phasing and completion is subject to availability of funding.

1.1 PROJECT INFORMATION SUMMARY

Name:	West Kaua‘i Field Operations Facility
Project Location:	Hanapēpē, Kaua’i, Hawai‘i
TMK:	(4) 1-8-008: 020 (por.)
Project Land Area:	10 acres
Landowner:	State of Hawai‘i, DLNR
State Land Use Classification:	Agricultural, Urban
County Zoning:	Open
Community Plan/Land Use:	West Kaua‘i Community Plan/ Agriculture
Special District:	None
Special Management Area:	Not within SMA
Existing Use:	Fallow agricultural lands, undeveloped
Proposed Action:	Construct a new Field Operations base yard located in Hanapēpē on the Island of Kaua‘i using State funding and located on State-owned lands.
Proposing Agency:	State of Hawai‘i, DLNR

2.0 PROJECT DESCRIPTION

This section provides an overview of the proposed action and development.

2.1 PROJECT LOCATION

The project site is located on the south side of the island of Kaua‘i in Hanapēpē, Waimea (Figure 2-1). The site is immediately bordered by Hanapēpē Park to the north, Lele Road to the east, Kaua‘i Veterans Cemetery to the south, and open agricultural land to the west.

The project site is located on a larger state-owned parcel [TMK (4) 1-8-008: 020] that is currently leased out to a private organization for agricultural use. In 2014, the State of Hawaii Board of Land and Natural Resources (BLNR) approved a DLNR request to set aside approximately ten (10) acres of the parcel to provide an area to construct a West Kaua‘i Field Operations Facility.

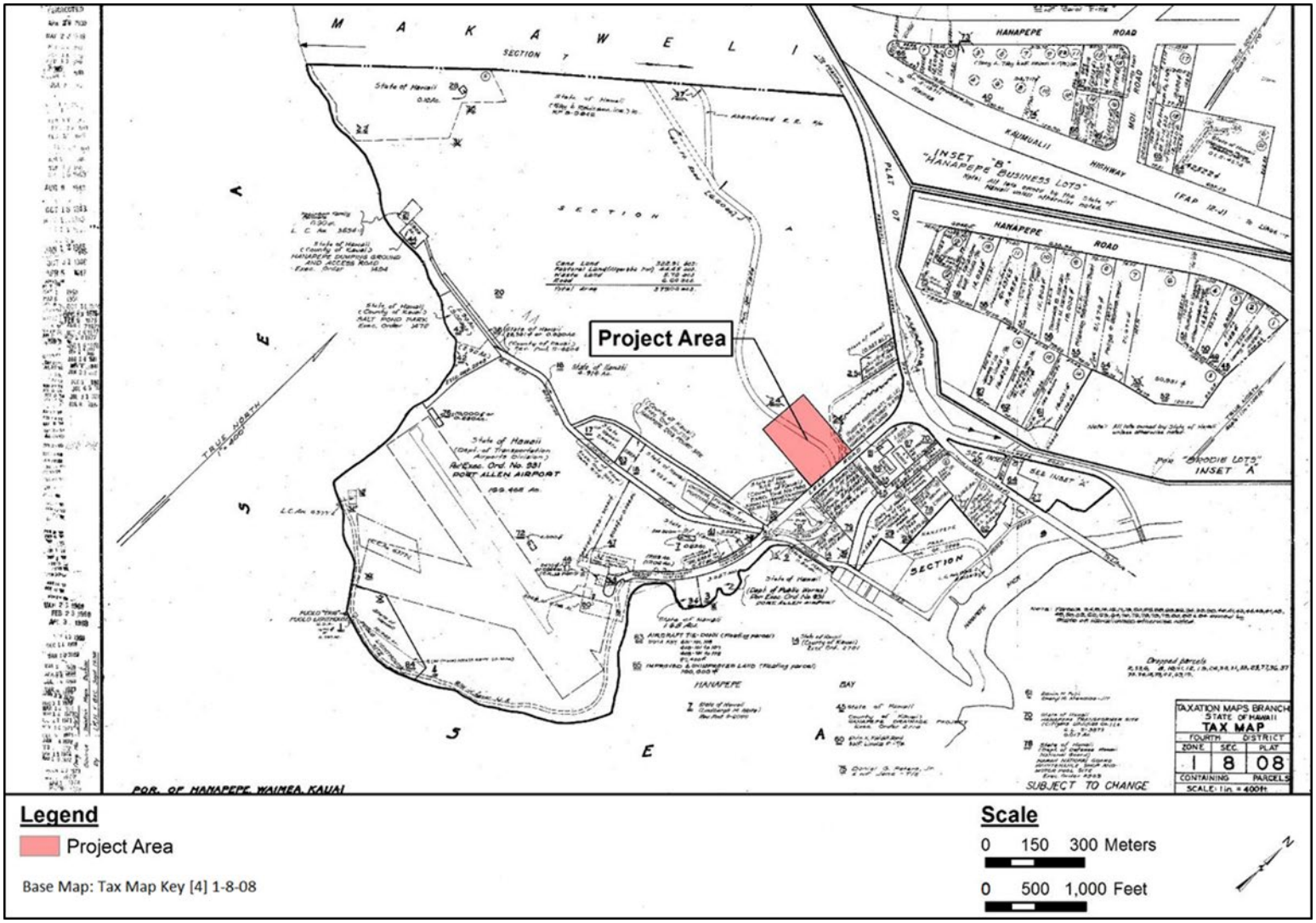
The site extends approximately 600 feet parallel to the western edge of Lele Road and approximately 730 feet west from the edge of the road (Figure 2-2). The site is part of a fallow sugar cane field. There is a gate and road entering the site at approximately the midpoint of the site boundary on Lele Road, but the road beyond the gate is overgrown by weeds and no longer distinguishable at ground level.

2.2 EXISTING AND SURROUNDING USES

The proposed project is located on the westernmost periphery of Hanapēpē Town where it is surrounded, for the most part, by agricultural farmlands. Lele Road runs adjacent to the parcel. Kaua‘i Veterans Cemetery is to the south, the Hanapēpē Refuse Station to the east, and Kaumuali‘i Highway further north. Several concrete buildings and residential housing are located to the southeast of the project area. Hanapēpē Park is located nearby with several athletic fields and recreational amenities. Port Allen Airport is located directly south of the cemetery and Port Allen Harbor lies east of the project area, across Hanapēpē Bay (Figure 2-1). Residential housing development is concentrated along the Hanapēpē River and north of the town at Hanapēpē Heights. Overall, approximately 80% of the project area is located in former cane lands and is designated as Agricultural under State Land Use District (SLUD) classifications. The southeast corner of the project area is designated as Urban under SLUD classifications. The site is zoned as Open under the County of Kaua‘i Comprehensive Zoning Ordinance. Land use in the proximal area includes businesses, residential, and agricultural.

Figure 2-1. Project Location Map

Figure 2-2. Tax Map Key



2.3 PROPOSED ACTION

The DLNR does not have a field operation facility on the west side of Kaua‘i. To provide a base for efficient and economical response to emergency incidents, as well as daily management operations, DLNR plans to build such a facility in Hanapēpē, on the west side of Kaua‘i. The proposed facility will shorten the response time to emergencies and activities such as wildfire suppression, thereby reducing the overall costs. Approximately 38 DLNR employees are anticipated to be at the site daily and approximately 140 other DLNR employees are anticipated to utilize the site on a periodic or emergency basis. The site will be in operations typically during normal business hours but also used in emergency situations on a 24-hour basis.

2.4 DESCRIPTION OF THE DEVELOPMENT

Several divisions of DLNR will use the proposed base to better serve Kaua‘i’s west side. These divisions and how they expect to use the base yard are as follows:

- Division of Aquatic Resources: support the hatch/raise/release aquatic resource program; storage for signs, traps, and other necessary materials for the protection of native and resident aquatic species and their habitats.
- Division of Conservation and Resources Enforcement (DOCARE): serve as logistical staging facility, briefing room and central operation for enforcement activity for land and sea undertakings; storage of criminal evidence material and firearms; staging for patrol vessels, jet skis, and equipment to hasten response times for enforcement of land and ocean activities on the west side, south and north shores of Kaua’i, and Ni‘ihau.
- Division of Forestry and Wildlife (DOFAW): storage of supply and materials, heavy maintenance equipment, fire fighting vehicles and equipment; maintenance and refueling area for vehicles used to manage State-owned forests such as the Kōke’e Forest Reserve; location of a new plant nursery for endangered species and the protection of the ecosystem through replanting after fires to mitigate soil erosion; location for a pen for endangered animal recovery, including support of the Nēnē Goose protection program.
- Division of Boating and Ocean Recreation (DOBOR): office for public permitting that better serves the West Kaua‘i community; colocation with enforcement division, storage of impounded ocean recreational vehicles.
- Land Division: storage of signs, sign posts, and other materials to better manage State-owned lands.
- Division of State Parks: office space for staff who serve the parks on the west side of Kaua‘i; material storage, maintenance, landscaping, and facilities repair.

- Engineering Division: storage of material and equipment for Dam Control and Rockfall Inspection Programs.
- State Historic Preservation Division (SHPD): office space and storage for files and artifact findings. SHPD currently does not have an office or storage facility on Kaua'i.
- Other DLNR divisions may also have use of the site in the future.

The proposed facility will include office space for DLNR staff, a conference room, restrooms, showers, secured storage space for confiscated items, parking, and fueling facilities. A nursery to raise endangered plants and a pen for endangered geese will also be located on site. A single driveway off of Lele Road will lead to an access roadway that circumnavigates the proposed buildings. Stormwater will be kept on the property in a landscaped detention pond adjacent to Lele Road. The animal pen and plant nursery will be located toward the rear of the property. A conceptual site plan is provided in Figure 2-3.

Based on the 2016 West Kaua'i Field Operations Facility Master Plan prepared by INK Architects, the facility will also contain the following functional areas:

- Base yard and outdoor work areas
- Emergency services command center capabilities (base operations)
- Offices/training and conference/research
- Parking for personally owned vehicles (POV) and DLNR vehicles, such as boats/boat trailers, ATV trailers, construction equipment and trailers, flatbed trucks, construction vehicles and other vehicles
- Public service and outreach
- Storage for evidence, materials, equipment, tools, records, archival

Additional considerations include:

- Multipurpose building with a large meeting area
- Shared office building
- Public outreach – permit issuance, meetings, classes
- Emergency services – basecamp/headquarters during operations
- Shared workshop and maintenance building consisting of vehicle washdown facilities and areas for vehicle/equipment maintenance. Typically only wash down and light vehicle maintenance would be conducted at this base yard.

The master plan was designed to strategically place buildings on the site based on its functionality. Public buildings will be located closer to the main road and private buildings will be located towards the back of the site. Animals pens will be in the corner so that winds will blow the odor away from the site and not affect the other buildings. In general, there will be three different types of buildings:

- Office/Workspace Buildings: The office/workspace buildings will be located near

the site entrance. The main intent is to create an accessible location where the public can visit and pick up permits or view records.

- Utilitarian Buildings: These consist of storage and workshop buildings – storage is considered a private building. The workshops are open air buildings that allow workers to repair their equipment and vehicles.
- Lab Buildings: Labs will be for DOBOR, SHPD and the Division of Forestry and Wildlife.

A continuous 8-foot high chain link fence with barbed wire top will surround the entire property as a requirement to secure the perimeter. Additionally, continuous cattle fencing is also required to keep out livestock in the area. The cattle fencing will be the outer fence and the chain link security fence will be the inner fence to keep out trespassers.

2.5 ALTERNATIVES CONSIDERED

No-Action Alternative

Under the No Action Alternative, the parcel would remain in its existing condition. Development of the DLNR facility would not occur and no site disturbance or construction impacts would occur. Residents and visitors would not benefit from the proximity to permit application administration, wildfire suppression, and emergency assistance for the south and west-side of Kaua'i. The closest facility providing these functions would be in Lihue, 18 miles to the east. The No Action Alternative is included in environmental analyses as a baseline condition for comparison to other alternatives.

Alternative Site Locations

Alternate locations for the DLNR Facility were considered and dismissed. Presently, there is no DLNR facility on the west-side of Kaua'i that can provide a base for efficient and economical response to emergency incidents as well as daily management operations or activities. Personnel, equipment, and supplies need to travel 50 miles and two (2) hours to respond to any incident on the west-side of the island. The current site is at an optimal location because of proximity to harbor, airport, and boat launching facilities. The proposed project location will significantly reduce response times and improve public service.

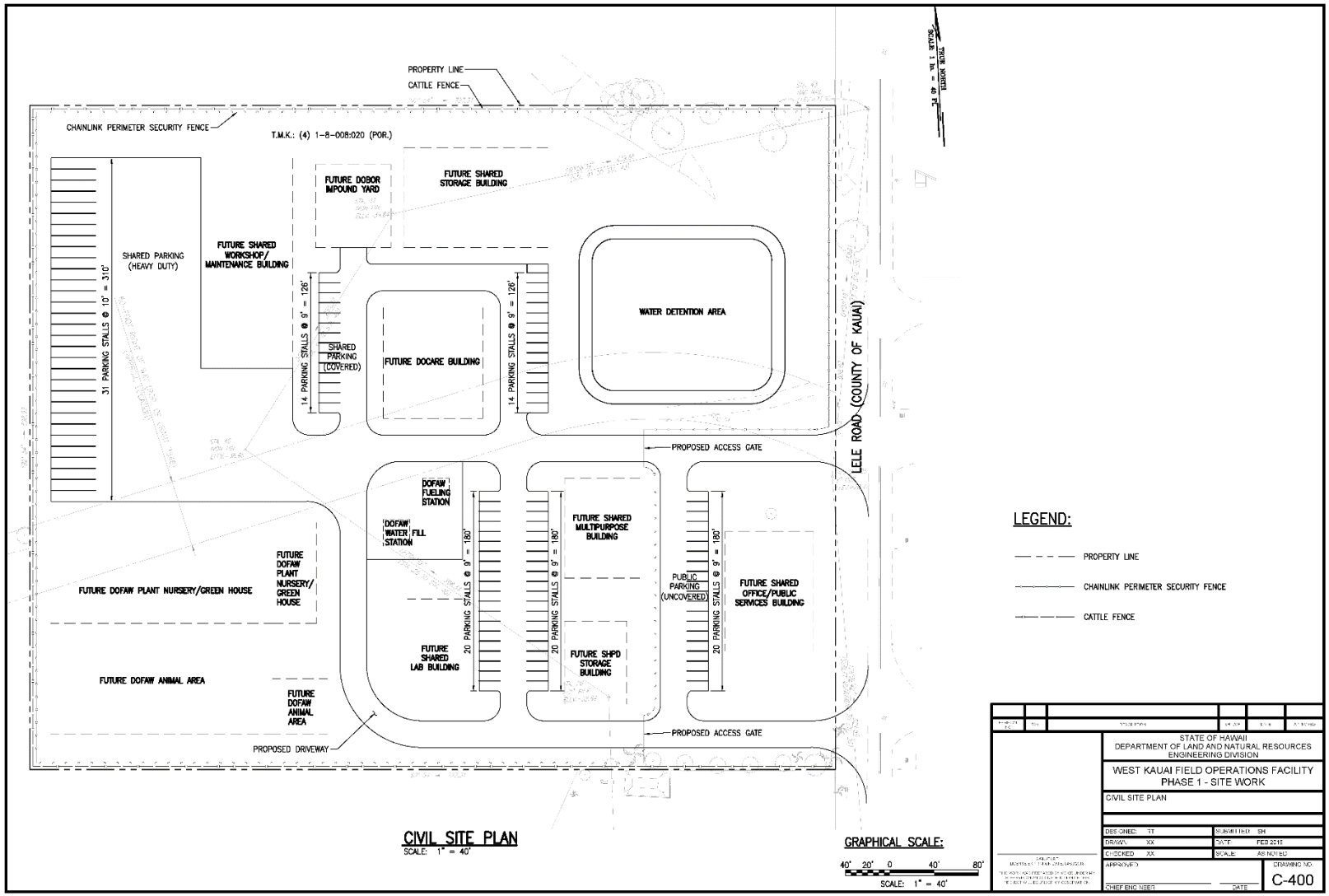
2.6 ESTIMATED PROJECT CONSTRUCTION COSTS

Preliminary construction cost estimates was prepared based on the 2016 master plan and are provided in Table 2-1. The preliminary cost estimate is separated by construction phase in anticipation that construction funding will need to be phased due to availability. These figures are based on material, equipment, and freight costs expressed in 2016 dollars.

Table 2-1. Estimated Project Construction Costs

PHASE 1	
SITEWORK	$5,324,000
DOFAW FUELING & WATER FILL STATION	$231,000
TOTAL	**$5,555,000**
PHASE 2	
SITEWORK	$401,000
SHARED PARKING (HEAVY DUTY)	$1,518,000
SHARE WORKSHOP.MAINTENANCE BUILDING	$5,582,000
TOTAL	**$7,501,000**
PHASE 3	
SITEWORK	$806,000
DOBOR IMPOUND YARD	$229,000
DOCARE BUILDING	$5,788,000
SHARED MULTIPURPOSE BUILDING	$3,991,000
SHARED OFFICE/PUBLIC SERVICES BUILDING	$4,836,000
SHARED STORAGE BUILDING	$4,640,000
SHARED LAB BUILDING	$2,310,000
SHPD STORAGE BUILDING	$2,355,000
DOFAW ANIMAL AREA	$649,000
DOFAW PLANT NURSERY/GREENHOUSE	$740,000
TOTAL	$26,344,000
PROJECT TOTAL	**$39,400,000**

Figure 2-3. Conceptual Site Plan



3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS & MITIGATION MEASURES

This section describes the surrounding environment in the vicinity of the subject property, the probable environmental impacts associated with its development, and provides any mitigating measures, if necessary.

3.1 CLIMATE

The proposed project is located on the leeward side of Kaua‘i where the climate is warmer and less moist than the windward side of the island (University of Hawai‘i 1973). Compared to the interior of the island which can receive an annual rainfall of up to 450 inches per year, the average precipitation in ‘Ele‘ele is approximately 40.10 inches per year (Western Regional Climate Center, 2010). As with Waimea, Hanapēpē is a canyon land with many valleys and streams that carry water from the mountains in the interior to the sea along the Hanapēpē river drainage

General temperature range in the project area is between 68 and 88 degrees F in the summer and 60 and 84 degrees F in the winter (Western Regional Climate Center, 2010). Summertime high temperatures can reach the low 90’s. Wintertime low temperatures can reach the low 60’s. This area is considered dry with an average of 40 inches of rain per year. Trade winds generally blow from the NE or ENE direction between 5 and 15 mph. Northeasterly tradewinds prevail approximately 80 percent of the year and are particularly prevalent from April through November.

Project Impacts

The project is not anticipated to have any effect on the region’s climate.

3.2 FLORA AND FAUNA

A biological survey report and assessment was prepared for the project area in September 2015, and is provided as Appendix C in this document. The survey found that the habitat is highly degraded and consists primarily of a variety of non-native plant species. Within the project area only one indigenous plant species was detected (‘uhaloa). The majority of the project area is primarily overgrown with Guinea grass with areas of koa haole scrub. The botanical survey identified 52 species of vascular plants in 22 families. No rare native Hawaiian plant species were observed on the project site during the survey. No listed threatened or endangered plants were found to be present.

Flora

The vast majority of the project site was composed of open guinea grass grassland (Figure 3-1). Guinea grass (*Megathyrsus maximus*) was the most abundant species across the project site. Sparely scattered shrubs of haole koa (*Leucaena leucocephala*) also were present. Other herbaceous species scattered in the guinea grass grassland included spiny amaranth (*Amaranthus spinosus*), ‘uhaloa (*Waltheria indica*), buffel grass (*Cenchrus ciliaris*), castor (*Ricinus communis*), tick clover (*Desmodium tortuosum*), and golden crownbeard (*Verbesina encelioides*).

Figure 3-1. Guinea Grass Open Grassland Representative of the Project Site

Vegetation along the eastern border (Figure 3-2) of the project site can be characterized as typical roadside vegetation. It comprised herbaceous species such as guinea grass, buffel grass, sida (*Sida ciliaris*), wiregrass (*Eleusine indica*), leafy spurge (*Euphorbia hirta*), tick clover, love grass (*Eragrosotis amabilis*), and khaki weed *(Alternanthera pungens*). Vegetation along the eastern border of the site was composed primarily of haole koa and kiawe (*Prosopis pallida*) trees. Ground cover in this area was composed primarily of ‘uhaloa, tick clover, and guinea grass. Large patches of bare dirt were present along the southeastern part of the project site bordering the cemetery, along with shower trees and coconut palms, which appeared to have been planted along this boundary. The vegetation in the shallow gulch in the northeastern part of the project site, composed of tall, thorny ‘opiuma trees (*Pithecellobium dulce*) and thick stands of

guinea grass and haole koa shrubs in the understory, was dense and impenetrable (Figure 3-3). A single java plum (*Syzygium cumini*) was observed in the gulch.

Figure 3-2. View of Eastern Border of the Project Area

Figure 3-3.View of the Northeastern portion of the Project Area.

Fauna

Avifauna: The project area contained the usual mix of introduced birds that would be expected in this type of habitat. Fourteen bird species—an assemblage of 13 nonnative and one (1) indigenous species—were seen during the survey of the project site. None of the bird species are listed under the federal Endangered Species Act (ESA) as threatened, endangered, or candidate wildlife species (USFWS 2015). A single Hawaiian short-eared owl (*Asio flammeus sandwichensis*) flew over the eastern portion of the project site. The Hawaiian short-eared owl is listed by the State of Hawai‘i as endangered only on the island of O‘ahu (DLNR 2015) and protected by the U.S. Fish and Wildlife Service (USFWS) as a migratory bird (USFWS 2013).

Of the 13 nonnative birds, four are classified as migratory birds and therefore are protected under the Migratory Bird Treaty Act: the cattle egret (*Bubulcus ibis*), house finch (*Carpodacus mexicanus*), northern cardinal (*Cardinalis cardinalis*), and barn owl (*Tyto alba*) (USFWS 2013). Of the 13 nonnative birds observed on the site, seven are designated as injurious species on the state list of injurious wildlife. Injurious species are known to be harmful to agriculture, aquaculture, or indigenous wildlife or plants or constitute a nuisance or health hazard, and prohibitions against the destruction of individuals of these species do not apply (DLNR 2015).

Overall, the project site is highly disturbed and typical of the lowlands in the area. It does not contain habitat that would be considered suitable for supporting the needs of native nēnē (*Branta sandvicensis*) waterbirds, or seabirds. It has no open bodies of water or streams. The open, grassy fields with sparsely scattered shrubs, which would be used by the Hawaiian short-eared owl, are common and readily available throughout the area.

Mammals: The only mammal observed during the survey was a domestic cat (*Felis catus*); however, house mice (*Mus musculus*) and rats (*Rattus spp*.) are expected to be present on the project site. Surveys were conducted at sunset for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), however none were observed. Roosting habitat is mostly marginal on the site, and bats are not expected to raise young in trees associated with this site. Nonetheless, hoary bats may occasionally roost in dense overhanging foliage of some on-site trees.

Reptiles/Amphibians/Invertebrates: No nonnative reptiles or amphibians were seen or heard during the survey. Hawai‘i does not have any native terrestrial reptiles or amphibians. Among invertebrates, we also observed several sleepy orange butterflies (*Abaeis nicippea*), an introduced species which first appeared in Hawai‘i in 2013.

Project Impacts and Mitigation

The Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (DOFAW) submitted comments on the Draft EA dated May 27, 2021, to indicate that State-listed waterbirds such as such as the Hawaiian Duck (*Anas wyvilliana*), Hawaiian

Stilt (*Himantopu mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), Hawaiian Goose (*Branta sandvicensis*), and Hawaiian Common Gallinule (*Gallinula chloropus sandvicensis*) have the potential to occur in the vicinity of the proposed project site. The U.S. Department of Interior, Fish and Wildlife Services, Pacific Islands Fish and Wildlife Office, provided comments on the Draft EA dated May 27, 2021, to identify potential protected species most likely to occur in the vicinity of the project area. The list included one mammal species (Hawaiian Hoary bat), four (4) bird species (Hawaiian goose, band-rumped storm-petrel Hawai‘i DPS, Hawaiian petrel and Newell’s shearwater), and no reptile, insect or plant species. The Department of Land and Natural Resources (DLNR), Division of Aquatic Resources submitted comments on the Draft EA dated May 26, 2021, indicating that the Draft EA satisfactorily addressed any environmental concerns for the project. The DLNR, Division of Boating and Ocean Recreation submitted comments on the Draft EA dated May 5, 2021, noting the division had no comments or objections for the project.

Use of the subject property for development of a field operations facility is not anticipated to have a significant adverse impact on flora or faunal resources. Because of previous disturbance to the property, the flora and fauna communities on the property are typically comprised of non-native birds and plants. Although the project area does not provide any stream or wetland habitats, it is close to several wetland areas (Figure 3-4). These wetlands support several species of endangered waterbirds. It is against State law to harm or harass these species and mitigative measures shall be put in place to prevent adverse impacts on any potential species. The following mitigative measures are proposed to be included in the project during construction and operations:

1. If any of the identified State-listed waterbird 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, the Kaua‘i DOFAW Office should be contacted at (808) 274-3438.

2. Construction activities may have the potential to impact the water quality of nearby coastal waters. Best management practices (BMPs) will be implemented to minimize risk of siltation and pollution through stormwater runoff during construction. If necessary, additional BMPs will be included in design plans to minimize impacts to migratory bird species.

The proposed project is not expected to have a significant adverse impact on any plant species that are state or federally listed as threatened, endangered, or candidate species for listing as endangered, species of concern, or rare native Hawaiian plant species. The entire project site appears to have been highly disturbed, and the flora on the site is predominantly (97%) nonnative. The one native plant species found on the project site (‘uhaloa) commonly occurs on Kaua‘i and the other Main Hawaiian Islands. The following best management practices will be adopted to minimize the introduction and spread of new invasive species on the project site:

1. All construction equipment and vehicles will arrive at the work site the first time clean and free of any soil; plants or plant parts, including seeds; insects, including eggs; reptiles and amphibians, including their eggs.

2. All materials imported to the project site, including gravel, soil, rock, and sand, will be free of invasive plants. Invasive species found on the stockpile should be removed either chemically or mechanically.

3. Only plants grown on Kaua‘i will be used for landscaping purposes if possible. If locally grown plants are not available, imported plants may be used after thorough inspection or quarantine to ensure that they are free from invasive species, such as coqui frogs (*Eleutherodactylus coqui*), coconut rhinoceros beetle (*Oryctes rhinoceros*), little fire ants (*Wasmannia auropunctata*), and miconia (*Miconia calvescens*).

4. Only weed-free seed mixtures will be used for hydroseeding and hydromulching on the project site. Any species of plants other than those intended to be in the hydroseed/hydromulch will be removed. In particular, plant species that are not known to occur on Kaua‘i and those that are actively being controlled on Kaua‘i should be removed.

5. DOFAW recommends minimizing the movement of plant or soil material between worksites, such as in fill. Soil and plant material may contain invasive vertebrate and invertebrate pests, or invasive plant parts that could harm our native species and ecosystems. Consulting with the 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 is recommended.

The modifications planned on the project site are not expected to result in adverse harm or long-term displacement of animals. Moreover, none of the animals that were documented on the project site are classified as threatened, endangered, or candidates for listing under the ESA or by the State of Hawai‘i on the island of Kaua‘i. The Hawaiian short-eared owl was observed flying over the site but was not observed taking off from or landing on the site, and the biological survey did not detect any evidence of a nesting burrow for this species. The site supports introduced species of wild birds and most of them are considered injurious species. The site does not appear to support other common native birds found in lowlands, such as nēnē and waterbirds, probably because suitable habitat that would support these species is absent.

Although the Hawaiian hoary bat was not observed during the reconnaissance-level survey, there are numerous records for this species on Kaua‘i (Tomich 1986). This species is difficult to survey for because it roosts in the dense foliage of many different species of trees, and it frequently changes roosts. Hawaiian hoary bats are known to roost in large (typically greater than 15-foot-tall) dense-canopy trees, sometimes at the edges of water bodies, such as streams and lakes (USFWS 1998). No water bodies are

present in the project area, but Hawaiian hoary bats may hunt for flying insect prey, and occasionally roost, in the northeastern part of the project area where there is a dense grove of tall (greater than 15-foot-tall) ‘opiuma trees (Figure 3-3), a single large java plum, and an African tulip tree. Although the area looks marginal for raising young, Hawaiian hoary bats are known to roost in large java plum and African tulip trees such as those found on the project site. If the large trees are to be cleared or pruned as part of project activities, it is recommended that pruning or removal of the trees in the northeastern portion of the project site be avoided during the bat maternity season, (June 1 through September 15). Further, a construction buffer of 100 feet should be maintained around this northeastern portion during the maternity season. The remainder of the project site does not contain trees that could support the Hawaiian hoary bat and minimization and mitigation for the Hawaiian hoary bat should not be needed for these areas.

In comments provided on the Draft EA, DOFAW expressed concerns about attracting vulnerable birds to areas that may host nonnative predators such as cats and rodents and recommend taking action to minimize predator presence; remove cats, place bait stations for rodents, and provide covered trash receptacles. Additionally, DOFAW recommended mitigative measures to reduce adverse impacts of artificial lighting to seabirds that may pass through the area at night. Seabirds may fly over the area between March and December while transiting between nest sites and the ocean. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15 and for construction and operational nighttime lighting that might be required, DOFAW recommends all lights be fully shielded, contain less than 2% wavelengths less than 550 nm, and be situated so that light does not shine on reflective surfaces.

Figure 3-4. Wetlands near the Project Area

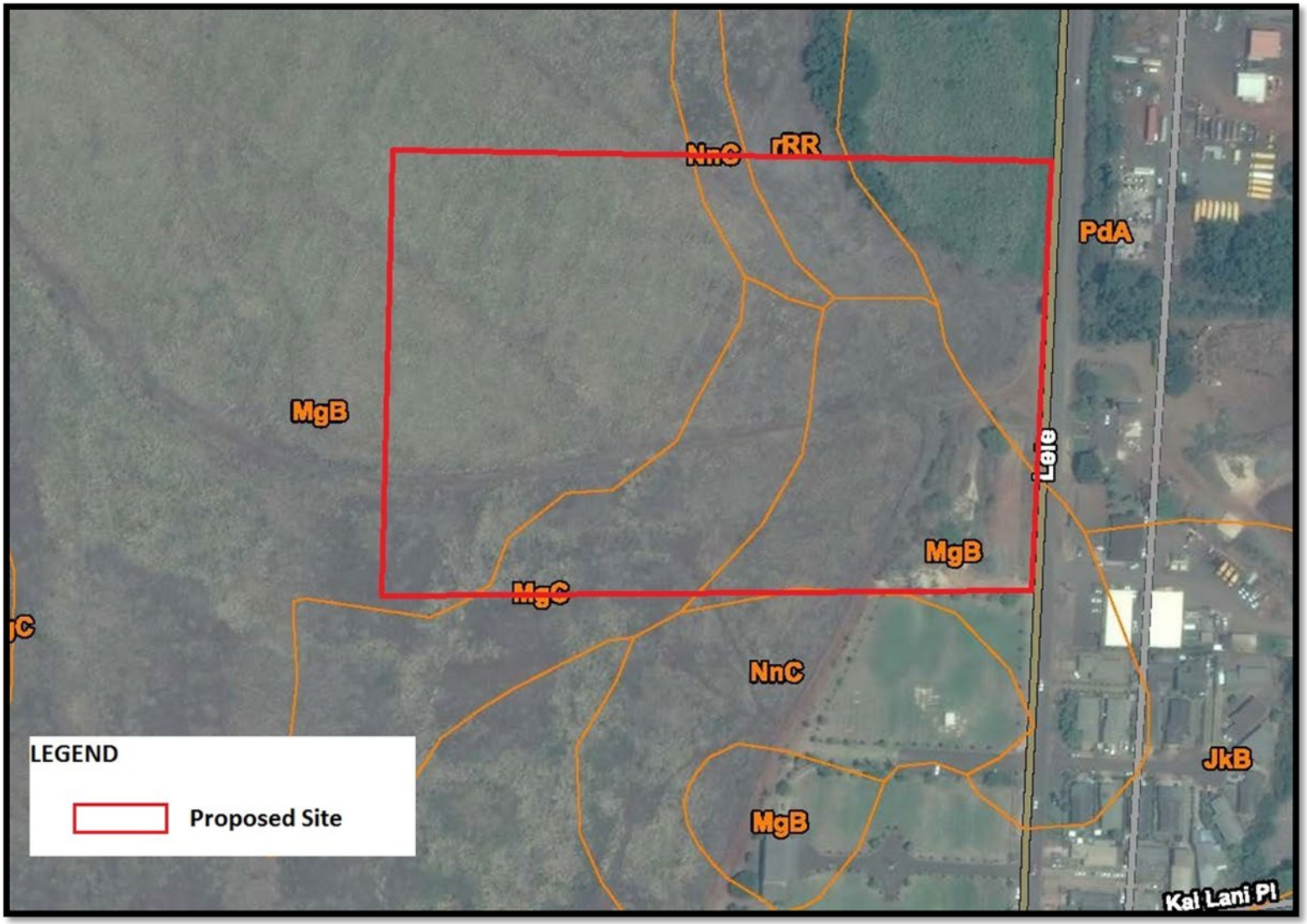
3.3 GEOGRAPHY, TOPOGRAPHY, AND SOILS

Hanapēpē Ahupua‘a is bounded by the *ahupua‘a* (traditional land division) of Makaweli to the west and Wahiawā to the east. The project area is located west of the Hanapēpē River at elevations of approximately 30 to 50 feet above mean sea level (MSL). Agricultural farmlands border the northern and western boundary of the project area.

The majority of the project area’s soils are classified as Makaweli Silty Clay Loam (MgB and MgC) with slopes from zero to twelve percent (USDA 2016). Soils in the northern portion of the parcel are classified as Pakala Clay Loam (PdA), Rough Broken Land (rRR) and Nohopu Clay (NnC) See Figure 3-5, Natural Resources Conservation Service (NRCS) Soils Survey Map.

Makaweli silty clay loam soils are described as follows: Well-drained soils on uplands on the island of Kaua‘i. These soils developed in material weathered from basic igneous rock. They are gently sloping to steep. Elevations range from nearly sea level to 500 feet.

Figure 3-5. Natural Resources Conservation Service (NRCS) Soils Survey Map



The annual rainfall amounts to 20 to 35 inches. Three-fourths of it occurs from October through March. The mean annual soil temperature is 74° F. [Foote et al. 1972:90]

Pakala clay loam soils are described as follows: Well-drained soils on alluvial fans and bottom lands on the island of Kaua'i. These soils developed in alluvium. They are nearly level to moderately sloping. Elevations range from nearly sea level to 400 feet. The annual rainfall amounts to 25 to 40 inches. The mean annual soil temperature is 73° to 75° F. [Foote et al. 1972:107]

Nonopahu clay soils are described as follows: Moderately well drained soils on uplands on the island of Kaua'i. These soils developed in material weathered from basic igneous rock relatively high in olivine. They are gently sloping to moderately sloping. Elevations range from nearly sea level to 800 feet. The annual rainfall amounts to 23 to 40 inches. The mean annual soil temperature is 74° F. [Foote et al. 1972:100]

A geotechnical investigation of the site was conducted in August, 2015. Four (4) test borings were drilled to depths ranging from 17.5 to 25 feet with a mobile truck-mounted drill rig. In addition, four percolation test holes were drilled to depths of about 5 feet adjacent to each of the borings and tested in general accordance with Department of Health guidelines. The project site gently slopes downward toward from the west towards the east. Drainage over the site flows in an easterly direction.

The test borings indicated surface soil classified as reddish brown clayey silt. The clayey silt was in a stiff condition and extended to depths ranging from about 2 to 8.5 feet below ground surface. Laboratory testing indicates that the clayey silt has a low expansion potential at its in-situ moisture content. Underlying the clayey silt was dense highly weathered basalt, extending to depths of about 5 to 17 feet.

Neither groundwater nor seepage water was encountered.

Project Impacts and Mitigation

No significant impact to topographic landforms or soils at the subject property is anticipated. Based on the results of exploratory fieldwork and laboratory testing, it was concluded that from a geotechnical viewpoint, the site can be developed as planned. Conventional shallow foundations bearing directly on the undisturbed reddish brown clayey silt or newly placed fill may be used to support the proposed structures. Although both materials are capable of supporting the proposed structures, all foundations supporting a single structure should be placed on the same type of material to provide uniform support and reduce the potential for differential settlement.

Based on the geotechnical research, the subsurface soils can be characterized as a stiff soil profile. Therefore, based on the 2012 International Building Code, Site Class D is recommended for this site.

3.4 HYDROLOGY

Although the project area does not contain any stream or wetland habitats, it is close to several wetland areas (Figure 3-4). According to the *Aquifer identification and classification for Kaua'i*, the subject property overlies the Hanapēpē aquifer system (20304) of the Waimea aquifer sector (University of Hawaii 1992). The system is equivalent to the Hanapēpē drainage basin (University of Hawaii 1992). The total area is 22 miles^2 (35.4 km^2). Hanapēpē River is one of Kaua'i's major rivers. It mostly drains dike water in the Napali, but several large exposures of Koloa rocks contribute perched water. Average flow in the river is 56 million gallons per day (2.45 m^3/s) downstream of diversions.

Project Impacts and Mitigation

No long-term impacts to groundwater aquifers or surface waters are expected to result from the proposed project. Construction activities have the potential to impact the water quality of coastal waters. Best management practices will be implemented to minimize risk of siltation and pollution through construction related stormwater runoff.

The U.S. Army Corps of Engineers (USACE), Honolulu District provided comments on the project dated August 17, 2021 indicating that additional information would be required to make a determination of whether a permit would be required from the USACE.

Although no perennial streams are observable onsite, the U.S. Fish and Wildlife Service's National Wetland Inventory mapper (Figure 3-4) shows a linear water feature that appears to be located near the northeast corner of the property. If the linear feature is a stream that the USACE would regulate as a water of the U.S. and the proposed project would involve the discharge of fill into that stream, then a Corps permit may be required.

3.5 FLOOD AND TSUNAMI HAZARDS AND SEA LEVEL RISE

According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency, the subject property is located in Zone "X" which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain (Figure 3-6). According to the State Civil Defense Tsunami Evacuation Zone maps, the subject property is not within a tsunami evacuation zone (Figure 3-7). The subject property is located outside of the 3.2-foot Sea Level Rise Exposure Area (SLR-XA) according to the Hawai'i Sea Level Rise Vulnerability and Adaptation Report (Figure 3-8).

The existing storm drainage system in the area comprises of a series of ditches and basins which flow to a 24" storm culvert located near the northeastern corner of the project site. The culvert is installed under Lele Road and allows the drainage to flow east; eventually leading to the ocean. There is also an existing 24" storm main and

series of catch basins on the eastern side of Lele Road which appear to outlet near the downstream end of the culvert.

Project Impacts and Mitigation

Based upon the development plan, an increase of impervious surfaces (e.g. structural roofs, parking areas, and roads) is expected. The proposed drainage will consist of sheet flow via grading, as well as a system of storm catch basins, swales, and pipes. The site drainage is planned to be directed toward the northeastern portion of the site to a new proposed detention basin. The detention basin will be designed to temporarily store excess storm runoff caused by the proposed development while meeting pre-development peak discharge rates.

In addition, a suite of water quality enhancement measures will be explored and implemented as applicable to reduce sediment and pollutant loadings that are typically associated with urban runoff. The water quality enhancement measures may include elements such as grass-lined filter strips, bioswales, rain gardens, cisterns, and permeable pavers. The County of Kaua‘i provides storm water quantity best management practices guidelines that will be used in the design process to assess the suitability, size, and selection of the most appropriate measures.

3.6 NOISE

Noise is defined as excessive or unwanted sound. Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use.

State of Hawai‘i, Community Noise Control

The maximum permissible noise levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Table 3-1. In determining the maximum permissible sound level, the background noise level is taken into account by the DOH.

Table 3-1 . Community Noise Control Regulated Noise Levels

Zoning District		Day Hours (7 AM – 10 PM)	Night Hours (10 PM – 7 AM)
Class A	Residential, Conservation, Preservation, Public Space, Open Space	55 dBA (exterior)	45 dBA (exterior)
Class B	Multi-Family Dwellings, Apartments, Business, Commercial, Hotel, Resort	60 dBA (exterior)	50 dBA (exterior)
Class C	Agriculture, Country, Industrial	70 dBA (exterior)	70 dBA (exterior)

Project Impacts and Mitigation

According to the DOH Community Noise Control rules, Hawai‘i Administrative Rules Chapter 11-46, in cases where construction noise exceeds, or is expected to exceed the State’s "maximum permissible" property line noise levels, a permit must be obtained from the State DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels.

Figure 3-6. Flood Zone Map

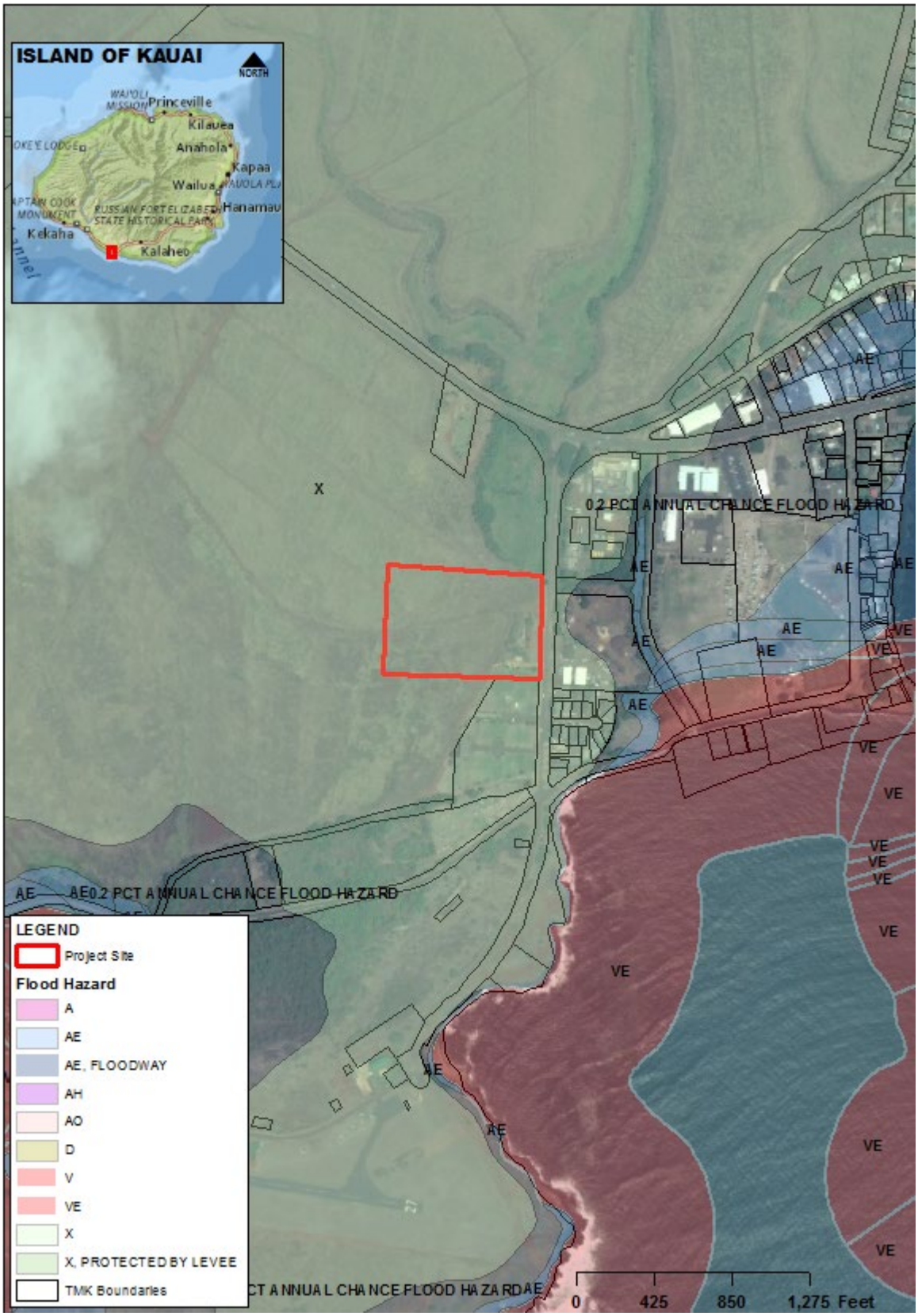


Figure 3-7 . Hanapēpē Tsunami Evacuation Zone

Figure 3-8. Sea Level Rise Exposure Area - 3.2-foot Scenario

In order for the State DOH to issue a construction noise permit, the Contractor must submit a noise permit application to the DOH, which describes the construction activities for the project. Prior to issuing the noise permit, the State DOH may require action by the Contractor to incorporate noise mitigation into the construction plan. The DOH may also require the Contractor to conduct noise monitoring or community meetings that invite neighboring residents and business owners to discuss construction noise. The Contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engines, using properly tuned and balanced machines, etc. However, the State DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities in the DOH Community Noise Control rules are:

- "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."
- "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 a.m. and after 6:00 p.m. on Saturday."
- "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

3.7 AIR QUALITY

The U. S. Environmental Protection Agency (EPA) sets national ambient air quality standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide (NO_2) sulfur dioxide (SO_2), lead, ozone, and particulate matter (PM_{10} and $PM_{2.5}$). Hawai'i has also established a state ambient air standard for hydrogen sulfide. The State of Hawai'i, Department of Health, operates air monitoring stations throughout the state including one station at Niumalu, Kaua'i that monitors SO_2, NO_2, and $PM_{2.5}$.

Both Federal and State air quality standards in the project area and Hanapēpē are generally met because of prevalent trade winds and lack of any major stationary pollutant emission sources in the area. According to the State of Hawai'i Annual Summary Air Quality Data, measured levels of PM_{10}, SO_2, and NO_2 (nitrogen dioxide) are well within State and Federal ambient air quality standards for the Island of Kaua'i (State of Hawaii, DOH 2015).

<u>Project Impacts and Mitigation</u>

Short-term impacts to air quality from fugitive dust may occur during development of the property. These impacts could result from construction vehicle activities and fugitive dust from excavation and grading. There are two potential types of air pollution emissions associated with these construction activities. First, fugitive dust caused by

vehicle movements and excavation/fill activities. Second, vehicles exhaust emissions from on-site construction equipment. These impacts will be minimized through the implementation of best management practices to control construction fugitive dust and emissions in compliance with provisions of Hawai‘i Administrative Rules Section 11.60.1-33. All work will be in conformance with the air pollution standards and regulations of the State DOH.

Long term impacts to air quality from the proposed project are expected to be minimal. Vehicle emissions will increase slightly over current levels resulting from the transport of staff and visitors to the proposed facility. The slight increase in vehicle emission resulting for the proposed project is not expected to cause a significant impact to air quality in the project vicinity.

3.8 HAZARDOUS MATERIALS

A Phase I Environmental Site Assessment was conducted for the site in August, 2015 to identify any recognized environmental conditions (RECs) in the area. RECs as defined by ASTM International, include Historical RECs (HRECs) and Controlled RECs (CRECS). HRECs are RECs that have been addressed to the satisfaction of an applicable regulatory authority or meet unrestricted residential use criteria established by a regulatory authority, without subjecting the property to any required controls, such as property use restrictions or activity and use limitations (AULs), which include both institutional controls and engineering controls). CRECs are past releases that have been satisfactorily remediated to applicable risk-based criteria but where contaminants are allowed to remain in place subject to the implementation of "required" AULs.

On the basis of historical resources, the site was used for sugar cane cultivation throughout the last century. There are a few small soil stockpiles adjacent to the road along the southern boundary of the site and on the southern part of the building slab foundation. The soil stockpiles are from unknown sources and placed by unknown persons and are therefore considered a REC. The use of the former building is unknown and is also considered a REC.

No military (U.S. Department of Defense) sites, or National Priorities List (NPL) sites were identified within a mile of the project site.

Six sites with underground storage tanks (USTs) near the project site were identified as HRECs because all have been closed and all releases have been cleaned-up:

1. Beatrice Pace (Enoki Partnership), 4338 Lele Road, 500-gallon gasoline.
2. Hanapēpē Baseyard (Kaua‘i County), 4380 Lele Road, 2,500-gallon diesel fuel and 1,500-gallon gasoline.
3. AMFAC Distribution Hawaii, 1-3410 Kaumuali‘i Highway, 1,000-gallon gasoline.
4. Organizational Maintenance Shop 5 (State DOD-Army National Guard), 1-3460 Kaumuali‘i Highway, 2,000- and 3,000-gallon gasoline .

5. Cilia's Service Station, 1-3509 Kaumuali‘i Highway, 2,500-gallon diesel fuel and 1,500- gallon gasoline.
6. Longie's Cracked Seed, 3508 Hanapēpē Road, two 500-gallon gasoline.

The County of Kaua‘i Hanapēpē Transfer Station at 4380 Lele Road is a drop-off facility for solid waste. The site is registered as a small quantity generator (SQG) of hazardous waste with the Resource Conservation and Recovery Act (RCRA) program of the U.S. Environmental Protection Agency (EPA). Solvents , petroleum products and used products have been handled at the site and violations of regulations have been reported and compliance orders have been issued. This site is an REC relative to the planned DNLR West Kaua‘i Field Operations Facility.

The Phase I study also evaluated the potential for the presence or likely presence of chemicals of potential concern in the subsurface at the site caused by the release of vapors from contaminated soil or groundwater either at or near the subject easements.

No additional RECs or sources of contamination have been identified in the vicinity of the planned DNLR West Kaua‘i Field Operations Facility, and the potential for vapor encroachment at the subject site is considered insignificant or nonexistent.

The proposed project will include a fueling station for DLNR vehicles with space for two (2) above-ground tanks and space to fill two (2) vehicles at a time. Additional small amounts of fuel and herbicides will be stored in two (2) hazmat cabinets in a shared storage building at the facility.

Project Impacts and Mitigation

The fuel dispensing systems and portions of the surrounding areas will be designed as Class I, Division 1 hazardous locations in accordance with 40 CFR 112 and the National Electrical Code (NEC). All electrical equipment and electrical installations within these hazardous locations will meet applicable NEC requirements. To avoid accidental release of fuels, the above-ground tanks will include:

- High liquid level alarms with an audible or visual signal
- High liquid level pump cutoff devices set to stop flow at a predetermined container content level
- Direct audible or code signal communication between the container gauge and the pumping station

The Hazmat cabinets will comply with 29 CFR 1910.106(e)(2)(ii)(b), 29 CFR 1910.106(d)(3)(i&ii), and NFPA Code 30, 3.3.19.

3.9 ARCHAEOLOGICAL AND HISTORIC RESOURCES

A draft Archeological Inventory Survey (AIS) was conducted for the project by Cultural Surveys Hawai‘i dated January 2016 titled Draft Archaeological Inventory Survey Report for the West Kaua‘i DLNR Facility Project, Hanapēpē Ahupua‘a, Waimea District, Kaua‘i TMK: [4] 1-8-008:020 por. Background research for the AIS included a review of previous

archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, Kaua‘i Historical Society, Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives; and study of historic maps at the Survey Office of the DLNR. Historic maps and photographs from the Cultural Surveys Hawai‘i library were also reviewed. This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

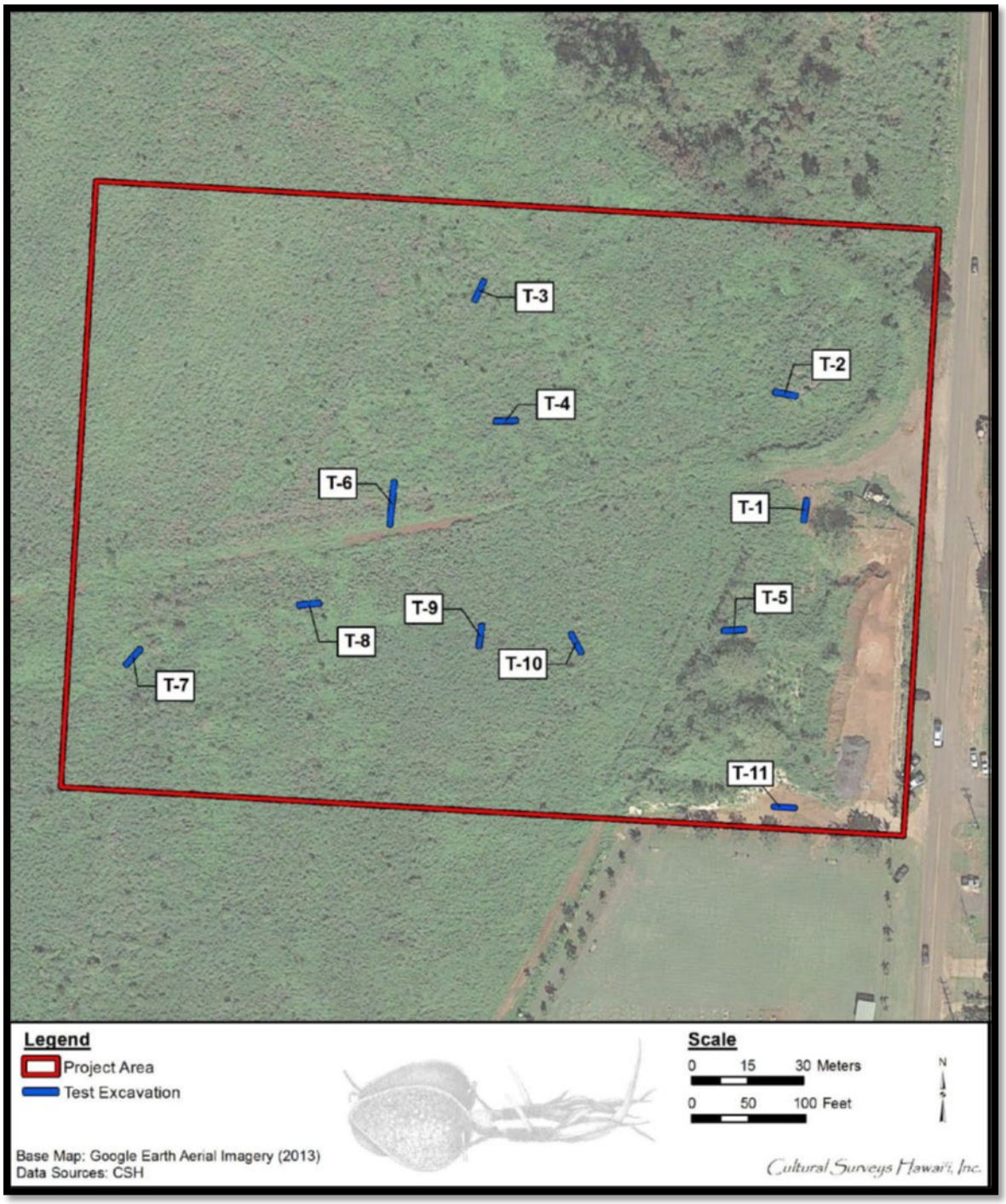
Archaeological pedestrian and subsurface surveys for the project area were conducted in September and October 2015. A complete ground survey of the now fallow lands that were previously cultivated sugarcane fields was undertaken for the purpose of historic property identification and documentation. The subsurface testing locations within the fallow sugarcane fields were determined for the AIS in consultation with Mary Jane Naone of SHPD. The subsurface testing program was backhoe assisted and involved eleven (11) test excavations within the project area. A map of the trenching locations is enclosed for your reference. In general, linear trenches measuring between 7 m (23 ft) and 8 m (26 ft) long and 0.6 m (2 ft) wide were excavated within the project area, with the exception of T-6 which measured 13 m (43 ft) long. See Figure 3.9.

A total of four (4) historic properties were identified and documented during the AIS investigation. The historic properties identified consist of two remnant cane haul roads (SIHP #s -2304 and -2306), a large concrete building foundation (SIHP # -2303), and a remnant plantation-era ditch (SIHP # -2305). All of the properties identified date from the historic era. The Table 3.2 below lists each property followed by a brief description.

Table 3-2. Summary of Historic Properties Identified During the AIS Investigation

SIHP #	Formal Type	Functional Interpretation	Temporal Interpretation
50-30-09-2303	Platform	Building foundation	Military historic era
50-30-09-2304	Road (remnant)	Cane haul road	Plantation historic era
50-30-09-2305	Ditch (remnant)	Irrigation	Plantation historic era
50-30-09-2306	Road (remnant)	Cane haul road	Plantation historic era

Figure 3-9. Aerial Photograph of the Project Area Indicating Location of Subsurface Test Trenches.



SIHP # -2303 consists of a roughly rectangular-shaped concrete platform measuring 86 m (l) by 18.6 m (w) with various heights from 0.02 m at the southern end of the structure to 1.19 m at the northern end. The entire structure is not visible due to stockpiling of soil, sand, gravel, concrete, small to large basalt angular and sub-angular cobbles and boulders as well as wood. The project site was part of a larger area which formed the Kaua‘i Training Center during World War II (Creed et al. 1995) SIHP # -2303, located at the southeast corner of the project area, was built during World War II when the military was present in Hanapēpē. Background research gives no indication of the building’s purpose.

SIHP # -2304 is a remnant section of a plantation-era cane haul road. The remnant road measures 190 m long by 4.0 m in width and traverses in a rough northeast/southwest direction through the entire project area. The road parallels an earthen berm located to the north of the road.

SIHP # -2305 is a remnant section of a plantation irrigation ditch that measures 68.3 m in length by 1.06 m in width with an average depth of 0.85 m. It is a simple soil ditch with no associated rock work and is overgrown with vegetation. Both ends of the ditch have been bulldozed.

SIHP # -2306 is a section of plantation-era cane haul road measuring 120 m in length by 4.0 m in width, and traverses the project area in a rough north/south direction. The road is located along the eastern boundary of the former cane lands within the project area. The road has been impacted by bulldozing and soil stockpiling.

Project Impacts and Mitigation

All of the historic properties identified date from the historic era. The features identified during the AIS investigation date to the mid-twentieth century and are considered part of the Hawaiian Sugar Company and Olokele Plantation irrigation and transport system (SIHP #s -2304 through -2306) with an inclusion of military influence during war time with the construction of SIHP # -2303 and its reutilization from the 1950s and 1960s as a warehouse to store goods for a first chain of supermarkets on the island of Kaua‘i.

No cultural, archeological, or historic materials were uncovered during the subsurface surveys. Under Hawai‘i state historic preservation legislation, the two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR §13-275-7). In the circumstance of the current project area, a total of four historic properties were documented within the current project area. All four historic properties have been assessed as significant under Criterion “D,” meaning that each historic property has “yielded, or is likely to yield, information important for research on prehistory or history.” The proposed project land uses are to remain generally consistent with present and past agricultural practices within the current field footprints and appropriate for an effect determination of “no historic properties affected.” This is viewed as appropriate

as the historic properties associated with commercial sugar cultivation will continue to be used in a manner consistent with their purpose and function.

3.10 CULTURAL RESOURCES

A review of publicly available Cultural Impact Assessments in Hanapēpē was made to determine, preliminarily, if any known cultural resources, practices, and even beliefs within the project area exists. For this purpose, the Cultural Impact Assessment (CIA) conducted by Nohopapa Hawai’i in December 2019 for the Department of Hawaiian Home Lands (DHHL) Hanapēpē Master Plan was reviewed to identify cultural resources within the Project area and vicinity of the project. Both projects are located in the Ahupua‘a of Hanapēpē (crushed bay) in the Kona Moku. While the primary study area for the CIA focused on the DHHL location, the CIA included research that covered a broader area mauka and makai from the study area. This broader area encompasses the subject area of this environmental assessment as it is located immediately south of the DHHL lands.

Background

As described in the CIA, the Hanapēpē Ahupua‘a contains significant wahi pana (legendary places) hosts several leina a ka ‘uhane - leaping places associated with the transit of the dead into Pō, the “place of the dead”, or afterlife. This Ahupua‘a is known on Kaua‘i in part for hosting notable initial human settlement and uses unique throughout the Hawaiian Islands. During the Māhele, Crown lands in the Ahupua‘a of Hanapēpē, once inalienable and in trust for the people, were sold off to large land owners. During the Hawaiian Kingdom Era (pre- Jan.17, 1893) portions of Hanapēpē were already in sugar. The 1865 land purchase of Elizabeth McHutcheson Sinclair established two sugar plantations and a cattle ranch between Hanapēpē River and Waimea River.

The Nohopapa CIA identified several cultural resources nearby the project location, identified as wahi kupuna (cultural resources). A listing of the nearby wahi kupuna is provided below:

1. Salt Pan, near Puolo Point - The extent of this salt pan is shown on the government map. It is notable among the salt pans of Kauai in having no artificial divisions. It is merely a natural flat area on which the sea water could be let in and evaporate.

2. House Sites, at Puolo Point - The remains of many house sites appear on the great flat lands near the salt pan. Most of the house sites are surrounded by walls 2 to 3 feet high, many of which have been built up recently. Walls run everywhere. East of here the field has been cleared for an airport. Along the shore the tumbled remains of wind shelters used by fisherman can be seen.

3. Kauakahiuni heiau, at Puolo Point - Described as “A walled heiau of medium size at the shore, part of walls still standing. Kane and Kanaloa its deities.” The site is now but slightly marked by crumbled stones. It measures at the outside about 80 by 40 feet. The walls were said to have been about 4 feet high.

4. House site or Ko‘a, at Puolo Point - The front part of this structure rests on the beach stones above which it has been built up 5 to 8 feet. In rough weather the sea spray must have washed over it. The exact measurements and plan are given on figure 29 [p113 Bennet 1931]. It is composed of three sections with steps leading up to one. The paving on two of the sections is with very small beach pebbles. The other section is more torn down, and is paved with larger stones. A wall one foot high runs around the south side and across the front (sea side).

5. Sand burials - In the sand on the northwest side of Hanapepe bay, burials are found.

Community Consultations

The following is based on consultations conducted by Nohopapa Hawai‘i for the DHHL Hanapēpē Master Plan and is used for informational purposes only in this environmental assessment. A project specific Cultural Impact Assessment was not conducted for the proposed project, however four (4) community members with knowledge of the Hanapēpē area were contacted and invited to be consulted for this project. The listing of the four (4) community members were recommended by the Office of Hawaiian Affairs (OHA) in their emailed comments on the Draft Environmental Assessment dated April 26, 2021. None of the four (4) contacted individuals have provided written consultation responses

Nohopapa consulted with individuals knowledgeable on wahi kupuna associated with Hanapēpē. All community members interviewed commented on the lack of archival history about Hanapēpē, in both Hawaiian and English, citing that little remains of the mo‘olelo, ‘oli, mele, hula, and place names of Hanapēpē from historic times. Hanapēpē was described as a place renowned for hula. Hanapēpē, even at the time of the Mahele (1850s) had a large population, supported by agriculture extending deep into the valley. At this time, pa‘akai was being actively harvested at ‘Ukulā to support mauka and makai food preparation and preservation.

In 2019, there were twenty-two Hanapēpē ‘ohana producing salt. Their families have roots in the area and have been passing down mo‘olelo of the area as well as the traditional cultural practice of cultivating lo‘i pa‘akai. One well known kūpuna and salt maker, the late Aunty Wilma Holi, shared share several mo‘olelo of the area, passed down to her through her family, with ‘ohana and friends of her time.

Access throughout Hanapēpē lands remains an important cultural issue. Interviewees also expressed concerns over safety and worries were expressed over the speed at which vehicles travel on Kaumuali‘i Highway along the stretch bordering Hanapēpē

Hawaiian Home Lands and the intersection of Kaumuali‘i Highway with Lele Road and Hanapēpē Road. A general concern involves limiting access to dunes and the education needed to reduce the negative effects of compacting the clay substrate beneath the sand due to vehicle access. This can result in impacts to the wells used for salt making, and prevents native plant species that grow on the dunes from flourishing. The increasing dune erosion, dust and debris along the windy shoreline are detrimental to the local ecosystem and salt production.

Project Impacts and Mitigations

The proposed project location does not contain any known wahi kupuna (cultural resources) that were identified in the Nohopapa CIA, although several sites have been identified that are in the vicinity of the project. As described in the previous section, all of the historic properties identified on site date to the mid-twentieth century and are considered part of the Hawaiian Sugar Company and Olokele Plantation irrigation and transport system (SIHP #s -2304 through -2306) with an inclusion of military influence during war time with the construction of SIHP # -2303 and its reutilization from the 1950s and 1960s as a warehouse to store goods for a first chain of supermarkets on the island of Kaua‘i.

Adverse impacts to cultural resources are not anticipated due to a commitment to responsible design in compliance with state and county requirements for the proposed project. This would include construction best management practices to control fugitive dust, stormwater runoff and other construction related nuisances such as air quality and noise mitigations. Best management practices will be implemented to minimize risk of siltation and pollution through construction related stormwater runoff. Post-construction, the project is not anticipated to result in long-term impacts to groundwater aquifers or surface waters, thereby having no impacts on the sensitive salt pond environments located approximately 3,000 feet to the south.

3.11 VISUAL RESOURCES

The Kaua‘i General Plan defines the areas’ significant scenic resources as view planes/vistas of the mountains and oceans. In the vicinity of the project site, these resources include the mauka views from Kaumuali‘i Highway toward Mount Waialeale and makai to the ocean and shoreline.

The project site’s northern border is composed of tall, thorny ‘opiuma trees (*Pithecellobium dulce*) and thick stands of guinea grass and koa haole shrubs in the understory, which provides a buffer between the project parcel and views from Kaumuali‘i Highway. The project site will be visible when traveling in either direction along Lele Road.

Project Impacts and Mitigations

The project is not anticipated to have a significant negative impact on scenic views or scenic resources in the vicinity of Hanapēpē or Port Allen. The project structures will not be visible from Kaumuali‘i Highway which is the major thoroughfare through the area. The project will be visible when traveling in either direction along Lele Road which connects the highway with the Port Allen Airport, but will not obstruct mauka or makai views from the road.

3.12 TRANSPORTATION FACILITIES

Vehicular Access

Vehicular access to the project property from the north and south is provided by Lele Road. Lele road connects with Kaumuali‘i Highway to the north, and with the Port Allen Airport to the south. Kaumali‘i Highway is classified by HDOT as an urban minor arterial, oriented generally in an east-west direction near the project area.

Existing Roadway Volumes

Traffic along Kaumuali‘i Highway through Hanapēpē is generally light. During the AM commuter period (05:00-09:00) there is a slight peak from 06:45 AM to 07:45 AM, and during the PM commuter period (15:00-19:00) there is a slight peak from 03:45 PM to 04:45 PM. Traffic during peak commuter periods experiences minor slowdowns.

Transit

Bus service in the region is provided by *The Kaua'i Bus*, which is operated by County of Kaua'i Transportation Agency. Routes 100, 100E, and 150 travel along Kaumuali‘i Highway between Kekaha and Lihue, with stops in Hanapēpē within 0.3 miles of the project area.

Airports

The proposed project site is approximately 0.14 miles from the property boundary of Port Allen Airport (PAK) and approximately 3,037 feet from the end of the runway at PAK. All projects within five (5) miles from Hawai‘i State airports are advised to review the State of Hawai‘i Office of Planning Technical Assistance Memorandum (TAM-2016-1) on Federal Aviation Administration (FAA) Order 5190.6B. The TAM-2016-1 provides technical advice to projects which may impact the use of land adjacent to or in the immediate vicinity of Hawai‘i’s airports. This would ensure compatible land use near federally obligated airports such as PAK. Potential incompatible uses may involve hazard wildlife attractants, glint and glare hazards, and other obstruction hazards.

Project Impacts and Mitigations

The State of Hawai‘i Department of Transportation (HDOT) provided comments on the Draft EA dated May 21, 2021, which included comments from the Airports Division and Highways Division.

A traffic assessment report was prepared for the project with the master plan completed in 2016. A draft copy of this report is included in the appendix. No adverse effects are anticipated to roadways and traffic from the proposed project. The estimated daily staffing level at the facility will be approximately 20-40 persons. Adequate parking facilities will be available for both staff and visitors to the facility. The addition of 20-40 vehicle trips per day will not adversely impact traffic volumes in the region. To accommodate the different types of functions planned for the project, the site roads, parking, and storage areas will be designed for heavy trailers, trucks, equipment, and other vehicles. Pavement design will account for heavy vehicular loads. Large radii at the corners of the main access roads will be designed to account for long trailers and large vehicle wheel paths, including a recessed entry gate as needed to accommodate the department’s vehicles. Generous lane widths and parking area spacing are designed to allow efficient circulation of equipment trailers and large vehicles. A looped site road with two access points onto the site is designed to alleviate any potential congestion due to the volume and type of vehicles using the facility.

In comments provided by HDOT Highways Division, the division noted they do not anticipate significant adverse impacts to State highway traffic conditions along Kūhiō Highway. Per a request in the comments provided by the Highways Division, SSFM has confirmed with the Kaua‘i District Engineer that the Lele Road intersection with Kūhiō Highway currently meets standards for the type and volume of anticipated traffic to be generated by the proposed project. In addition, the Highways Division requested a qualitative discussion of potential beneficial impacts to traffic in Līhu‘e with the relocation of DLNR services to West Kaua‘i. There would be beneficial impacts to traffic in Līhu‘e because the proposed action does not involve an expansion of DLNR services, but rather a relocation of resources to West Kaua‘i. Benefits to traffic in Līhu‘e would result due to the ability for DLNR divisions to relocate the storage of vehicles (such as boats/boat trailers, ATV trailers, construction equipment and trailers, flatbed trucks, construction vehicles and other vehicles) which would otherwise have to travel out of Līhu‘e to West Kaua‘i when deployment is necessary. The actual amount of trips saved is not available at this time, but is anticipated to result in travel time, fuel costs, and maintenance savings for DLNR divisions. No proposed work is anticipated to take place within State highway road rights-of-way, however due to the increase in temporary construction traffic, a traffic management plan is recommended and HDOT noted that pavement markings in the vicinity of the project may be required to be refreshed with this project.

The proposed project is not anticipated to have an adverse impact on PAK airport operations. There are no standing water features proposed that may attract hazardous

wildlife thru the subject area. The project does not involve a landfill or materials recycling facility, however an existing county refuse transfer station is located across Lele Road. Further, other obstructions such as tall antennas, cranes, wind turbines or utility poles are not planned at this location. In addition, Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or alteration pursuant to the Code of Federal Regulations, Title 1.4. Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100: I surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, will be included in the submittal. Due to the project site's proximity to the airport, the DLNR should be aware of potential noise from aircraft operations. There is also a potential for fumes, smoke, vibrations, odors, etc., resulting from occasional aircraft flight operations over or near the project location. These impacts may increase or decrease over time and depending on airport operations.

3.13 WATER SYSTEM

Water service will be provided via an existing 8" water main located in Lele Road. An onsite water distribution system will connect to the existing main in Lele Road and provide service to the proposed buildings and site infrastructure. An underground system of pipes, fittings, hydrants, valves, and water structures will be installed to meet the various domestic and fire protection requirements. Early coordination with the County of Kaua'i Department of Water (DOW) indicated that the existing system should be able to serve the anticipated demand generated by the proposed development, without causing an inadequate pressure drop in the existing water system. The estimated demand for fire protection is 550 gallons per minute (gpm).

Project Impacts and Mitigation

The water demand from the proposed project will not adversely affect the existing water system in the area. Preliminary analysis completed by DOW using a water system standard fire flow for the project at 2,000 gpm showed the existing system pressure would still be maintained above the DOW minimum. Prior to project construction, an Application for Water Services will be submitted to DOW that includes details of domestic service connections, fire service connections, and interior plumbing backflow prevention devices.

The Department of Land and Natural Resources (DLNR), Engineering Division submitted comments on the Draft EA dated May 20, 2021 requesting water demands for the project be included in the Final EA and submitted to the Engineering Division for State Water Project Plan Update projections. The potable water demands for the project is estimated at 40,000 gallons per day in accordance with guidelines for light industrial uses. This includes estimates for domestic and industrial uses. Proposed future water demands have been provided to DLNR, Engineering Division in March 2016 via email to Mr. Rodney Shiraishi within the Division's Project Planning Section.

Wastewater Disposal

The wastewater generated by the proposed development will be managed using an onsite sewer conveyance system which will have a connection to the existing 8" sewer main sewer in Lele Road.

Project Impacts and Mitigation

The wastewater generated by the proposed development will not adversely affect the existing sewer system in the area.

3.14 DRAINAGE SYSTEM

The existing storm drainage system in the area comprises of a series of ditches and basins which flow to a 24" storm culvert located near the northeastern corner of the project site. The culvert is installed under Lele Road and allows the drainage to flow east; eventually leading to the ocean. There is also an existing 24" storm main and series of catch basins on the eastern side of Lele Road which appear to outlet near the downstream end of the culvert.

Project Impacts and Mitigation

Based upon the development plan, an increase of impervious surfaces (e.g. structural roofs, parking areas, and roads) is expected. The proposed drainage will consist of sheet flow via grading, as well as a system of storm catch basins, swales, and pipes. The site drainage is planned to be directed toward the northeastern portion of the site to a new proposed detention basin. The detention basin will be designed to temporarily store excess storm runoff caused by the proposed development while meeting pre-development peak discharge rates.

Although conceptual at this stage, the storm water management plan will include proven and effective measures to meet the requirements of the State of Hawai'i, Department of Health, Clean Water Branch (CWB), amended Hawai'i Administrative Rules Chapters 11-54 (Water Quality Standards), and 11-55 (Water Pollution Control). These measures will incorporate an on-site storm water retention basin with controlled release rates to help mimic the existing runoff conditions.

In addition, a suite of water quality enhancement measures will be explored and implemented as applicable to reduce sediment and pollutant loadings that are typically associated with urban runoff. The water quality enhancement measures may include elements such as grass-lined filter strips, bioswales, rain gardens, cisterns, and permeable pavers. The County of Kaua'i provides storm water quantity best management practices guidelines that will be used in the design process to assess the suitability, size, and selection of the most appropriate measures.

3.15 COMMUNITY FACILITIES

Major community facilities in the vicinity of the Hanapēpē area are noted below.

Medical Facilities

The region’s primary medical facility, Wilcox Memorial Hospital is located about 18 miles northeast of the project site at 3-3420 Kuhio Hwy in Lihue. Wilcox Memorial Hospital offers emergency services and all levels of general acute patient care. Kaua‘i Veterans Memorial Hospital in Waimea is approximately 7 miles to the west of the project site and offers 24 hour Emergency Services. Additionally there are two medical day-clinics in ‘Ele‘ele that are within 2 miles of the project site.

Educational Facilities

The Hawai‘i Department of Education oversees public schools in the Kapaa-Kaua‘i-Waimea Complex Area. The Waimea Complex includes six (6) public schools in the area: three elementary (K-6) schools, one middle school (6-8), one high (9-12) school, and one combined elementary and high school (K-12). Primary education is available at the ‘Ele‘ele Elementary school in ‘Ele‘ele, approximately two miles from the project site. Middle and high school education is provided by schools in Waimea, approximately 7 miles from the project site.

Emergency Responders

Emergency first response is available from the Hanapēpē Fire Station located at 1-3787 Kaumuali‘i Highway, about 0.6 miles west of the project site. The closest police station is in Waimea, approximately 7 miles to the west of the project site. The main station for the Kaua‘i Police department is in Lihue, approximately 18 miles to the northeast of the project site.

Community Parks and Recreational Resources

The County of Kaua‘i, Department of Parks and Recreation manages and maintains a system of parks on the island of Kaua‘i. The project site is located within the Waimea District. The closest public parks are Salt Pond Park located along the ocean about a mile away. Other public parks in the vicinity include Hanapēpē Stadium, Hanapēpē Town Park, Hanapēpē Heights Park, Hanapēpē Cliffside Park, and Hanapēpē Pavilion.

Airports

Port Allen Airport is approximately one mile south of Hanapēpē. The airport is an uncontrolled regional facility with a 2,450 foot runway oriented in an east/west direction. The facility is currently used for scenic helicopter tours, ultralight aircraft traffic, and skydiving.

Project Impacts and Mitigation

The proposed project is not expected to have significant negative impacts on community facilities because the facility will not increase population in the area.

3.16 SOCIOECONOMIC ENVIRONMENT

The following discussion describes the profile of the existing community and the anticipated effects of the proposed development on the community.

Demographics

The U.S. Census Bureau compiles demographic information on population, housing, and employment every 10 years, with the most recent data available from the year 2010. Project site is located within Census Tract 11800-Hanapēpē. However, the proposed development is immediately adjacent to Census Tract 0700-‘Ele‘ele, so data from that tract is also presented. An overview of 2010 demographic characteristics for the census tracts is provided in Table 3-3.

Table 3-3. 2010 Census Data

Population	Hanapēpē	‘Ele‘ele
2010 Census Total Population	2,638	2,390
2014 5-Year Population Estimate	2,488	2,723
Median Age (yrs)	43	40
Percent high school graduate or higher	95.6%	83.5%
Total housing units	911	861
Median Household Income	$68,125	$74,479
Individuals below poverty level	3.4%	12.5%
Race		
White alone	666	298
Black or African American alone	11	5
American Indian and Alaska Native alone	17	0
Asian alone	1,057	1,575
Native Hawaiian and Other Pacific Islander alone	209	313
Some Other Race alone	105	28
Two or More Races	423	504
Hispanic or Latino (of any race)	514	374
White alone, Not Hispanic or Latino	493	248
Veterans	189	158
Source: U.S. Census Bureau. 2010		

Project Impacts and Mitigation

Economic and fiscal impacts associated with the project will include the creation of temporary construction employment opportunities. DLNR staffing at the facility is likely to include positions only for persons currently employed by the department.

There will be no adverse impacts from the project on government supported services such as utilities, schools, public safety, and transportation systems because the proposed facility will not increase population in the area.

4.0 CONFORMANCE WITH PLANS AND POLICIES

4.1 HAWAI'I STATE PLAN

The Hawai'i State Plan, codified as Chapter 226, Hawai'i Revised Statutes, serves as a guide for the future long-range development of the State; identifies goals, objectives, policies and priorities for the State; provides a basis for determining priorities and allocating resources; improves coordination of federal, state and county activities, and establishes a system to integrate major state and county activities.

The use of the subject property for a DLNR West Kaua'i Field Operations Facility would be consistent with the following Chapter 226, Hawai'i Revised Statutes:

§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 Hawaii's land-based, shoreline, and marine resources.
(2) Effective protection of Hawaii's unique and fragile environmental resources.

(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 Hawaii's natural resources.
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawaii.
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.
(8) Pursue compatible relationships among activities, facilities, and natural resources.
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes. [L 1978, c 100, pt of §2; am L 1986, c 276, §10]

§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 Hawaii's land, air, and water resources.

(2) Greater public awareness and appreciation of Hawaii's environmental resources.
(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 Hawaii's limited environmental resources.
(2) Promote the proper management of Hawaii's land and water resources.
(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.
(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.
(6) Encourage design and construction practices that enhance the physical qualities of Hawaii's communities.
(7) Encourage urban developments in close proximity to existing services and facilities.
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii's people, their cultures and visitors. [L 1978, c 100, pt of §2; am L 1986, c 276, §12]

§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.
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.
(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.
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.
(3) Minimize the size of government to that necessary to be effective.
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawaii.
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.
(6) Provide for a balanced fiscal budget.
(7) Improve the fiscal budgeting and management system of the State.
(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. [L 1978, c 100, pt of §2; am L 1986, c 276, §26]

4.2 HAWAI'I REVISED STATUTES CHAPTER 343

The proposed action utilizes State of Hawaii lands and funds and therefore is required to undergo a review in accordance with Chapter 343 of the Hawai'i Revised Statutes (HRS) and Title 11, Chapter 200.1 of the State Department of Health's Hawai'i Administrative Rules (HAR). This EA has been prepared to comply with these requirements.

4.3 HAWAI'I REVISED STATUES CHAPTER 205A

The Coastal Zone Management Act (CZMA) of 1972 (16 USC 1451 et seq.) encourages coastal states to protect coastal resources consistent with the state's coastal zone management program. The objectives of the Coastal Zone Management (CZM) Program are to provide the public with recreational opportunities, protect historic resources, protect scenic and open space resources, protect coastal ecosystems, provide facilities for economic development, reduce hazards, and manage development.

Within Hawai'i, the CZM program was authorized by HRS Chapter 205A, and is administered by the Office of Planning within the State of Hawai'i Department of Business, Economic Development, and Tourism (DBEDT). Actions anywhere within the State of Hawai'i must comply with the CZM program. As discussed throughout this document, the proposed project is not anticipated to have adverse impacts on the area's recreational opportunities, historic resources, scenic and open space resources, or coastal ecosystems. CZM program objectives (HRS 205A) and applicability to the proposed DLNR Field Operations Facility are discussed below:

Recreational Resources

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

A) Improve coordination and funding of coastal recreational planning and management; and

B) Provide adequate, accessible and diverse recreational opportunities in the coastal zone management area by:

i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v) Ensuring public recreational use of county, state and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches and artificial reefs for surfing and fishing; and

viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of Section 46-6, HRS.

Discussion:

The proposed DLNR Field Operations Facility will improve coordination for coastal recreational planning and management by improving field operations in west and south-west Kaua‘i through increased support for daily operations and responses to emergencies for the western half of Kaua‘i, which includes Kōke’e, Waimea Canyon and Polihale State Park. Currently, DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for at least six DLNR divisions.

Historic Resources

Objective:

Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

Policies:

A) Identify and analyze significant archaeological resources;

B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion:

The proposed project will be constructed in keeping with the guidelines and objectives of the aforementioned objective and policies.

Archaeological test excavations were conducted on the project site and an Archaeological Inventory Survey (AIS) was completed in October 2015. The AIS concludes that per 13-275-8(a)(1)(D) historical data recovery has been completed by means of the AIS report (see Appendix C), and that no further historic preservation work is needed for the four historic properties in the project area.

Scenic and Open Space Resources

Objective:

Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

A) Identify valued scenic resources in the coastal zone management area;

B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;

C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

D) Encourage those developments that are not coastal dependent to locate in inland areas.

Discussion:

The project is not anticipated to have a significant negative impact on scenic views or scenic resources in the vicinity of Hanapēpē or Port Allen. The project structures will not be visible from Kaumuali'i Highway which is the major thoroughfare through the area. The project will be visible when traveling in either direction along Lele Road which connects the highway with the Port Allen Airport, but will not obstruct mauka or makai views from the road.

Coastal Ecosystems

Objective:

Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources

B) Improve the technical basis for natural resource management;

C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance

D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine water ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion:

The proposed DLNR Field Operations Facility will protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems through increased support for daily operations and responses to emergencies for the western half of Kaua‘i. Currently, DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for at least six DLNR divisions.

Economic Uses

Objective:

Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

A) Concentrate coastal dependent development in appropriate areas;

B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such development and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:

i) Use of presently designated locations is not feasible;

ii) Adverse environmental effects are minimized; and

iii) The development is important to the State's economy.

Discussion:

There are currently no DLNR facilities on the west side of Kaua’i that can support daily operations and responses to emergencies for the western half of Kaua‘i. DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for at least six DLNR divisions.

When completed, the new facility will provide DLNR divisions with the infrastructure to enhance and expand current programs, extend public outreach and service and provide additional support facilities for emergency situations.

Coastal Hazards

Objective:

Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies:

A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;

C) Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

D) Prevent coastal flooding from inland projects.

Discussion:

The design of the proposed project will conform to all regulatory requirements to ensure adequate and proper storm drainage and erosion control to the surrounding properties.

According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency, the subject property is located in Zone “X” which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain. According to the State Civil Defense Tsunami Evacuation Zone maps, the subject property is not within a tsunami evacuation zone.

Managing Development

Objective:

Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policies:

A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*

B) *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*

C) *Communicate the potential short- and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process*

Discussion:

The proposed project will be consistent with these policies. The Environmental Assessment process requires public notification and a 30-day public comment period for the Draft EA.

Public Participation

Objective:

Stimulate public awareness, education, and participation in coastal management.

Policies:

A) *Promote public involvement in coastal zone management processes;*

B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and*

C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Discussion:

Providing a DLNR facility on the west side will significantly improve public access to information regarding wildfires, enforcement actions, and public safety. The Environmental Assessment process requires public notification and a 30-day public comment period for the Draft EA.

Beach Protection

Objective:

Protect beaches for public use and recreation.

Policies:

A) *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*

B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and*

C) *Minimize the construction of public erosion-protection structures seaward of the shoreline.*

Discussion:

The proposed project will be consistent with these policies. The propose project is inland from the shoreline setback. According to the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency, the subject property is located in Zone "X" which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain. According to the State Civil Defense Tsunami Evacuation Zone maps, the subject property is not within a tsunami evacuation zone.

Marine Resources

Objective:

Promote the protection, use,, and development of marine and coastal resources to assure their sustainability.

Policies:

A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*

B) *Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;*

C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*

D) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*

E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion:

The proposed DLNR Field Operations Facility will protect marine resources and valuable coastal ecosystems through increased DOBOR and DAR support for daily operations and responses to emergencies for the western half of Kaua‘i. Currently, DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for at least six DLNR divisions.

4.4 COUNTY OF KAUA‘I GENERAL PLAN

The County of Kaua‘i is legally mandated to prepare and adopt a General Plan by State law and the County Charter. Chapter 46 of the Hawaii Revised Statutes (HRS) grants the counties certain powers and responsibilities. Among them is the power to regulate land development through zoning. However, the law makes clear that zoning must be based on a general plan.

The General Plan of the County of Kaua‘i is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of island residents and shapes the strategies and actions needed to achieve them. The General Plan was adopted in 1971 and most recently amended in 2018. It is the first level of a comprehensive planning process that addresses physical, social, economic, and environmental concerns. According to The General Plan’s Hanapēpē – ‘Ele‘ele Land Use Map, the proposed development is within land designated as Agriculture. The use of the subject property for the DLNR West Kaua‘i Field Operations Facility supports the objectives and policies of the Kaua‘i General Plan because DLNR plays the preeminent role in managing natural resources. The DLNR controls and manages the forest reserves, natural area reserves, and state parks. In addition to their value as forested watershed, these lands also harbor rare and endangered plant and animal species and areas where the native ecosystem remains relatively intact.

The DLNR also exercises regulatory authority over land use in the State Conservation District, which covers 55 percent of the island’s land area. The Conservation District encompasses the Na Pali Coast and the mountainous interior of the island, as well as coastal mountains and major river courses such as those of Waimea and Wailua. The State has also applied the Conservation District to strips of coastal lands, including almost all of the Polihale-Nohili- Barking Sands dunelands and the lands seaward of most of the coastal bluffs that fringe the North Shore. Anyone wishing to build a single-family residence or a radio tower or to undertake any other land use in the Conservation District must apply to the DLNR for permission.

Additionally, DLNR plays other roles which are important in caring for natural resources and regulating uses.

- Through the Division of Boating and Ocean Recreation, the DLNR manages small boat harbors and regulates river and ocean commercial recreation activities.
- The DLNR’s Aquatic Resources Division regulates fisheries and advocates for aquatic and marine resources, especially native species and coral reef ecosystems.
- The Division of Forestry and Wildlife, in addition to managing Forest Reserves and Natural Area Reserves, also administers the State endangered species statute. DOFAW also manages the Na Ala Hele Trail System, Game Management Areas, and other uses of forest reserve lands.
- The State Historic Preservation Division administers the Hawai‘i Historic Preservation Act and staffs the island burial councils.
- The Commission on Water Resource Management, staffed by a division within DLNR, regulates the development of groundwater wells and diversion of streams.

In addition, the State controls the Public Land Trust, which includes ceded lands and submerged lands. These constitute most of the forest reserves and all marine lands. DLNR has the primary responsibility in administering these lands.

In summary, the DLNR holds many responsibilities in caring for Hawai‘i’s special lands, waters, and cultural resources. In regulating land use on urban and agricultural lands, the County seeks expert advice from DLNR on aquatic and marine resources, streams, rare and endangered species, and historic and archaeological resources.

4.5 STATE LAND USE LAW

The State of Hawai‘i Land Use Law, Chapter 205, Hawai‘i Revised Statutes, classifies all lands in the State into four land use districts: Urban, Rural, Agricultural, and Conservation. The use of the subject property for the DLNR West Kaua‘i Field Operations Facility would be consistent with the Urban designation.

The subject property is classified as Agricultural (approximately 80%) and Urban (approximately 20%) under the State Land Use District classifications. This project would result in the loss of approximately eight (8) acres of agricultural lands, however the proposed property is not currently being use for agricultural cultivation, and has not been utilized for agriculture for many years due to military and commercial use of the property.

4.6 WEST KAUA‘I COMMUNITY PLAN

The West Kaua‘i Community Plan (WKCP) represents the County’s land use policy at the regional level. It is also one of five community plans that guide the County’s land use decisions and infrastructure investment priorities, while also advancing the goals of The

General Plan. The final WKCP was officially adopted by the Kaua‘i County Council in December 2020. The plan will update the Hanapēpē – ‘Ele‘ele Development Plan (1974) and the Waimea – Kekaha Development Plan (1978).

The proposed development relates to the following goal and objective identified in the WKCP:

Community Design

2. *Revitalize the Western Portion of Hanapēpē Town.*
    a. *Encourage the State to develop its vacant and underutilized properties in the area.*

The proposed development will utilize a vacant and undeveloped portion of State land in the western portion of Hanapēpē Town to provide support of DLNR’s daily operations and responses to emergencies for the western half of Kaua‘i. The location is designated as agriculture on the Hanapēpē Town Plan Map (COK, 2020). DLNR support for West Kaua‘i is based out of Līhu‘e, which incurs lengthy daily commute time, added labor, and avoidable fuel consumption for at least six DLNR divisions. Providing a DLNR facility on the west side will significantly improve public access to information regarding wildfires, enforcement actions, and public safety.

4.7 COUNTY OF KAUA‘I COMPREHENSIVE ZONING ORDINANCE

The County of Kaua‘i Comprehensive Zoning Ordinance regulates land use in a manner that will encourage orderly development in accordance with the General Plan and Development Plans.

The County of Kaua'i adopted the Comprehensive Zoning Ordinance (CZO) in September 1972. Since its adoption, the County of Kaua'i has approved several amendments to specific provisions of the CZO. On December 3, 2012, the County approved the first phase of the CZO Update by adopting 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 of Kaua'i completes the second phase of the project.

The Comprehensive Zoning Ordinance (CZO) lists within each zoning district of the County, those uses, development, and activities, that are "generally permitted" and those which may be allowed only after obtaining a Use Permit. The primary purpose of the Use Permit procedure is to assure that a particular activity or use of land can be integrated into and be compatible with its immediate surroundings.

The subject property is classified as Open under the Comprehensive Zoning Ordinance. Resource Management facilities pertaining to forest products, minerals, and other natural resources are permitted under CZO 935, Section 8-2.4(s)8. Coordination with the County of Kaua‘i, Department of Planning will be required to determine if a Use Permit is required.

4.8 COUNTY OF KAUA‘I SPECIAL MANAGEMENT AREA

The Hawai‘i Coastal Zone Management (CZM) Program, Chapter 205A, Hawai‘i Revised Statutes (HRS), outlines control, policies and guidelines for development within an area along the shoreline referred to as the Special Management Area (SMA). CZM policies are administered by each County. Lands located within the SMA are regulated through County of Kaua‘i, Section 1.4, Special Management Area Rules and Regulations. Chapter 205A, HRS also establishes the shoreline setback area to further manage uses along the shoreline. The County of Kaua‘i is delegated authority to regulate uses located within the established Shoreline Setback Area (SSA) for the island of Kaua‘i. The proposed development is not located within the SMA or SSA established by the County of Kaua‘i.

5.0 FINDINGS AND DETERMINATION

The proposed project is not anticipated to have a significant impact based on the criteria set forth in the Hawai'i Administrative Rules (HAR), Title 11, Chapter 200.1, Section 13. The objective of this assessment is to identify and consider the "significance" of potential environmental effects which includes the sum of effects on the quality of the environment along with cumulative long-term effects. A prescribed set of thirteen (13) Significance Criteria is used to determine the project's impact on the environment. The project's relationship to each criterion is discussed in this chapter and followed by the ensuing project determination.

5.1 FINDINGS

To determine whether a proposed action may have a significant effect on the environment under Hawai'i Administrative Rules Title 11, Chapter 200.1, the Approving Agency needs to consider every phase of the action, the expected primary and secondary consequences, cumulative effect, and the short- and long-term effects. The Approving Agency's review and evaluation of the proposed action's effect on the environment would result in a determination whether: 1) the action would have a significant effect on the environment, and an Environmental Impact Statement Preparation Notice should be issued, or 2) the action would not have a significant effect warranting a Finding of No Significant Impact (FONSI).

1. Irrevocably commit a natural, cultural, or historic resource;

The proposed action will develop agricultural lands which are currently not being used for agriculture and have been reduced in value as agricultural or natural resources as a result of military and commercial use. The biological survey conducted for the project determined that the habitat is highly degraded and consists primarily of a variety of non-native plant species. Because of previous disturbance to the property, the flora and fauna communities on the property are comprised of non-native birds and plants. Therefore, use of the subject property for a DLNR Field Operations Facility does not represent an irrevocable commitment to loss or destruction of any natural flora or faunal resources.

The historic sites present on the property survey are degraded 20th century military and agricultural remnants. Data recovery has been conducted through the completion of an Archeological Inventory Survey (AIS). No impacts to cultural resources or practices are expected as the site is not associated with ongoing cultural practices and does not possess any unique resources to support such activities. Therefore the proposed project does not represent an irrevocable commitment to loss or destruction of any cultural or archeological resource.

2. Curtail the range of beneficial uses of the environment;

The proposed project will not curtail the range of potential beneficial uses of the subject parcel or surrounding environment. The DLNR Field Operations Facility will provide benefits to the community through improved coordination for coastal recreational planning and management by improving field operations in west and south-west Kaua‘i through increased support for daily operations and responses to emergencies for the western half of Kaua‘i, including Kōke’e, Waimea Canyon and Polihale State Park. The project will result in a minimal loss of beneficial agricultural uses of the environment because the property is currently vacant, highly degraded and not being used for agriculture.

3. Conflict with the State’s environmental policies or long-term environmental goals established by law;

The proposed project is consistent with the State’s policies, goals and guidelines established in Chapter 344, HRS. The project site has been heavily impacted by grading activities though military and commercial uses. The proposed DLNR Field Operations Facility is consistent with the goals of HRS Chapter 344-3 (1): “Conserve the natural resources, so that land, water, mineral, visual, air and other natural resources are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State’s unique natural environmental characteristics in a manner which will foster and promote the general welfare, create and maintain conditions under which humanity and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of the people of Hawaii.”.

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

The subject property is currently unutilized. In the long-term, the proposed action will have a beneficial economic and social welfare impact through improved coordination for coastal recreational planning and management and improved field operations in west and south-west Kaua‘i. Residents and visitors will benefit from increased support for daily operations and responses to emergencies for the western half of Kaua‘i. No impact to cultural practices is anticipated as the subject property is not associated with ongoing cultural activities and no archaeological sites are known to be present on the property.

5. Have a substantial adverse effect on public health;

The proposed action is not anticipated to have any environmental impacts that would affect public health. No hazardous materials will be used during construction, and construction impacts to water and air quality will be minimized through the implementation of best management practices. Vehicle emissions will increase slightly over current levels resulting from the transport of staff, however the slight increase in vehicle emission resulting for the proposed project is not expected to cause a significant impact to air quality in the project vicinity.

6. Involve adverse secondary impacts, such as population changes or effects on public facilities;

In the long-term, the proposed action will have beneficial economic and social welfare impacts through improved coordination for coastal recreational planning and management and improved field operations in west and south-west Kaua‘i. Residents and visitors will benefit from increased support for daily operations and responses to emergencies for the western half of Kaua‘i.

7. Involve a substantial degradation of environmental quality;

The proposed action is not expected to cause a substantial degradation of environmental quality. No hazardous materials will be used during construction, and construction impacts to water and air quality will be minimized through the implementation of best management practices. No significant long-term adverse impacts are anticipated from the proposed project.

8. Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions;

Cumulative positive effects from the project will include long-term increased support for daily conservation operations and responses to wildfires and emergencies for the western half of Kaua‘i.

9. Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat;

Because of previous disturbance to the property, the flora and fauna communities on the property are comprised of non-native birds and plants. No rare, threatened, or endangered species inhabit the subject property, nor does the site provide a unique or exceptional habitat for rare, threatened, or endangered species.

10. Have a substantial adverse effect on air or water quality or ambient noise levels;

No significant impact to air or water quality or ambient noise levels are anticipated to result from the proposed action. Short-term impacts during construction of facilities will be minimized through the implementation of best management practices to control

construction dust and emissions in compliance with provisions of HAR Section 11.60.1-33. All work will be in conformance with the air pollution standards and regulations of the State Department of Health (DOH).

Long term impacts to air quality from the proposed project are expected to be minimal. Vehicle emissions will increase slightly over current levels resulting from the transport of staff and visitors to the property. The slight increase in vehicle emission resulting for the proposed project is not expected to cause a significant impact to air quality in the project vicinity.

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, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The subject property is not located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically-hazardous land, estuary, fresh water, or coastal waters.

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

The project is not anticipated to have a significant negative impact on scenic vistas or scenic resources in the vicinity of Hanapēpē or Port Allen. The project structures will not be visible from Kaumuali'i Highway which is the major thoroughfare through the area. The project will be visible when traveling in either direction along Lele Road which connects the highway with the Port Allen Airport, but will not obstruct mauka or makai views from the road.

13. Require substantial energy consumption or emit substantial greenhouse gases.

Construction of the project will not require substantial energy consumption relative to other similar projects. After the project is completed, energy will be conserved by using modern energy efficient appliances and fixtures, and application of green design concepts.

5.2 DETERMINATION

Based upon the information and results of the assessments conducted for the project site, a Finding of No Significant Impact (FONSI) determination is warranted for the proposed project.

6.0 AGENCY AND PUBLIC CONSULTATION

6.1 PRE-ASSESSMENT CONSULTATION

Pre-assessment consultation comments were solicited from the following government agencies and organizations in October of 2015. Comments received are included in Appendix A of this Environmental Assessment and listed in Table 6-1.

6.2 DRAFT ENVIRONMENTAL ASSESSMENT CONSULTATION

The Draft Environmental Assessment (Draft EA) was published in the Office of Environmental Quality Control's *The Environmental Notice* on March 8, 2021, and was followed by a 30-day public comment period. Agencies and stakeholders consulted during the Draft EA process are identified below. Those that provided comments during the Draft EA comment period are listed in Table 6-1. Comments and proposing agency responses are included in Appendix B.

Table 6-1. Agency and Stakeholder Consultation List

Distribution	Pre-Assessment Consultation Recipient	Pre-Assessment Comments Received	Draft EA Publication Notice Recipient	Draft EA Comments Received
FEDERAL AGENCIES				
U.S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office	X	X	X	X
U.S. Department of Agriculture, Natural Resources Conservation Service	X		X	
U.S. Geological Survey, Pacific Islands Water Science Center	X	X	X	
National Park Service, Pacific West Region	X			
U.S. Army Corps of Engineers, Regulatory Branch			X	X
U.S. Department of Transportation Federal Highways Administration	X		X	
STATE OF HAWAI'I AGENCIES				
Agribusiness Development Corporation			X	X
Department of Accounting and General Services	X	X	X	
Department of Agriculture			X	
Department of Business, Economic Development & Tourism			X	
Office of Planning	X	X	X	

Distribution	Pre-Assessment Consultation Recipient	Pre-Assessment Comments Received	Draft EA Publication Notice Recipient	Draft EA Comments Received
Department of Health, Environmental Planning Office	X	X	X	
Department of Health , Clean Air Branch	X		X	
Department of Health, Clean Water Branch	X	X	X	
Department of Health, Indoor and Radiological Health Branch	X	X	X	X
Department of Health, Office of Hazard Evaluation and Emergency Response	X		X	
Department of Land and Natural Resources, State Historic Preservation Division	X		X	
Department of Land and Natural Resources, Division of Aquatic Resources			X	X
Department of Land and Natural Resources, Division of Boating and Ocean Recreation			X	X
Department of Land and Natural Resources, Engineering Division			X	X
Department of Land and Natural Resources, Division of Forestry and Wildlife			X	X
Department of Land and Natural Resources, Land Division	X		X	
Department of Land and Natural Resources, Commission on Water Resource Management	X		X	
Department of Transportation	X	X	X	X
Office of Hawaiian Affairs	X	X	X	X
Department of Hawaiian Home Lands	X		X	
Senator Ronald Kouchi (Senate District 8)			X	
Representative Dee Morikawa (House District 16)			X	
County of Kaua‘i Agencies				
Office of the Mayor			X	
Kaua‘i County Council	X		X	
Emergency Management Agency	X		X	

Distribution	Pre-Assessment Consultation Recipient	Pre-Assessment Comments Received	Draft EA Publication Notice Recipient	Draft EA Comments Received
Public Works, Wastewater Management Division	X		X	
Department of Water	X	X	X	
Fire Department	X		X	
Department of Parks and Recreation	X		X	
Planning Department	X		X	
Police Department	X		X	
Office of Economic Development			X	
OTHER				
Gay & Robinson, Inc.	X			
Kauai Island Utility Cooperative	X		X	
Hawai'i Gas	X	X	X	
Oceanic Time Warner	X		X	

7.0 REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals that may be required for the project:

Federal

- U.S. Army Corps of Engineers (USACE) Approved Jurisdictional Determination request and if within USACE jurisdiction, then a Corps permit maybe required
- Federal Aviation Administration (FAA) Form 7460-1 Notice of Proposed Construction of alteration pursuant to the Code of Federal Regulations, Title 1.4. Part 77.9

State of Hawai‘i

- Hawai‘i Revised Statues, Chapter 343 and Hawai‘i Administrative Rules, Chapter 11-200.1
- Department of Health (DOH), National Pollutant Discharge Elimination System (NPDES), Permits for construction activities and storm water discharge
- DOH, Construction Noise Permit and compliance with Hawai‘i Administrative Rules Chapter 11-46
- Compliance with Hawai‘i Administrative Rules, Chapter 11-60.1-33 on Fugitive Dust during Construction
- Department of Transportation permit (HDOT) to transport oversized and/or overweight vehicles and loads on HDOT Roadways
- Traffic Management Plan for Construction Vehicles

County of Kaua‘i

- Department of Planning - Use Permit
- Department of Planning - Zoning Permit
- Department of Public Works - Grading Permit
- Building Division - Building Permit
- Department of Water – Application for Water Services

8.0 LIST OF REFERENCES

DLNR (Hawai‘i Department of Land and Natural Resources). 2015. Hawai‘i Administrative Rules, Chapter 124, Indigenous Wildlife, Endangered and Threatened Wildlife, Injurious Wildlife, Introduced Wild Birds, and Introduced Wildlife. http://dlnr.hawaii.gov/dofaw/files/2013/09/Chap124a. Accessed October 2, 2015

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Appendix A: Pre-Assessment Consultation

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DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-259

October 21, 2015

Mr. Jared K. Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817
Via e-mail: jchang@ssfm.com

Dear Mr. Chang:

SUBJECT: **Pre-Assessment Consultation for Draft Environmental Assessment (PAC–DEA)**
West Kauai Field Operations Facility
Hanapepe, Kauai
TMK: (4) 1-8-008:020 (por)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your PAC-DEA to our office on October 13, 2015. Thank you for allowing us to review and comment on the proposed project. The PAC-DEA was routed to the District Health Office on Kauai and the Hazard Evaluation and Emergency Response Branch. They will provide specific comments to you if necessary. EPO recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

EPO also suggests that the Hazard Evaluation and Emergency Response (HEER) Office's Site Discovery and Response (SDAR) Section be contacted. The SDAR section protects human health and the environment by identifying, investigating, and remediating sites contaminated with hazardous substances (non-emergency site investigations and cleanup). The HEER Office's SDAR Section can be contacted at: (808) 586-4249 and relevant information can be reviewed at: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

Attachment 1: EPO Historic Sugarcane Land Use Map
Attachment 2: U.S. EPA EJSCREEN Map 3 page report: http://www2.epa.gov/ejscreen

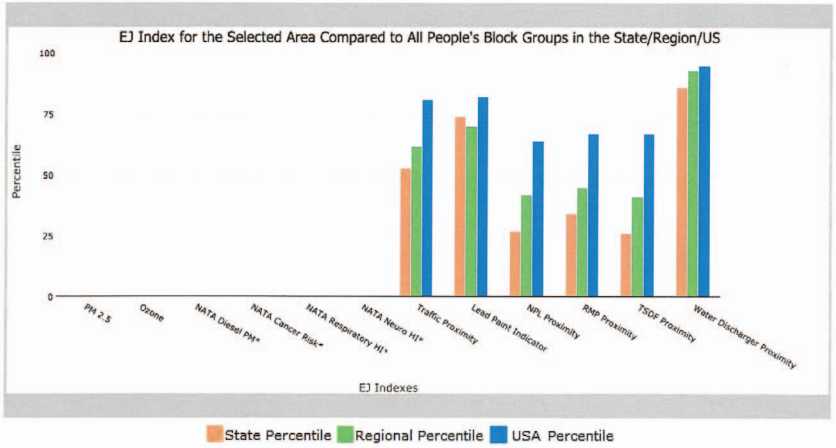
c: DHO Kauai & HEER {via email only}

EJSCREEN Report

for 1 mile Ring Centered at 21.904935,-159.598321, HAWAII, EPA Region 9

Approximate Population: 1402

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	53	62	81
EJ Index for Lead Paint Indicator	74	70	82
EJ Index for Proximity to NPL sites	27	42	64
EJ Index for Proximity to RMP sites	34	45	67
EJ Index for Proximity to TSDFs	26	41	67
EJ Index for Proximity to Major Direct Dischargers	86	93	95



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

EJSCREEN Report

for 1 mile Ring Centered at 21.904935,-159.598321, HAWAII, EPA Region 9

Approximate Population: 1402

October 21, 2015

Digitized Point

EPA United States Environmental Protection Agency

EJSCREEN Report

for 1 mile Ring Centered at 21.904935,-159.598321, HAWAII, EPA Region 9

Approximate Population: 1402

Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM (µg/m³)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Cancer Risk (lifetime risk per million)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	73	280	48	190	47	110	67
Lead Paint Indicator (% Pre-1960 Housing)	0.33	0.17	77	0.25	66	0.3	62
NPL Proximity (site count/km distance)	0.0056	0.092	21	0.11	5	0.096	1
RMP Proximity (facility count/km distance)	0.045	0.18	11	0.41	6	0.31	10
TSDF Proximity (facility count/km distance)	0.0056	0.092	17	0.12	1	0.054	12
Water Discharger Proximity (facility count/km distance)	0.71	0.33	89	0.19	96	0.25	92
Demographic Indicators							
Demographic Index	58%	51%	73	46%	68	35%	81
Minority Population	88%	77%	65	57%	80	36%	89
Low Income Population	28%	25%	63	35%	44	34%	45
Linguistically Isolated Population	1%	6%	32	9%	24	5%	51
Population With Less Than High School Education	9%	10%	58	18%	39	14%	43
Population Under 5 years of age	7%	6%	59	7%	51	7%	55
Population over 64 years of age	12%	14%	41	12%	61	13%	51

* The National-scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http://www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

HAWAI'I GAS
THE CLEAN ENERGY COMPANY

RECEIVED VIA EMAIL

October 21, 2015

Mr. Jared Chang
SSFM International
501 Sumner Street, Suite 620
Honolulu, HI 96817

Subject: West Kaua'I Field Operations Facility
Department of Land and Natural Resources
TMK (4) 1-8-008:020 (por.)
Pre-Assessment Consultation for Draft Environmental Assessment
Hanapepe, Kauai, Hawai'i

Dear Mr. Chang:

I am responding to the letter dated October 9, 2015 to Ms. Alicia Moy, President and CEO of Hawai'i Gas.

Hawai'i Gas does not have underground propane utility service in this area, however we are able to serve the parcel with an above ground tank to meet the building's energy requirements.

We thoroughly support this needed DLNR complex to serve the west side of the island and the departments various services for the community.

Please keep us informed of the status of the Project. Should you have any questions or concerns please contact Glen Takenouchi at 808-245-7957 on Kauai.

Sincerely,

Glen H. Takenouchi
General Manager - Kauai

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

SSFM INTERNATIONAL, INC.
RECEIVED
OCT 22 2015
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FILE

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/CWB

10031PJF.15

October 19, 2015

FILE COPY

Mr. Jared K. Chang
SSFM International, Inc.
501 Summer Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment (DEA) for West Kauai Field Operations Facility
TMK: (4) 1-8-008:020 (por.)
Hanapepe, Island of Kauai, Hawaii

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your letter, dated October 9, 2015, requesting comments on your project. The DOH-CWB has reviewed the subject document and offers these comments. Please note that our review is based solely on the information provided in the subject document and its compliance with the Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at: http://health.hawaii.gov/epo/files/2013/05/Clean-Water-Branch-Std-Comments.pdf.

1. Any project and its potential impacts to State waters must meet the following criteria:

   a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

   b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

   c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55).

For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

3. If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the Army Corp of Engineers, Regulatory Branch (Tel: 835-4303) regarding their permitting requirements.

   Pursuant to Federal Water Pollution Control Act [commonly known as the "Clean Water Act" (CWA)], Paragraph 401(a)(1), a Section 401 Water Quality Certification (WQC) is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may **result** in any discharge into the navigable waters..." (emphasis added). The term "discharge" is defined in CWA, Subsections 502(16), 502(12), and 502(6); Title 40 of the Code of Federal Regulations, Section 122.2; and HAR, Chapter 11-54.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects

10031PJF.15

natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g., minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Particular consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

If you have any questions, please visit our website at: http://health.hawaii.gov/cwb/, or contact the Engineering Section, CWB, at (808) 586-4309.

Sincerely,

ALEC WONG, P.E., CHIEF
Clean Water Branch

JF:bk

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

SSFM INTERNATIONAL, INC.
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OCT 23 2015
FILE

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

FILE COPY

October 20, 2015

Mr. Jared K. Chang
SSFM International
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mr. Chang:

This correspondence is in response to your request for comments to the Pre-Assessment Consultation for Draft Environmental Assessment for the West Kauai Field Operations Facility, Department of Land and Natural Resources, Tax Map Key (4) 1-8-008: 020 (por.) located at Hanapepe, Kauai, Hawaii.

Project activities shall comply with the following Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control

Should you have any questions, please contact me at (808) 586-4701.

Sincerely,

for Jeffrey M. Eckerd
Program Manager
Indoor and Radiological Health Branch

United States Department of the Interior
U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
1845 Wasp Boulevard, Building 176
Honolulu, Hawaii 96818
Phone: (808) 690-9600/Fax: (808) 690-9599

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October 23, 2015

Mr. Jared K. Chang
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawai'i 96817

Dear Mr. Chang:

Subject: West Kaua'i Field Operations Facility
Department of Land and Natural Resources
Tax Map Key (4) 1-8-008: 020 (por.)
Pre-Assessment Consultation for Draft Environmental Assessment
Hanapepe, Kaua'i, Hawai'i

Thank you for forwarding the subject Draft Pre-Assessment Consultation for Draft Environmental Assessment letter for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

Also, please note that our office has moved from 677 Ala Moana Blvd., Suite 415 as of November 17, 2014. Our new address is 1845 Wasp Boulevard, Bldg. 176, Honolulu, Hawaii 96818. Please update your mailing lists to reflect this change and address all future correspondence to our new address.

We appreciate the opportunity to participate in the review process.

Sincerely,

Stephen S. Anthony
Center Director

DAVID Y. IGE
GOVERNOR

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

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:
STP 8.1880

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October 27, 2015

Mr. Jared K. Chang
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Department of Land and Natural Resources
West Kauai Field Operations Facility
Early Consultation
Hanapepe, Kauai, Hawaii
TMK: (4) 1-8-008:020 (por.)

Our Department of Transportation's (DOT) comments on the subject project are as follows:

The Draft Environmental Assessment (DEA) should discuss and evaluate the project's contribution to the cumulative traffic impacts on State highways facilities in the area.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

OFFICE OF PLANNING
STATE OF HAWAII

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

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
ACTING DIRECTOR
OFFICE OF PLANNING

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

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Ref. No. P-14939

November 3, 2015

Mr. Jared Chang
Deputy Manager, Planning Group
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Pre-Consultation for Draft Environmental Assessment – West Kauai Operations Facility, Department of Land and Natural Resources, Hanapepe, Kauai; TMK: (4)1-8-008:020 (por)

Thank you for the opportunity to provide comments on the early consultation request for the West Kauai Operations Facility project proposed by the State of Hawaii, Department of Land and Natural Resources (DLNR). The pre-consultation review material was transmitted to our office by letter dated October 9, 2015.

It is our understanding that the DLNR is proposing the construction of a new field operations baseyard on a 10-acre parcel of land located along Lele Road in Hanapepe, Kauai. The DLNR is creating a new field operations facility because there are no facilities within the area that can support daily operations and responses to emergencies. The current base of operations is located in Lihue, which requires a lengthy drive time for DLNR personnel and their equipment.

The creation of a new staging area for West Kauai would significantly improve response times to emergencies, allow for quicker enforcement actions, and enhance public safety. The proposed facility will include office space, conference rooms, restrooms, showers, storage space, parking, a fueling station, a nursery for endangered plants, and a secure area for animal life.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to the Hawaii Administrative Rules (HAR) § 11-200-10(4) – technical, economic, social, and environmental characteristics – this project must demonstrate that it is consistent with a number of state environmental, social, and economic goals and policies for land-use and housing development. OP provides technical assistance to state and county agencies in administering the statewide planning system in Hawaii

Revised Statutes (HRS) Chapter 226, the Hawaii State Plan. The Hawaii State Plan provides goals, objectives, policies, and priority guidelines for growth, development, and the allocation of resources throughout the State. The Hawaii State Plan includes diverse objectives and policies of state interest including but not limited to the economy, agriculture, the visitor industry, federal expenditure, the physical environment, facility systems, socio-cultural advancement, climate change adaptation, and sustainability.

The Draft Environmental Assessment (Draft EA) should include an analysis that addresses whether the proposed project conforms or is in conflict with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan.

2. The coastal zone management area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" see HRS § 205A-1 (definition of "coastal zone management area").

   HRS Chapter 205A requires all State and county agencies to enforce the coastal zone management (CZM) objectives and policies. The Draft EA should include an assessment as to how the proposed project conforms to the CZM objectives and its supporting policies set forth in HRS § 205A-2. The assessment on compliance with HRS Chapter 205A is an important component for satisfying the requirements of HRS Chapter 343. These objectives and policies 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.

3. It is noted that the proposed facility is within close proximity to the state operated Port Allen Airport. The Draft EA will need to summarize any potential impacts to air operations, which includes, but not limited to, the potential of the DLNR facility to attract bird or wildlife that may encroach on aircraft flight paths, needed Federal Aviation Administration permits, and detail mitigation strategies if this project interferes with runway or aircraft operations.

4. Pursuant to HAR § 11-200-10(4) and HAR § 11-200-10(6) – the summary of impacts and alternatives considered; in order to ensure that the natural resources of West Kauai remain protected, the negative effects of stormwater runoff originating from human land-based activities should be evaluated. The Draft EA should summarize the potential impact to nearshore marine resources and actions proposed to ensure the

coastal ecosystem is protected and potential hazards mitigated. Issues that should be examined in the Draft EA include, but are not limited to, land use classification and density, hydrologic resources (wetlands, streams, and channels), and current erosion controls in place for flood prone areas. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

The review material indicated that this project is located relatively close to Hanapepe Bay, is located in an area of prime agricultural lands and vast undeveloped open spaces, and located near airport facilities, parks, cemeteries, commercial buildings, and state and county owned roadways. The Draft EA should examine the proposed projects cumulative impact on coastal resources from polluted runoff and sediment loss, and account for the greater risk of sediment loss from agricultural lands versus urban lands. It should examine the natural process of the land such as water resources, topographic contours, undeveloped open spaces, vegetated versus hardened land surfaces, soil absorption rates, the connecting non-permeable roadways, and any existing drainage infrastructure that may directly connect the parcel to the coastline and vulnerable marine resources of Hanapepe Bay.

OP has a number of resources available to assist in the development of projects which ensure sediment and stormwater control on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep soil and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for each project. These three evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on site-appropriate methods to safeguard Hawaii's watersheds and implement watershed plans http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_storm water_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices (BMP's) for stormwater control management, roadway development, and urban layout that minimizes negative environmental impacts http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

5. The proposed uses are not permissible within the State Agricultural District. The Draft EA should discuss the required permitting, existing, and past agricultural uses, soil conditions, and consistency with HRS Chapter 205.

If you have any questions regarding this comment letter, please contact Josh Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Acting Director

DAVID Y. IGE
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

(P)1281.5

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NOV 5 - 2015

Mr. Jared K. Chang
SSFM International, Inc.
502 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Pre-Assessment Consultation for Draft Environmental Assessment
Department of Land and Natural Resources
West Kauai Field Operations Facility,
Hanapepe, Kauai, TMK: (4)1-8-008: 00 (por)

Thank you for the opportunity to provide comments for the subject project. The project does not impact any of the Department of Accounting and General Services' projects or existing facilities on Kauai and we have no comments to offer at this time.

If you have any questions, please call me at 586-0400, or your staff may call Mr. Myles Nakamura of the Public Works Division at 586-0491.

Sincerely,

for DOUGLAS MURDOCK
Comptroller

c: Mr. Eric Agena, DAGS Kauai District Office

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

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NOV 12 2015

In Reply Refer To:
2016-TA-0014

Mr. Jared K. Chang
SSFM International
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Subject: Pre-consultation for Draft Environmental Assessment, DLNR West Kauai Field Operations Facility, Kauai

Dear Mr. Chang:

The U.S. Fish and Wildlife Service (Service) received your letter, dated October 9, 2015, requesting our comments on the proposed West Kauai Field Operations Facility on the island of Kauai, as a pre-consultation for the associated draft Environmental Assessment (EA). The State of Hawaii Department of Land and Natural Resources (DLNR) proposes to construct a facility which can support daily operations and emergency response for the western region of the island of Kauai. The facility includes office space, a conference room, restrooms, showers, storage space, parking, fueling facilities, a nursery, and a pen for the endangered Hawaiian goose (*Branta sandvicensis*). The property is located on a 10-acre parcel off of Lele Road [TMK (4) 1-8-008: 020 por]. The following comments are in accordance with the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

We reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program, as it pertains to federally listed species and designated critical habitat. The following species are known to occur or transit through the proposed project area: the endangered Hawaiian goose; the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus)*; and the endangered Hawaiian petrel (*Pterodroma sandwichensis*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), and a candidate for listing the band-rumped storm-petrel (*Oceanodroma castro*) (hereafter collectively referred to as seabirds). There is no designated critical habitat within the vicinity of the proposed project area. To aid in the drafting of your EA we provide the following recommendations to avoid and minimize project impacts to listed species and candidate species.

Hawaiian Goose
In order to avoid impacts to Hawaiian geese, we recommend a biologist familiar with the nesting behavior of the Hawaiian goose survey the area prior to the initiation of any work, or after any subsequent delay in work of three or more days (during which birds may attempt nesting). If a nest is discovered, work should cease immediately and our office should be contacted for further

guidance. Furthermore, all on-site project personnel should be apprised that Hawaiian geese may be in the vicinity of the project at any time during the year. If a Hawaiian goose (or geese) appears within 100 feet of ongoing work, all activity should be temporarily suspended until the Hawaiian goose (or geese) leaves the area of its own accord.

Hawaiian Hoary Bat
The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.

Seabirds
Seabirds, including the Newell's shearwater, Hawaiian petrel, and band-rumped storm petrel fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways.

To reduce potential impacts to seabirds, construction activities should only occur during daylight hours. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. If lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below.

Your draft EA should examine all potential impacts to listed species that may occur as a result of construction and the operational use of the facilities and outline conservation measures to minimize these impacts. We also recommend you incorporate the attached BMPs into your project description to avoid and minimize impacts to water resources that have the potential to occur during construction activities.

We appreciate your efforts to conserve endangered species. Please contact Adam Griesemer, Endangered Species Biologist (phone: 808-285-8261, email: adam_griesemer@fws.gov) should you have any questions pertaining to this response.

Sincerely,

Aaron Nadig
Island Team Manager
Oahu, Kauai, Northwestern Hawaiian Islands, and American Samoa

U.S. Fish and Wildlife Service
Recommended Standard Best Management Practices

The U.S. Fish and Wildlife Service (USFWS) recommends the following measures to be incorporated into project planning to avoid or minimize impacts to fish and wildlife resources. Best Management Practices (BMPs) include the incorporation of procedures or materials that may be used to reduce either direct or indirect negative impacts to aquatic habitats that result from project construction-related activities. These BMPs are recommended in addition to, and do not over-ride any terms, conditions, or other recommendations prepared by the USFWS, other federal, state or local agencies. If you have questions concerning these BMPs, please contact the USFWS Aquatic Ecosystems Conservation Program at 808-792-9400.

1. Authorized dredging and filling-related activities that may result in the temporary or permanent loss of aquatic habitats should be designed to avoid indirect, negative impacts to aquatic habitats beyond the planned project area.

2. Dredging/filling in the marine environment should be scheduled to avoid coral spawning and recruitment periods, and sea turtle nesting and hatching periods. Because these periods are variable throughout the Pacific islands, we recommend contacting the relevant local, state, or federal fish and wildlife resource agency for site specific guidance.

3. Turbidity and siltation from project-related work should be minimized and contained within the project area by silt containment devices and curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the construction period until turbidity and siltation within the project area is stabilized. All project construction-related debris and sediment containment devices should be removed and disposed of at an approved site.

4. All project construction-related materials and equipment (dredges, vessels, backhoes, silt curtains, etc.) to be placed in an aquatic environment should be inspected for pollutants including, but not limited to; marine fouling organisms, grease, oil, etc., and cleaned to remove pollutants prior to use. Project related activities should not result in any debris disposal, non-native species introductions, or attraction of non-native pests to the affected or adjacent aquatic or terrestrial habitats. Implementing both a litter-control plan and a Hazard Analysis and Critical Control Point plan (HACCP – see *http://www.haccp-nrm.org/Wizard/default.asp*) can help to prevent attraction and introduction of non-native species.

5. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to aquatic habitats and should be protected from erosion (*e.g.*, with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.

6. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.

7. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.

PHONE (808) 594-1888

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
560 N. NIMITZ HWY., SUITE 200
HONOLULU, HAWAI'I 96817

FAX (808) 594-1938

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November 2, 2015

Jared K. Chang
SSFM International, INC.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Re: Pre-Assessment Consultation for Draft Environmental Assessment
West Kaua'i Field Operations Facility
Hanapēpē Ahupua'a, Kona Moku, Kaua'i Mokupuni
Tax Map Key: (4) 1-8-008:020

Aloha e Jared K. Chang:

The Office of Hawaiian Affairs (OHA) is in receipt of your October 9, 2015 letter, pre-assessment consultation for the environmental assessment for the new West Kaua'i Field Operations Facility (project), located in Hanapēpē, Kaua'i. The project is located on an existing, vacant 10-acre parcel off of Lele Road. The planned facility will include office space for the Department of Land and Natural Resources (DLNR) divisions, conference rooms, restrooms, showers, secured storage space, parking, and fueling facilities.

As mentioned in your letter, currently there are no facilities on the west side of Kaua'i to support daily operations and responses to emergencies. The DLNR's current facility is located in Līhu'e, which is a lengthy daily commute and a higher usage of fuel for the six DLNR divisions. These divisions include Aquatic Resources, Conservation and Resources Enforcement, Division of Forestry and Wildlife, Division of Boating and Ocean Recreation, Land Division, State Parks, Engineering, and the State Historic Preservation.

Our agency has no comments at this time. As this project moves forward, OHA looks forward to reviewing the environmental assessment. OHA requests assurances that should iwi kūpuna or Native Hawaiian cultural deposits be identified during ground altering activities, all

work will immediately cease and the appropriate agencies, including OHA, will be contacted pursuant to applicable law.

Thank you for initiating consultation at this early stage. Should you have any questions, please contact Kathryn Keala at (808) 594-0272 or kathyk@oha.org.

'O wau iho nō me ka 'oia 'i'o,

Kamana'opono M. Crabbe, Ph.D.
Ka Pouhana, Chief Executive Officer

KC:kk

C: Kaliko Santos – Kaua'i Community Outreach Coordinator

**Please address replies and similar, future correspondence to our agency:*
Dr. Kamana'opono Crabbe
Attn: OHA Compliance Enforcement
560 N. Nimitz Hwy, Ste. 200
Honolulu, HI 96817

Department of Water County of Kaua'i

Water has no substitute.....Conserve it

November 12, 2015 UID #341

Mr. Jared K. Chang
SSFM International
501 Summer Street, Suite 620
Honolulu, HI 96817

Dear Mr. Chang:

Subject: Pre-Assessment Consultation for the Draft Environmental Assessment for a Proposed Department of Land and Natural Resources (DLNR) West Kauai Field Operations Facility, TMK: 1-8-08:020, Lele Road, Hanapepe, Kauai

This is in regard to your letter dated October 9, 2015. The Department of Water (DOW) has no objections to the Draft Environmental Assessment. The following are our comments to the Pre-Assessment Consultation for the Draft Environmental Assessment for the West Kauai Field Operations Facility.

Prior to the DOW recommending water service or building permit approval, the applicant must:

1. Submit a formal request for water service for our review and approval. Include detailed water demand (both domestic and irrigation) calculations along with the proposed water meter size. Water demand calculations submitted by your engineer or architect should also include fixture count and water meter sizing worksheets. The Department's comments may change depending on the approved water demand calculations.
2. Prepare and receive DOW's approval of construction drawings for the necessary water system facilities and construct said facilities. These facilities shall include but not be limited to:
   a) The domestic service connection(s).
   b) The fire service connection, if applicable.
   c) The interior plumbing with the appropriate backflow prevention device for the proposed water meter.
3. Pay the applicable charges in effect at the time of payment to the Department. At the present time, these charges shall include the Facilities Reserve Charge (FRC), which is dependent on the approved water meter size.

   "Effective November 29, 2015, the Facilities Reserve Charge (FRC) will be $14,115 per 5/8-inch water meter."
4. Receive a "Certification of Completion" for the construction of the necessary water system facilities from the DOW.

All conditions stated above are subject to the Rules and Regulations of the DOW as amended or as will be amended.

If you have any questions concerning the construction drawings, please contact Mr. Bryan Wienand at (808) 245-5449. For questions concerning the Certification of Completion, please contact Mr. Dustin Moises at (808) 245-5459. For other questions, please contact Mr. Joel Bautista at (808) 245-5441.

Sincerely,

Edward Doi

Edward Doi
Chief of Water Resources and Planning Division

c: jchang@ssfm.com

1-8-08-020, T-17527, Chang/JB:mlm

Appendix B: Draft Environmental Assessment Comments and Responses

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DAVID Y. IGE
Governor

JOSH GREEN
Lt. Governor

JAMES J. NAKATANI
Executive Director

STATE OF HAWAII
AGRIBUSINESS DEVELOPMENT CORPORATION
235 S. Beretania Street, Room 205
Honolulu, HI 96813
Phone: (808) 586-0186 Fax: (808) 586-0189

SSFM INTERNATIONAL, INC.
RECEIVED
MAY 03 2021
JKC
FILE COPY
FILE

April 30, 2021

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: West Kauai Field Operations Facility
Tax Map Key: (4) 1-8-008: 020 (por.)
Waimea, Kauai, Hawaii
Draft Environmental Assessment

We are writing in response to your letter of April 26, 2021, regarding the Draft Environmental Assessment ("Draft EA") for the proposed West Kauai Field Operations Facility. The Agribusiness Development Corporation has no comments on the Draft EA document.

Thank you for the opportunity to provide comments.

Sincerely,

James J. Nakatani
Executive Director

SSFM International
Innovate | Adapt | Sustain

October 25, 2021

SSFM 2015_089.000

TO: State of Hawai'i,
Agribusiness Development Corporation
235 S. Beretania Street, Room 205
Honolulu, HI 96813

Attention: Mr. James J. Nakatani, Executive Director

SUBJECT: West Kaua'i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua'i
Draft Environmental Assessment Comment Response Letter

Dear Mr. Nakatani,

Thank you for your April 30, 2021 letter commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We acknowledge that the Agribusiness Development Corporation has reviewed the Draft EA and has no comments or concerns at this time.

A copy of your April 30, 2021 letter, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai‘i 96850

In Reply Refer To:
01EPIF00-2021-TA-0289

May 27, 2021

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawai‘i 96817

Subject: Technical Assistance for the Draft Environmental Assessment for the Proposed Department of Land and Natural Resources West Kaua‘i Field Operations Facility, Waimea, Kaua‘i

Dear Mr. Chang:

Thank you for your recent correspondence requesting technical assistance on species biology, habitat, or life requisite requirements. The Pacific Islands Fish and Wildlife Office (PIFWO) of the U.S. Fish and Wildlife Service (Service) appreciates your efforts to avoid or minimize effects to protected species associated with your proposed actions. We provide the following information for your consideration under the authorities of the Endangered Species Act (ESA) of 1973 (16 U.S.C. 1531 *et seq.*), as amended.

Due to significant workload constraints, PIFWO is currently unable to specifically address your information request. The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. Based on your project location and description, we have noted the species most likely to occur within the vicinity of the project area, in the ‘**Occurs In or Near Project Area**’ column. Please note this list is not comprehensive and should only be used for general guidance. We have added to the PIFWO website, located at https://www.fws.gov/pacificislands/promo.cfm?id=177175840 recommended conservation measures intended to avoid or minimize adverse effects to these federally protected species and best management practices to minimize and avoid sedimentation and erosion impacts to water quality. If your project occurs on the island of Hawai‘i, we have also enclosed our biosecurity protocol for activities in or near natural areas.

If you are representing a federal action agency, please request an official species list following the instructions at our PIFWO website

https://www.fws.gov/pacificislands/articles.cfm?id=149489558. You can find out if your project occurs in or near designated critical habitat here: https://ecos.fws.gov/ipac/.

Under section 7 of the ESA, it is the Federal agency’s (or their non-Federal designee) responsibility to make the determination of whether or not the proposed project “may affect” federally listed species or designated critical habitat. A “may affect, not likely to adversely affect” determination is appropriate when effects to federally listed species are expected to be discountable (i.e., unlikely to occur), insignificant (minimal in size), or completely beneficial. This conclusion requires written concurrence from the Service. If a “may affect, likely to adversely affect” determination is made, then the Federal agency must initiate formal consultation with the Service. Projects that are determined to have “no effect” on federally listed species and/or critical habitat do not require additional coordination or consultation.

Implementing the avoidance, minimization, or conservation measures for the species that may occur in your project area will normally enable you to make a “may affect, not likely to adversely affect” determination for your project. If it is determined that the proposed project may affect federally listed species, we recommend you contact our office early in the planning process so that we may assist you with the ESA compliance. If the proposed project is funded, authorized, or permitted by a Federal agency, then that agency should consult with us pursuant to section 7(a)(2) of the ESA. If no Federal agency is involved with the proposed project, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. A section 10 permit application must include a habitat conservation plan that identifies the effects of the action on listed species and their habitats and defines measures to minimize and mitigate those adverse effects.

We appreciate your efforts to conserve endangered species. We regret that we cannot provide you with more specific protected species information for your project site. If you have questions that are not answered by the information on our website, you can contact PIFWO at (808) 792-9400 and ask to speak to the lead biologist for the island where your project is located.

Sincerely,

Island Team Manager
Pacific Islands Fish and Wildlife Office

Enclosures (2)

The table below lists the protected species most likely to be encountered by projects implemented within the Hawaiian Islands. For your guidance, we have marked species that may occur in the vicinity of your project, this list is not comprehensive and should only be used for general guidance.

Enclosure 1. Federal Status of Animal Species

Scientific Name	Common Name / Hawaiian Name	Federal Status	May Occur In Project Area
Mammals			
Lasiurus cinereus semotus	Hawaiian hoary bat/ʻōpeʻapeʻa	E	☒
Reptiles			
Chelonia mydas	green sea turtle/honu - Central North Pacific distinct population segment (DPS)	T	☐
Eretmochelys imbricata	hawksbill sea turtle/ honu ʻea or ʻea	E	☐
Birds			
Anas wyvilliana	Hawaiian duck/koloa	E	☐
Branta sandvicensis	Hawaiian goose/nēnē	T	☒
Fulica alai	Hawaiian coot/ʻalae keʻokeʻo	E	☐
Gallinula galeata sandvicensis	Hawaiian gallinule/ʻalae ʻula	E	☐
Himantopus mexicanus knudseni	Hawaiian stilt/aeʻo	E	☐
Oceanodroma castro	band-rumped storm-petrel Hawaiʻi DPS/ʻakēʻakē	E	☒
Pterodroma sandwichensis	Hawaiian petrel/ʻuaʻu	E	☒
Puffinus auricularis newelli	Newell's shearwater/ʻaʻo	T	☒
Ardenna pacificus	wedge-tailed shearwater/ʻuaʻu kani	MBTA	☐
Buteo solitarius	Hawaiian hawk/ʻio	MBTA	☐
Gygis alba	white tern/manu-o-kū	MBTA	☐
Insects			
Manduca blackburni	Blackburn's sphinx moth	E	☐
Megalagrion pacificum	Pacific Hawaiian damselfly	E	☐
Megalagrion xanthomelas	orangeblack Hawaiian damselfly	E	☐
Megalagrion nigrohamatum nigrolineatum	blackline Hawaiian damselfly	E	☐

Enclosure 2. Federal Status of Plant Species

Plants				
Scientific Name	**Common Name or Hawaiian Name**	**Federal Status**	**Locations**	**May Occur In Project Area**
Abutilon menziesii	koʻoloaʻula	E	O, L, M, H	☐
Achyranthes splendens var. *rotundata*	ʻewa hinahina	E	O	☐
Bonamia menziesii	no common name	E	K, O, L, M, H	☐
Canavalia pubescens	ʻāwikiwiki	E	Ni, K, L, M	☐
Colubrina oppositifolia	kauila	E	O, M, H	☐
Cyperus trachysanthos	puʻukaʻa	E	K, O	☐
Gouania hillebrandii	no common name	E	Mo, M	☐
Hibiscus brackenridgei	maʻo hau hele	E	O, Mo, L, M, H	☐
Ischaemum byrone	Hilo ischaemum	E	K, O, Mo, M, H	☐
Isodendrion pyrifolium	wahine noho kula	E	O, H	☐
Marsilea villosa	ʻihiʻihi	E	Ni, O, Mo	☐
Mezoneuron kavaiense	uhiuhi	E	O, H	☐
Nothocestrum breviflorum	ʻaiea	E	H	☐
Panicum fauriei var. *carteri*	Carter's panicgrass	E	Molokini Islet (O), Mo	☐
Panicum niihauense	lauʻehu	E	K	☐
Peucedanum sandwicense	makou	E	K, O, Mo, M	☐
Pleomele (Chrysodracon) hawaiiensis	halapepe	E	H	☐
Portulaca sclerocarpa	ʻihi	E	L, H	☐
Portulaca villosa	ʻihi	E	Le, Ka, Ni, O, Mo, M, L, H, Nihoa	☐
Pritchardia affinis (maideniana)	loulu	E	H	☐
Pseudognaphalium sandwicensium var. *molokaiense*	ʻenaʻena	E	Mo, M	☐
Scaevola coriacea	dwarf naupaka	E	Mo, M	☐
Schenkia (*Centaurium*) *sebaeoides*	ʻāwiwi	E	K, O, Mo, L, M	☐
Sesbania tomentosa	ʻōhai	E	Ni, Ka, K, O, Mo, M, L, H, Necker, Nihoa	☐
Tetramolopium rockii	no common name	T	Mo	☐
Vigna o-wahuensis	no common name	E	Mo, M, L, H, Ka	☐

Location key: O=Oʻahu, K=Kauaʻi, M=Maui, H=island of Hawaiʻi, L=Lānaʻi, Mo=Molokaʻi, Ka=Kahoʻolawe, Ni=Niʻihau, Le=Lehua

SSFM International
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October 25, 2021

SSFM 2015_089.000

TO: United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai‘i 96850

Attention: Mr. Aaron Nadig, Island Team Manager

SUBJECT: West Kaua‘i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua‘i
Draft Environmental Assessment Comment Response Letter

Dear Mr. Nadig,

Thank you for your May 27, 2021 letter (Reference No. 01EPIF00-2021-TA-0289) commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We offer the following responses to U.S. Fish and Wildlife Service (FWS) comments:

1. The list of protected species most likely to be encountered by projects implemented within the Hawaiian Islands has been incorporated into the Final EA.

2. We confirm by way of this response to FWS that the proposed project is currently not subject to the Endangered Species Act (ESA), Section 7 Consultation.

A copy of your May 27, 2021 letter, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact m at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 28, 2021

LD 0478

SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Via email: jchang@ssfm.com

Dear Sirs:

SUBJECT: **Draft Environmental Assessment**
West Kauai Field Operations Facility
Hanapepe, Waimea, Island of Kauai, Hawaii; TMK: (4) 1-8-008:020 (por.)

Thank you for the opportunity to review and comment on the subject project, and for the extended review period. The Land Division of the Department of Land and Natural Resources (DLNR) distributed copies of your request to various DLNR divisions, as indicated on the attached, for their review and comment.

Attached are comments received from our (a) Division of Aquatic Resources, (b) Division of Boating and Ocean Recreation, (c) Engineering Division, and (d) Division of Forestry and Wildlife. Should you have any questions, please feel free to contact Barbara Lee via email at barbara.j.lee@hawaii.gov. Thank you.

Sincerely,

Russell Tsuji

Russell Y. Tsuji
Land Administrator

Attachments

Cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 04, 2021

LD 0478

MEMORANDUM

TO: **DLNR Agencies:**
X Division of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
X Division of Boating & Ocean Recreation *(via email: richard.t.howard@hawaii.gov)*
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Division of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
X Division of State Parks *(via email: curt.a.cottrell@hawaii.gov)*
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Land Division – Kauai District *(via email: wesley.t.matsunaga@hawaii.gov)*
X Division of Conservation & Resources Enforcement *(via email: jason.k.redulla@hawaii.gov)*

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **West Kauai Field Operations Facility**
Draft Environmental Assessment (DEA)
LOCATION: Waimea, Island of Kaua'i
TMK: (4) 1-8-008:020 (por.)
APPLICANT: **SSFM INTERNATIONAL, INC. on behalf of the State of Hawai'i**
Department of Land and Natural Resources

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on March 08, 2021 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, and can be downloaded from the following URL:

http://oeqc2.doh.hawaii.gov/Doc_Library/2021-03-08-KA-DEA-West-Kauai-Field-Operations-Facility.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **May 28, 2021**. 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.lee@hawaii.gov. Thank you.

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:
Print Name: Brian J. Neilson
Division: Aquatic Resources
Date: May 26, 2021

Attachments
Cc: Central Files

DAVID Y. IGE
GOVERNOR OF
HAWAII

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 5-19-2021
DAR # AR0073 (LD0478)

MEMORANDUM
TO: Brian J. Neilson
DAR Administrator

FROM: Heather Ylitalo-Ward, PhD *HYW*, Aquatic Biologist

SUBJECT: West Kauai Field Operations Facility (LD0478)
Draft Environmental Assessment (DEA)

Request Submitted by: Russell Y. Tsuji, Land Administrator

Location of Project: Waimea, Island of Kaua'i TMK: (4) 1-8-008:020 (por.)

Brief Description of Project:
The State Department of Land and Natural Resources (DLNR) is proposing to construct a new Field Operations base yard in Hanapepe, Waimea, Kauai. SSFM International, Inc. has prepared a Draft Environmental Assessment that they would like reviewed.

Comments:
☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: _____ Date: May 26, 2021
Brian J. Neilson
DAR Administrator

DAR# AR0073 (LD04

Comments

DAR reviewed the Draft Environmental Assessment and found that it satisfactorily addresses environmental concerns for this project development.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should any changes be made to the project, DAR requests the opportunity to review and comment on the changes.

RECEIVED
LAND DIVISION
2021 MAY -7 AM 10:57
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 04, 2021

LD 0478

MEMORANDUM

TO: **DLNR Agencies:**
X Division of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
X Division of Boating & Ocean Recreation *(via email: richard.t.howard@hawaii.gov)*
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Division of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
X Division of State Parks *(via email: curt.a.cottrell@hawaii.gov)*
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Land Division – Kauai District *(via email: wesley.t.matsunaga@hawaii.gov)*
X Division of Conservation & Resources Enforcement *(via email: jason.k.redulla@hawaii.gov)*

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **West Kauai Field Operations Facility**
Draft Environmental Assessment (DEA)
LOCATION: Waimea, Island of Kaua'i
TMK: (4) 1-8-008:020 (por.)
APPLICANT: **SSFM INTERNATIONAL, INC. on behalf of the State of Hawai'i**
Department of Land and Natural Resources

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on March 08, 2021 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, and can be downloaded from the following URL:

http://oeqc2.doh.hawaii.gov/Doc_Library/2021-03-08-KA-DEA-West-Kauai-Field-Operations-Facility.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **May 28, 2021**. 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.lee@hawaii.gov. Thank you.

(X) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed:
Print Name: Richard Howard
Division: DOBOR
Date: 5/5/2021

Attachments
Cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 04, 2021

LD 0478

MEMORANDUM

FROM:

TO: **DLNR Agencies:**
X Division of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
X Division of Boating & Ocean Recreation *(via email: richard.t.howard@hawaii.gov)*
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Division of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
X Division of State Parks *(via email: curt.a.cottrell@hawaii.gov)*
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Land Division – Kauai District *(via email: wesley.t.matsunaga@hawaii.gov)*
X Division of Conservation & Resources Enforcement *(via email: jason.k.redulla@hawaii.gov)*

TO:

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **West Kauai Field Operations Facility**
Draft Environmental Assessment (DEA)
LOCATION: Waimea, Island of Kaua'i
TMK: (4) 1-8-008:020 (por.)
APPLICANT: **SSFM INTERNATIONAL, INC. on behalf of the State of Hawai'i**
Department of Land and Natural Resources

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on March 08, 2021 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, and can be downloaded from the following URL:

http://oeqc2.doh.hawaii.gov/Doc_Library/2021-03-08-KA-DEA-West-Kauai-Field-Operations-Facility.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **May 28, 2021**. 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.lee@hawaii.gov. Thank you.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed:
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: May 20, 2021

Attachments
Cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: West Kauai Field Operations Facility
Draft Environmental Assessment (DEA)
Location: Waimea, Island of Kaua'i
TMK(s): (4) 1-8-008:020 (por.)
Applicant: SSFM INTERNATIONAL, INC. on behalf of the State of Hawai'i
Department of Land and Natural Resources

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a Special Flood Hazard Area (high risk areas). State projects are required to comply with 44CFR regulations as stipulated in Section 60.12. Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may stipulate higher standards that can be more restrictive and would take precedence over the minimum NFIP standards.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zones are designated on FEMA's Flood Insurance Rate Maps (FIRM), which can be viewed on our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

If there are questions regarding the local flood ordinances, please contact the applicable County NFIP coordinating agency below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4896.

The applicant should include water demands and infrastructure required to meet project needs. Please note that all State projects requiring water service from their local Department/Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.

Signed:
CARTY S. CHANG, CHIEF ENGINEER

Date: May 20, 2021

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

May 04, 2021

LD 0478

MEMORANDUM

TO: **DLNR Agencies:**
X Division of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
X Division of Boating & Ocean Recreation *(via email: richard.t.howard@hawaii.gov)*
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Division of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
X Division of State Parks *(via email: curt.a.cottrell@hawaii.gov)*
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Land Division – Kauai District *(via email: wesley.t.matsunaga@hawaii.gov)*
X Division of Conservation & Resources Enforcement *(via email: jason.k.redulla@hawaii.gov)*

FROM: Russell Y. Tsuji, Land Administrator *Russell Tsuji*
SUBJECT: **West Kauai Field Operations Facility**
Draft Environmental Assessment (DEA)
LOCATION: Waimea, Island of Kaua'i
TMK: (4) 1-8-008:020 (por.)
APPLICANT: **SSFM INTERNATIONAL, INC. on behalf of the State of Hawai'i**
Department of Land and Natural Resources

Transmitted for your review and comment is information on the above-referenced subject. The DEA was published on March 08, 2021 in the Office of Environmental Quality Control's periodic bulletin, The Environmental Notice, and can be downloaded from the following URL:

http://oeqc2.doh.hawaii.gov/Doc_Library/2021-03-08-KA-DEA-West-Kauai-Field-Operations-Facility.pdf

Please submit any comments to the Land Division via email at DLNR.Land@hawaii.gov by **May 28, 2021**. 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.lee@hawaii.gov. Thank you.

( ) We have no objections.
( ) We have no comments.
☑ Comments are attached.

Signed: DGS
Print Name: DAVID G. SMITH, Administrator
Division: Division of Forestry and Wildlife
Date: May 28, 2021

Attachments
Cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

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

ROBERT K. MASUDA
FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

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

May 27, 2021

MEMORANDUM *Log no. 3136*

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 the West Kauai Field Operations Facility Draft Environmental Assessment (DEA)**

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your inquiry regarding the DEA for the Department of Land and Natural Resource's West Kaua'i field operations facility in Waimea on Kaua'i, Hawai'i, TMK: (4) 1-8-008:020 (por.). The proposed project consists of constructing facilities for office space, a conference room, restrooms, showers, secured storage space, parking, fueling facilities, an endangered plant nursery, and a nēnē pen on a vacant 10-acre lot.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the project area and may roost in nearby trees. If any site clearing is required this should be timed to avoid disturbance during the bat birthing and pup rearing season (June 1 through September 15). If this cannot be avoided, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed without consulting DOFAW. Barbed wire should be avoided for any construction because bat mortalities have been documented as a result of becoming ensnared by barbed wire during flight.

State listed waterbirds such as the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), Hawaiian Goose or Nēnē (*Branta sandvicensis*), 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, development in the area is likely to increase human activity thereby increasing predator attractants. We recommend taking action to minimize predator presence; remove cats, place bait stations for rodents, and provide covered trash receptacles.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. Seabirds may fly over the area between March and December while transiting between nest sites and the ocean. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For construction and operational nighttime lighting that might be required, DOFAW recommends all lights be fully shielded, contain less than 2% wavelengths less than 550 nm, and be situated so that light does not shine on reflective surfaces.

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 ʻŌhiʻa Death), vertebrate and invertebrate pests, or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the Kauaʻi 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.

We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions, please contact Paul Radley, Protected Species Habitat Conservation Planning Coordinator at (808) 587-0010 or paul.m.radley@hawaii.gov.

Sincerely,

DAVID G. SMITH
Administrator

SSFM International
Innovate | Adapt | Sustain

October 25, 2021

SSFM 2015_089.000

TO: Mr. Russell Tsuji, Land Administrator
Department of Land and Natural Resources
State of Hawaiʻi
P.O. Box 621
Honolulu, Hawaiʻi 96809

Attention: Mr. Russell Tsuji, Land Administrator

SUBJECT: West Kauaʻi Field Operations Facility
Tax Map Key: (4) 1-8-008: 020 (por.)
Hanapēpē, Waimea, Island of Kauaʻi
Draft Environmental Assessment Comment Response Letter

Dear Mr. Tsuji,

Thank you for your May 28, 2021 letter containing comments from the Division of Aquatic Resources, Division of Boating and Ocean Recreation, Engineering Division, and Division of Forestry and Wildlife on the Draft Environmental Assessment (EA) for the subject project.

We acknowledge the following in this response:

1. The Division of Aquatic Resources has found the Draft Environmental Assessment to satisfactorily address environmental concerns for the project.

2. The Division of Boating and Ocean Recreation has no objections or comments on the project.

3. The Engineering Division submitted comments relating to compliance with National Flood Insurance Program regulations. As stated in the Draft EA, the subject property is located in Zone "X" which is an area that has been determined to be outside the 0.2% annual chance floodplain and outside of the 500 year floodplain. In response to requests for water demands be included in the Final EA and submitted to the Engineering Division for State Water Project Plan Update projections. The potable water demands for the project is estimated at 40,000 gallons per day in accordance with guidelines for light industrial uses. This includes estimates for domestic and industrial uses. Proposed future water demands have been provided to DLNR, Engineering Division in March 2016 via email to Mr. Rodney Shiraishi within the Division's Project Planning Section.

4. The Division of Forestry and Wildlife submitted comments to 1) indicate that the Hawaiian Hoary Bat and several State-listed waterbirds have the potential to occur in the vicinity of the proposed project site, 2) express concerns about attracting vulnerable birds

to the site and impacts artificial lighting may have on seabirds, and 3) provide recommendations for minimizing soil movement between worksites. The information on the Hawaiian Hoary Bat and State-listed waterbirds have been incorporated into the Final EA along with recommended minimization measures. A discussion regarding concerns about attracting vulnerable birds to areas that may host nonnative predators such as cats and rodents and recommended mitigative actions have been incorporated into the Final EA. Finally, the recommendations for best management practices to minimize the introduction and spread of new invasive species on the project site have been incorporated into the Final EA.

A copy of your May 28, 2021 letter, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared Chang

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

DAVID Y. IGE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

ELIZABETH A
DIRECTOR

In reply, p

SSFM
INTERNATIONAL, INC.
RECEIVED
MAY 0 3 2021
JKC
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April 29, 2020

Mr. Jared Chang
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, HI 96817

Dear Mr. Chang:

Thank you for your submittal requesting comments to the Draft Environmental Assessment for West Kauai Field Operations Facility, Tax Map Key: (4) 1-8-008: 020 (por.), Waimea, Kauai, Hawaii.

Project activities shall comply with the following Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control

Should you have any questions, please contact me at (808) 586-4700.

Sincerely,

Daryn A. Yamada
Acting Program Manager
Indoor and Radiological Health Branch

SSFM International
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October 25, 2021 SSFM 2015_089.000

TO: State of Hawai'i,
Department of Health
Indoor and Radiological Health Branch
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Attention: Mr. Daryn A. Yamada, Acting Program Manager

SUBJECT: West Kaua'i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua'i
Draft Environmental Assessment Comment Response Letter

Dear Mr. Yamada,

Thank you for your April 29, 2021 letter commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We offer the following response to your comment:

1. All project activities will comply with the State of Hawai'i, Department of Health's Administrative Rules, Hawai'i Administrative Rules (HAR) Chapter 11-46 Community Noise Control.

A copy of your April 29, 2021 letter, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared Chang

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

DAVID Y. IGE
GOVERNOR

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

JADE T. BUTAY
DIRECTOR

Deputy Directors
LYNN A.S. ARAKI-REGAN
DEREK J. CHOW
ROSS M. HIGASHI
EDWIN H. SNIFFEN

IN REPLY REFER TO:
DIR 0415
STP 8.3179

SSFM
INTERNATIONAL, INC.
RECEIVED
MAY 26 2021
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May 21, 2021

Mr. Jared Chang
Senior Planner, Associate
SSFM International, Inc.
501 Sumner Street, Suite 620
Honolulu, Hawaii 96817

Dear Mr. Chang:

Subject: Draft Environmental Assessment (EA)
West Kauai Field Operations Facility
Waimea, Kauai, Hawaii
Tax Map Key: (4) 1-8-008: 020 (portion)

Thank you for your letter dated April 26, 2021 requesting the Hawaii Department of Transportation's (HDOT) comments on the Department of Land and Natural Resources (DLNR) proposed construction of a new Field Operations base yard on an undeveloped 10-acre site in Hanapepe, Kauai. HDOT understands the project would implement the 2016 West Kauai Field Operations Facility Master Plan, and will include a storage building, maintenance building, heavy equipment parking, general parking, laboratory building, multipurpose building, and public service building. Other facilities will include a plant nursery, animal holding area, fuel/water station, and additional storage and administrative space.

Access to the site is proposed to be via two driveways on Lele Road (County jurisdiction) which is located between Kaumualii Highway (State Route 50) and Port Allen Airport. The project site is approximately 1,320 feet south of the unsignalized intersection of Lele Road and Kaumualii Highway.

HDOT has the following comments:

Airports Division (HDOT-A)

1. The proposed project site is approximately 0.14 miles from the property boundary of Port Allen Airport (PAK). All projects within 5 miles from Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at the following link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf

2. The proposed project is approximately 3,037 feet from the end of the runway at PAK. Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction of alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and criteria for submittal can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp.

3. Due to the project site's proximity to the airport, the DLNR should be aware of potential noise from aircraft operations. There is also a potential for fumes, smoke, vibrations, odors, etc., resulting from occasional aircraft flight operations over or near the project location. These impacts may increase or decrease over time and depending on airport operations.

4. The HDOT-A has concerns that some project features can potentially attract wildlife that may be hazardous to aviation operations. Please review the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants On or Near Airports for guidance. If the project results in a wildlife attractant, these effects shall be immediately mitigated by DLNR upon notification by the HDOT-A and/or FAA.

Highways Division (HDOT-HWY)

In 2015, HDOT requested the Draft EA to include an assessment of the project's contribution to cumulative traffic impacts on State highways. We appreciate the inclusion of a Traffic Assessment (TA) dated June 13, 2016 as Appendix D within the Draft EA. HDOT-HWY has reviewed the Draft EA and have the following comments relevant to State highways:

1. The TA concludes the Level of Service at the intersection of Lele Road and Kaumualii Highway would be similar and acceptable with or without the project in 2035 during peak traffic hours. Based on the land use rate for a General Office Building of 27,000 square feet, the project-related peak traffic hour volumes at the intersection would be 43 and 41 in the A.M. and P.M., respectively. The HDOT-HWY does not anticipate significant adverse impacts to State highway traffic conditions based on the information provided.

2. Verify with the HDOT-HWY Kauai District Engineer that the Lele Road intersection meets current standards for the type and volume of anticipated traffic. If public safety is a concern, HDOT-HWY may require a safety analysis.

3. The HDOT Bike Plan proposes improvements to Kaumualii Highway for bicycle use. The project has not been funded, but bicycle safety should be considered in discussions with the HDOT-HWY Kauai District Engineer.

4. The Final EA should include the following information:

    a. Number of employees and hours of operation, on full build-out. Verify the TA trip generation assumptions are consistent with the master plan.

    b. Description of heavy equipment (e.g., types, number), wash down facilities, and types of maintenance activities that would occur onsite during operations.

    c. Discussion of construction traffic and the need for a traffic management plan.

    d. Qualitative discussion of potential beneficial impacts to traffic in Lihue with the relocation of DLNR services to West Kauai. Describe the existing Lihue DLNR traffic and the projected amount that would shift to the new facility. Verify the new facility does not represent an expansion of services but a relocation of existing services.

5. A HDOT-HWY permit is required to transport oversized and/or overweight vehicles and loads on HDOT roadways.

6. Verify no work (e.g., utilities) is proposed within the State highway right-of-way.

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

Sincerely,

JADE T. BUTAY
Director of Transportation

SSFM International
Innovate | Adapt | Sustain

October 25, 2021

SSFM 2015_089.000

TO: Mr. Jade Butay, Director of Transportation
Department of Transportation
State of Hawai‘i
869 Punchbowl Street
Honolulu, Hawai‘i 96813-5097

Attention: Mr. Blayne Nikaido, Statewide Transportation Planning Office

SUBJECT: West Kaua‘i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua‘i
Draft Environmental Assessment Comment Response Letter

Dear Mr. Butay,

Thank you for your May 21, 2021 letter commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We offer the following response to the Hawai‘i Department of Transportation (HDOT) comments:

Airports Division Comments:

1. We have included the information provided by the Airports Division into the Final EA consisting of proximity information to Port Allen Airport (PAK), review of the State of Hawai‘i Office of Planning Technical Assistance Memorandum (TAM-2016-1) on Federal Aviation Administration (FAA) Order 5190.6B, and need for the project to secure a Federal Aviation Administration (FAA) Form 7460-1 Notice of Proposed Construction or Alteration.
2. We acknowledge that the project site's proximity to the airport may result in noise impacts from airport operations.
3. We have incorporated a discussion on potential impacts resulting from project features that may attract wildlife which could be hazardous to aviation operations. The proposed project is not anticipated to have an adverse impact on PAK airport operations. There are no standing water features proposed that may attract hazardous wildlife thru the subject area. The project does not involve a landfill or materials recycling facility, however an existing county refuse transfer station is located across Lele Road. Further, other obstructions such as tall antennas, cranes, wind turbines or utility poles are not planned at this location.

Highways Division Comments:

1. We acknowledge that the Highways Division does not anticipate significant adverse impacts to State highway traffic conditions based on the information provided in the Draft EA.

2. We have consulted with the Kaua‘i District Engineer to confirm that Lele Road intersection meets current standards for the type and volume of anticipated traffic to the proposed project. For Highways Division records, we have separately provided confirmation that the sizes of the larger vehicles to commute to the new base yard will work within current intersection geometry turning movements.
3. We acknowledge that the HDOT Bike Plan proposes improvements to Kaumuali‘i Highway and bike facility considerations should be made during design in consultation with the Kaua‘i District Engineer.
4. The Final EA now includes a discussion on the number of employees expected and hours of operations. Approximately 38 employees are anticipated to be at the site daily and the site will be in operation during normal business hours, but also used in emergency situations on a 24-hour basis. A description of heavy equipment and wash down facilities has been included in the Final EA, along with acknowledgment of the need for a Traffic Management Plan during construction. Finally, we have included a qualitative discussion of the potential beneficial impacts to traffic in Līhu‘e because of the project.
5. We acknowledge that a Highways Division permit is required to transport oversized and/or overweight vehicles and loads on HDOT roadways.
6. We acknowledge that no work is proposed within the State highway right-of-way, however new pavement markings may be required for road facilities near the project in the future.

A copy of your May 21, 2021 letter, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

From: Kamakana Ferreira
To: Jared Chang
Cc: Yoo, Dani; Kai Markell
Subject: [EXTERNAL] OHA Comment RE: DEA for West Kaua"i Field Operations Facility
Date: Wednesday, May 26, 2021 7:11:33 AM

Aloha Jared,

The Office of Hawaiian Affairs (OHA) is in receipt of your letter dated April 26, 2021, notifying us about the release of a draft environmental assessment (DEA) for the proposed West Kaua'i Field Operations Facility in Hanapepe, Kaua'i, TMK (4)1-8-008:020 (por.). SSFM International Inc. has prepared this DEA on behalf of the Department of Land and Natural Resources (DLNR) pursuant to Hawai'i Revised Statutes (HRS) Chapter 343. As the DLNR does not have a field operation facility on the west side of Kaua'i, the proposed facility will provide for efficient and economical response to emergency incidents, as well as daily management operations.

The subject parcel is currently a 10-acre vacant lot. DLNR is proposing the following improvements: office space, parking, secured storage space for confiscated items, fueling facility, a nursery to raise endangered plants, a pen for endangered geese, a landscaped detention pond for stormwater, and a 8-ft tall chain-link fence with barbed wire on top around the facility. A single driveway off of Lele Road will lead to an access roadway around the buildings. OHA offers the following comments pertaining to cultural resources.

Cultural Resources

The discussion on the existing condition of cultural resources is lumped in with the archaeological portion (Section 3.9) of the DEA with no apparent dedicated analysis or outreach methodology to identify cultural practices and resources. While cultural practices can often occur on historic properties and historic properties can in fact be considered cultural resources, this is not always the case. To minimize confusion, other DEAs have addressed historic properties and cultural resources in separate sections. The difference is crucial as different methodologies are used to identify historic properties and cultural practices associated with cultural resources. The process for documenting cultural practices involves a greater degree of consultation and outreach, whereas an archaeological study or report may not always require consultation and often solely relies on material findings.

Guidelines for assessing cultural impacts are provided by the Office of Environmental Quality Control (OEQC) in the *Guide to Implementation and Practice of the Hawaii Environmental Policy Act*, Exhibit 1-1, 2012 Edition. The process should involve an attempt to consult with community members and cultural practitioners to ascertain ethnographic information on cultural resources and practices that occur on the site or in the broader area. As the DEA fails to mention any type of outreach specific to cultural related consultation, it is unclear if the project will effect cultural practices occurring nearby. Overall, the proposed facility and services should be beneficial to the surrounding community and natural resources. Thus, community outreach at this stage should help to build relationships with individuals that the facility is meant to serve and aid in the stewardship of natural resources. We thus encourage the applicant to complete a cultural analysis or cultural impact assessment (CIA) that is compliant with these guidelines and minimally reach out to Malia Nobrega, Frank Santos, Ku'ulei Santos, and Sarah Peters.

OHA would further like to remind the applicant that the lack of any formal methodology or explanation specifically targeted at traditional and customary practices could prevent the approving agency from assessing the identity and scope of valued cultural and natural resources in the area. Articles IX and XII of the State of Hawai'i Constitution requires that government agencies must "promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups." Article XII Section 7 of the State of Hawai'i Constitution states:

> "the State reaffirms and shall protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua'a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778…"

In *Ka Pa'akai O Ka 'Aina v. Land Use Commission*, 94 Haw. 31 (2000), hereinafter Ka Pa'akai, the Hawai'i Supreme Court, reiterated the importance of Section 7 and reaffirmed that the State and its agencies are obligated to reasonably protect the traditional and customary rights of Hawaiians. The Supreme Court ruling States that agencies are obligated to make the assessment of cultural practices, independent of a developer or applicant. Typically, information gathered during a CIA or cultural assessment study during HRS 343 can help to inform the approving agency during the Ka Pa'akai process. However, there is no apparent outreach methodology for how cultural impacts were assessed within the DEA.

The Ka Pa'akai court decision set forth that a proper analysis of cultural impacts shall include: 1) the identity and scope of valued cultural, historical, or natural resources in the subject area, including the extent to which traditional and customary native Hawaiian rights are exercised; 2) the extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and, 3) the feasible action, if any, to be taken by the (agency) to reasonably protect native Hawaiian rights if they are found to exist. Generally, the "subject area" is not restricted to the project area as areas adjacent to the project area could be indirectly or directly impacted by actions within the project area. OHA recommends that the applicant work with the approving agency to carefully evaluate the Ka Pa'akai requirements and the OEQC guidelines for assessing cultural impacts.

Closing Remarks

Mahalo for the opportunity to comment. We look forward to a revised DEA that addresses OHA's concerns regarding cultural resources and more inclusive of community outreach. Please let us know if you have any questions or would like to discuss further.

Mahalo,

Kamakana C. Ferreira, M.A.
Lead Compliance Specialist
Office of Hawaiian Affairs
560 N. Nimitz Hwy
Honolulu, Hi. 96817

SSFM International
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October 25, 2021

SSFM 2015_089.000

TO: Mr. Kamakana Ferreira, M.A.
Lead Compliance Specialist
Office of Hawaiian Affairs
560 N. Nimitz Highway
Honolulu, Hawai‘i 96817

SUBJECT: West Kaua‘i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua‘i
Draft Environmental Assessment Comment Response Letter

Dear Mr. Ferreira,

Thank you for your May 26, 2021 email commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We offer the following response to the Office of Hawaiian Affairs (OHA) comments:

We acknowledge that the Draft EA should have included a separate section to address cultural resource impacts. The Final EA has a new section added specifically for cultural resources that includes a review and discussion based on a Cultural Impact Assessment conducted by Nohopapa Hawai'i in December 2019 for the Department of Hawaiian Home Lands (DHHL) Hanapēpē Master Plan. Both projects are located in the Ahupua‘a of Hanapēpē, and while the primary study area for Nohopapa focused on the DHHL location, the CIA included research that covered a broader area mauka and makai from the study area. This broader area encompasses the subject area of this environmental assessment as it is located immediately south of the DHHL lands.

The Nohopapa CIA identified several cultural resources nearby the project location, identified as wahi kupuna (cultural resources). A listing of the nearby wahi kupuna is provided below:

1. Salt Pan, near Puolo Point - The extent of this salt pan is shown on the government map. It is notable among the salt pans of Kauai in having no artificial divisions. It is merely a natural flat area on which the sea water could be let in and evaporate.

2. House Sites, at Puolo Point - The remains of many house sites appear on the great flat lands near the salt pan. Most of the house sites are surrounded by walls 2 to 3 feet high, many of which have been built up recently. Walls run everywhere. East of here the field has been cleared for an airport. Along the shore the tumbled remains of wind shelters used by fisherman can be seen.

3. Kauakahiuni heiau, at Puolo Point - Described as "A walled heiau of medium size at the shore, part of walls still standing. Kane and Kanaloa its deities." The site is now but slightly marked by crumbled stones. It measures at the outside about 80 by 40 feet. The walls were said to have been about 4 feet high.

4. House site or Ko‘a, at Puolo Point - The front part of this structure rests on the beach stones above which it has been built up 5 to 8 feet. In rough weather the sea spray must have washed over it. The exact measurements and plan are given on figure 29 [p113 Bennet 1931]. It is composed of three sections with steps leading up to one. The paving on two of the sections is with very small beach pebbles. The other section is more torn down, and is paved with larger stones. A wall one foot high runs around the south side and across the front (sea side).

5. Sand burials - In the sand on the northwest side of Hanapepe bay, burials are found.

A project specific Cultural Impact Assessment was not conducted for the proposed project, however the four (4) community members with knowledge of the Hanapēpē area, that were identified in your comment letter, were contacted and invited to be consulted for this project. Each was provided with an email requesting the consultation and provided with project information. Three (3) members were also reached by phone to discuss the request and given the opportunity to ask questions about the project. None of the four (4) individuals have provided written consultation responses to-date.

In summary, it is our assessment based on research and the Archaeological Inventory Survey that the proposed project location does not contain any known wahi kupuna (cultural resources) and all of the historic properties identified on site date to the mid-twentieth century and are considered part of the Hawaiian Sugar Company and Olokele Plantation irrigation and transport system (SIHP #s -2304 through -2306) with an inclusion of military influence during war time with the construction of SIHP # -2303 and its reutilization from the 1950s and 1960s as a warehouse to store goods for a first chain of supermarkets on the island of Kaua‘i. Adverse impacts to cultural resources are not anticipated due to a commitment to responsible design in compliance with state and county requirements for the proposed project. This would include construction best management practices to control fugitive dust, stormwater runoff and other construction related nuisances such as air quality and noise mitigations. Best management practices will be implemented to minimize risk of siltation and pollution through construction related stormwater runoff. Post-construction, the project is not anticipated to result in long-term impacts to groundwater aquifers or surface waters, thereby having no impacts on the sensitive salt pond environments located approximately 3,000 feet to the south.

A copy of your May 26, 2021 email, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you

have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

From: Koskelo, Vera B CIV (USA)
To: dani.yoo@hawaii.gov; Jared Chang
Subject: Corps permit determination path forward for POH-2021-00101 (DLNR, West Kauai Field Operations Facility, Hanapepe, Island of Kauai, Hawaii)
Date: Tuesday, August 17, 2021 1:39:08 PM

Email received from EXTERNAL sender. Confirm the content is safe prior to opening attachments or links.

Good afternoon Jared and Dani,

Thank you for your patience with my response.

Based on a review of the materials submitted for the subject project, additional information is required to make a determination of whether a permit would be required. The primary concern is the linear feature that appears in aerial photography and the NWI map to be located in the northeast corner of the property. If the linear feature is a stream that the Corps would regulate as a water of the U.S. and the proposed project would involve the discharge of fill into that stream, then a Corps permit may be required.

To request a Corps permit determination, please start by providing a revised project figure that either clearly shows the linear feature to be excluded from the project footprint or otherwise confirms that the proposed project would not involve the discharge of fill into the feature. If the project may involve the discharge of fill (e.g. sand, dirt, concrete, rocks) into the linear feature, then you would need to either

1. confirm that the linear feature is a perennial or intermittent stream and complete a permit application (the application or Pre-construction notification form based on the proposed impact to the stream)

   or

2. If the feature does not have perennial or intermittent flow, you would need to conduct a delineation of the channel, including an onsite investigation to determine whether the linear feature conducts flow beyond carrying recent precipitation (within the prior 48 hours). The delineation and investigation can be time-intensive and require specific expertise in stream morphology. The report of the delineation and investigation would be submitted to the Corps with an approved jurisdictional determination request.

Please let me know if you have any further questions about the path forward for the subject project.

Thank you,

Vera Koskelo
Biologist
Project Manager

Honolulu District
U.S. Army Corps of Engineers
Building 230
Fort Shafter, Hawaii 96858-5440
808-835-4310
Vera.B.Koskelo@usace.army.mil
Pronouns: she/her/hers

SSFM International
Innovate | Adapt | Sustain

October 25, 2021

SSFM 2015_089.000

TO: U.S. Army Corps of Engineers
Honolulu District
Building 230
Fort Shafter, Hawai'i 96858-5440

Attention: Ms. Vera Koskelo, Biologist, Project Manager

SUBJECT: West Kaua'i Field Operations Facility
Tax Map Key: (4) 1-8-008:020 (por.)
Hanapēpē, Waimea, Island of Kaua'i
Draft Environmental Assessment Comment Response Letter

Dear Ms. Koskelo,

Thank you for your August 17, 2021 email commenting on the Draft Environmental Assessment ("Draft EA") for the subject project. We offer the following response to U.S. Army Corps of Engineers' (USACE) comment:

1. An Approved Jurisdictional Determination request will be submitted for the proposed project at the appropriate time during the design phase.

A copy of your August 17, 2021 email, as well as this response letter, will be included in the Final Environmental Assessment. We appreciate your participation in the EA process. Should you have any additional comments or questions regarding the proposed project, please contact me at (808) 356-1242 or by email at jchang@ssfm.com.

SSFM INTERNATIONAL, INC.

Jared K. Chang, AICP
Senior Planner, Associate

Cc: Ms. Dani Yoo, DLNR

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Appendix C: Archaeological Inventory Survey

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Draft

Archaeological Inventory Survey Report for the West Kaua‘i DLNR Facility Project, Hanapēpē Ahupua‘a, Waimea District, Kaua‘i TMK: [4] 1-8-008:020 por.

Prepared for
SSFM International

Prepared by
Nancine “Missy” Kamai, B.A.
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: HANAPEPE 9)

January 2016

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Management Summary

Reference	Archaeological Inventory Survey Report for the West Kaua‘i DLNR Facility Project, Hanapēpē Ahupua‘a, Waimea District, Kaua‘i, TMK: [4] 1-8-008:020 por. (Kamai and Hammatt 2015)
Date	January 2016
Project Number(s)	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: HANAPEPE 9
Investigation Permit Number	CSH completed the archaeological inventory survey (AIS) under archaeological fieldwork permit number 15-03, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-13-282.
Agencies	Department of Land and Natural Resources (DLNR), State Historic Preservation Division (SHPD)
Land Jurisdiction	State
Project Proponent and Funding	DLNR
Project Location	The project area is located on the west of Lele Road, directly across from the Hanapēpē Refuse Station and abuts the north end of the Kaua‘i Veterans Cemetery in Hanapēpē Ahupua‘a, Waimea District, Kaua‘i, TMK: [4] 1-8-008:020 por.
Project Description	The West Kaua‘i field operations facility will provide secured storage, office space, conference room, restrooms, showers, parking, plant nursery, native bird holding area ,and fueling facilities (Source: 28 January 2015 letter *Release of Funds for West Kauai Field Operations Facility, Kauai, Job No. J43CK30A, as Authorized by Act 134, SLH 2013, as Amended by Act 122, SLH 2014, Item D-8.04*).
Project Acreage	Approximately 4.04 hectares (10 acres)
AIS Scope	This AIS focused on archaeological historic properties and burial sites per the guidelines of HAR §13-276. The identification, documentation, and evaluation of in-use potential architectural historic properties such as historic buildings and structures was outside the scope of this AIS. Throughout this report the term “historic properties” is used and should be generally understood to refer to archaeological historic properties, unless otherwise stated.
Project Area and Survey Area Acreage	The proposed project area of approximately 10-acres was subjected to a surface survey and subsurface testing for the current investigation.
Historic Preservation Regulatory Context	This AIS investigation fulfills the requirements of HAR §13-13-276 and was conducted to identify, document, and assess significance of any historic properties. This document is intended to support the proposed project’s historic preservation review under Hawai‘i Revised Statutes

	(HRS) §6E-8 and HAR §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups.
Fieldwork Effort	All archaeological fieldwork was conducted under the general supervision of Hallett H. Hammatt, Ph.D. The pedestrian survey for the current project area was conducted by CSH archaeologists Gerald Ida, B.A., and Missy Kamai, B.A., on 14 September 2015 and 15 September 2015. The subsurface testing was accomplished by CSH archaeologists Abigail “Abby” Langham, M.A., and Missy Kamai, B.A., from 12 October 2015 through 14 October 2015. The total work required took approximately 5 person-days to complete.
Consultation	CSH consulted with Mary Jane Naone of SHPD, lead Kaua‘i archaeologist, on the trench locations for the proposed project.
Historic Properties Identified and Historic Property Significance	SIHP # 50-30-09-2303, a historic building foundation; SIHP # 50-30-09-2304, a remnant cane haul road; SIHP # 50-30-09-2305, a remnant plantation ditch; and SIHP # 50-30-09-2306, a remnant cane haul road All four historic properties have been assessed as significant under HAR §13-275-6 Criterion “d,” meaning that each historic property has “yielded, or is likely to yield, information important for research on prehistory or history.” This reflects their value to our understanding of plantation-era infrastructure and military construction in the Hanapēpē area.
Effect Recommendation	As the proposed project is for the construction of a West Kaua‘i DLNR Facility, which will include animal pens and a plant nursery, and the proposed land use is to remain consistent with present and past agricultural practices within the project area boundaries. CSH recommends a project specific effect determination of “effect, with proposed mitigation commitments” (HAR §13-275-7).
Mitigation Recommendation	CSH proposes that per 13-275-8(a)(1)(D) mitigation through Historical data recovery is appropriate, and that this mitigation has been completed by means of this AIS report. No further historic preservation work is recommended for the four historic properties in the project area

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Section 1 Introduction

1.1 Project Background

At the request of SSFM International, Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this archaeological inventory survey report (AISR) for the West Kaua‘i DLNR Facility project, Hanapēpē Ahupua‘a, Waimea District, Kaua‘i, TMK: [4] 1-8-008:020 por. The approximately 10-acre project area is located just west of Lele Road directly across from the Hanapēpē Refuse Station and bounded by the Kaua‘i Veterans Cemetery to the south. The project area is depicted on a portion of the 1996 Hanapepe U.S. Geological Survey (USGS) topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2013 aerial photograph (Figure 3).

The West Kaua‘i field operations facility will provide secured storage, office space, conference room, restrooms, showers, parking, plant nursery, native bird holding area, and fueling facilities (28 January 2015 letter *Release of Funds for West Kauai Field Operations Facility, Kauai, Job No. J43CK30A, as Authorized by Act 134, SLH 2013, as Amended by Act 122, SLH 2014, Item D-8.04*).

1.2 Historic Preservation Regulatory Context and Document Purpose

This AIS investigation fulfills the requirements of HAR §13-13-276 and was conducted to identify, document, and make significance assessments of any historic properties. This document is intended to support the proposed project’s historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-8 and Hawai‘i Administrative Rules (HAR) §13-13-275. It is also intended to support any project-related historic preservation consultation with stakeholders such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups.

1.3 Scope of Work

The scope of work for the current project was based on information provided by SSFM. The following tasks are required in order to satisfy the Hawai‘i state requirements for archaeological inventory surveys (HAR §13-276 and §13-275/284):

1) Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award documents, and the reports from prior archaeological investigations. This research will focus on the specific project area’s past land use, with general background on the pre-Contact and historic settlement patterns of the *ahupua‘a* and district. This background information will be used to compile a predictive model for the types and locations of historic properties that could be expected within the project area.

2) A complete (100 %) systematic pedestrian inspection of the project area to identify any potential surface historic properties. Surface historic properties will be recorded with an evaluation of age, function, interrelationships, and significance. Documentation will include photographs, scale drawings, and, if warranted, limited controlled excavation of select sites and/or features.

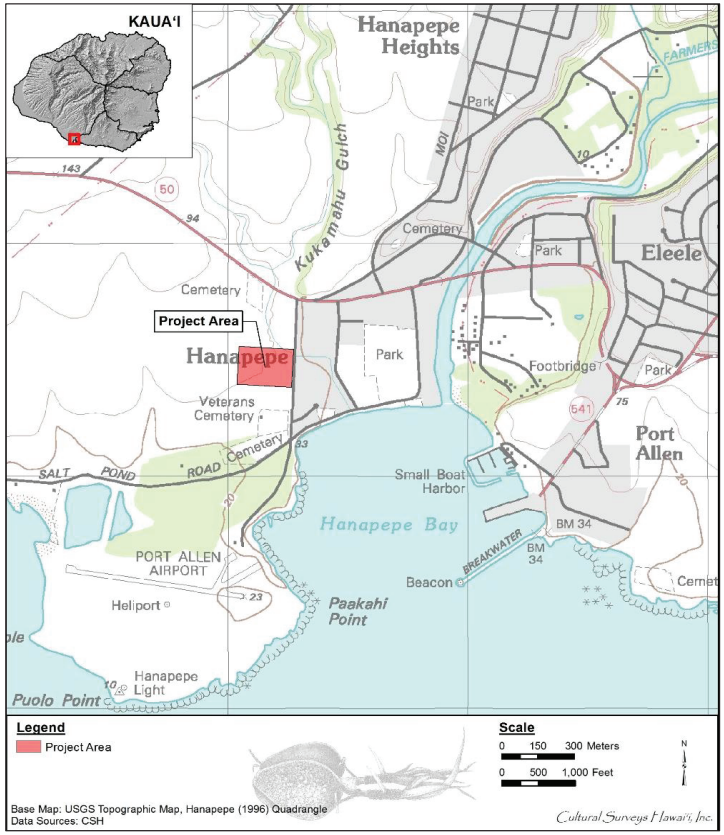

Figure 1. Portion of the 1996 Hanapepe USGS 7.5 minute series topographic quadrangle showing the location of the project area

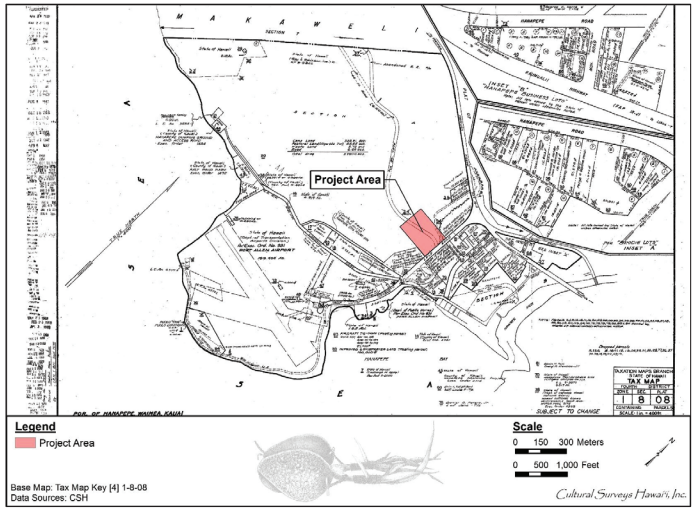

Figure 2. Tax Map Key (TMK) [4] 1-8-008 showing the project area (Hawai‘i TMK Service 2014)

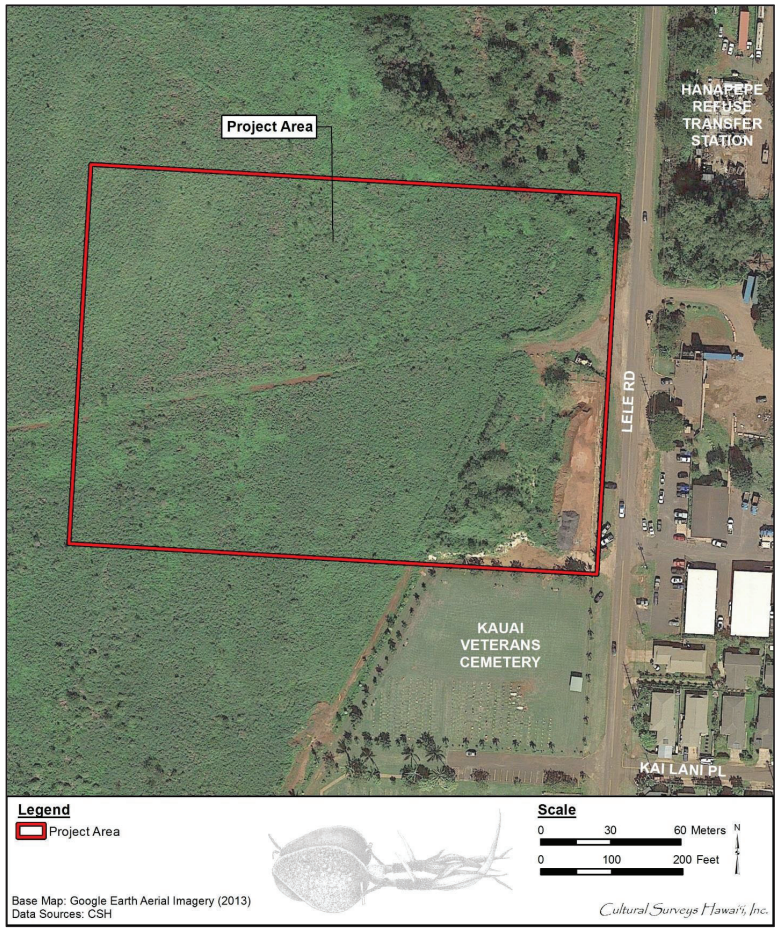

Figure 3. Aerial photograph of the project area (Google Earth 2013)

3) Based on the project area’s environment and the results of the background research, subsurface testing with a combination of hand and backhoe excavation may be used to identify and document subsurface historic properties that would not be located by surface pedestrian inspection. Appropriate samples from these excavations will be analyzed for cultural and chronological information. All subsurface historic properties identified will be documented to the extent possible, including geographic extent, content, function/derivation, age, interrelationships, and significance.

4) As appropriate, consultation with knowledgeable individuals regarding the project area’s history, past land use, and the function and age of the historic properties documented within the project area.

5) As appropriate, laboratory work to process and gather relevant environmental and/or archaeological information from collected samples.

6) Preparation of an inventory survey report, which will include the following:
   a. A project description;
   b. A section of a USGS topographic map showing the project area boundaries and the location of all recorded historic properties;
   c. Historical and archaeological background sections summarizing prehistoric and historic land use of the project area and its vicinity;
   d. Descriptions of all historic properties, including selected photographs, scale drawings, and discussions of age, function, laboratory results, and significance, per the requirements of HAR §13-276. Each historic property will be assigned a Hawai‘i State Inventory of Historic Places (SIHP) number;
   e. If appropriate, a section concerning cultural consultations (per the requirements of HAR §13- 276-5[g] and HAR §13-275/284-8[a][2]).
   f. A summary of historic property categories, integrity, and significance based upon the State of Hawai‘i historic property significance criteria.
   g. A project effect recommendation;
   h. Treatment recommendations to mitigate the project’s adverse effect on any significant historic properties identified in the project area.

If historic properties or cultural deposits are located, there are specific requirements for documentation including written descriptions and recording their geographic location with a GPS on project area maps. Documentation may include, as appropriate, section drawings and stratigraphic profiles, plan views, and photographs. Required analysis of located historic properties (or potential historic properties) may include any or all of the following:

- analysis of recovered artifacts and midden from traditional Hawaiian deposits,
- analysis of historic artifacts from historic-era deposits, and
  radiocarbon dating of samples from cultural contexts.

1.4 Environmental Setting

1.4.1 Natural Environment

Hanapēpē Ahupua‘a is bounded by the *ahupua‘a* (traditional land division) of Makaweli to the west and Wahiawā to the east. The project area is located west of the Hanapēpē River and almost directly adjacent to the shoreline of Hanapēpē Bay at elevations of approximately 20 to 40 meters (m) above mean sea level (AMSL) (see Figure 1). Agricultural farmlands border the northern and western boundary of the project area.

The proposed project is located on the leeward side of the island of Kaua‘i where the climate is warmer and less moist than the windward side of the island (University of Hawai‘i 1973). Compared to the interior of the island which hosts the world’s wettest spot with annual rainfall of approximately 450 inches per year, the average precipitation in Hanapēpē is about 27.1 inches per year or 2.3 inches per month (Clean Islands Council 2011). As with Waimea, Hanapēpē is a canyon land with many valleys and streams that carry water from the mountains in the interior to the sea, near the project area.

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the project area’s soils consist of Makaweli silty clay loam (MgB) at 0 to 6%slopes; Makaweli silty clay loam (MgC) at 6 to 12% slopes; Pakala Clay Loam (PdA) at 0 to 2% slopes; Nonopahu Clay (NnC) at 2 to 10% slopes; and Rough broken land (rRR) (Figure 4)

Makaweli silty clay loam soils are described as follows:

> . . . well-drained soils on uplands on the island of Kauai. These soils developed in material weathered from basic igneous rock. They are gently sloping to steep. Elevations range from nearly sea level to 500 feet. The annual rainfall amounts to 20 to 35 inches. Three-fourths of it occurs from October through March. The mean annual soil temperature is 74° F. [Foote et al. 1972:90]

Pakala clay loam soils are described as follows:

> . . . well-drained soils on alluvial fans and bottom lands on the island of Kauai. These soils developed in alluvium. They are nearly level to moderately sloping. Elevations range from nearly sea level to 400 feet. The annual rainfall amounts to 25 to 40 inches. The mean annual soil temperature is 73° to 75° F. [Foote et al. 1972:107]

Nonopahu clay soils are described as follows:

> . . . moderately well drained soils on uplands on the island of Kauai. These soils developed in material weathered from basic igneous rock relatively high in olivine. They are gently sloping to moderately sloping. Elevations .range from nearly sea level to 800feet. The annual rainfall amounts to 23 to 40 inches. The mean annual soil temperature is 74° F. [Foote et al. 1972:100]

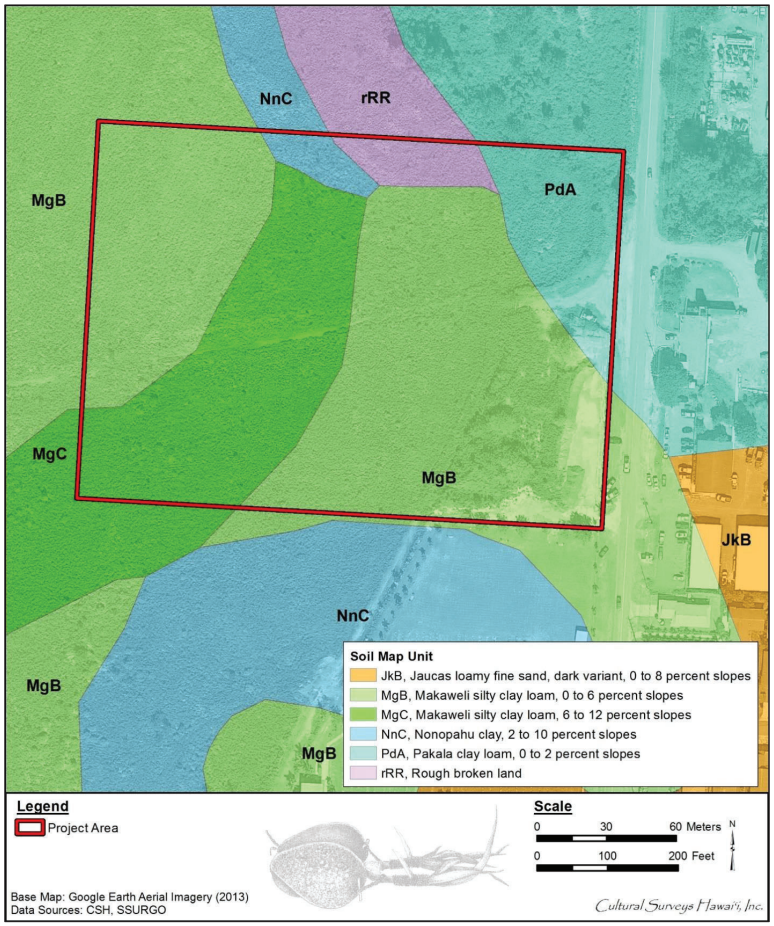

Figure 4. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001)

Rough broken land are described as follows:

> . . . very steep land broken by numerous intermittent drainage channels. In most places it is not stony. . . . The slope is 40 to 70 percent. Elevations range from nearly sea level to about 8,000 feet. The local relief is generally between 25 and 500 feet. Runoff is rapid, and geologic erosion is active. The annual rainfall amounts to 25 to more than 200 inches.
>
> These soils are variable. They are 20 to more than 60 inches deep over soft, weathered rock. In most places some weathered rock fragments are mixed with the soil material. Small areas of rock outcrop, stones, and soil slips are common. [Foote et al. 1972:119]

1.4.2 Built Environment

The proposed project is located on the westernmost periphery of Hanapēpē Town where it is surrounded, for the most part, by agricultural farmlands. Lele Road runs adjacent to the parcel, and it is surrounded by the Kaua‘i Veterans Cemetery to the south, the Hanapepe Refuse Station to the east, and Kaumuali‘i Highway further north (Figure 5). Several concrete buildings and residential housing are located to the southeast of the project area (Figure 6) and Hanapēpē Park is located nearby with several athletic fields and recreational amenities. Port Allen Airport is located directly south of the cemetery and Port Allen Harbor lies east of the project area, across Hanapēpē Bay. Residential housing development is concentrated along the Hanapēpē River and north of the town at Hanapēpē Heights. Overall, approximately 80% of the project area is located in former cane lands (Figure 7). In the southeastern portion of the project area, parallel to Lele Road, are stockpiles of soil, sand, gravel, concrete blocks, asphalt, and wood. The stockpiles are situated on and abut one of the historic properties documented during the current investigation (SIHP # 50-30-09-2303) (Figure 8 and see Figure 65)

Figure 5. Photo of project area’s general location, view to north

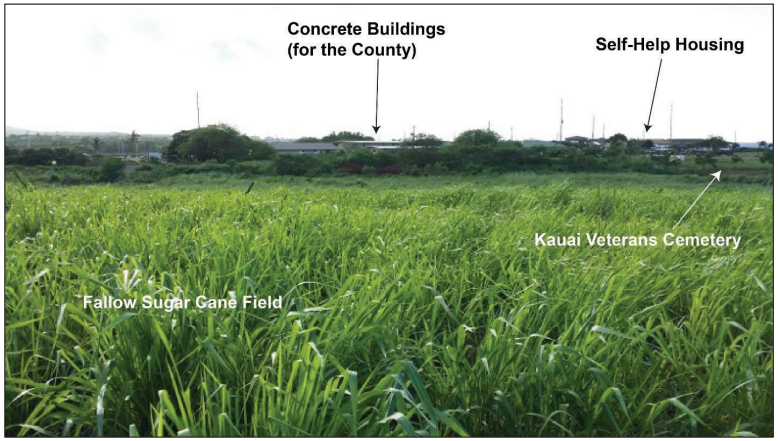

Figure 6. Photo of concrete buildings, residential housing, portion of the Veterans Cemetery, taken from northwest area of project, view to southeast

Figure 7. Photo of former cane lands at the northwest portion of the project area, view to northwest

Figure 8. Photo of stockpiled material abutting the southern portion of SIHP # 50-30-09-2303, view to northwest

Section 2 Methods

2.1 Field Methods

CSH completed the fieldwork component of this AIS under archaeological fieldwork permit number 15-03, issued by the State Historic Preservation Division (SHPD) pursuant to HAR §13-13-282. All archaeological fieldwork was conducted under the general supervision of Hallett H. Hammatt, Ph.D.

In general, fieldwork included 100% pedestrian inspection of the project area, GPS data collection, and subsurface testing by backhoe.

2.1.1 Pedestrian Survey

The pedestrian survey for the current project area was conducted by CSH archaeologists Gerald Ida, B.A., and Missy Kamai, B.A., on 14 September 2015 and 15 September 2015 and took approximately 2 person-days to complete.

A complete ground survey of now fallow lands that were previously cultivated sugarcane fields was undertaken for the purpose of historic property identification and documentation. Depending on vegetation and topography, the pedestrian inspection for this section of work was accomplished through systematic sweeps. Field crew members were spaced at roughly 5-10 m intervals in areas of fair to poor ground visibility (knee high to overhead grasses) and 10-20 m intervals in areas of good to excellent ground visibility (exposed soils to knee high grasses). Historic properties identified within the project area were documented by:

1. A detailed written description and evaluation of function, interrelationships, and significance;
2. Both digital and print film photographs;
3. Cross-section to scale using a standard tape-and-compass mapping procedures; and
4. Locational information acquired with the Trimble Pro XH mapping grade GPS unit with a real-time differential correction. This unit provided sub-meter horizontal accuracy in the field. GPS field data was post-processed, yielding horizontal accuracy between 0.5 and 0.3 m. GPS location information was converted into GIS shape files using Trimble’s Pathfinder Office software, version 2.80, and graphically displayed using ESRI’s ArcGIS 9.1.

2.1.2 Subsurface Testing

The subsurface testing locations within the fallow sugarcane fields were determined for the West Kaua‘i DLNR Facility project in consultation with SHPD. Fallow sugarcane fields, for the purpose of this archaeological inventory study, are defined as areas once under commercial agriculture cultivation but no longer in use for that purpose. The fieldwork for subsurface testing was accomplished by CSH archaeologists Abigail “Abby” Langham, M.A., and Missy Kamai, B.A., from 12 October 2015 through 14 October 2015 and required approximately 3 person-days to complete.

The subsurface testing program was backhoe assisted and involved 11 test excavations within the project area. In general, linear trenches measuring between 7 m (23 feet [ft]) and 8 m (26 ft)

long and 0.6 m (2 ft) wide were excavated within the project area, with the exception of T-6 which measured 13 m (43 ft) long.

A stratigraphic profile of each test excavation was drawn and photographed. The observed sediments were described using standard USDA soil description observations/terminology. Sediment descriptions included Munsell color; texture; consistence; structure; plasticity; cementation; origin of sediments; descriptions of any inclusions such as cultural material and/or roots; lower boundary distinctiveness and topography; and other general observations. Where stratigraphic anomalies or potential cultural deposits were exposed, these were carefully represented on test excavation profile maps.

2.2 Research Methods

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, Kaua‘i Historical Society, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources as appropriate. Historic maps and photographs from the CSH library were also consulted. The project area boundary depicted on historic maps included as a part of this report should be considered approximate and used for reference information only. In addition, Māhele records were examined from the Waihona ‘Aina database (Waihona ‘Aina 2000).

This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

Section 3 Background Research

3.1 Traditional and Historical Background

3.1.1 Mythological and Traditional Accounts

Fornander recounts a long tale of the hero Kawelo, who became a ruling chief of Kaua‘i. The gist of the story is that Kawelo, who was born on Kaua‘i in Hanamā‘ulu and raised with his grandparents in Wailua, travels away to O‘ahu and returns to earn his royal title. The action of the tale begins when his grandparents travel to Waikīkī to see their other grandchildren, taking Kawelo with them. Kakuhihewa is the ruling chief of O‘ahu at this time (sixteenth century). In Waikīkī, Kawelo learns the skills of battle, how to wrestle and other important skills. He marries his teacher’s daughter. He has many adventures as he proves himself to be wise, strong, cunning, and favored by the gods. Having learned these skills, the occasion arises for him to prove himself. Aikanaka, the chief of Kaua‘i, has taken Kawelo’s parents’ lands and all they have to eat is hair lice. Of course Kawelo sails to Kaua‘i to do battle with Aikanaka. With skill and cunning and the help of his warrior wife, Kanewahineikiaoha, he succeeds in killing all of Aikanaka’s warriors. Aikanaka, his priests, and family manage to get away and “proceeded to the uplands of Hanapepe, at Koula, where Aikanaka took up his residence” (Fornander 1959:102). The banishment takes Aikanaka to an area as removed from the reigning power as possible: “Aikanaka . . . lived in the uplands of Hanapepe and in great poverty. He had no lands, no honors, no food, no meat, no kapas and no home. All that Aikanaka did was to till the ground to raise food for their future use” (Fornander 1959:102).

Kawelo’s adopted son, Kaeleha, part of the conquering party, is awarded the district of Puna as his part in the conquering party, but one day travels to Hanapēpē and befriends Aikanaka who had come down to Wahiawa to fish and to take a swim in the sea. Kaeleha stays, marries Aikanaka’s daughter and eventually plots to overthrow Kawelo. Kawelo hears of this and promptly comes to Hanapēpē to do battle and after many feats and acts of cunning he kills his traitor son and Aikanaka and returns to live with his wife and parents in Hanamā‘ulu and to peaceably rule the Island of Kaua‘i.

This tale refers to Hanapēpē in the sixteenth century as removed from the sphere of power. While this is a legend it probably refers to real people and real events, no doubt embroidered with heroic details, much as were the people and events of the King Arthur legends on the opposite side of the world. One of the inhabitants of Hanapēpē at the time of the *kuleana* awards carries this legendary name.

In another legend involves Kamapua‘a and Makali‘i, Kamapua‘a’s enemy. Makali‘i is banished also to the mountains of Kaua‘i where he then lives with all his people (Fornander 1959:238). These tales indicate the mountains of Kaua‘i (including upland Hanapēpē) sometimes served as a refuge for banished people.

3.1.2 Early Historic Period (1778-1847)

Archibald Menzies, doctor and botanist under Captain Vancouver on one of the earliest English ships visiting the Hawaiian Islands, came to Waimea in 1792 and described a grass fire burning over the plains several miles to the east (which would be in the area of Hanapēpē). Captain

Vancouver first supposed it to be a signal of hostilities but was told it was the annual burning to rid the plains of the old shriveled grass and stumps so the new grass crop would come up clear and free; such practice would provide the best grass for thatching houses (Menzies 1920:83).

Ethel Damon (1931) describes the bounty at Waimea for the early British fur traders: “At Waimea these hardy voyagers ‘wooded and watered’, and found ‘plenty of pork and salt to cure it.’” Salt taken aboard ship at Waimea may well have come from the *‘ili* (land division smaller than an *ahupua‘a*) of Ukula in Hanapēpē. She describes the use of salt by Hawaiians:

> Owing to the presence of several salt lakes in the Sandwich Island, and to the advantage of the longer dry season, the natives here had formed the habit of drying out salt in its crystal form, and storing it carefully and of using it freely in the preservation of fish, as well as directly with their meals. [Damon 1931:228]

The salt lands of Ukula (Ukula could mean *kula* [field, pasture] that are moist or impregnated, as with salt, but Gay claims Ukula means “paid by the day”) in Hanapēpē probably supplied some of this salt to the passing ships.

The first mention regarding Hanapēpē itself in the early historic literature noted is in *Russia’s Hawaiian Adventure 1815-1817* (Pierce 1965) in the diary of Georg Scheffer of the Russian American Company. Scheffer was a Russian trader who scouted out sandalwood and other trading goods for his company. He tried to convince Russia to annex Hawai‘i and wanted to help Kaumuali‘i recapture all the other islands in exchange for which Scheffer would be entitled to all the sandalwood. For several years he was on good terms with the ruling chief Kaumuali‘i and his high chiefs. Among the lands he was given by Hawaiian *ali‘i* (chiefs) were the *ahupua‘a* of Hanalei (renamed Schafferthal or Scheffer’s valley), land in Waimea for plantations and factories, and the *‘ili* of Mahinuali in Makaweli, followed shortly thereafter by a gift of the *‘ili* of Kuiloa in Hanapepe.

> (October) 14 [1816] . . . I spent two days in Hanapepe, where I received for the Company from the chief Obana Platov [Obana Tupigea—Opana Kupikea? renamed Platov by Scheffer] a village with eleven families. It lies in the province of Hanapepe on the right bank of the river Don and is called Tuiloa Platov [Kuiloa?]. [Pierce 1965:185]

Document 24: Grant of Land by Princess Naoa of Kaua‘i to Scheffer, October 1, 1816 and Document 25: Grant of Land by Chief Ovana Platov to Schaffer, October 1, 1816 (Pierce 1965:80–81) are transcriptions of Scheffer’s records. Scheffer renames the chiefs, the rivers and valleys of Kaua‘i for ones in his homeland. His diary mentions that he has scouted out the entire island and has been given much sandalwood. Pierce claims Scheffer evidently relished the enmities between Kamehameha I and Kaumuali‘i and hoped to profit handsomely if the Russians would come to the aid of Kaumuali‘i. Scheffer states in his diary that he doesn’t care what the islanders do because this “island belongs to the Russian American Company.” Scheffer also had environmental and economic concerns. He plans, while cutting sandalwood, to put in new plants so there will be a permanent supply. He writes about his ideas of agriculture and notes that “Cotton should be Russia’s main objective in the Sandwich Islands” as it “yields in a short time more return for a small expenditure and effort than all the fur trade on the Northwest coasts.” He wants to import people from Hindustan, Africa, or China for their knowledge of how to grow and process it, “so

as to teach the Russians, Aleuts, and the natives" (Pierce 1965:191*).* Scheffer soon puts these ideas into practice. A month later in 1816 his diary records the following:

> [November] 30 I set out for Hanapepe, inspected the estate of Plato v on the river Don, and found it extremely rich in taro fields. I ordered the dry land planted into cotton, tobacco, maize, and also transplanted here sufficient orange, lemon, and olive trees. I delivered there a number of brood sows and assigned two old Aleuts as watchmen. [Pierce 1965:187]

And later:

> [December] 23. Taboo, The wives of all the chiefs visited me today. The queen's sister Taininoa, who previously gave the company land, today transferred also the valley of Mainauri, while Queen Monolau, whom I cured of illness, presented me with land in the Georg (Kainakhil') Valley in the Hanapepe province. I gave her a piece of silk material. [Pierce 1965:192]

The grant from Chief Obana Platov (Opana Kupikea?) for "Tuiloa on the River Don" and "Mainauri" and "Georg" are both dated 1 October 1816 (Pierce 1965:80). "Georg" is described as "a large piece of land nine versts long and 15 wide between the port of Waimea and Hanapēpē, along the seashore where one could gather a great deal of salt" (note: 1 verst =0.66 miles) (Pierce 1965:127). This description seems to indicate the area included the *‘ili* of Ukula (southwest of Hanapēpē Bay). Pierce believes Mainauri and the salt land may be in Makaweli *‘ili* of Mahinauli, but the salt lands may have included the *‘ili* of Ukula, a section of salt lands that remains today and has been preserved as the Salt Land State Park in Hanapēpē. Barrett mentions that a Russian ship from O‘ahu to Sitka carried as much as 50 tons of salt in the 1809-1819 period (Barrett 1988:356). There is little information about Kaua‘i, but since salt was such a precious commodity for the Russians in Sitka, one might suppose Kaua‘i sent its share.

In a 1 January 1817 entry Scheffer talks enthusiastically about the high quality of the cotton he has grown. He notes that taro and maize are two important Sandwich Islands crops that "are unrivaled as foodstuffs, and extremely suitable for transport and for prolonged storage" and he expects a high return of a new crop, little grown in the Islands before his time—tobacco—which is of far better quality than Russian snuff tobacco. Another fortune-making venture he foresees is salt, which is plentiful in the Islands. Sugar in the Islands, he says, "is of a height and quality which I have never seen anywhere else." He dreams great dreams:

> The oil nut (*kukui*) brings no small return. Grapes grow twice in a year; I have planted enough of one kind which if carefully prepared ought to make wine which should surpass Madeira. I need not mention the fruits of the bread plants, pineapples, coconuts, oranges, lemons, bananas, melons, etc. These items will bring no small price and if correctly handled can upset in one blow the trade of the English and Americans in China, etc.; of this I am convinced. [Pierce 1965:196]

As might be expected, the American traders felt very threatened by Scheffer and soon plotted to put a quick end to his empire.

Edward Joesting's version of the rivalry in 1822 between Georg Scheffer (Schaffer) and the Americans notes that the Americans spread the word that America and Russia were at war. Scheffer rushed from where he was staying in Hanapēpē to Waimea to protect his ship. The

Hawaiians and Americans made him leave Hawai‘i immediately without allowing him to take any of his possessions (Joesting, 1984:84). Pierce's collection of Scheffer correspondence contains a letter dated 17 May 1819 noting that Dr. Scheffer "had spent about 170,000 rubles in money and goods belonging to the company for the purpose of buying lands for the Company, for gifts to Kaumualii, his wives, and relatives, for the establishment of factories and plantations which . . . were abandoned without any profit to the Company" (Pierce 1965:138).

Shortly after Scheffer departed, the Ruggles, a missionary family, moved eastward (from Waimea) in 1822 to establish a mission station at Hanapēpē (Kauai Bicentennial Committee1978:33): "Small houses of rough stone laid up in mud mortar were built for the white families, a cellar being a requirement for each dwelling" (Damon 1931:252).

Kaumuali‘i's death brought about the 1824 rebellion and reprisals for people in Hanapēpē who participated in the rebellion.

3.1.2.1 The Kaua‘i Rebellion of 1824

After the long reign and death of Kaumuali‘i, Kalanimoku sailed to Kaua‘i for Kamehameha III to proclaim the dead chief's will and to settle government affairs and land disputes since Kaumuali‘i had finally sworn allegiance to Kamehameha I. At Waimea Kalanimoku (Kamehameha's representative on Kaua‘i) called a council of chiefs and announced to them that "those of the chiefs who hold land, they are well off; the commoner who hold property is fortunate; the chief or commoner who has no portion is unfortunate. The lands shall continue as they now stand. Our son, Kahalai‘a, shall rule over you" (Kamakau 1961:268). The leeward Kaua‘i chiefs, under Ki‘aimakani and supported by Kaumuali‘i's son, Humehume (or George Kaumuali‘i), wanted the land redivided under a new rule, as was normal when a chief died, but Kalanimoku refused. Before Kaumuali‘i's death the Kamehamehas did not administer the Kaua‘i lands, as Kaumuali‘i still had control of them until he was abducted by Ka‘ahumanu and he pledged his allegiance to the Kamehamehas, but he had been allowed to retain his control of Kaua‘i. After his death Kaua‘i came under Kamehameha's power. The leeward chiefs opted to rebel and stormed the fort at Waimea but most were killed. Those that lived set up a fort at the Hanapēpē-Wahiawa border but they didn't count on the ten ships of men and arms sent from Maui and O‘ahu, including Hoapili (ruling chief of Maui), who were sent to support Kamehameha's claims against Humehume.

> On August 8 [1824] the battle of Wahiawa was fought close to Hanapepe. The Hawaii men were at Hanapepe, the Kauai forces at Wahiawa, where a fort had been hastily erected and a single cannon (named Humehume) mounted as a feeble attempt to hold back the enemy. In the evening there was advance made, but the forces of Hawaii retired to Hanapepe for the night. A hard rain prevented the Kauai men from firing the grass that night and making a rush in the morning as they had intended. There had been a rainbow, and Hoapili predicted, 'if the base were on the other side and the tip here we should be defeated tomorrow, but since we have the base and they the tip we shall be the winners. I believe not one of our men will fall.' . . . Large numbers of Kauai soldiers had gathered on the battleground, but they were unarmed save with wooden spears, digging sticks, and javelins. Many women were there to see the fight. The men acted as if death were but a plaything. It would have been well if the gods had stepped in and stopped the battle. No one was killed

> on the field, but as they took to flight they were pursued and slain . . . For ten days the soldiers harried the land killing men, women, and children. Humehume had ridden away to the mountains with his daughter and his wife, Pake. Many fled to the mountains until amnesty for all was declared. Kalaiheana neither killed nor injured any prisoner, neither did Hoapili or Kalanimoku. All the rest took prisoners and brought them to Oahu and even to Maui and Hawaii. A great deal of property was taken, among other things horses and cattle, which had become numerous on Kauai because the foreigners had given many such to Kaumualii. On Oahu there were only a few which had been brought in by John Young and Kamehameha from Kauai in 1809; afterwards more were brought in by Don Marin . . . Some Kauai chiefs were with the chiefs on Maui attending the burial of their dead ruler, some fought loyally against the rebels; yet their lands were seized with the others. The last will of Kaumuali‘i, who had the real title to the lands, was not respected . . . The lands were again divided. Soldiers who had been given lands but had returned to Oahu had their lands taken away, chiefs who had large lands were deprived of theirs, and the loafers and hangers-on (*palaualelo*) of Oahu and Maui obtained the rich lands of Kauai. [Kamakau 1961:268–269 citing newspaper articles of 11 and 18 April 1868 from *Ka Nupepa Ku‘oko‘a*]

It is said that many men, women, and children were killed and left for the dogs or pigs to eat and were not allowed a burial. People from O‘ahu and the Big Island acquired Hanapēpē land after this rebellion and Kauhi mentions he acquired his land when Hanapēpē was “colonized” after the war of 1824.

3.1.3 Mid- to Late 1800s

Rev. Bingham provides an early description of Hanapēpē from 1847:

> . . . [Hanapepe] lies six or seven miles east of Waimea. It is a pleasant, fertile, well watered valley, about 175 rods in width, along a mile or two from the sea-shore, diminishing in breadth and increasing in depth, as it recedes toward the mountains, till it becomes a very deep and narrow ravine, curving between precipitous and lofty cliffs, and grass-covered hills. A beautiful stream from the mountainous interior leaps down from high basaltic rocks, and forming a high cascade at the head of the valley, flows through it to the sea. Like the Waimea river and others at the islands, it is, at its mouth, obstructed by sand, by which the surf seems incessantly endeavoring to prevent its entrance into the ocean. Where it is thus retarded in its flow, it is from ten to twenty rods in width and three or four feet in depth, where we cross it in a canoe, or on horseback. It escapes by a narrow channel, where it cuts through a sand-bank.
>
> For the first half mile from the sea, the valley seems sterile, and is little cultivated, but has a pleasant grove of cocoanut trees. The rest of the valley, more fertile and more cultivated, is sprinkled with trees and shrubs, embracing a few orange trees, and being walled up on the east and west by bold, precipitous bluffs, rising higher and higher toward the mountains, from fifty feet to fifteen hundred, appears from one of the palis, like an extensive, well-watered plantation, interspersed with *kalo* beds and one hundred and forty cottages, and furnishes employment and sustenance

> to some seven hundred inhabitants. The immense and irregular precipices shut in by each other toward the interior, obstruct the vision of the spectator looking up the valley, but beyond the pleasant opening towards the sea, the eye reaches the distant line where the ocean seems to meet the sky . . . Near one of these palis, about a mile from the ocean, Mr. Ruggles chose his station and built a temporary cottage, had a house of worship erected, and opened a school, with the expectation of having a preacher from America stationed there permanently . . . His humble and now desolate cot, of the common stones of the valley, laid up in mud and stubble, and thatched with grass, . . . was surrounded by a pleasant court in which grew bananas, grapevines, pine-apples, cotton and Palma Christi shrubs, lettuce, and a variety of other plants, useful and ornamental.
>
> Here, for a time, under Kupihea and Kiaimoku, the two chieftains of Hanapepe, Mr. Ruggles, with his wife and two children, resided as the shepherd of the valley, esteemed by many of its seven hundred inhabitants and of the ten thousand of the island. [Bingham 1847 in Handy and Handy 1972:431 and Damon 1931:317–318]

In 1849, William D. Alexander, head of the Hawaiian government survey between 1850 and 1869, toured Kaua‘i. In his journal (entry for May 23) he describes his journey to see Hanapēpē Falls:

> This morning about ten o-clock we started in company with Dr. Smiths’s family for Hanapepe. We arrived at noon at the Mission house on this side of the valley. After getting a hasty dinner we set off with Dr. Smith to see the well known Hanapepe falls. We rode about a mile along the edge of the valley, & then descending a high & steep pali we rode as far up the valley as was practicable for horses. We then hitched our horses, & went on foot. We had to cross the stream 8 times on our way to the falls. The scenery was grand, & beautiful. The sides of the valley were from 300 to 1000 feet high, now rising into abrupt precipices, & now clothed with the richest green. In crossing the stream in one place, I slipped off a rock into deep water, & got a complete ducking. As however I kept warm by exercise, it did me no injury. The scenery in the upper part of the valley is enlivened by many beautiful little cascades, dashing & foaming down its sides. The principal waterfall is at the head of the valley, 4 or 5 miles from the sea. It was concealed by the turn of the valley till we were very near, when it suddenly burst on our view. The stream pours in a jet for 20 feet, when it strikes the rocks, & spreads out like a fan the rest of its descent. The whole fall is about 200 feet in height. We got back to the house about 5 o-clock, & determined to pass the night there. I passed a comfortable night except that I was terribly stung by fleas. [Kauai Bicentennial Committee 1978:133]

Hanapēpē Falls also attracted a William T. Brigham, Bishop Museum’s founding director and a botanist visiting Kaua‘i in 1864 and 1865. He wrote in his journal:

> . . . Tuesday morning I set out for Hanapepe Falls. The path led down the side of the valley over ridges of deep red earth with blocks of imbedded basalt. The walls of the valley were nearly perpendicular, and from four to five hundred feet high, exhibiting in many places an irregular prismatic structure. In one place this was very beautiful where a projecting point had been naturally terraced, the portions

> between each flow being covered with grass and convolvulus vines which formed a drapery over the cold dark lava. In some places a prismatic vein had been broken through by an irregular mass of clayey lava running across the direction of the valley.
>
> The stream was very rocky and as the valley was very narrow and the wall almost perpendicular, the path went from one side to the other and thus crossed the stream eighteen times. Ohias and bananas were abundant; several dykes crossed the walls at various angles, little canyons on either side opened into the gorge showing beautiful cascades at their upper end in almost every variety of form. The Falls as I measured them, were 326 feet high, and I should judge the walls on either side were at least five hundred. The water was not a large stream but fell against the rocks in such a way as to have a very beautiful effect. A branch joined the river just below the Falls, and near by were some fine orange trees. A mist came down in the afternoon. Lobelias were abundant on the hillside; ducks and herons were plentiful, and the latter had carried many seashells onto the rocks to eat; small fish were in the stream which no doubt were food for these birds. [Lydgate 1991:149]

In early correspondence Abner Paki, father of Queen Liliu‘okalani, states in a letter to the Minister of Interior that Hanapēpē belongs to the King and that the *akule* (Big-eyed scad fish, *Trachurops crumenophthalmus*) is the taboo fish (20 April 1852 letter). According to Titcomb, this fish is eaten raw, broiled, or cooked in a ti-leaf bundle placed over the taro in the *imu*, is good for *palu* which she says is used in a relish; and is also a favorite fish for drying (Titcomb 1972:62). In discussing fishing taboos, Mary Kawena Pukui noted that “Summer was the time when fish were most abundant and therefore the permitted time for inshore fishing. Salt was gathered at this time, also, and large quantities of fish were dried” (Titcomb 1972:14) and she elaborates saying that when the *kahuna* (priest, advisor) had decided conditions were favorable for fishing “For several days it remained the right of the chief to have all the sea foods that were gathered, according to his orders, reserved for his use, and that of his household and retinue. After this, a lesser number of days were the privilege of the *konohiki*. Following this period the area was declared open (*noa*) to the use of all” (Titcomb 1972:14).

Another item of traditional Hawaiian practice, found in the archive correspondence is about fishing rights. A Mr. Isaac Hart applied in 1866 for coastal land and the rights to include the fishing boundaries for which he offered to pay $300. He was apparently granted this right, for in 1870 J. and F. Sinclair, having leased or bought most of the District of Kona District (Kaua‘i) by this time, wrote to the Prime Minister, J.O. Dominis seeking redress since they believed their original lease included these fishing rights. Fishing rights belonged to the *konohiki* and could be used by him and often by his tenants. Chapter III of the Laws of 1840 described free and prohibited fishing grounds:

> His Majesty the King hereby takes the fishing grounds from those who now possess them from Hawaii to Kauai, and gives one portion of them to the common people, another portion to landlords, and a portion he reserves to himself.
>
> These are the fishing grounds which His Majesty the King takes and gives to the people: the fishing grounds without the coral reef, viz: the Kilohee grounds, the Luhee ground, the Malolo ground, together with the ocean beyond.

> But the fishing grounds from the coral reef to the sea beach are for the landlords and for the tenants of their several lands, but not for others. But if that species of fish which the landlord selects as his own personal portion, should go on to the grounds which are given to the common people, then that species of fish and that only is taboo. [Kosaki 1954:31]

In *Sandwich Island Notes* (*by a Haole*) an early traveler to Hawai‘i, George Bates, writes of spending 1853 visiting various islands. His book “purports to give an account of what the author saw and heard” (Kuykendall 1938:1:419). Bates describes “Hanapēpē Valley [as] dotted with numerous plantations of taro, small cocoa-nut groves and native dwellings” (Bates 1854:4:224 in Coulter 1971:15).

By 1864, in a letter from Valdemer Knudsen, an early Norwegian settler in Waimea, Kaua‘i, to J.O. Dominis, Prime Minister for King Kamehameha III, Knudsen requests the right to raise the rents on Hanapēpē leased lands “since the King owns little *kalo* or rice land in Waimea, but a lot in Hanapēpē, and there is not one idle patch in Waimea, but only a few are planted at Hanapēpē” and he mentions that “the people there hula from morning to night” (Knudsen 1864). In 1865 Knudsen was appointed *konohiki* of Hanapēpē *ahupua‘a* and a year later he leased Hanapēpē from the King for $500 a year for 25 years (Knudsen 1866). Knudsen’s complaint not only emphasizes that a substantial amount of *kalo* and rice land existed in Hanapēpē, but also indicates the practice of hula was being seriously pursued, and by some sizeable number of persons, despite missionary efforts to discourage it. Carol Ramelb in her small pamphlet on the *hula* records that for Hawaiian people “Before a written language, the hulas and the chants accompanying them were their history and poetry” (Ramelb 1976:3). She also notes that after the coming of Christianity, “In distant villages, some continued to dance behind closed doors” (Ramelb 1976:5). She adds that the hula was not officially revived until the 1870s during King Kalāukaua’s reign. Another impetus she notes for its practice, besides the traditional religious commitment, was for the entertainment of sailors from the whaling and trading ships. The roadstead of Waimea—a nearby center of shipping interests—may have helped keep the traditions alive at Hanapēpē or there may also have been there some very strong Hawaiian traditionalists, or both. After King Kalāukaua, hula became “seen as the lone surviving art of an ancient people” (Ramelb 1976:6). The people of Hanapepe helped keep the art alive.

Eric Knudsen, son of Valdemer Knudsen, mentions passing by Hanapēpē on his first trip around the Island of Kaua‘i in 1895: “We rode through the Makaweli Plantation and soon entered the beautiful valley of Hanapepe and the town of the same name—in those days it was only a small village” (Knudsen 1991:150).

3.1.1 The Māhele and the Kuleana Act

Prior to 1848, all land belonged to the *akua* (God), held in trust by the paramount chief and managed by subordinate chiefs. In 1848, Kamehameha III decreed a division of lands called the Māhele, which divided land for private land ownership in Hawaiian society (Chinen 1958). In 1848, lands were divided into three portions: crown lands, government lands, and lands set aside for the chiefs. Individual plots, called *kuleana* (Native Hawaiian land rights) awards, were granted within these divided lands to native inhabitants who lived on and farmed these plots and who came forward to claim them. The chiefs and *konohiki* (headman of an *ahupua‘a* land division under the chief) were required to pay a commutation fee for their lands, usually about one-third the value of

any unimproved lands. Awardees usually “returned” a portion of the lands awarded to pay the commutation fee for the lands they “retained.” The returned lands usually became government lands (Chinen 1958:13).

The Kuleana Act was legislated in 1850, allowing *maka‘āinana* (commoners) to own land parcels that they were currently and actively cultivating and residing upon. In theory, this set aside hundreds of thousands of acres as potential *kuleana* parcels; in reality about 10,000 claimants obtained approximately 30,000 acres. The *konohiki*, 252 chiefs, divided up about a million acres. Many Hawaiians did not apply for their land under the Kuleana Act and some who did apply were not awarded the land they claimed.

In Hanapēpē Ahupua‘a, 92 claims are listed, of which 66 were awarded (Soehren 2010). Land use information provided in the Land Commission Award (LCA) documentation indicated settlement within the Hanapēpē Valley focused on wetland taro cultivation, with ample irrigation from the Hanapēpē River. Approximately 80 *kuleana* claimants listed 131 *‘āpana* (“sections” or “pieces”) in use. These claims mention 528 *lo‘i* or taro plots (including 200 claimed by Opae alone, LCA 10458), 29 *kula* (where dryland crops like sweet potatoes were raised), 46 *pāhale* or house lots (many noted as being in villages), ten *mo‘o* (land section smaller than an *‘ili*) with crops unspecified, ten pastures or *mo‘o* specified as pastures, and 16 “other,” which are described as including gardens, pastures, *loko* (fish onds), a pigpen, and salt lands at Ukula. The majority of *kuleana* lands were located along the lower Hanapēpē River banks and floodplain.

The project area and all other unclaimed lands in Hanapēpē were originally awarded to Miriam Kekauonohi, who immediately returned it to pay the commutation fee for the lands that she kept. The returned land became Crown Lands. No early surveys were ever made of Crown Lands, thus there are no Māhele records on land use for those areas. Therefore, it is unclear what *‘ili* the proposed project is located in.

LCA 3654 appears to pertain to our project area on the basis of a 1923 A.S. Chaney survey map of Hanapēpē Cane Lands (Figure 9) where it is part of an area clearly labelled as LCA 3654:1. LCA 3645 to Kamae lists two *mo‘o* in a small area shown on the Tax Map Key in Ukula as removed from the project parcel, but the 1923 Chaney map shows LCA 3645:1 as 325 acres encompassing the project area. The LCA claim lists the area or *‘ili* as Kuiloa within the *ahupua‘a* of Hanapepe.

The testimony from the Native Register, Foreign Testimony, and Native Testimony follow:

No. 3654 Kamae Hanapepe, Kauai January 11,1848
N.R. 85-86v9

Greetings to you all, the Land Commissioners at Honolulu: I, Kamae, a Hawaiian subject living on the Island of Kauai, am living under Manu. My claims for land, house and kula and three lo‘i are submitted. KAMAE

No. 3654 F.T.
213-214v11

No. 9059 Kamae Claimant

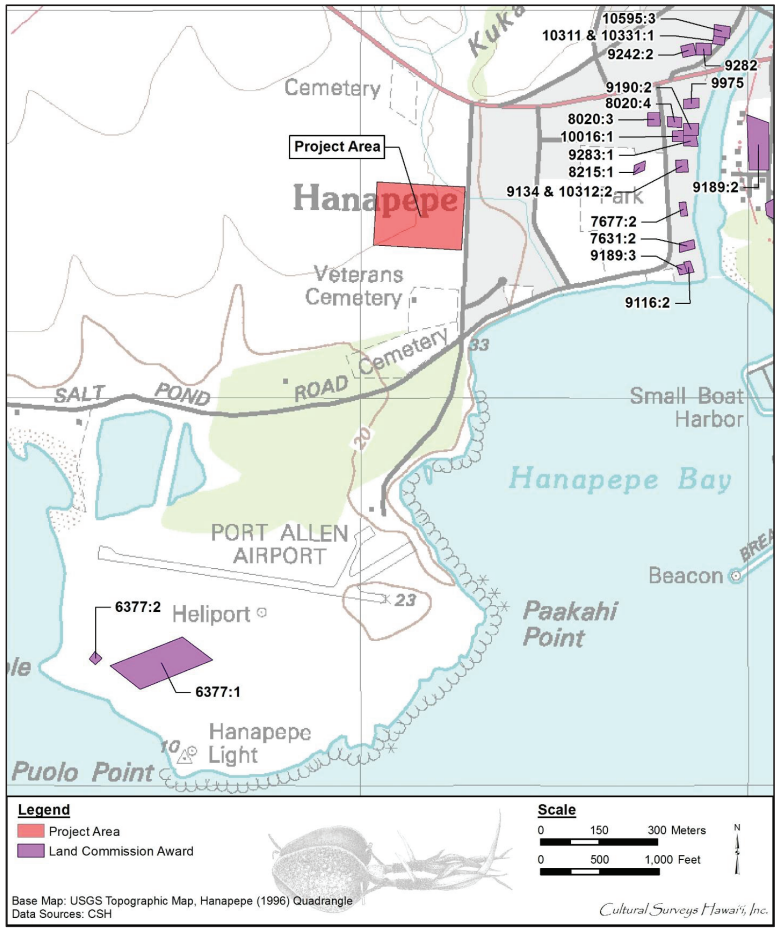

Figure 9. A portion of the 1996 Hanapepe USGS topographic quadrangle of Kaua‘i, showing LCAs closest to the project area

Kapeanu Sworn says I know Claimant's lands They consist No.1 two moos named

Kaneihuinui & Kaneihileilei, in the ili of Kuiloa in Hanapepe Kauai. No.2 A pahale in the kula of Kaahewahewa in the ili of Kaauwaikahi in Hanapepe of Kauai, this is fenced

No.1 is Bounded

Mauka by Maohiliia a moo

Wahiawa Hanapepe river

Makai Mooaila a moo

Waimea auwai of Kaauwaikahi

No.2 is Bounded

Mauka by Kula of Kauiliwili

Wahiawa Kapunaiwai a sandy place

Makai Sea beach

Waimea kula of Kapapa

Claimant received these lands from Manu konohiki in the time of Kaikioewa & has held them in peace till the present time. His title is not disputed.

Lono sworn says verifies the testimony of Kapeanui.

No. 3654 and 9059 Kamae N.T.88vll

Kapohano sworn he has seen his land.

Section 1 - Moo's of the Kanaihele's 1 and 2 in the ili of Kuiloa, Hanapepe.

Section 2 - Houselot of Kaahewahewa in Kawiliwili of Kaauaekahi iii in Hanapepe.

Section 1

Mauka	Maukilia moo
Wahiawa	Hanapepe River
Makai	Moala moo
Waimea	Kaanaekahi auwai

Section 2

Mauka	Nawiliwili kula
Wahiawa	Sandy well
Makai	Beach
Waimea	Kapapa kula

Land from Kaikioewa to Kamae, no one has objected to the present time.

Lono sworn Kapohano’s testimony on Kamae’s land is correct.

[Award 3654; R.P. 7776; 9059 not awarded; The index lists Apana as 1 Ac. 2 roods 30 rods

and Apana 2 as 3 roods 24 rods; TMK 1-8-08 shows 3654:1 at the sea but the description fits Ap. 2). [Creed et al. 1995:43–44]

3.1.2 1900s

3.1.2.1 Population

A map by Coulter (1971:16) (Figure 10) indicates the population of Hanapēpē and Wahiawā ca. 1853 “was concentrated chiefly on the lower flood plains and delta plains of rivers where wet land taro was raised on the rich alluvial soil” (Coulter 1971:14). The map also indicates an estimated population of approximately 1,000 people in the Hanapēpē area. As presented in Section 3.2, Bingham’s (1847) accounts of Hanapēpē indicated that Hanapēpē Valley had about 700 inhabitants six years earlier in 1847.

3.1.2.2 The Plantation Era

Olokele Sugar Company is shown on present-day TMK maps on the Waimea (west) side of the lower Hanapēpē valley and in Makaweli valley. (The company is named for Olokele Valley in Makaweli *ahupua‘a*). A 1923 Chaney map of Hanapēpē cane lands (Figure 11) shows cane growing in the vicinity of the current project area.

Eleele Plantation, a nearby sugar plantation east of the Hanapēpē River, was started in 1884 by Mrs. Duncan McBryde and August Drier (the manager) when they bought the land from Bernice Pauahi Bishop. The plantation had its own mill (Figure 12) and its own landing at what was later to become Port Allen. Eleele Plantation was considered to have “the most fertile lands in the district and an ample supply of water” (Condé and Best 1973:197). The *Honolulu Advertiser* in a 1949 column labelled “50 Years Ago” noted that the first electric locomotive in the Hawaiian Islands was built and operated at the Eleele Plantation, Kaua‘i in 1899 (*Honolulu Advertiser* 1949).

The McBryde Sugar Company resulted from Annexation of the Territory of Hawaii to the United States (1898) rather than the Reciprocity Treaty favoring Hawai‘i sugar prices in exchange for Pearl Harbor as a U.S. naval base (1876). The McBryde Sugar Company was the consolidation of three estates: Koloa Agricultural Company, Ele‘le Plantation a,nd the Wahiawa RanchFigure 13). It was promoted by Benjamin F. Dillingham with Theo. H. Davies & Company as agents. In the Company’s 1899 prospectus it is described as follows:

> The plantation extends continuously eight miles along the sea coast, and this space is being connected up with a 30 lb. 30 inch gauge railway running parallel to the sea and about 1/2 mile distant from it. This road keeps to an elevation of about 200 feet, except at either end and crossing the Lawai Valley, where it drops down close to sea level. The mill is located on the line of the road in open level land about one third of the way across the plantation from its west end. A spur from the main track runs along the edge of the Hanapepe Valley to drop coal to the pumping stations in the valley below. [Condé and Best 1973:191]

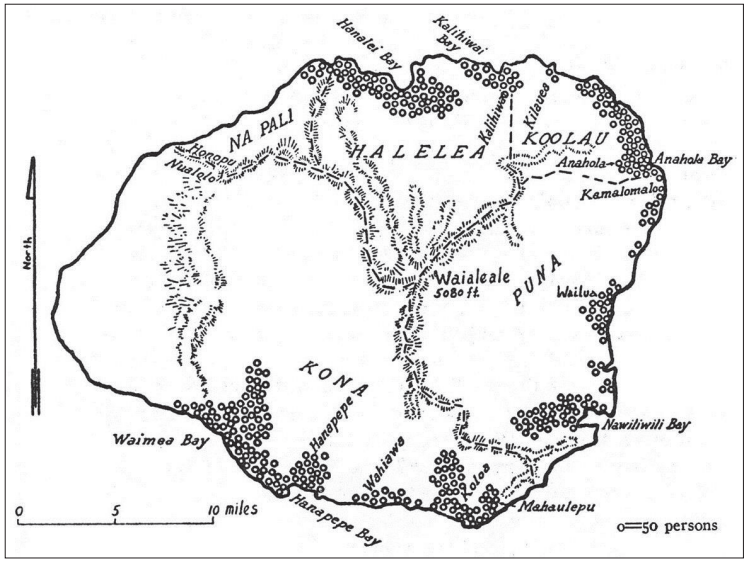

Figure 10. Map showing population estimate for Kaua'i in 1853 (in Coulter 1971:16)

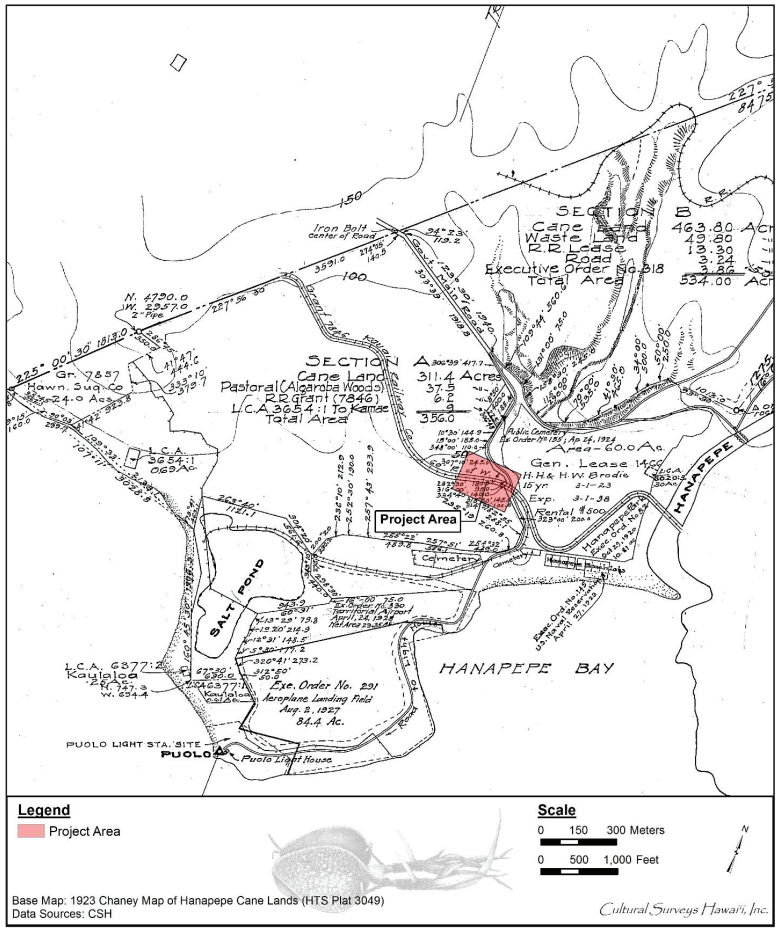

Figure 11. 1923 Hawaii Territory Survey map of Hanapēpē Cane Lands by A.S. Chaney showing project area

Figure 12. Photo of sugar mill in ‘Ele‘ele, ca. 1885 (Hawai‘i State Archives Digital Collections)

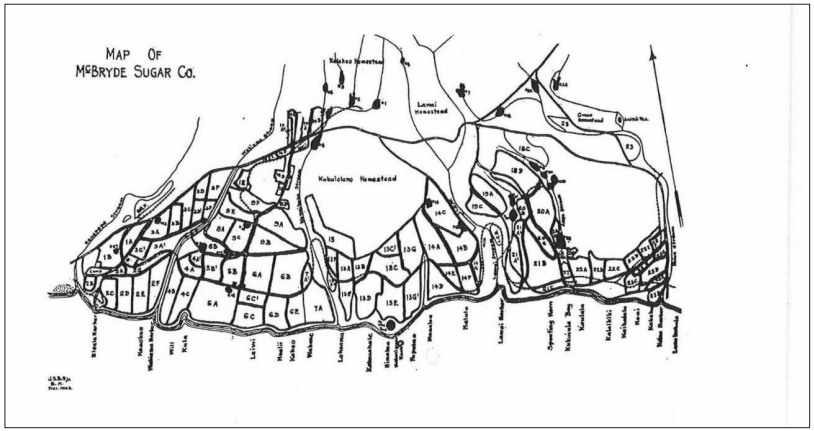

Figure 13. Oversize map of McBryde Sugar Company field map (Condé and Best 1973:191), project area located west of Hanapēpē Stream (not seen on map)

The Hawaiian Sugar Company of Makaweli was right next door (west) to the McBryde plantation. Figure 14 and Figure 15 show the field maps of these two plantations. The Hawaiian Sugar Company plantation preceded the present-day Olokele Plantation and extended from the sea seven miles to the 1,000 ft elevation. Hawaiian Sugar Company was founded (1891) after the Reciprocity Treaty and Alexander and Baldwin took over the plantation in 1889 (Figure 16). They worked out a shipping agreement in 1908 with Kauai Railroad to extend the rail line to ‘Ele‘ele Landing and built a substantial bridge (Figure 17) across the Hanapēpē River. In 1941, when they liquidated the company, they had six steam locomotives and 704 cane cars plus others (Condé and Best 1973:135). There is a monument to Baldwin near the place where Kuwiliwili Heiau is thought to have stood.

In 1906, the plantation-sponsored Kauai Railway Company was incorporated. It started business in 1907 with the McBryde Plantation handling the entire operation. The McBryde Mill is shown in Figure 18. In 1909, Alexander and Baldwin took over the railroad. In 1909, Hawaiian Sugar Company contracted to also use it and the company extended its tracks to the ‘Ele‘ele Landing. By 1910 it had 8 miles of track and by 1920 19.22 miles of track. Substantial repairs were made to the bridge in 1911, 1912, and 1913 (Condé and Best 1973:135).

3.1.2.3 Kauai Railroad, Port Allen, and the Military in Hanapēpē

The project area was part of the land deeded as Grant 7846 to the Kauai Railway Company that constructed a railroad system that runs through the middle of the project area in a rough east/west direction (Figure 19 and Figure 22). This railway land was then deeded back to the Territory of Hawaii in 1949 by Kauai Terminal Ltd. The railway was discontinued in 1933 at which time its rolling stock consisted of 500 4-ton cane cars with flare sidings, and four 26-ton oil-fired locomotives (Condé and Best 1973:199–200). Figure 19 shows the railroad through the central portion of the project area. An early map shows the same railway in Figure 14 and Figure 15.

The port is owned by the public railroad (Kauai Railway Company) of the island and has extensive warehouse and storage tank facilities with exceptionally good loading and lightering equipment for transfer of freight to and from ships that anchor out a short distance. The year 1947 saw the end of cane haul by railroad at the McBryde Plantation (Condé and Best 1973:192–193).

Port Allen was known as ‘Ele‘ele Landing until 1909, when the landing was renamed in honor of Samuel Crescent Allen (Condé and Best 1973:202, 199), a Honolulu merchant.

Slightly after this time, Executive Order 82 established Hanapēpē Park (27 April 1923) for a U.S. Naval Reservation at the Hanapēpē Beach Lots location and Executive Order 291 established an “aeroplane landing field” (2 August 1927) at Ukula (see Figure 11). Hanapēpē Park and Hanapēpē Beach Lots are also shown in Figure 20.

During World War II, Hanapēpē was part of the changes wrought by preparations for war. The subject property was part of a larger area that formed the Kauai Training Center. A civilian hospital was also located in Hanapēpē (see Figure 21). *World War II on Kauai* (Klass 1970) includes two maps that show the World War II activity on Kaua‘i plus a picture of local volunteers being inducted at Hanapēpē for the 442nd Battalion. This picture mentions Burns Field near Hanapēpē, the only paved landing strip on Kaua‘i in 1941 at the beginning of the war.

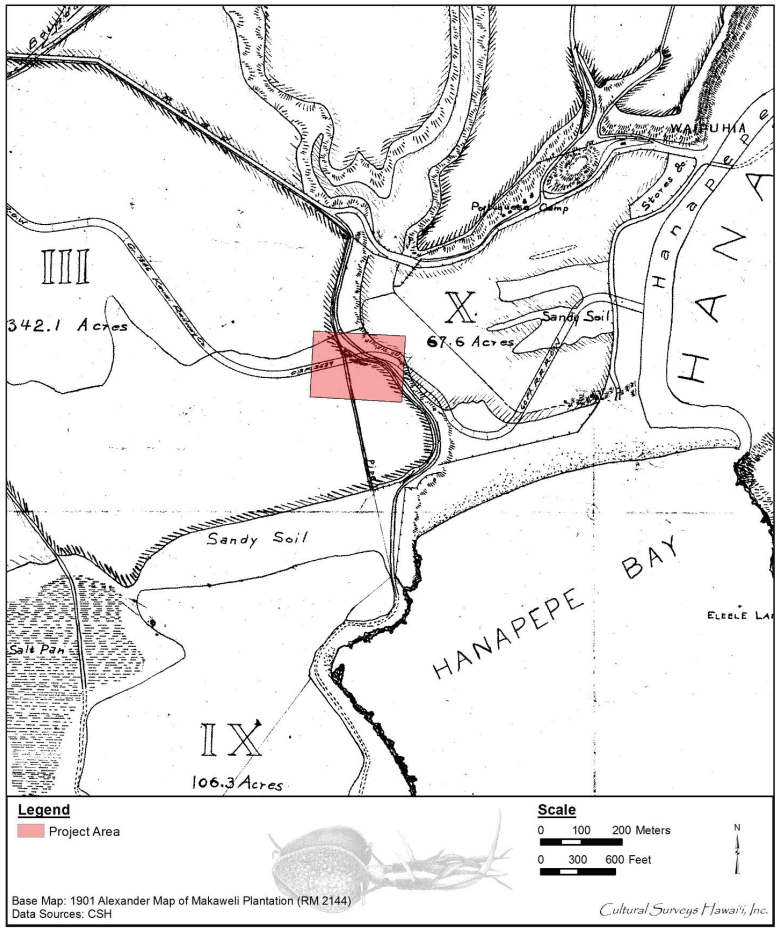

Figure 14. A portion of a 1901 Alexander map showing Makaweli Plantation

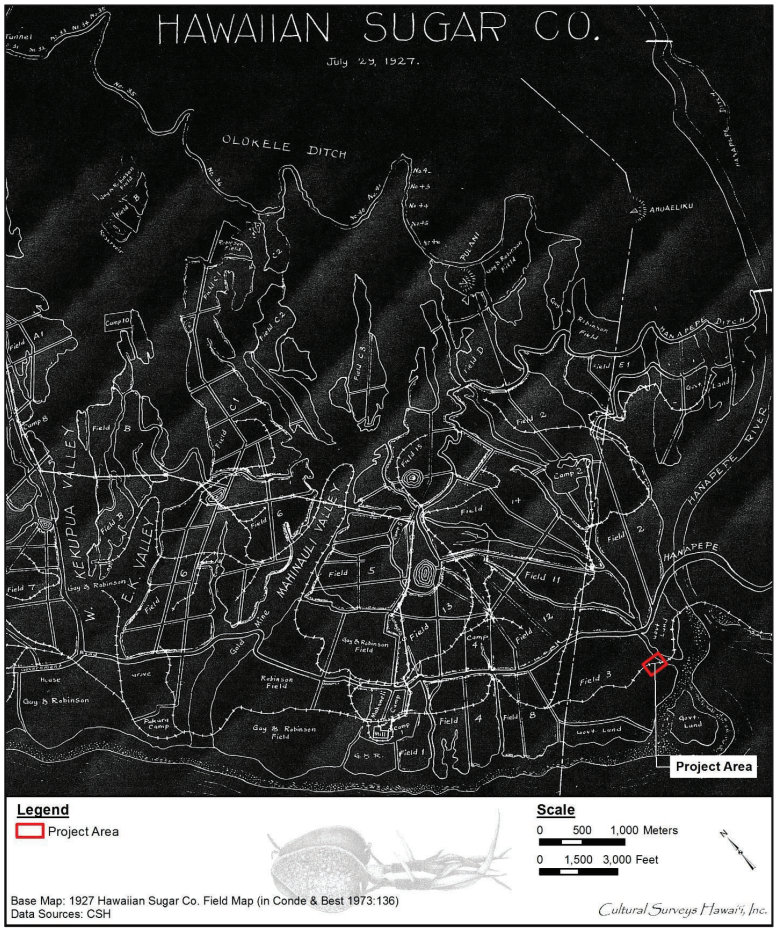

Figure 15. 1927 Hawaiian Sugar Company Field Map (Condé and Best 1973:136) showing project area

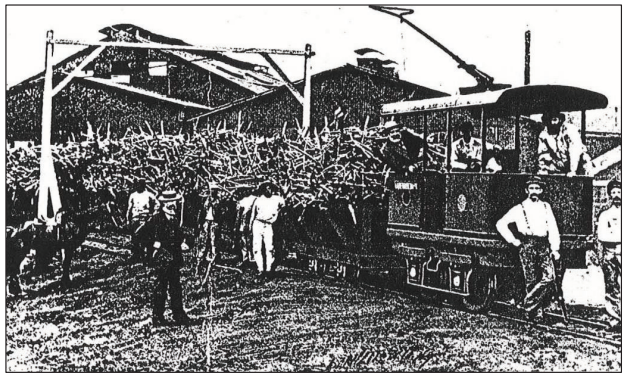

Figure 16. Cane Loading at McBryde Sugar Company (Condé and Best 1973:199)

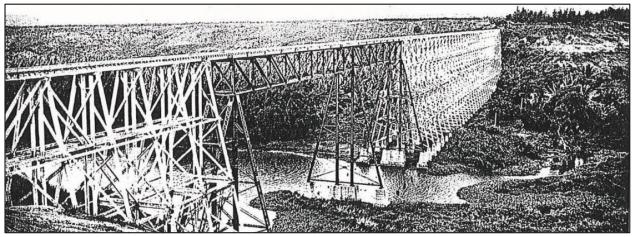

Figure 17. Hanapēpē Railway Bridge, date unknown (Condé and Best 1973:137)

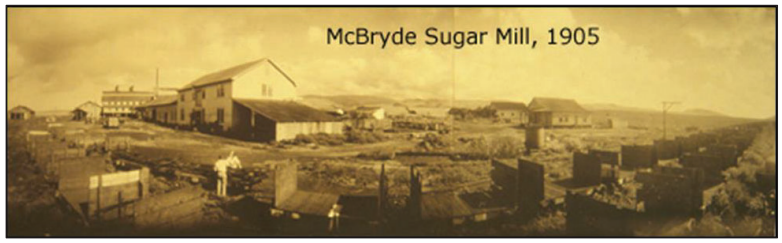

Figure 18. Sepia photo of McBryde Sugar Mill, 1905 (Post Office in Paradise 2015)

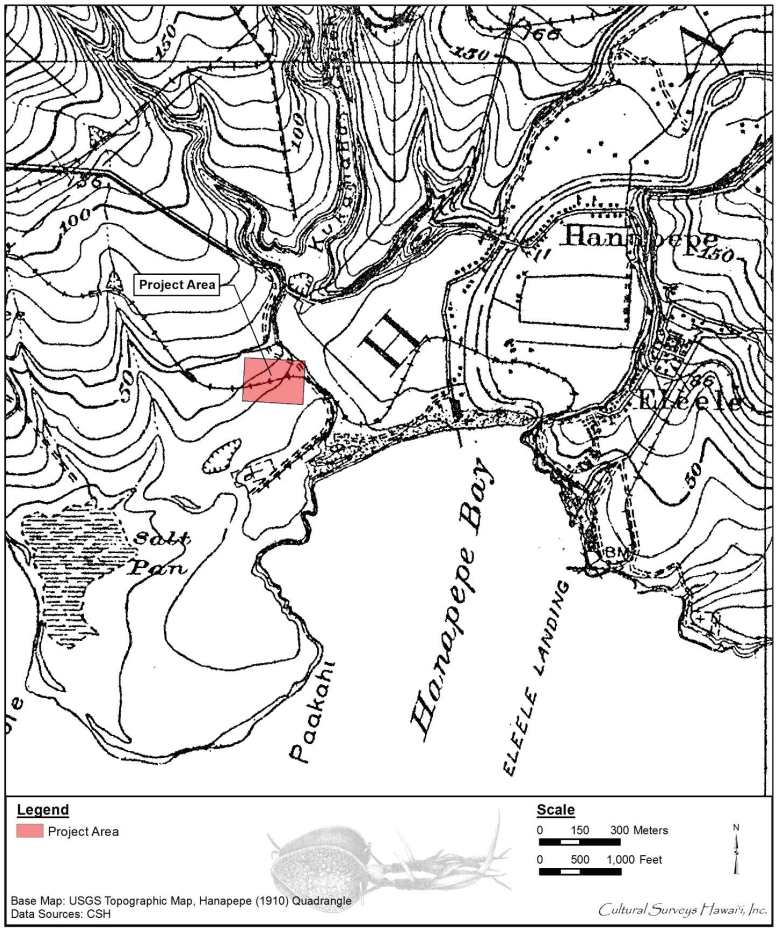

Figure 19. Portion of 1910 Hanapepe USGS topographic quadrangle showing railroad running through the central portion of the project area

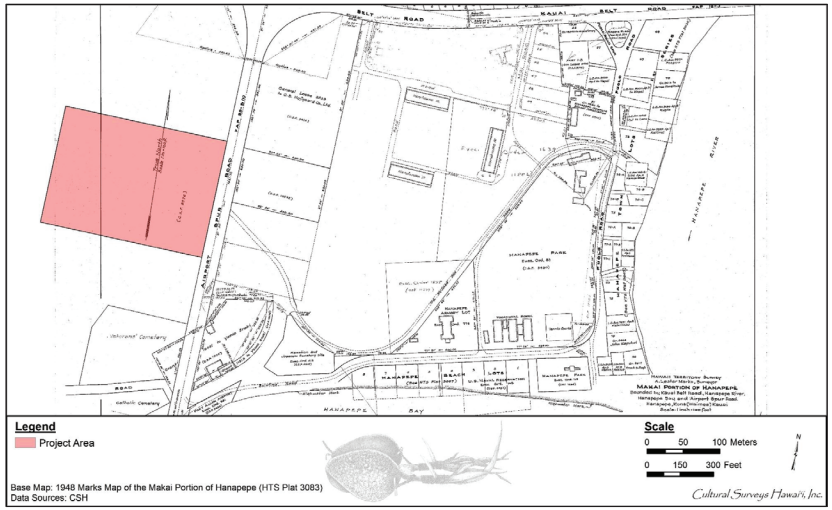

Figure 20. 1948 A. Lester Marks map of Hanapēpē showing project area and Hanapēpē Park and Hanapēpē Beach Lots

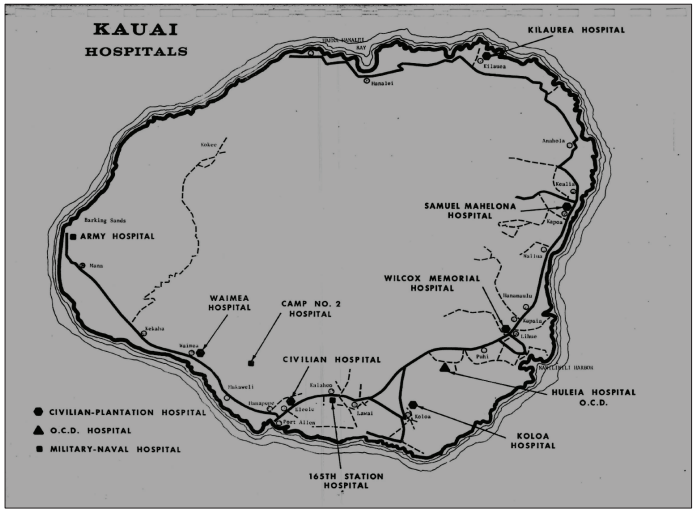

Figure 21. Map of hospitals on Kaua'i during World War II (taken from Klass 1970)

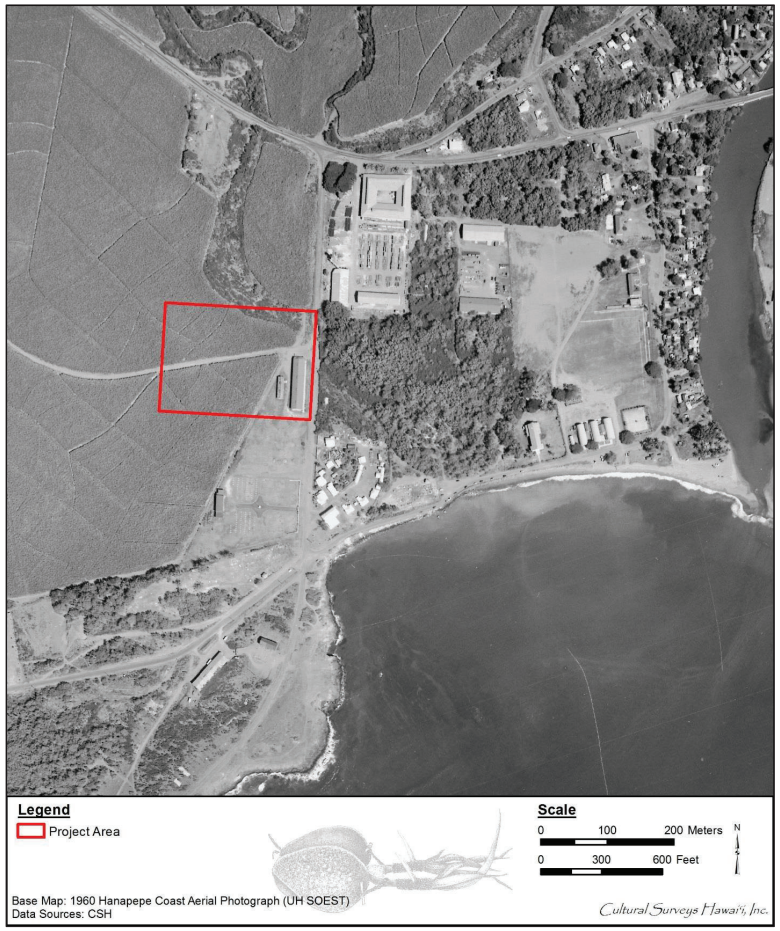

Figure 22. 1960 aerial photo of the Hanapēpē coast showing the project area and buildings built by the military and later subleased to the Kawakami Family for the Big Save warehouse at the southeast corner

> The initial Kauai garrison force consisted of elements from the 298th and 299th Infantry Regiments and numbered about 750. These former National Guard units included a large percentage of local and other Island boys and were stationed at Mana near the newly constructed Barkings Sands airstrip, at Hanapepe to defend Burns Field and Port Allen, and at Hanamaulu to protect the Lihue airport. Commanding officer was Lt. Col. Eugene Fitzgerald. [Klass 1970:26]

A 1960 aerial photo of the Hanapēpē coast (see Figure 22) shows the structures built at the southeast corner of the project area in the 1940s during World War II. Once the war ended and the military pulled out of the majority of the Hanapēpē area, the building was abandoned. During the 1950s the property where the building stood was subleased to the Kawakami family, who used the building as the warehouse for the Big Save stores situated around the island. The Big Save warehouse was in use for a little over ten years. Although Gay and Robinson still had a lease on the project area, the building was abandoned until it was destroyed by Hurricane ‘Iwa in 1982 (personal communication with Gerald Ida 2015).

3.1.2.4 Battle of Hanapēpē or the Massacre at Hanapēpē, 1924

The Battle of Hanapēpē, sometimes referred to as the Massacre at Hanapēpē, occurred on 9 September 1924; 16 Filipino workers and four Kaua‘i policemen were killed. The massacre came at the end of an eight-month attempt by more than 3,000 workers on four islands to raise the wages of Filipino sugar workers to $2 a day, as well as improve work and living conditions (Chang 2006a and b; Gordon 2006; Reinecke 1996). In Kaua‘i, the 1924 strike attracted 300 Visayan workers out of a potential 10,000 Filipino workers, and it was organized with the help of labor leader Pablo Manlapit (Sobeleski 2006).

This was a relatively small number of striking workers compared to the 1920 sugar strike organized by Manlapit, involving more than 8,300 Japanese, Filipinos, Puerto Rican, and Spanish workers. The strikers’ punishment was swift: they were evicted from their company homes, strikebreakers were hired, and strike leaders prosecuted. Manlapit was subsequently portrayed in the media as an “extortionist” (Gordon 2006:1).

With only an elementary education, Manlapit had come to Hawai‘i along with other Filipinos as a sugarcane field worker, where he and others faced 10 hours of daily back-breaking work, six days a week, for about 77 cents a day, “being paid less than other nationalities for the same work, with poor housing and lack of opportunities for advancement adding to their plight” (Soboleski 2006:1). Meanwhile, “in 1924, the ten leading sugar companies listed on the Stock Exchange paid dividends averaging 17 percent. From 1913 to 1923 eleven leading sugar companies paid cash dividends of 172.45 percent and in addition most of them issued large stock dividends” (Talbot 1925 in Center for Labor Education and Research n.d.).

Although he had arrived in Hawai‘i as a sugarcane field worker, Manlapit studied at night and eventually became a lawyer, organizing the Filipino Labor Union (Sobeleski 2006). Although Manlapit was not present during the Hanapēpē massacre, he was subsequently blamed and imprisoned.

The chain of events which ended up as a massacre began when two potential strikebreakers, Filipinos of Ilocano descent, were seized by the strikers as they passed the camp. When Kaua‘i policemen came to free the two men, the strikers followed the group, demanding their release. The

strikers were mostly armed with homemade weapons and knives, and in one account, they urged the policemen to fight them (Reinecke 1996:77). It is not clear who shot the first bullet, or who made the first attack, but the following is what is known:

> The Hanapepe Massacre took place just before the road that went uphill to Camp 2 (just east of today’s intersection at Hanapepe and Moi roads), and during a furious melee that lasted five minutes, two policemen climbed a small bluff (that still exists) and fired into the crowd with their rifles, killing many strikers as they fled into a nearby banana patch. [Soboleski 2006:2]

In addition to the dead, nine strikers were wounded along with three policemen who were injured by knives (Sobeleski 2006:2). The men who made up the “policemen” were mostly cowboys and hunters; in another account, three cowboys took their place above the road and shot at the strikers as they approached Sheriff Crowell and his deputies (Reinecke 1996:78). After the melee, 101 strikers from the Hanapēpē Camp were arrested the same day, followed by 29 strikers the following day. They were all squeezed into the Līhu‘e and Waimea jails, while their children and wives were housed in the old school building (Reinecke 1996:78). Even those workers not present in the camp were arrested and charged with “dangerous and disorderly conduct” and Filipinos were forbidden to go toward Līhu‘e and Hanapēpē (Reinecke 1996:79).

The massacre has not been discussed much by succeeding generations, mostly due to Filipinos wanting to forget or hide their embarrassment (Chang 2006b:1). According to an interview with a Filipino-Hawaiian reporter, Emme Tomimbang, “This was a hush-hush thing . . . They just wanted to bury the incident in the way they buried the men (in a mass grave site said to be by a Catholic church in Hanapepe” (Chang 2006a:1). The Hawai‘i Sugar Planters’ Association (HSPA) made it a point to reimburse the families of each slain policeman $500, while in contrast, the Filipino community contributed $82.35 for the funeral of the strikers and $75.95 for their bereaved families (Reinecke 1996:80).

The Massacre at Hanapēpē succeeded in pressuring the plantations into instituting changes in recruiting, labor, and management (Reinecke 1996). It also strengthened unionization efforts and aided in the creation of the first union in Hawai‘i, the International Longshore and Warehouse Union (ILWU) (Chang 2006a:3).

3.1.3 Contemporary Land Use

Sugarcane cultivation continued to dominate land use in the Hanapēpē area through the mid-1900s. A 1977 USGS orthophotograph (Figure 23) shows the continued widespread cultivation of sugarcane within and in the vicinity of the project area.

At the end of the twentieth century, two of the three sugar plantations on Kaua‘i shut down, Kekaha and Lihue Plantation, ending the sugar plantation era on the southeast and east side of Kaua‘i. Less than ten years later, Olokele Plantation, the last of Kaua‘i’s sugar plantations, closed in 2009. Figure 24 shows the last cane field harvest in 2009.

With the closing of sugar plantations and the opening of the cane lands, agribusiness companies (also known as seed companies) have started to migrate to the Hawaiian Islands to utilize the plantation fields including some of their infrastructure, especially on lands in Hanapēpē, Makaweli, and Waimea Ahupua‘a. Four major agribusiness companie on Kaua‘i are BASF Plant Science, Dow AgroSciences, DuPont Pioneer, and Syngenta.

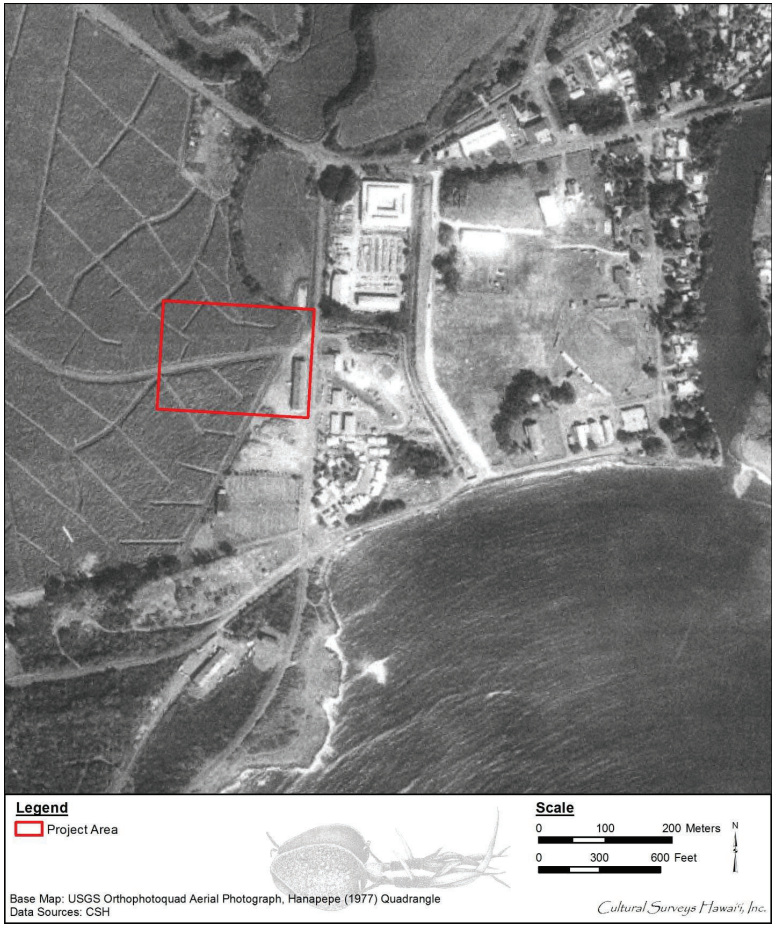

Figure 23. 1977 USGS Orthophotograph showing the building and large cane fields within the project area and its immediate vicinity

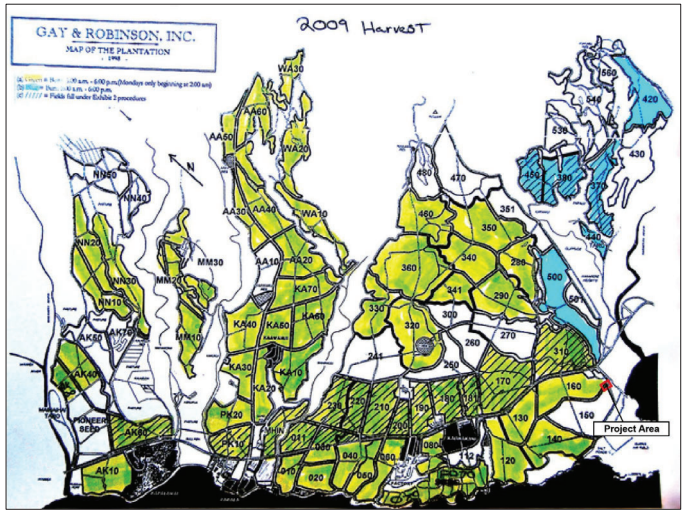

Figure 24. Olokele Plantation Field Map (Gay and Robinson) showing last cane fields harvested in 2009; note project area is in Field 160

In general, Hanapēpē Ahupua‘a has seen few changes in land use with the exception of small areas of commercial development near Port Allen in ‘Ele‘ele. A few residential self-help homes are being built. Several acres of land between Hanapēpē and Wahiawa Ahupua‘a are being utilized for renewable energy with the construction of solar power panels.

3.2 Previous Archaeological Research

There have been multiple archaeological studies conducted in the vicinity of the current project area. Table 1 provides a list of archaeological research conducted within Hanapēpē Ahupua‘a, including columns for source, location, nature of study, and findings. The locations of these archaeological studies are shown in Figure 25. Table 2 is a list of known historic properties within the *ahupua‘a,* and it includes columns for state site numbers, site type, location and reference. The locations of identified sites near the current project area are shown in Figure 26. These figures are followed by discussion of the research and historic properties.

Table 1. Previous Archaeological Studies in the Vicinity of the Project Area

Reference	Type of Study	Location	Results (SIHP # 50-30-09)
Kikuchi 1963	Archaeological inventory survey	Kona District	Examined caves in Hanapēpē Valley (SIHP # -3037); identified Salt Pond Beach Park, Site 3 (SIHP # -3038)
Kikuchi 1982	Damage assessment to archaeological resources	Salt Pond Beach Park	Assessed hurricane damage done to SIHP #s -3038 and -3038A, subsurface cultural layers
Kikuchi and Remoaldo 1992	Cemeteries of Kaua‘i	Island-wide	Identified six cemeteries in Hanapēpē (SIHP #s -0497, -0603, -0604, -0607, -0608, and -0651) (not shown on Figure 27)
McMahon 1993	Inadvertent burial discovery	Hanapēpē Bay, TMK: [4] 1-8-008:003	Site 53, two burial site areas
Creed et al. 1994	Archaeological inventory survey	House lot in Hanapēpē, TMKs: [4] 1-9-010:002 and 003	Eight backhoe trenches, historic cultural deposit present in four trenches, SIHP #s -0704 and -0705 (human burials) identified in two trenches
McMahon 1994	Inadvertent burial discovery	Hanapēpē Japanese Cemetery, TMK: [4] 1-8-008:014	SIHP # -0651, inadvertent discovery of single human remain

Reference	Type of Study	Location	Results (SIHP # 50-30-09)
Creed and Hammatt 1995	Archaeological inventory survey and subsurface testing	3.246-acre parcel for Self-Help Housing, TMK: [4] l-8-008:019	Five backhoe trenches completed; no cultural resources identified
Kennedy and Latinis 1996	Burial treatment plan and archaeological treatment of an inadvertent burial	Pu‘olo Rd	Possible burial may be a feature of Bennett Site 53
Pietrusewsky 1996	Skeletal analysis	Pu‘olo Rd	50-59-year-old male; probable Polynesian (Hawaiian) ancestry
Winieski et al. 1996	Archaeological monitoring	Hanapēpē Drainage Improvement project, TMK: [4] 1-9-008:045	SIHP # -1987 (coffin burial) and several fragments of human burials encountered
Olson and Hammatt 2011	Archaeological monitoring	Salt Pond Beach Park, TMK: [4] 1-8-008:043 por.	No significant findings

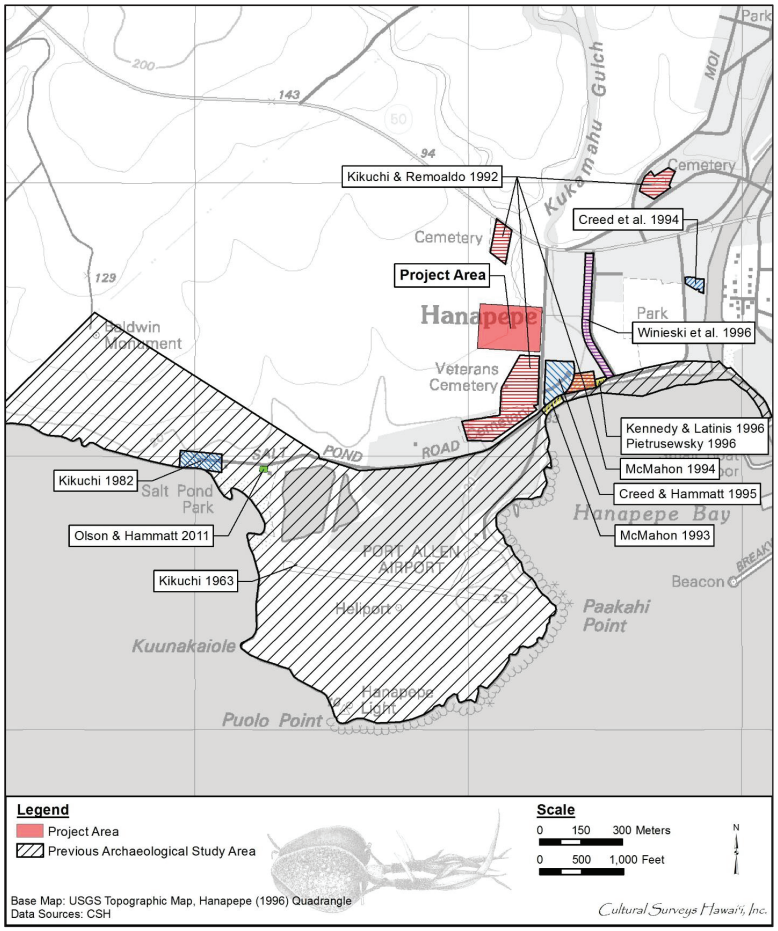

Figure 25. Portion of the 1996 Hanapepe USGS 7.5-minute topographic quadrangle showing previous archaeological studies near the proposed project area

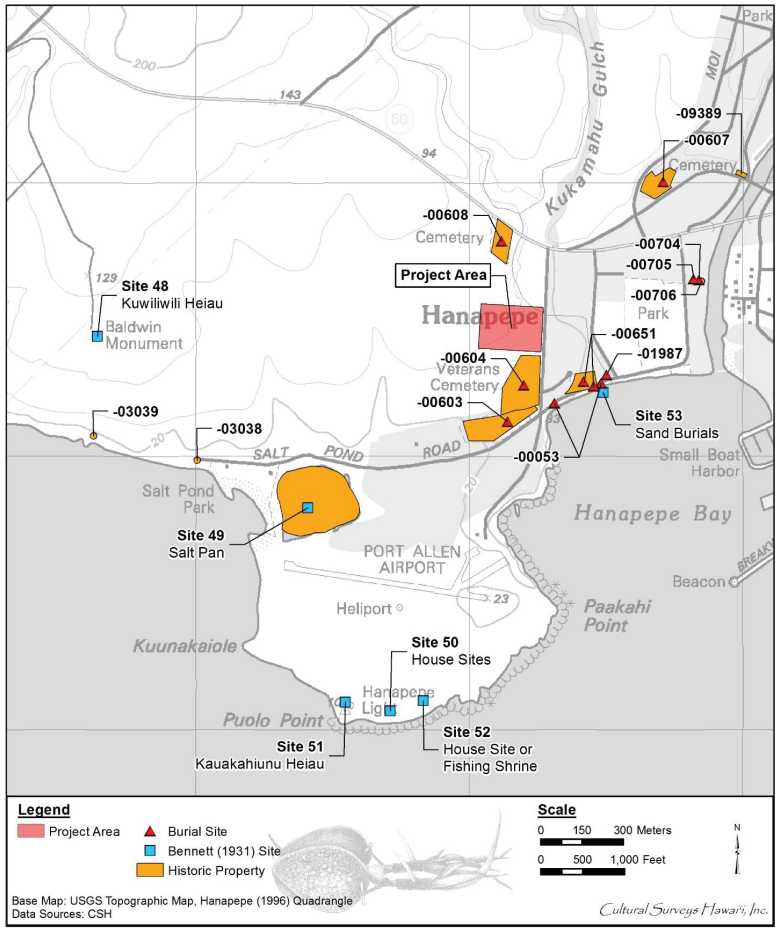

Figure 26. Portion of the 1996 Hanapepe USGS 7.5-minute topographic quadrangle showing archaeological sites near the proposed project area

Table 2. Previously Identified Archaeological Sites near the Project Area

SIHP # 50-30-09	Site Type	Reference
48	Kuwiliwili heiau	Thrum 1907:38 and 144; Bennett 1931:112
49	Salt pans	Bennett 1931:112
50	House sites	Bennett 1931:112
51	Kauakahiunu Heiau	Thrum 1907:38 and 140; Bennett 1931:112
52	House site or fishing shrine	Bennett 1931:112
53, -00053	Sand burials	Bennett 1931:112
-00603, B004	Catholic/Chinese Cemetery	Kikuchi and Remoaldo 1992:195
-00604, B005	Veterans Cemetery	Kikuchi and Remoaldo 1992:195
-00607, B008	Hanapēpē Heights Japanese Cemetery	Kikuchi and Remoaldo 1992:195
-00608, B003	Filipino Cemetery	Kikuchi and Remoaldo 1992:195
-00651	Hanapēpē Cemetery	Kikuchi and Remoaldo 1992:195
-00704	Burial	Creed et al. 1994:66
-00705	Burial	Creed et al. 1994:66
-00706	Cultural deposits	Creed et al. 1994:66
-01987	Primary coffin burial	Winieski et al. 1996:55
-03038	Salt Pond Beach	Kikuchi 1982; Olson and Hammatt 2011
-03039	Cultural deposit	Kikuchi 1982
-09389 (Lots 11B, 18, 21A, 49)	Buildings	National and State Registers of Historic Places

Thomas G. Thrum (1907) recorded seven *heiau* (pre-Christian place of worship) in Hanapēpē: Nihoana, Makaole, Pualu, Kuwiliwili, Kauakahinunu, Moloku, and a *heiau* with no name. Wendell Bennett conducted an archaeological survey of Kaua‘i Island years later (1931) and located five of Thrum’s *heiau*: Makaole, Pualu, Kuwiliwili, Kauakahinunu, and Moloku. Kuwiliwili Heiau is the closet historic property identified during Thrum and Bennett’s survey. Kuwililiwili Heiau is of the *po‘okanaka* class in Hanapēpē Valley. It is now destroyed but it was a large high-walled enclosure (Thrum 1907:38). By the time Bennett surveyed the area, this *heiau* (Site 48) was no longer in existence (Bennett 1931:112).

The first systematic archaeological survey of Kaua‘i was conducted by Bennett (1931), in which he documented several historic properties in Hanapēpē. Historic property locations were generally limited to areas along the coast and within stream valleys. It should be noted that Bennett’s work was conducted after commercial sugarcane cultivation and other historic activities had destroyed or damaged many historic properties. Also, most of the historic properties documented by Bennett were relatively easy to access and relatively conspicuous and obvious.

Bennett (1931) documented five historic properties along the Hanapēpē shoreline. Historic properties located near Pu‘olo Point included salt pans (Site 49), house sites (Site 50), Kauakahiunu Heiau (Site 51), and a house site or fishing shrine (Site 52). Bennett noted damage to the historic properties in the area due to construction of an airport. Site 53 consisted of a burial ground in the sand at the northwestern side of Hanapēpē Bay. All five sites are near the project area, particularly Site 53. Bennett (1931) recorded several historic properties within Hanapēpē Valley, including Sites 56 and 57 in the *makai* portion of the valley. Site 56 was Akowai Heiau, noted by Thrum (1907) to have been destroyed ca. 1865. Site 57 consisted of house sites at the former location of Akowai Heiau.

Three decades later, Kikuchi (1963) conducted an archaeological survey of the Kona District of Kaua‘i, where he revisited historic properties identified by Bennett and recorded additional historic properties. Historic properties identified in Hanapēpē included burial caves in Hanapēpē Valley (SIHP # 50-30-09-3037) and a subsurface cultural layer (SIHP # -3038), located along the Hanapēpē shoreline. Both historic properties are outside the project area though SIHP # -3038 is closer to the project area near the coast. Kikuchi assessed the damage to SIHP # -3038 after hurricane ‘Iwa. He concluded that not only did the hurricane erode the cultural layer but the site was also being vandalized (Kikuchi 1982).

In 1993, Nancy McMahon investigated an inadvertent burial (Site 53) discovered beneath the old Puolo Road. The burial was discovered approximately 90 cm below the old road surface. A long bone and the lower half of a jaw bone were observed (McMahon 1993). A year later, during an inspection at the Hanapēpē Japanese Cemetery, disarticulated inadvertent human remains (SIHP # -651) were discovered (McMahon 1994).

Creed et al. (1994) conducted an archaeological inventory survey of a house lot located along the western bank of the Hanapēpē River. Subsurface testing revealed two human burials (SIHP #s -704 and -705) and a subsurface cultural deposit (SIHP # -706). Radiocarbon dating of charcoal from the cultural deposit yielded a date range of AD 1811-1927.

Creed and Hammatt (1995) conducted an archaeological inventory survey for the Hanapēpē Self-Help Housing project, located along the northwest portion of Hanapēpē Bay. No surface historic properties were observed and subsurface testing did not reveal buried cultural deposits.

Kennedy and Latinis (1996) reported on the treatment of an inadvertent burial discovery located on Puolo Road fronting Hanapēpē Bay. The remains were determined to be likely of Polynesian ancestry and were included as a component of the Bennett (1931) Site 53 burial ground. Pietrusewsky did the skeletal analysis report for the inadvertent burial discovery (Pietrusewsky 1996). Winieski et al (1996) also conducted a survey near the project area but no historic properties were found.

Olson and Hammatt (2011) conducted archaeological monitoring at the Salt Pond beach park. No pre-historic or early-post Contact cultural deposits were identified during the archaeological monitoring though historic debris was found within the sediments. It was observed during archaeological monitoring that the extent of subsurface disturbance reached beneath the water table and suggests any former subsurface historic properties within the leach field area had been previously destroyed or displaced.

3.3 Background Summary and Predictive Model

Hawaiians had an extensive agricultural system developed by 1778 when the first western explorers arrived in the Islands. They commented in journals on the well-planted coastal lands and expressed amazement at the ingenuity and engineering skill exhibited in the irrigation ditches and horticultural plantations. The botanist Archibald Menzies, upon landing at Waimea on Kaua‘i, noted fires several miles down the coast to the east and therefore in the vicinity of Hanapēpē. He was informed the fires were set annually in the grassland to free it of weeds for the production of excellent thatching grass. The many early commentaries on the valley note that taro was the prevalent crop along all the many waterways.

At the time of the 1824 Kaua‘i Rebellion, Hanapēpē was the scene of a battle which was devastating for the inhabitants. Some Hawai‘i Island and O‘ahu people were given land when it was “colonized” as a result of the Kaua‘i Rebellion (LCA 9790). Measles, smallpox, and leprosy also laid their claims on Hanapēpē’s residents (Gay 1873). Tidal waves (1837) and hurricanes (Dot 1959; ‘Iwa 1982; ‘Iniki 1992) were also destructive. The large area *makai* of the highway and east of Hanapēpē River was inundated by the 30-ft waves of ‘Iniki (Creed et al. 1995).

Although not mentioned in detail in this report, Handy (1985) and Pearson’s (1960, 1962) research about the *kuleana* awards provide us information concerning 274 *lo‘i*; we may surmise that many more existed in pre-Contact times (Pearson 1960, 1962; Handy 1985). These *lo‘i* were along the rivers and the many *‘auwai* or ditches for almost 6 miles into the valley.

The salt flats along the shore provided at the time of Cook’s and other explorer’s visits to Kaua‘i a very high-quality salt to the early trading ships, and are still in use today. Along the shoreline were house sites, fishing shrines, a fishing light beacon, and canoe landings such as “Kuahanui,” a place name that indicates a Great Council was held at this canoe landing. One LCA mentions a canoe shed. Kikuchi mentions the off-shore fishing was considered rich in this area (Kikuchi 1982:2).

Prehistoric burials have been located in sandy areas and in caves (Bennett 1931). Most of the caves explored in modern times are noted to have been previously vandalized. A local informant mentioned hearing of a large well-documented collection of Hawaiian items from local sites which was, he believed, sold to the Smithsonian Institution. It might be interesting to pursue this information to see what items the Smithsonian might have that may have come from this region.

While the earliest settlement was undoubtedly along the coast since it provided fishing resources and sufficient taro land, the coastal populations moved further inland to construct more taro and sweet potato lands, to seek feathers and *‘ie‘ie* vines for making capes and helmets, and goods needed to support the development of the *ali‘i* class. Not only would the lower valley have been fully utilized but also much of the upper valley. Upper streams provided *o‘opu* and mullet.

From the first contact with peoples of the western world to Polynesia, it appears the people of Hanapēpē were affected. Hanapēpē is the site of introductions of new plants and animals at the time of Cook, the Russians brought maize, cotton, tobacco, and sheep. Rice and sugar are both part of the Hanapēpē Valley history of agricultural crops and techniques. Here also new tools of the industrial age are in evidence such as railroading and shipping, and more recently airports, which show that the land and people of Hanapēpē have been dynamically affected since the time of Contact and the general trends of Hawaiian history seem apparent here, even though Hanapēpē has never been the actual center of such development.

During World War II, Hanapēpē was part of the changes wrought by preparations for war. The remnant concrete building foundation located at the southeast corner of the project area, adjacent to Lele Road, was part of a larger area which formed the Kauai Training Center (Creed et al. 1995). Available records do not identify what the building was used for initially, but after the war the property was leased to Gay and Robinson who were part of the growing sugar industry on the west side of Kaua‘i. The building was then subleased to the Kawakami family who used it as a warehouse in the 1950s and 1960s for their chain of Big Save Market stores on Kaua‘i,. The remainder of the project area was cultivated in cane until the last cane harvest in 2009. The building subleased by the Kawakami’s was abandoned and it was subsequently destroyed by Hurricane ‘Iwa (personal communication Gerald Ida 2015).

The background research conducted for this study, including cultural and historical data, indicates the vicinity of the project area has a long and rich history of Native Hawaiian use and modification. However, archaeological studies lack findings of Native Hawaiian use and modification within the project area, likely due to long-term intensive commercial agricultural activities associated with Olokele Plantation. There is very low expectation for finding historic properties in the project area other than the foundation remnants of the warehouse along Lele Road, sugar plantation field irrigation infrastructure, or remnants of the Kauai Railroad track.

Section 4 Results of Fieldwork

All fieldwork for this project was conducted under CSH’s annual archaeological fieldwork permit number 15-03 issued by SHPD per HAR §13-282, and also under the general supervision of Hallett H. Hammatt, Ph.D. (Principal Investigator).

4.1 Archaeological Survey Findings

On 14 September 2015 and 15 September 2015, CSH archaeologists Gerald Ida, B.A., and Missy Kamai, B.A., conducted a complete 100 % surface survey of the entire project area. All identified archaeological features were described, measured and photographed; and their locations were recorded with a Trimble Pro XH mapping grade GPS device with a TSCI Data logger and real-time differential correction. See Section 5 for detailed site descriptions.

A total of four historic properties were identified and documented during the current AIS investigation (see Figure 62). The historic properties identified consist of two remnant cane haul roads (SIHP #s -2304 and -2306), a large concrete building foundation (SIHP # -2303), and a remnant plantation-era ditch (SIHP # -2305). All of the historic properties identified date from the historic era. See Section 6 for detailed descriptions of these historic properties.

4.2 Subsurface Testing Results

This section provides an overview of the stratigraphy observed within the 11 backhoe trenches excavated in the project area (Figure 27). For detailed information regarding each of the excavated trenches, please refer to the test trench profiles, sediment descriptions, and photographs that follow this summary discussion.

The fieldwork for subsurface testing was accomplished by CSH archaeologists Abigail “Abby” Langham, M.A., and Missy Kamai, B.A., from 12 October 2015 through 14 October 2015 and required approximately 3 days to complete. The subsurface testing program was backhoe assisted and involved ten test excavations. In general, linear trenches measuring between 7 m (23 ft) and 8 m (26 ft) long and 0.6 m (2 ft) wide were excavated within the project area, with the exception of T-6 which measured 13 m (43 ft) long. As part of CSH’s strategy to implement the scope of work, CSH consulted with SHPD Kaua‘i Lead Archaeologist Mary Jane Naone to review proposed trench locations within the current project area via email.

A stratigraphic profile of each test trench was drawn and photographed. The observed sediments were described using standard USDA soil description observations/terminology. Sediment descriptions included Munsell color; texture; consistence; structure; plasticity; cementation; origin of sediments; descriptions of any inclusions such as cultural material and/or roots; lower boundary distinctiveness and topography; and other general observations. Where stratigraphic anomalies or potential cultural deposits were exposed, these were carefully represented on test excavation profile maps.

4.2.1 Test Excavation 1 (T-1)

T-1, located along the central eastern portion of the current project area (see Figure 27) runs in a rough north/south direction. The profile was recorded along the west wall with a maximum depth of 120 cmbs. The stratigraphy observed at the location of T-1 consists of dark brown sandy clay

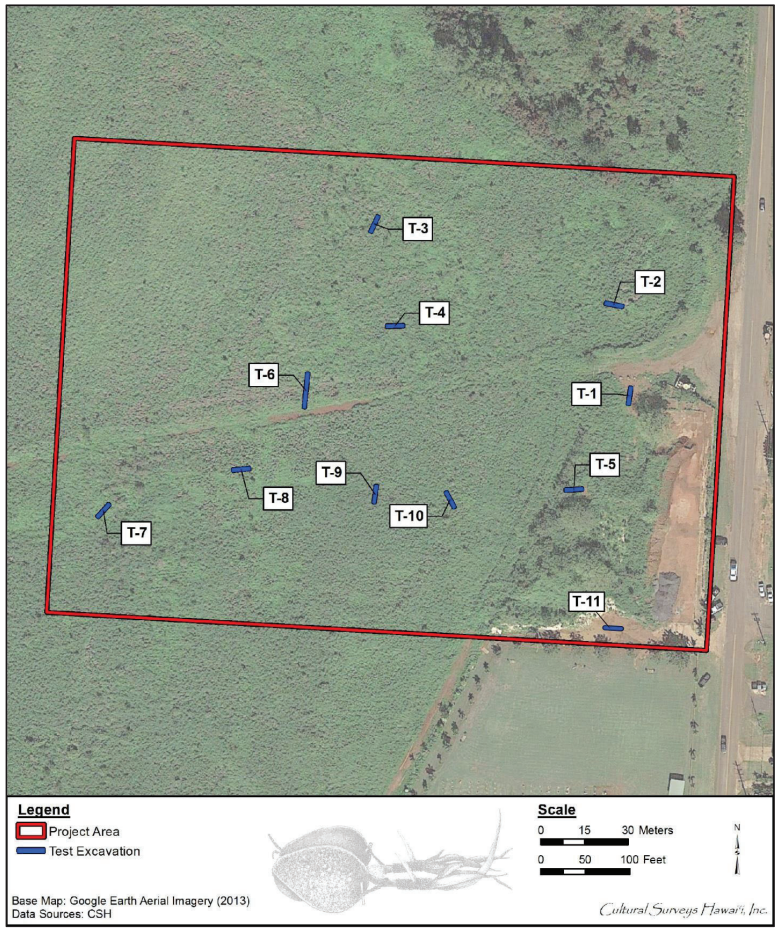

Figure 27. Aerial photograph of the project area (Google Earth 2013) showing location of subsurface test trenches

loam material (Stratum I) with the presence of modern trash observed (i.e., plastic and concrete fragments), clay material with a presence of decomposing bedrock (Stratum II), and silty clay material (Stratum III). Bedrock was observed immediately below Stratum III. No cultural materials were identified in this trench (Figure 28, Figure 29, Figure 31, and Table 3).

4.2.2 Test Excavation 2 (T-2)

T-2, located along the northeastern portion of the current project area (see Figure 27) runs in a rough east/west direction. The profile was recorded along the north wall with a maximum depth of 125 cmbs. The stratigraphy observed at the location of T-2 consists of a narrow strip of organic material associated with a push pile (Stratum I), clay material with a presence of 30% decomposing bedrock (Stratum II), and clay material with 85% decomposing bedrock (Stratum III). Bedrock was observed immediately below Stratum III at 125 cmbs. No cultural materials were identified in this trench (Figure 30, Figure 32, Figure 33, and Table 4).

4.2.3 Test Excavation 3 (T-3)

T-3, the northernmost test trench in the current project area (see Figure 27), runs in a northeast/southwest direction and shares the same characteristics as T-2. The profile was recorded along the west wall with a maximum depth of 140 cmbs. The stratigraphy observed at the location of T-3 consists of a narrow strip of organic material associated with a push pile (Stratum I), clay material with a presence of 25% decomposing bedrock (Stratum II), and clay material with 70% decomposing bedrock (Stratum III). Bedrock was observed immediately below Stratum III at 140 cmbs. No cultural materials were identified in this trench (Figure 34, Figure 35, Figure 37, and Table 5).

4.2.4 Test Excavation 4 (T-4)

T-4, located near the central portion in the current project area just south of T-3 (see Figure 27), runs in an east/west direction and shares the same characteristics as T-2 and T-3. The profile was recorded along the north wall with a maximum depth of 145 cmbs. The stratigraphy observed at the location of T-4 consists of a narrow strip of organic material associated with a push pile (Stratum I), clay material with a presence of 15% decomposing bedrock (Stratum II), and clay material with 70% decomposing bedrock (Stratum III). Bedrock was observed immediately below Stratum III at 145 cmbs. No cultural materials were identified in this trench (Figure 36, Figure 38, Figure 39, and Table 6).

4.2.5 Test Excavation 5 (T-5)

T-5, located near the central eastern portion in the current project area just southwest of T-1 (see Figure 27), runs in a rough east/west direction. The area surrounding this trench was dozed. The profile was recorded along the north wall with a maximum depth of 153. The stratigraphy observed at the location of T-5 consists of dark reddish brown sandy clay loam fill material (Stratum I), clay material intermixed with glass, coral, gravel and asphalt, fill (Stratum II), and clay material with decomposing bedrock (Stratum III). Bedrock was observed immediately below Stratum III at 150 cmbs. No cultural materials were identified in this trench (Figure 40, Figure 41, Figure 43, and Table 7).

Figure 28. Photograph of T-1 general view, view to south

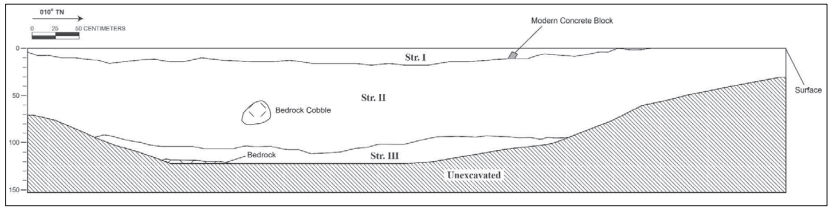

Figure 29. Profile of T-1 west sidewall

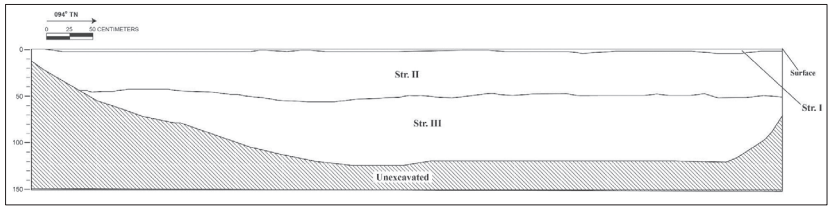

Figure 30. Profile of T-2 north sidewall

Table 3. T-1 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–17	Fill; 7.5YR 3/2, dark brown; sandy clay loam; weak, fine to coarse, granular structure; weakly coherent consistence; weak cementation; non-plastic; terrigenous origin; abrupt, wavy lower boundary; many fine to medium roots; modern trash observed in stratum (i.e., plastic and concrete)
II	0–110	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary; few very fine to fine roots; pockets of decomposing bedrock
III	91–120	C horizon; 2.5YR 4/3, reddish brown; silty clay; strong, fine, blocky and crumb structure; hard consistence; strong cementation; plastic; terrigenous origin; bedrock observed immediately below this stratum

Figure 31. Photo of T-1 west wall, view to southwest

Figure 32. Photograph of T-2 general view, view to east

Table 4. T-2 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–5	O horizon; very narrow strip of organic material with overlying green rubbish (pulled up from cane fields)
II	1–57	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, smooth lower boundary; few very fine to fine roots; presence of decomposing bedrock (30%)
III	57–125	C horizon; 2.5YR 3/6; dark red; clay; moderate, medium to coarse, crumb structure; slightly hard; moderate cementation; non-plastic; terrigenous origin; sterile soil with 85% decomposing bedrock; bedrock observed at bottom of excavation

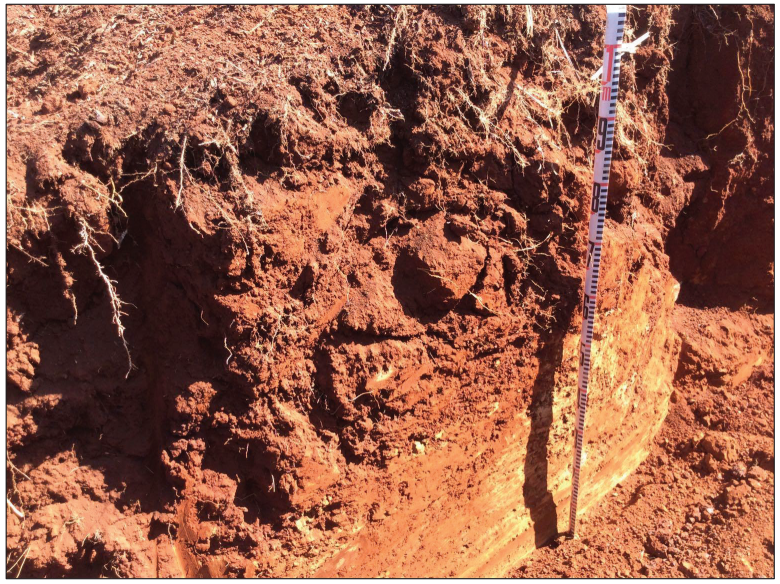

Figure 33. Photo of T-2 north wall, view to northeast

Figure 34. Photograph of T-3 general view, view to south

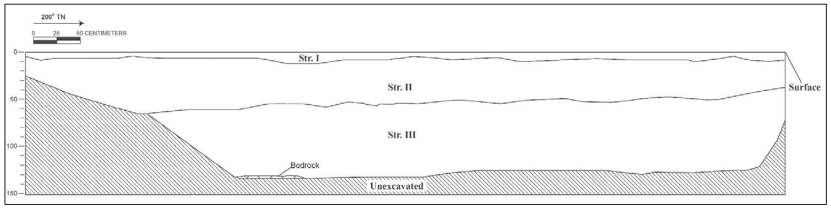

Figure 35. Profile of T-3 west sidewall

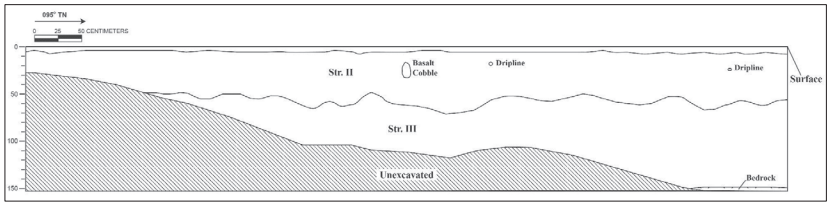

Figure 36. Profile of T-4 north sidewall

Table 5. T-3 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–21	O horizon; very narrow strip of organic material with overlying green rubbish (pulled up from cane fields)
II	5–65	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, smooth lower boundary; few very fine to fine roots; presence of decomposing bedrock (25%)
III	47–140	C horizon; 2.5YR 3/6; dark red; clay; moderate, medium to coarse, crumb structure; slightly hard; moderate cementation; non-plastic; terrigenous origin; sterile soil with 70% decomposing bedrock; bedrock observed at bottom of excavation

Figure 37. Photo of T-3 west wall, view to northwest

Figure 38. Photo of T-4 general view, view to southeast

Table 6. T-4 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–5	O horizon; strip of organic material with overlying green rubbish (pulled up from cane fields)
II	2–68	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary; few very fine to fine roots; presence of decomposing bedrock (15%)
III	47–145	C horizon; 2.5YR 3/6; dark red; clay; moderate, medium to coarse, crumb structure; slightly hard; moderate cementation; non-plastic; terrigenous origin; sterile soil with 70% decomposing bedrock; bedrock observed at bottom of excavation

Figure 39. Photo of T-4 north wall, view to northeast

Figure 40. Photograph of T-5 general view, view to east

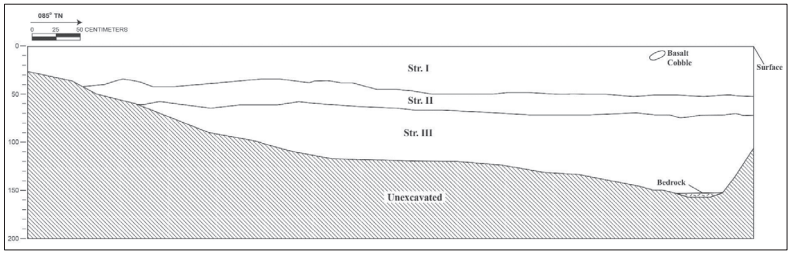

Figure 41. Profile of T-5 north sidewall

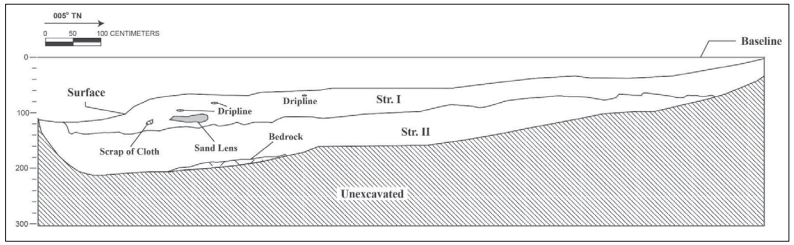

Figure 42. Profile of T-6 west sidewall

Table 7. T-5 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–51	Fill; 2.5YR 3/3, dark reddish brown; sandy clay loam; weak, fine to coarse, crumb structure; weakly coherent consistence; weak cementation; mixed origin; clear, smooth lower boundary; presence of marine sand (5%); sparingly mottled with glass, coral, gravel, plastic bag, concrete, and asphalt
II	34–72	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, wavy lower boundary; few very fine to fine roots; presence of decomposing bedrock
III	56–153	C horizon; 2.5YR 3/6; dark red; clay; moderate, medium to coarse, crumb structure; slightly hard; moderate cementation; non-plastic; terrigenous origin; sterile soil with 75% decomposing bedrock; bedrock observed at 150 cmbs

4.2.6 Test Excavation 6 (T-6)

T-1, located along the central western portion of the current project area (see Figure 27), runs in a rough north/south direction. This test trench was placed along the east end of a linear berm. The berm is located on the north side of SIHP # -2304 and situated between two cane field areas. The northern area is higher in elevation than the southern area, and the berm runs between these two different elevations. The purpose for this trench was to determine the function and/or age of the berm. This test trench, unlike the others, measured 13 m in length. A leveled string was used as a baseline for this trench because of the difference in elevation. The profile was recorded along the west wall with a maximum depth of 205 cmbs. The stratigraphy observed at the location of T-6 consists dark reddish brown sandy clay loam material (Stratum I) with the presence of modern trash (i.e., plastic drip lines and cloth) and pockets of sand lens, and silty clay material containing 40% decomposing bedrock (Stratum II). Bedrock was observed immediately below Stratum II at 205 cmbs. No cultural materials were identified in this trench (see Figure 42, Figure 44, Figure 45, and Table 8). Due to the lack of any evidence found by subsurface testing with the exception of modern drip lines and pieces of cloth observed in Stratum I, it is possible the berm was created during recent times to separate the north and south areas. As seen in Figure 24, the northern area was still in cultivation and the south was not. The berm could have been created (pushed) to keep water used to supply the cane in the north field from flowing into the south field.

4.2.7 Test Excavation 7 (T-7)

T-7, located at the southwest corner in the current project area (see Figure 27), runs in a northeast/southwest direction. The profile was recorded along the northwest wall with a maximum depth of 145 cmbs and shares the same stratigraphic characteristics as T-6 without the modern trash and sand lens. The stratigraphy observed at the location of T-7 consists of dark reddish brown sandy clay loam material (Stratum I) and silty clay material containing 40% decomposing bedrock (Stratum II). Bedrock was observed immediately below Stratum II at 140 cmbs. No cultural materials were identified in this trench (Figure 46, Figure 47, Figure 49, and Table 9).

4.2.8 Test Excavation 8 (T-8)

T-8, located at the southwest central portion of the current project area (see Figure 27), runs in a rough east/west direction. The profile was recorded along the north wall with a maximum depth of 125 cmbs and shares the same stratigraphic characteristics as T-6 and T-7 without the modern trash and sand lens. The stratigraphy observed at the location of T-8 consists of dark reddish brown sandy clay loam material (Stratum I) and silty clay material containing 40% decomposing bedrock (Stratum II). Bedrock was observed immediately below Stratum II at 125 cmbs. No cultural materials were identified in this trench (Figure 48, Figure 50, Figure 51, and Table 10).

4.2.9 Test Excavation 9 (T-9)

T-9, located at the south central portion of the current project area between T-8 and T-10 (see Figure 27), runs in a rough north/south direction. The profile was recorded along the west wall with a maximum depth of 125 cmbs and shares the same stratigraphic characteristics as T-6 through T-8 without the modern trash and sand lens. The stratigraphy observed at the location of T-9 consists of dark reddish brown sandy clay loam material (Stratum I) and silty clay material containing 40% decomposing bedrock (Stratum II). Bedrock was observed immediately below

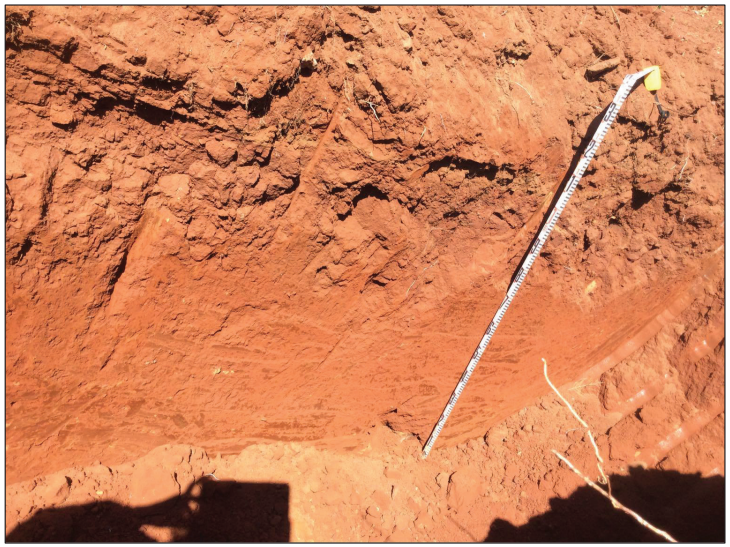

Figure 43. Photo of T-5 north wall, view to northeast

Figure 44. Photograph of T-6 general view, view to south

Table 8. T-6 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–137	Fill; 2.5YR 2.5/4, dark reddish brown; sandy clay loam; weak, medium, crumb structure; weakly coherent consistence; no cementation; non-plastic; mixed; clear, wavy lower boundary; many very fine to coarse roots; marine sand lens observed as well as a shred of cloth and plastic drip lines
II	110–205	C horizon; 2.5YR 3/6; dark red; silty clay; moderate, fine to medium, crumb structure; hard consistence; strong cementation; non-plastic; terrigenous sediment; few very fine roots; 40% decomposing bedrock; bedrock observed at bottom of trench

Figure 45. Photo of T-6 west wall, view to southwest

Figure 46. Excavating T-7, view to west

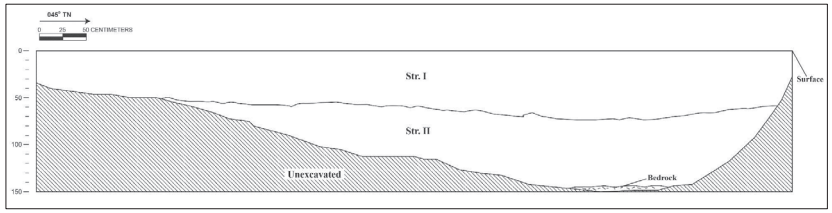

Figure 47. Profile of T-7 northwest sidewall

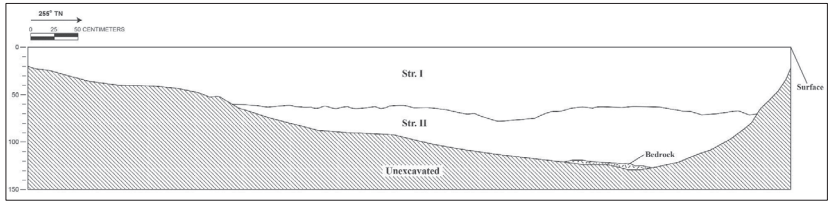

Figure 48. Profile of T-8 north sidewall

Table 9. T-7 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–70	A horizon; 2.5YR 2.5/4, dark reddish brown; sandy clay loam; weak, medium, crumb structure; weakly coherent consistence; no cementation; non-plastic; mixed; clear, wavy lower boundary; many very fine to coarse roots
II	50–145	C horizon; 2.5YR 3/6; dark red; silty clay; moderate, fine to medium, crumb structure; hard consistence; strong cementation; non-plastic; terrigenous sediment; few very fine roots; decomposing bedrock present; bedrock observed at 140 cmbs

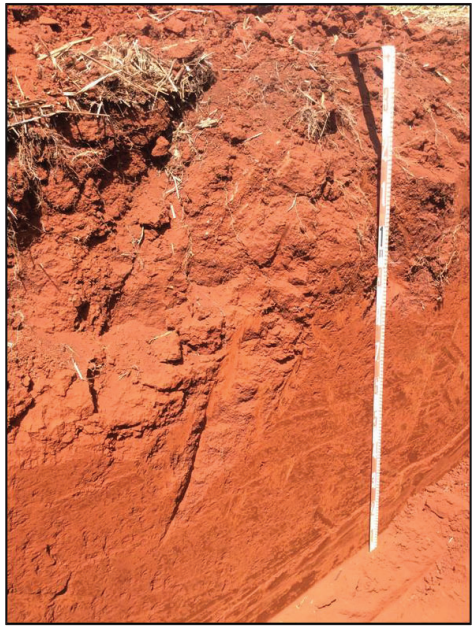

Figure 49. Photograph T-7 northwest wall, view to north

Figure 50. Photo of T-8 general view, view to east

Table 10. T-8 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–75	A horizon; 2.5YR 2.5/4, dark reddish brown; sandy clay loam; weak, medium, crumb structure; weakly coherent consistence; no cementation; non-plastic; mixed; clear, wavy lower boundary; many very fine to coarse roots
II	60–125	C horizon; 2.5YR 3/6; dark red; silty clay; moderate, fine to medium, crumb structure; hard consistence; strong cementation; non-plastic; terrigenous sediment; few very fine roots; decomposing bedrock present; bedrock observed at 120 cmbs

Stratum II at 125 cmbs. No cultural materials were identified in this trench (Figure 52, Figure 53, Figure 55, and Table 11).

4.2.10 Test Excavation 10 (T-10)

T-10, located along the south central portion in the current project area just east of T-9 (see Figure 27), runs in a southeast/northwest direction. The profile was recorded along the southwest wall with a maximum depth of 145 cmbs. The stratigraphy observed at the location of T-10 consists of sandy clay loam material (Stratum I), clay material (Stratum II), and clay material with 40% decomposing bedrock (Stratum III). Bedrock was observed immediately below Stratum III. No cultural materials were identified in this trench (Figure 54, Figure 56, Figure 57, and Table 12).

4.2.11 Test Excavation 11 (T-11)

T-11, located along the southeast corner in the current project area (see Figure 27), runs in a rough east/west direction. The profile was recorded along the north wall with a maximum depth of 100 cmbs. The stratigraphy observed at the location of T-11 consists of road construction (Stratum Ia), additional fill material (Stratum Ib), and redeposited decomposing bedrock (Stratum Ic), and clay loam material with mottling of gley (Stratum II). Bedrock was observed at 97 cmbs. No cultural materials were identified in this trench (Figure 58, Figure 59, Figure 60, Figure 61, and Table 13).

Figure 51. Photo of T-8 north wall, view to northeast

Figure 52. Photo of T-9 general view, view to north

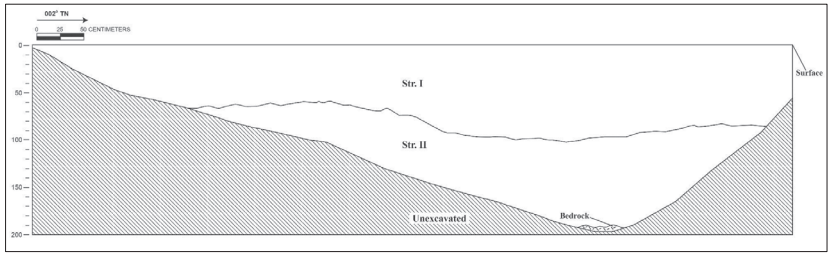

Figure 53. Profile of T-9 west sidewall

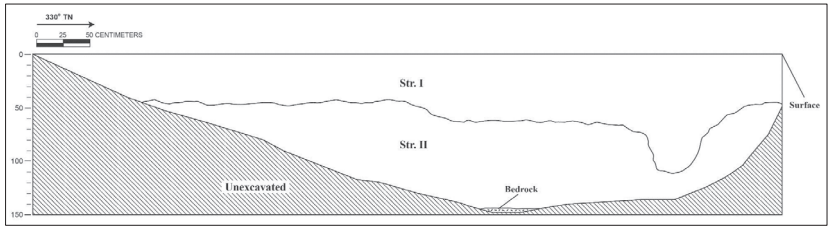

Figure 54. Profile of T-10 southwest sidewall

Table 11. T-9 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–98	A horizon; 2.5YR 2.5/4, dark reddish brown; sandy clay loam; weak, medium, crumb structure; weakly coherent consistence; no cementation; non-plastic; mixed; clear, smooth lower boundary; many very fine to coarse roots
II	56–190	C horizon; 2.5YR 3/6; dark red; silty clay; moderate, fine to medium, crumb structure; hard consistence; strong cementation; non-plastic; terrigenous sediment; few very fine roots; decomposing bedrock present; bedrock observed at 185 cmbs

Figure 55. Photograph of T-9 west wall, view to northwest

Figure 56. Photo of T-10 general view, view to northwest

Table 12. T-10 Stratigraphic Description

Stratum	Depth (cmbs)	Description
I	0–105	2.5YR 2.5/4, dark reddish brown; clay; massive, moderate, coarse to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, smooth lower boundary; few very fine to fine roots; presence of decomposing bedrock (30%)
II	40–147	C horizon; 2.5YR 3/6; dark red; clay; moderate, medium to coarse, crumb structure; slightly hard; moderate cementation; non-plastic; terrigenous origin; sterile soil with 85% decomposing bedrock; bedrock observed at 145 cmbs

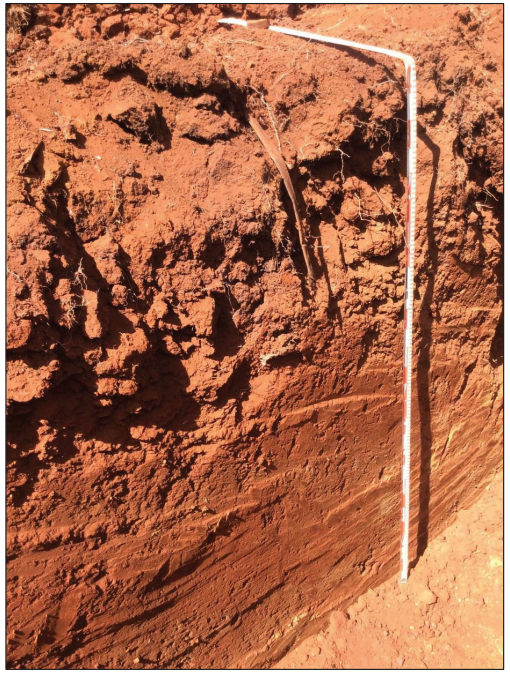

Figure 57. Photograph of T-10 southwest sidewall, view to northwest

Figure 58. Photo of T-11 general view, view to southeast

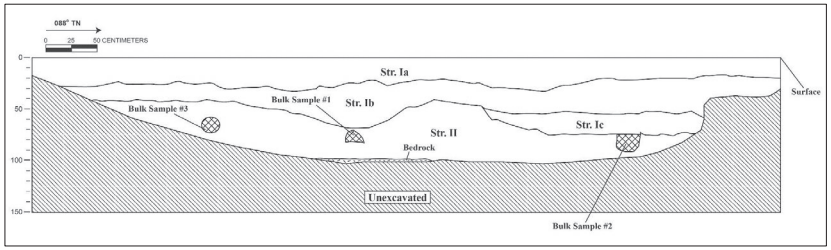

Figure 59. Profile of T-11 north sidewall

Table 13. T-11 Stratigraphic Description

Stratum	Depth (cmbs)	Description
Ia	0–30	Fill; 7.5YR 4/6, strong brown; clay; moderate, medium to very coarse, blocky structure; hard consistence; weak cementation; non-plastic; terrigenous origin; clear, smooth lower boundary; road construction
Ib	18–65	Fill; 5YR 4/6, yellowish red; silty clay; moderate, fine to medium, crumb structure; weakly coherent consistence; weak cementation; slightly plastic; terrigenous origin; clear, smooth lower boundary; few fine roots
Ic	45–70	Redeposited decomposing bedrock; unknown depositional environment
II	38–99	10YR 4/2, dark grayish brown; silty clay loam; moderate, very fine to medium, prismatic structure; firm consistence; weak cementation; slightly plastic; mixed terrigenous; gley mottling 30%; presence of clay material more along west end with gley mottling of the wall and more gley mottling on clay on eastern end of the wall; bulk sediment samples at 64, 79, and 85 cmbs showing the transition in soil samples; bedrock observed at 97 cmbs

Figure 60. Photo of T-11 eastern end of north wall, view to southeast

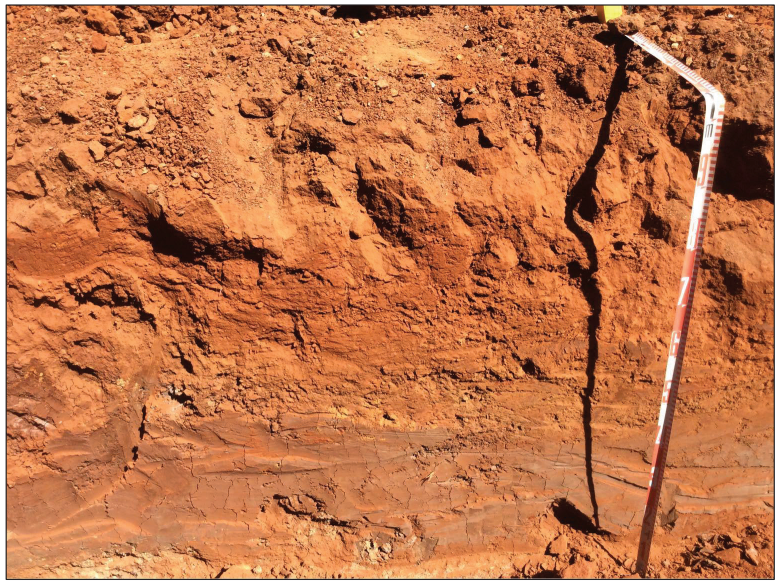

Figure 61. Photo of T-11 central portion of north wall, view to north

Section 5 Site Descriptions

A total of four historic properties were identified and documented during the current AIS investigation (Figure 62 and Table 14). The historic properties identified consist of a large concrete building foundation (SIHP # -2303), two remnant cane haul roads (SIHP #s -2304 and -2306), and a remnant plantation-era ditch (SIHP # -2305). All of the historic properties identified date from the historic era.

Table 14. Summary of Historic Properties Identified During the Current AIS Investigation

SIHP #	Formal Type	Functional Interpretation	Temporal Interpretation
50-30-09-2303	Platform	Building foundation	Military historic era
50-30-09-2304	Road (remnant)	Cane haul road	Plantation historic era
50-30-09-2305	Ditch (remnant)	Irrigation	Plantation historic era
50-30-09-2306	Road (remnant)	Cane haul road	Plantation historic era

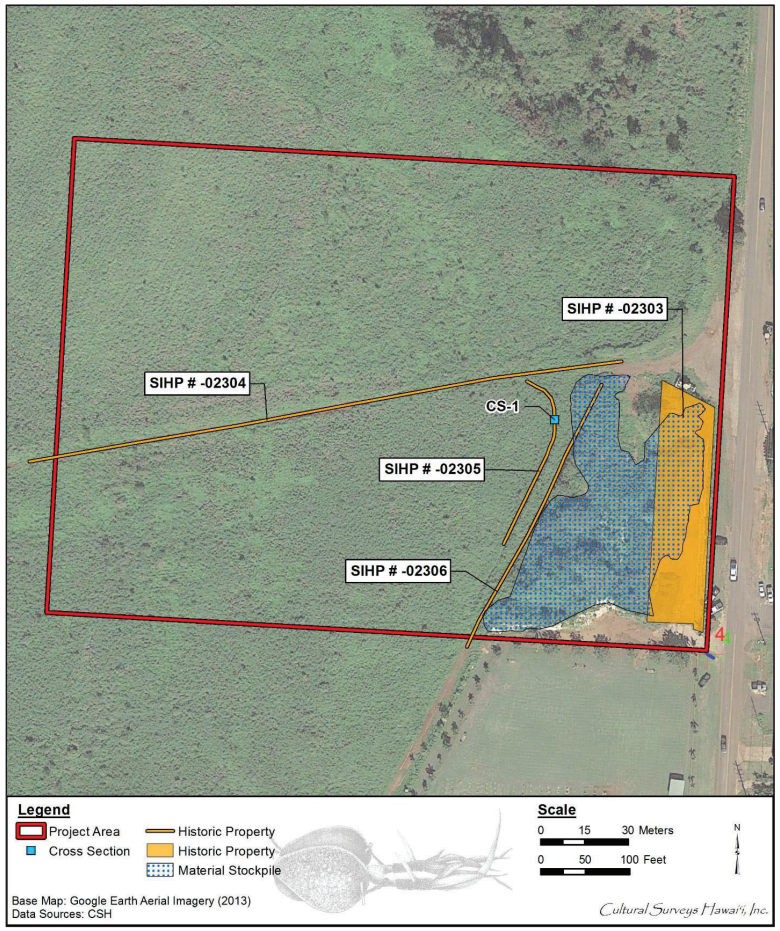

Figure 62. Aerial photograph of the project area (Google Earth 2013) showing location of historic properties identified during this survey

5.1 SIHP # 50-30-09-2303

FORMAL TYPE:	Platform (concrete)
FUNCTION:	Building foundation
NUMBER OF FEATURES:	0
AGE:	Historic
TEST EXCAVATIONS:	None
TAX MAP KEY:	
LAND JURISDICTION:	State
PREVIOUS DOCUMENTATION:	1960 Hanapēpē Coast aerial photograph (UH SOEST); 1977 USGS Orthophotograph Hanapēpē Quadrangle aerial photograph; 1963 Hanapepe USGS topographic quadrangle

SIHP # -2303 consists of a roughly rectangular-shaped concrete platform measuring 86 m (l) by 18.6 m (w) with various heights from 0.02 m at the southern end of the structure to 1.19 m at the northern end (Figure 63 and Figure 64). The entire structure is not visible due to stockpiling of soil, sand, gravel, concrete, small to large basalt angular and sub-angular cobbles and boulders as well as wood (Figure 65). The exterior wall of the structure appears to have been formed, using 6-inch wide lumber, and its interior appears to be rock and soil fill with floor slab pour on top.

As previously mentioned, the project area was part of a larger area which formed the Kauai Training Center during World War II (Creed et al. 1995) (see Figure 21). SIHP # -2303, located at the southeast corner of the project area, was built during World War II when the military came to Hanapēpē for war preparations. Further research gives no indication of the building’s purpose. SIHP # -2303 can also be seen in Figure 66.

After the war ended and the military pulled out of the majority of the areas around the island, the building was abandoned. During the 1950s, Big Save, Inc. leased the building and used it as a warehouse for the Big Save markets situated throughout the island. The building was in use for about 10 years until it was abandoned again. It got destroyed by Hurricane ‘Iwa in 1982 and only the building foundation remained. The foundation was used 10 years later as a temporary debris dump site during the months following Hurricane Iniki in 1992 (personal communication with Gerald Ida 2015).

Pursuant to HAR §13-13-275-6, SIHP # -2303 is assessed as significant under Criterion “d” (have yielded, or is likely to yield, information important for research on prehistory or history), for its potential to provide information about plantation-era operations and infrastructure.

Figure 63. Photo of SIHP # -2303 (concrete building foundation), view to south

Figure 64. Photo of SIHP # -2303 (concrete building foundation), view to southwest

Figure 65. Photo of stockpiled materials (left) on SIHP # -2303, view to north

Figure 66. 1963 Hanapepe USGS topographic map quadrangle showing SIHP # -2303 at the southeast corner (black rectangle) in the project area

5.2 SIHP # 50-30-09-2304

FORMAL TYPE:	Haul cane road
FUNCTION:	Transportation
NUMBER OF FEATURES:	0
AGE:	Historic
TEST EXCAVATIONS:	None
TAX MAP KEY:	
LAND JURISDICTION:	State
PREVIOUS DOCUMENTATION:	1901 Alexander map of Makaweli Plantation; 1923 Chaney map; 1927 Hawaiian Sugar Company field map; 1910 USGS topo map; 1928, 1960, 1977, 2006, and 2013 aerial photos; 1963 USGS topo map; and 2014 TMK map

SIHP # -2304 is a remnant section of a plantation-era cane haul road (Figure 68). The remnant road measures 190 m long by 4.0 m in width and traverses in a rough northeast/southwest direction through the entire project area (see Figure 62). The road parallels an earthen berm located to the north of the road (Figure 67).

Historically, this site was most likely the location of the original railroad bed. The earliest known reference to the railroad venture was in from a Hawaiian Sugar Company manager in his 1892 annual report: “5 and 3/10 miles of permanent track and 5 miles of portable track.” The plantation expanded the railroad system in 1893 (Condé and Best 1973:134). The 1901 Alexander map shows the railroad running through the entire project area (see Figure 14). Railroad coverage was missing from the plantation’s annual reports between 1895 and 1902 (Condé and Best 1973:134). Based on the 1891 Imlay map of Gay and Robinson Land (Figure 69) and the 1901 Alexander map (see Figure 14), it can be said that the railroad located in the project area was most likely constructed during the 1893 expansion of the railroad system. A significant change occurred in 1908, when the plantation worked out a shipping agreement whereby the Kauai Railway Company would carry sugar for the plantation to ‘Ele‘ele Landing (Creed et al. 1995). A 1927 field map from Hawaiian Sugar Company shows a railroad in the project area in Field no. 3 (see Figure 15). The earliest photo of the railroad system in the project area and its vicinity is seen on Figure 70.

> The last cane was cut at the Hawaiian Sugar Company on July 21, 1941 and the grinding of that cane was finished two days later. With a great celebration and luau, the railroad was officially closed out on August 23rd, 1941. By the end of 1941 all the company’s physical properties had been disposed of, either to its successor, Olokele Sugar Company, or by independent sale. [Condè and Best 1973:135]

The closing of the railroad system gave way to the conversion to haul cane roads. SIHP # -2304 was one of those haul cane roads. The co-author of this report, CSH archaeologist Missy Kamai, grew up in Pakala Village in the *ahupua‘a* of Makaweli and recalls stories heard from former plantation cane truck drivers about the “dirt roads” (cane haul roads) being old railroads. She remembers trucks being driven along the coastal road from cane cultivated in the surrounding areas

Figure 67. Photo of SIHP # -2304, remnant cane haul road and former railroad bed to the left, view to northeast

Figure 68. Photo of SIHP # -2304, remnant cane haul road and former railroad bed to the left, view to northeast

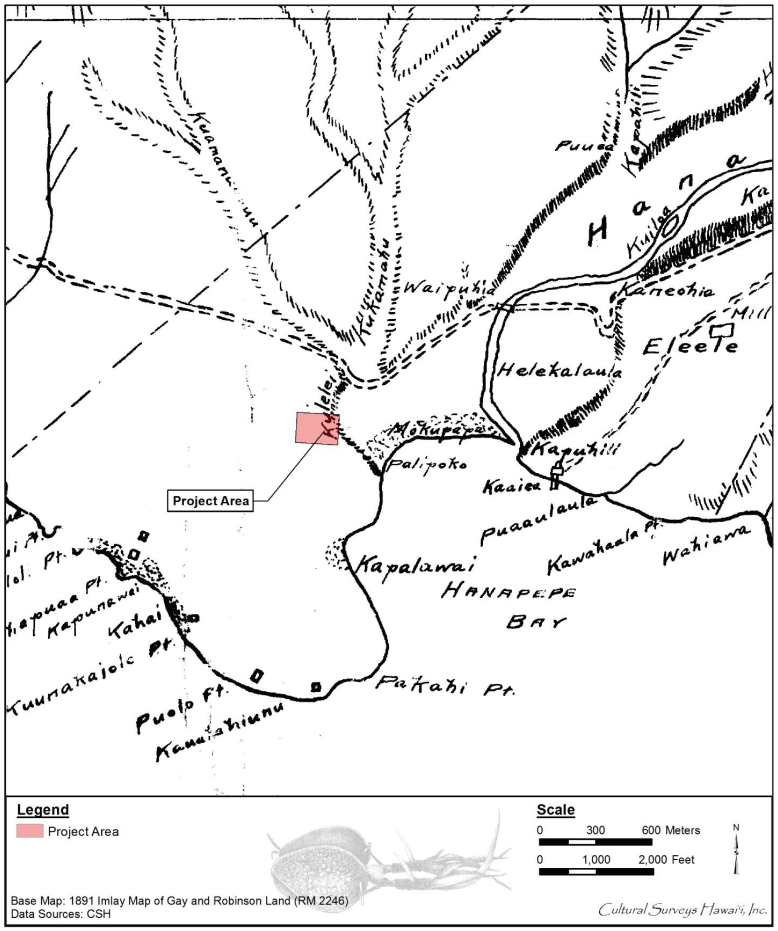

Figure 69. 1891 Imlay map of Gay and Robinson Land showing project area and no railroad system

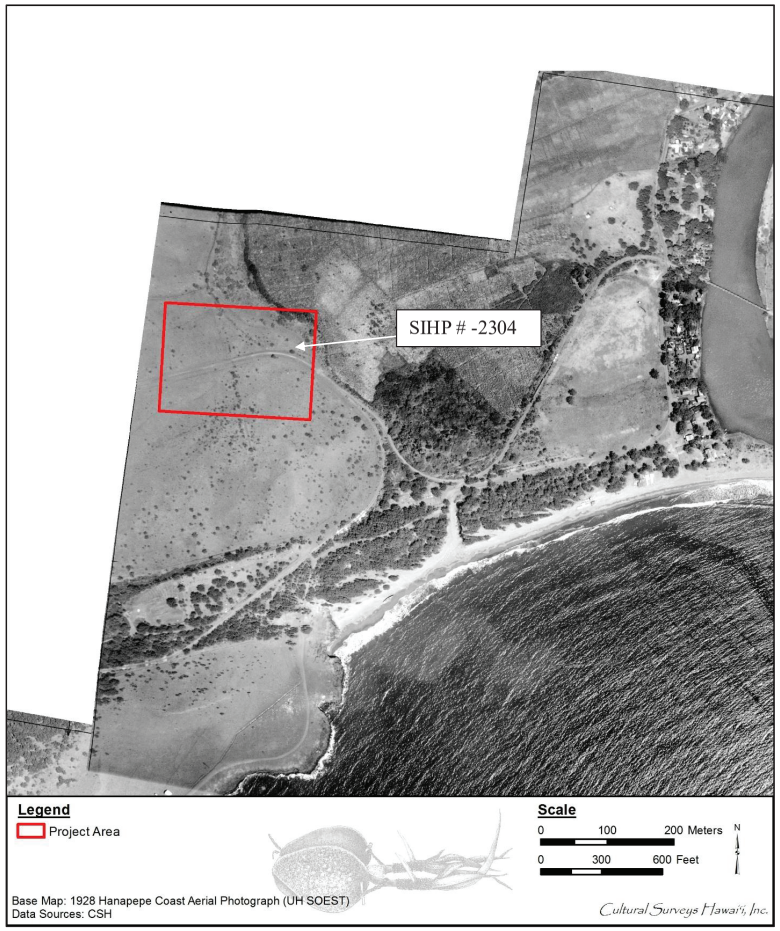

Figure 70. 1928 Hanapēpē Coast aerial photograph (UH SOEST) showing the project area and SIHP # -2304 when it was a railroad, before becoming a cane haul truck road

of the village and transporting it to the mill in Kaumakani (Olokele Plantation). It was around the 1990s that the roads along the coast ceased to be used for transporting cane, although people from the plantation camps still used them for fishing and camping access. The roads along the coast weren’t maintained and weathering caused the roads to heavily erode, particularly after heavy rains.

SIHP # -2304 is shown on historic maps and photos (Figure 70; also see Figure 11, Figure 14, Figure 15, Figure 19, Figure 22, and Figure 23). A more recent aerial photo (2006) shows SIHP # -2304 with cane growing only on the northern half of the project area (Figure 71). 2009 brought the last of Kaua‘i’s sugar plantation era to an end with the closing of Olokele Plantation.

In this recent survey, very little remains of the site. What remains of SIHP # -2304 has been overgrown with vegetation and only a few sections of road can be seen (Figure 67 and Figure 68).

SIHP # -2304 is assessed as significant under Criterion “d” (have yielded, or is likely to yield, information important for research on prehistory or history) pursuant to HAR §13-13-275-6, for its potential to provide information about plantation-era operations and infrastructure.

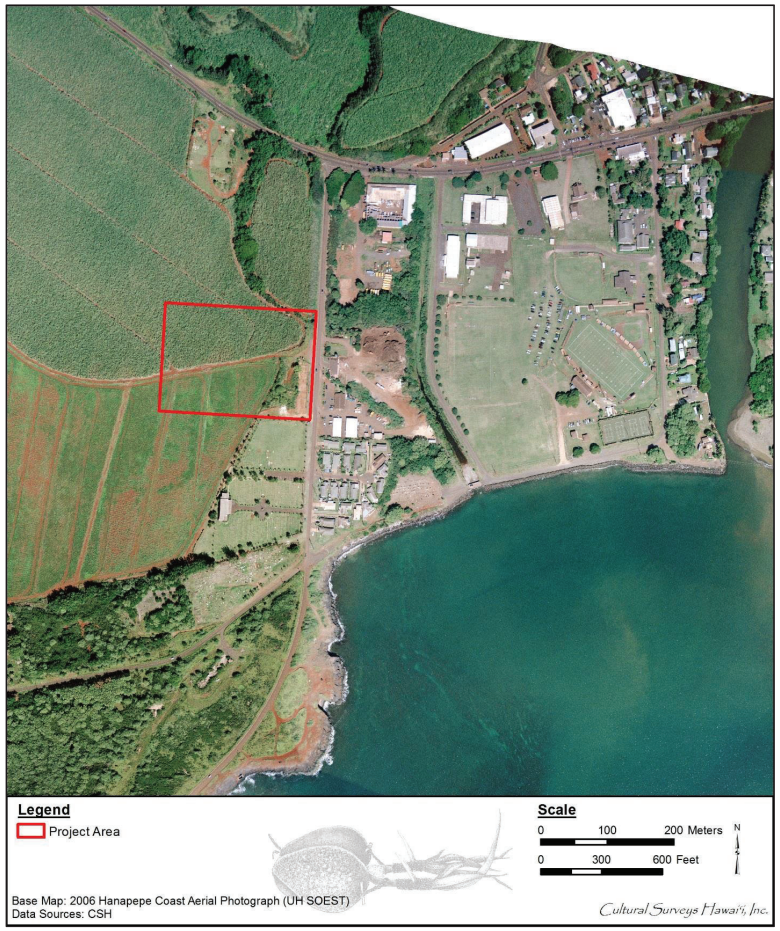

Figure 71. 2006 aerial photo (UH SOEST) of the Hanapēpē coast showing the project area and cane growing in the northern half of the project area

5.3 SIHP # 50-30-09-2305

FORMAL TYPE:	Irrigation ditch
FUNCTION:	Water control
NUMBER OF FEATURES:	0
AGE:	Historic
TEST EXCAVATIONS:	None
TAX MAP KEY:	
LAND JURISDICTION:	State
PREVIOUS DOCUMENTATION:	1960, 1977, and 2006 aerial photos of the Hanapēpē coast

SIHP # -2305 is a remnant section of a plantation irrigation ditch that measures 68.3 m in length by 1.06 m in width with an average depth of 0.85 m. It is a simple soil ditch with no associated rock work and is overgrown with vegetation as seen in Figure 72. Both ends of the ditch have been bulldozed.

One cross-section profile (CS-1) was recorded to represent physical characteristics of SIHP # -2305. The cross-section was documented along the north central area of the ditch (Figure 73 through Figure 75).

The earliest documentation found to possibly date this site comes from a 1960 aerial photo of the Hanapēpē coast. This site can also be seen in 1977 and 2006 aerial photos (Figure 71, see Figure 22 and Figure 23).

SIHP # -2305 is assessed as significant under Criterion “d” (have yielded, or is likely to yield, information important for research on prehistory or history) pursuant to HAR §13-13-275-6, for its potential to provide information about plantation-era operations and infrastructure.

Figure 72. Photo of SIHP # -2305 (irrigation ditch), view to north

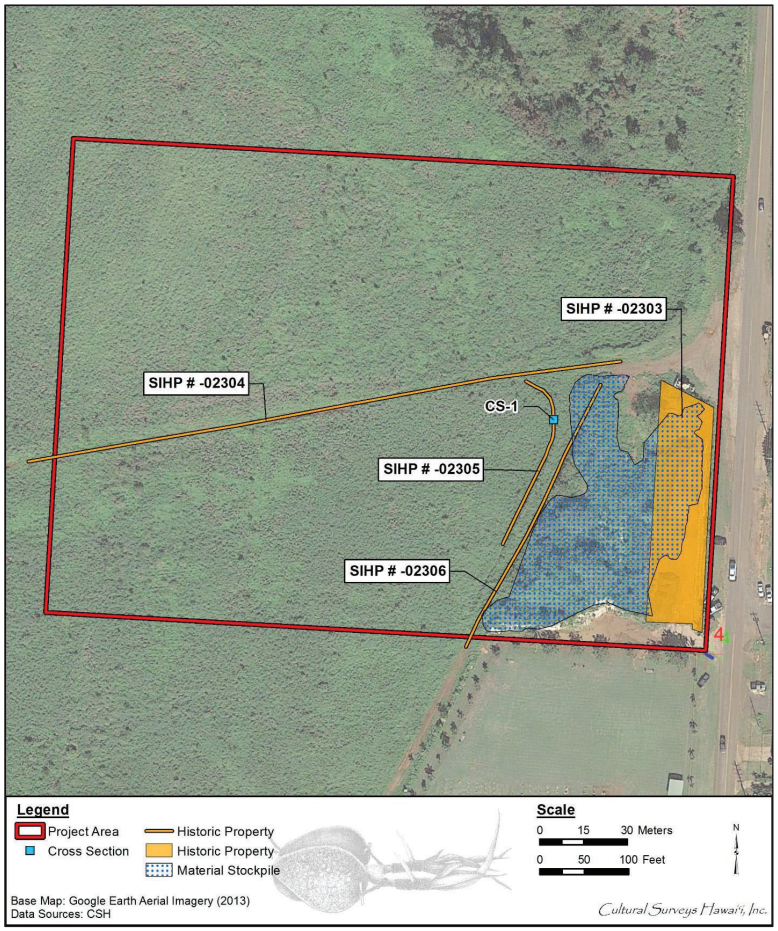

Figure 73. Aerial photograph of the project area (Google Earth 2013) showing location of cross-section 1 (CS-1)

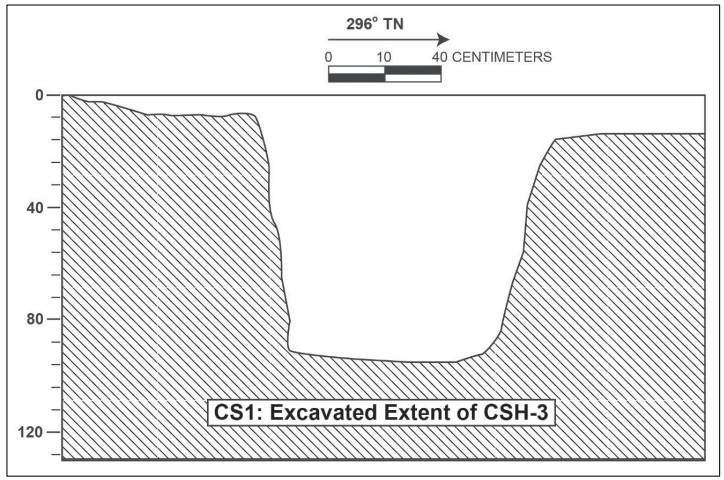

Figure 74. SIHP # -2305 (irrigation ditch), Cross-section 1

Figure 75. Photo of SIHP # -2305, Cross-section 1, view to southwest

5.4 SIHP # 50-30-09-2306

FORMAL TYPE:	Cane haul road
FUNCTION:	Transportation
NUMBER OF FEATURES:	0
AGE:	Historic
TEST EXCAVATIONS:	None
TAX MAP KEY:	
LAND JURISDICTION:	State
PREVIOUS DOCUMENTATION:	1960 and 1977 aerial photos of the Hanapēpē coast; 1963 Hanapepe USGS topographic quadrangle

SIHP # -2306 is a section of plantation-era cane haul road measuring 120 m in length by 4.0 m in width, and traverses the project area in a rough north/south direction (Figure 76 and Figure 77). The road is located along the eastern boundary of the former cane lands within the project area. The road has been impacted by bulldozing and soil stockpiling. This site is bounded by the soil stockpiling on the east and SIHP # -2305 (irrigation ditch) on the west.

The earliest documentation found to date this site appears in the 1960 aerial photo of the Hanapēpē coast seen in Figure 22. SIHP # -2306 can also be seen in the 1963 Hanapepe USGS topographic map quadrangle and a 1977 aerial photograph (see Figure 23 and Figure 66). This site can also been seen in a 2006 aerial photo (see Figure 71); this is most likely the last photo of the site still in use. In 2009 the last of the cane was harvested before Olokele plantation, Kaua‘i last sugar plantation, closed.

SIHP # -2306 is assessed as significant under Criterion “d” (have yielded, or is likely to yield, information important for research on prehistory or history) pursuant to HAR §13-13-275-6, for its potential to provide information about plantation-era operations and infrastructure.

Figure 76. Photo of SIHP # -2306, at the entrance to the former cane lands, view to west

Figure 77. Photo of SIHP # -2306, bounded by soil stockpiling (left) and SIHP # -2305 (right), view to south

Section 6 Summary and Interpretation

At the request of SSFM International, CSH has carried out this archaeological inventory survey for West Kaua‘i DLNR Facility project, Hanapēpē Ahupua‘a, Waimea District, Kaua‘i ,TMK: [4] 1-8-008:020 por.

The West Kaua‘i field operations facility will provide secured storage, office space, conference room, restrooms, showers, parking, plant nursery, native bird holding area, and fueling facilities (28 January 2015 letter *Release of Funds for West Kauai Field Operations Facility, Kauai, Job No. J43CK30A, as Authorized by Act 134, SLH 2013, as Amended by Act 122, SLH 2014, Item D-8.04*).

All fieldwork was conducted under the general supervision of Hallett H. Hammatt, Ph.D. (Principal Investigator). The pedestrian survey for the current project area was conducted by CSH archaeologists Gerald Ida, B.A., and Missy Kamai, B.A., on 14 September 2015 and 15 September 2015, and the subsurface testing was carried out by CSH archaeologists Abigail “Abby” Langham, M.A., and Missy Kamai, B.A., from 12 October 2015 through 14 October 2015 after consulting with SHPD Kaua‘i Lead Archaeologist Mary Jane Naone on proposed subsurface trench locations. The total fieldwork required approximately 5 days to complete.

The purpose of the inventory was to 1) identify surface historic properties, 2) search for and evaluate the potential for subsurface historic properties, and 3) collect stratigraphic information that may inform future development.

A total of four historic properties were identified and documented on the surface during the 100% pedestrian survey conducted for the current project area. The historic properties identified consist of two remnant cane haul roads (SIHP #s -2304 and -2306), a large concrete building foundation (SIHP # -2303), and a remnant plantation-era ditch (SIHP # -2305). All of the historic properties identified date from the historic era. The archaeological features identified during the current investigation date to the mid-twentieth century and are considered part of the Hawaiian Sugar Company and Olokele Plantation irrigation and transport system (SIHP #s -2304 through -2306) with an inclusion of military influence during war time with the construction of SIHP # -2303 and its reutilization from the 1950s and 1960s as a warehouse to store goods for a first chain of supermarkets on the island of Kaua‘i.

A total of 11 linear backhoe-assisted test excavations were completed within the project area. All trenches with the exception of T-6 measured between 7 m (23 ft) and 8 m (26 ft) long and 0.6 m (2 ft) wide with various depths from 0.6 m to 1.8 m. T-1 through T-5 revealed very similar stratigraphy. The uppermost strata within the project area consists of varying layers of modern A horizons and historic fill designated Stratum I or an O horizon. The modern A horizons were typically in areas of vegetation (weeds) and where modern trash was observed on the surface prior to vegetation removal. Stratum II consists of clay material with various percentages of decomposing bedrock present, and Stratum III consists of culturally sterile soil. T-6 through T-11 revealed very similar stratigraphy. The uppermost strata within the project area consists of varying layers of modern A horizons and historic fill designated Stratum I and sub-designated alphabetically (a and b). The modern A horizons were typically in areas of vegetation (weeds) and where modern trash was observed on the surface prior to vegetation removal. The fill layer present

in T-11 was typically associated with prior road construction and was most likely associated with SIHP # -2303. Stratum II consists of culturally sterile soil. All backhoe-assisted trenches were excavated to bedrock.

Section 7 Significance Assessments

As discussed in Section 1.2, cultural resources are generally at least 50 years old (although there are exceptions) and include buildings and structures; groupings of buildings or structures (historic districts); certain objects; archaeological artifacts, features, sites, and/or deposits; groupings of archaeological sites (archaeological districts); and, in some instances, natural landscape features and/or geographic locations of cultural significance. The current investigation was tasked with the identification of archaeological cultural resources.

For a cultural resource to be significant under HAR §13-275-6, the cultural resource should possess integrity of location, design, setting, materials, workmanship, feeling, and/or association, and meet one or more of the following criteria:

a. Be associated with events that have made an important contribution to the broad patterns of our history;

b. Be associated with the lives of persons important in our past;

c. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;

d. Have yielded, or is likely to yield, information important for research on prehistory or history; or

e. Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

Four new historic properties were identified within the current project area. Table 15 lists the historic properties along with their significance/eligibility assessments and mitigation recommendations. These significance recommendations are included in this AISR for the review and concurrence of the SHPD.

All four historic properties have been assessed as significant under Criterion “d,” meaning that each historic property has “yielded, or is likely to yield, information important for research on prehistory or history.” This reflects their value to our understanding of plantation-era infrastructure and military construction in the Hanapēpē area.

SIHP # -2303 consists of remnants of a concrete building foundation built during World War II when Hanapēpē was part of the changes wrought by war preparations. The building site was part of a larger area that formed the Kauai Training Center and has since been destroyed. Hanapēpē was one of the few areas on the island involved with the military as a large amount of local volunteers (mostly plantation workers) were inducted into the 442nd Battalion. Hanapēpē was also had the only paved airport runway, Burns Field. Once the war was over, the building was then subleased to the Kawakami family who used the building as a warehouse for a chain of stores on Kaua‘i, Big Save Markets from the 1950s to the 1960s. The building was destroyed by hurricane Iwa in 1982. The building foundation was further impacted when used as a debris stockpiling site

following hurricane Iniki in 1992. SIHP # -2303 assessed as significant under Criterion “d” for its potential to provide information about plantation-era operations and infrastructure no longer possesses integrity of design, materials or workmanship. Other elements of location, setting and association are recorded in historic records and maps referenced or presented in this report.

SIHP # -2304, a remnant cane haul road, was originally part of the railroad system that transported cane from the fields in Makaweli Ahupua‘a to Port Allen, also known as ‘Ele‘ele Landing. When the railroad systems shut down in 1933, the majority of the railways were converted back to dirt roads with the use of vehicular transportation. SIHP # -2304 is evaluated for significance under HAR §13-275-6 Criterion “d” for its potential to provide information about the setting, location and association of plantation-era operations and infrastructure in Hanapepe. Historic records and maps referenced or presented in this report document the site information.

SIHP # -2305, a plantation-era remnant soil ditch with no associated rock work, is evaluated for significance under HAR §13-275-6 Criterion “d” for its potential to provide information about the setting, location and association of plantation-era operations and infrastructure. Historic records and maps referenced or presented in this report document the site information.

SIHP # -2306, like SIHP # -2304, is a remnant cane haul road that was likely built in the late 1950s. SIHP # -2306 is evaluated for significance under HAR §13-275-6 Criterion “d” for its potential to provide information about the setting, location and association of plantation-era operations and infrastructure. Historic records and maps referenced or presented in this report document the site information.

Table 15. Archaeological Historic Property Integrity, Significance, and Mitigation Recommendations

SIHP #	Test Excavation	Formal Type/ Description	Integrity							Significance	Mitigation Recommendation
			Location	Design	Setting	Materials	Workmanship	Feeling	Association		
50-30-09-2303	No	Concrete foundation	Y	N	Y	N	N	N	Y	d	Historical data recovery completed. No further work
50-30-09-2304	No	Remnant cane road	Y	N	Y	N	N	N	Y	d	Historical data recovery completed. No further work
50-30-09-2305	No	Remnant irrigation ditch	Y	N	Y	N	N	N	Y	d	Historical data recovery completed. No further work
50-30-09-2306	No	Remnant cane road	Y	N	Y	N	N	N	Y	d	Historical data recovery completed. No further work

Section 8 Project Effect and Mitigation Recommendations

8.1 Project Effect

Under Hawai‘i state historic preservation legislation, the two possible effect determinations for a given project under historic preservation review are “no historic properties affected” and “effect, with proposed mitigation commitments” (HAR §13-275-7). In the circumstance of the current project area, a total of four historic properties were documented within the current project area. All of the historic properties documented within the current project area are significant for their information content.

The proposed project is for the construction of a DLNR West Kaua‘i Facility will include animal pens and a plant nursery and the proposed land use is to remain consistent with present and past agricultural practices within the project area footprint. CSH recommends a project specific effect determination of “effect, with proposed mitigation commitments” (HAR §13-275-7(a)(2))

8.2 Mitigation Recommendations

Based on the project specific “effect, with proposed mitigation commitments” (HAR §13-275-7), CSH proposes that per 13-275-8(a)(1)(D) Historical data recovery has been completed by means of this AIS report and recommends no further historic preservation work for the four historic properties in the project area (see Table 15).

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Appendix D: Biological Survey

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H. T. HARVEY & ASSOCIATES
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Biological Survey Report for Hawai'i Department of Land and Natural Resources' Field Operation Facility Project in Hanapepe, Kauai

Project # 3773-01

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Section 1.0 Project Background

The Hawai'i Department of Land and Natural Resources (DLNR) does not have a field operation facility on the west side of Kauai. To provide a base for efficient and economical response to emergency incidents, as well as daily management operations, DLNR plans to build such a facility in Hanapepe, on the west side of Kauai. SSFM International (SSFM) is contracted to design this facility and conduct an environmental assessment. SSFM requested that H. T. Harvey & Associates conduct a biological (flora and fauna) survey in support of the design and planning for the field operations facility. This report summarizes the results of the survey conducted by H. T. Harvey & Associates biologists Dr. Shahin Ansari and Gregory Spencer on September 24, 2015.

The project site is an approximately 10-acre undeveloped parcel located in Hanapepe in Kauai, approximately 0.2 kilometers northeast of Hanapepe Bay. It has no infrastructure and is bordered by Lele Road to the east, Kauai Veterans Cemetery to the south, and undeveloped land to the north and west.

The objectives of the flora and fauna survey were as follows:

- Identify and document the presence and relative abundance of plant species and vegetation communities found on the project site.
- Identify and document the presence of birds, mammals, amphibians, reptiles, and invertebrate macrofauna observed on the project site.
- Identify and document the presence of species state or federally listed as threatened or endangered, candidate species, species of concern, or rare (either locally or statewide) species observed or likely to occur on the project site.
- Provide recommendations:
    - to avoid or minimize impacts on any taxa state or federally listed as threatened or endangered and candidate species for listing observed, or likely to occur, on the project site and
    - to minimize the introduction and spread of invasive species.

Section 2.0 Methods

A pedestrian survey of the project site was conducted on September 24, 2015. The biologists documented all plant and animal species (birds, mammals, amphibians, reptiles, and invertebrates) observed on the site. Rocky outcrops, shaded areas and depressions, which are more likely to support native plant species, were intensively surveyed. Sunny, clear skies and moderate trade winds prevailed during the survey period. A reconnaissance-level survey for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) was conducted on the project site for 1 hour, starting from 30 minutes before sunset (6:34 p.m.) to 30 minutes after sunset. The bat survey was conducted under ideal weather conditions with the help of night vision googles. The taxa recorded during the survey are indicative of the season ("rainy" versus "dry") and the environmental conditions at the time of the survey. The terrain was gently undulating in most parts of the project site with a shallow (approximately 20-foot-deep) gulch in the northeastern part.

Section 3.0 Results and Discussion

3.1 Flora

No plant species state or federally listed as threatened, endangered, or candidates for listing (USFWS 2015) and no rare native Hawaiian plant species were observed on the project site during the survey. The site does not contain proposed or designated critical habitat for threatened or endangered plant species (USFWS 2015).

Thirty-six plant species were recorded on the project site during the survey (Table 1). Of these, only one species, ʻuhaloa (*Waltheria indica*), is indigenous to the Hawaiian Islands and is commonly found across the state (Wagner et al. 1999). The vast majority of the project site was composed of open guinea grass grassland (Figure 1). Guinea grass (*Megathyrsus maximus*) was the most abundant species across the project site. Sparely scattered shrubs of haole koa (*Leucaena leucocephala*) also were present. Other herbaceous species scattered in the guinea grass grassland included spiny amaranth (*Amaranthus spinosus*), ʻuhaloa, buffel grass (*Cenchrus ciliaris*), castor (*Ricinus communis*), tick clover (*Desmodium tortuosum*), and golden crownbeard (*Verbesina encelioides*).

Figure 1. Open Guinea Grass Grassland Vegetation Representative of the Project Site

Table 1. Plant Species Observed on the Project Site

Scientific Name	Common Name	Status	Relative Abundance on Site
Monocots			
Arecaceae			
Cocos nucifera L.	Coconut palm	Pol	R
Cyperaceae			
Cyperus rotundus L.	Purple nut sedge	X	R
Poaceae			
Cenchrus ciliaris L.	Buffel grass	X	A
Chloris barbata Sw.	Swollen finger grass	X	C
Cynodon dactylon (L.) Pers.	Bermuda grass	X	C
Digitaria insularis (L.) Mez ex Ekman	Sourgrass	X	U
Eleusine indica (L.) Gaertn.	Wiregrass	X	C
Eragrosotis amabilis L.	Love grass	X	U
Megathyrsus maximus (Jacq.) B. K. Simon and S. W. L. Jacobs	Guinea grass	X	A
Melinis repens (Willd.) Zizka	Natal redtop	X	R
Dicots			
Amaranthaceae			
Alternanthera pungens Kunth	Khaki weed	X	R
Amaranthus spinosus L.	Spiny amaranth		U
Asteraceae			
Parthenium hysterophorus L.	False ragweed	X	U
Pluchea carolinensis (Jacq.) G.Don	Sourbush	X	R
Tridax procumbens L.	Coat buttons	X	U
Sphagneticola trilobata (L.) Pruski	Wedelia	X	U
Verbesina encelioides (Cav.) Benth. & Hook.	Golden crownbeard	X	R
Bignoneaceae			
Spathodea campanulata P.Beauv.	African tulip tree	X	R
Convolvulaceae			
Ipomoea obscura (L.) Ker Gawl.	Obscure morning glory	X	u
Merremia aegyptia (L.) Urb.	Hairy merremia	X	A
Euphorbiaceae			
Euphorbia hirta L.	Hairy spurge	X	u
Ricinus communis L.	Castor	X	u
Fabaceae			

Scientific Name	Common Name	Status	Relative Abundance on Site
Cassia x nealiae	Rainbow shower tree	X	R
Chamaecrista nictitans L.	Partridge pea	X	R
Desmodium tortuosum (Sw.) DC.	Tick clover	X	C
Leucaena leucocephala (Lam.) de Wit	Haole koa	X	A
Pithecellobium dulce (Roxb.) Benth	'Opiuma, Manila tamarind		C
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	Kiawe	X	C
Senna occidentalis (L.) Link	Coffee senna	X	U
Lamiaceae			
Leonotis nepetifolia (L.) R.Br.	Lion's ear	X	R
Malvaceae			
Sida ciliaris L.	Sida	X	U
Sida rhombifolia L.	Sida, Cuban jute	X	U
Myrtaceae			
Syzygium cumini (L.) Skeels	Java plum	X	R
Nyctaginaceae			
Boerhavia coccinea Mill.	Alena	X	R
Sterculiaceae			
Waltheria indica L.	'Uhaloa	I?	C
Verbenaceae			
Stachytarpheta australis Moldenke	Branched porterweed	X	R

Notes: This checklist is an inventory of all the plant species observed by H. T. Harvey & Associates botanist Dr. Shahin Ansari on September 24, 2015, on the project site. The plant names are arranged alphabetically by family, then by species, into each of two groups: Monocots and Dicots. The taxonomy and nomenclature of the flowering plants are in accordance with Wagner et al. (1999); recent name changes are those recorded in Wagner and Herbst (1999) and Wagner et al. (2012).

Status:
Pol = Polynesian introduction.
X = introduced or alien (all those plants brought to the Hawaiian Islands by humans, intentionally or accidentally, after Western contact (i.e., Cook's arrival in the islands in 1778).
I? = questionably indigenous (species for which dates of introduction or other information do not make a clear argument for their dispersal here by natural or human-related mechanism but for which the weight of the evidence suggests that they are probably indigenous).

Qualitative Relative Abundance of Observed Species on Site:
A = abundant—forming a major part of the vegetation in the survey on project site.
C = common—widely scattered throughout the area or locally abundant in a portion of it.
U = uncommon—scattered sparsely throughout the area or occurring in a few small patches.
R = rare—only a few isolated individuals in the survey area.

Vegetation along the eastern border (Figure 2) of the project site can be characterized as typical roadside vegetation. It comprised herbaceous species such as guinea grass, buffel grass, sida (*Sida ciliaris*), wiregrass

(*Eleusine indica*), leafy spurge (*Euphorbia hirta*), tick clover, love grass (*Eragrostis amabilis*), and khaki weed (*Alternanthera pungens*). An approximately 4-foot-tall concrete wall ran parallel to Lele Road in the southeastern part of the project site, south of the entrance gate. Vegetation in this area was several feet higher in elevation compared to the guinea grass grassland because it was growing on the large pile of dirt next to the wall. The vegetation in this relatively higher area was composed primarily of haole koa and kiawe (*Prosopis pallida*) trees, and the ground cover was composed primarily of 'uhaloa, tick clover, and guinea grass. Large patches of bare dirt were present along the southeastern part of the project site bordering the cemetery, along with shower trees and coconut palms, which appeared to have been planted along this boundary (Figure 3). The vegetation in the shallow gulch in the northeastern part of the project site, composed of tall, thorny 'opiuma trees (*Pithecellobium dulce*) and thick stands of guinea grass and haole koa shrubs in the understory, was dense and impenetrable (Figure 4). A single java plum (*Syzygium cumini*) tree that was loaded with fruit also was observed in the gulch.

Figure 2. Roadside Vegetation along the Eastern Border of the Project Site

Figure 3. Shower Trees (*Cassia x nealiae*) and Coconut Palms (*Cocus nucifera*) Planted along the Southern Border of the Project Site

Figure 4. Dense Thicket of 'Opiuma (Pithecellobium dulce) Trees (Background) Seen Bordering the Gulch in the Northeastern Part of the Project Site

3.2 Fauna

Fourteen bird species—a diverse assemblage of 13 nonnative and one indigenous species—were seen during the survey of the project site (Table 2). None of the bird species are listed under the federal Endangered Species Act (ESA) as threatened, endangered, or candidate wildlife species (USFWS 2015). At 6 p.m., we observed one Hawaiian short-eared owl (*Asio flammeus sandwichensis*), a species listed by the State of Hawai'i as endangered only on the island of O'ahu (DLNR 2015) and protected by the U.S. Fish and Wildlife Service (USFWS) as a migratory bird (USFWS 2013). It flew over the eastern portion of the project site, pausing to hover a few times as it crossed the area. The pauses suggested that it may have been hunting while continuing south along a line of trees paralleling the road and leading away from the site.

Of the 13 nonnative birds, four are classified as migratory birds and therefore are protected under the Migratory Bird Treaty Act: the cattle egret (*Bubulcus ibis*), house finch (*Carpodacus mexicanus*), northern cardinal (*Cardinalis cardinalis*), and barn owl (*Tyto alba*) (USFWS 2013). The *take*[1] of any of these species, as well as the Hawaiian short-eared owl, would require permits issued by USFWS. Of the 13 nonnative birds observed on the site, seven are designated as injurious species on the state list of injurious wildlife (Table 2). Injurious species are known to be harmful to agriculture, aquaculture, or indigenous wildlife or plants or constitute a nuisance or health hazard, and prohibitions against the destruction of individuals of these species do not apply (DLNR 2015).

Overall, the project site is highly disturbed and typical of the lowlands in the area. It does not contain habitat that would be considered suitable for supporting the needs of native nēnē (*Branta sandvicensis*) waterbirds, or seabirds. It has no open bodies of water or streams. The open, grassy fields with sparsely scattered shrubs, which would be used by the Hawaiian short-eared owl, are common and readily available throughout the area.

The only mammal observed during the survey was a domestic cat (*Felis catus*); however, house mice (*Mus musculus*) and rats (*Rattus* spp.) are expected to also be present on the project site. Although we surveyed visually for one hour at about sunset for the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), none were observed during that period. Roosting habitat is mostly marginal on the site, and bats are not expected to raise young in trees associated with this site. Nonetheless, hoary bats may occasionally roost in dense overhanging foliage of some on-site trees.

No nonnative reptiles or amphibians were seen or heard during the survey. Hawai'i does not have any native terrestrial reptiles or amphibians. Among invertebrates, we also observed several sleepy orange butterflies (*Abaeis nicippea*), an introduced species which first appeared in Hawai'i in 2013.

[1] The term *take* means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct (Title 16, United States Code, Section 1532).

Table 2. Bird Species Observed on the Project Site

Scientific Name	Common Name	Status	Relative Abundance on Site
Bubulcus ibis	Cattle egret	MBTA, X, IS	Abundant
Streptopelia chinensis	Spotted dove	X, IS	Common
Geopelia striata	Zebra dove	X, IS	Common
Acridotheres tristis	Common myna	X	Abundant
Carpodacus mexicanus	House finch	MBTA, X	Common
Lonchura malacca	Chestnut manikin	X, IS	Common
Lonchura oryzivora	Java finch	X, IS	Abundant
Zosterops japonicus	Japanese white-eye	X, IS	Common
Cardinalis cardinalis	Northern cardinal	MBTA, X	Common
Garrulax canorus	Melodious laughing thrush	X	Uncommon
Francolinus francolinus	Black francolin	X	Uncommon
Phasianus colchicus	Ring-necked pheasant	X	Uncommon
Asio flammeus sandwichensis	Hawaiian short-eared owl	MBTA, I, Es	Rare
Tyto alba	Barn owl	MBTA, X, IS	Rare

Notes:
Status:
Es = state endangered status on the island of O'ahu, Hawai'i.
I = indigenous (native to the Hawaiian Islands and elsewhere).
IS = state injurious wildlife species.
MBTA = federally protected under the provisions of the Migratory Bird Treaty Act.
X = introduced or alien (nonnative species).

Qualitative Relative Site Abundance of Observed Species:
Abundant = species that are so numerous and conspicuous that they are difficult for an observer to miss.
Common = similar to abundant; applies to species that are regularly seen but may not be exceptionally abundant.
Uncommon = present in low numbers but seen regularly.
Rare = species that may have low populations, require special efforts to observe, or appear only during brief circadian cycles.

Section 4.0 Conclusions and Recommendations

Modifications on the project site are not expected to have a significant adverse impact on any plant species state or federally listed as threatened, endangered, or candidate species for listing as endangered, species of concern, or rare native Hawaiian plant species. The entire project site appears to have been highly disturbed, and the flora on the site is predominantly (97%) nonnative. The one native plant species found on the project site ('uhaloa) commonly occurs on Kauai and the other Main Hawaiian Islands.

The modifications planned on the project site are not expected to result in adverse harm or long-term displacement of animals. Moreover, none of the animals that we documented on the project site are classified as threatened, endangered, or candidates for listing under the ESA or by the State of Hawai'i on the island of Kauai; therefore, none require special protections. The Hawaiian short-eared owl was observed flying over the site but was not observed taking off from or landing on the site, and we did not detect any evidence of a nesting burrow for this species. The site does support introduced species of wild birds, but most of them are considered injurious species and are subject to control where they are found causing problems. The site does not appear to support other common native birds found in lowlands, such as nēnē and waterbirds, probably because suitable habitat that would support these species is absent.

Although the Hawaiian hoary bat was not observed during the reconnaissance-level survey, there are numerous records for this species on Kauai (Tomich 1986). This species is difficult to survey for because it roosts in the dense foliage of many different species of trees and it frequently changes roosts. Hawaiian hoary bats are known to roost in large (typically greater than 15-foot-tall) dense-canopy trees, sometimes at the edges of water bodies, such as streams and lakes (USFWS 1998). No water bodies were present in the project area, but Hawaiian hoary bats may hunt for flying insect prey, and occasionally roost, in the northeastern part of the project area where there is a dense grove of tall (greater than 15-foot-tall) 'opiuma trees (Figure 4), a single large java plum, and an African tulip tree. Although the area looks marginal for raising young, Hawaiian hoary bats are known to roost in large java plum and African tulip trees such as those found on the project site. If the large trees are to be cleared or pruned as part of project activities, H. T. Harvey & Associates recommends avoiding pruning or removal of the trees in the northeastern portion of the project site during the bat maternity season, (June 1 through September 15). Further, a construction buffer of 100 feet should be maintained around this northeastern portion during the maternity season. The remainder of the project site does not contain trees that could support the Hawaiian hoary bat and minimization and mitigation for the Hawaiian hoary bat should not be needed for these areas.

We also recommend that any landscape modifications associated with site development avoid establishing habitat features such as ponds and open bodies of water and manicured grassy areas, which might attract endangered waterbirds and nēnē in or near roads, parking lots, or inhabited areas where they would be at higher risk of collision with vehicles and harmful interactions with humans and pets.

If additional landscaping on the project site is desired in the future, H. T. Harvey & Associates recommends that native Hawaiian plants be used to the maximum extent practicable. Potential native plants that may be appropriate for landscaping on the site include naupaka (*Scaevola taccada*), pōhinahina (*Vitex rotundifolia*), ʻilima (*Sida fallax*), ʻaʻaliʻi (*Dodonaea viscosa*), pili grass (*Heteropogon contortus*), ʻāhinahina (*Achyranthes splendens* var. *splendens*), maʻo (*Gossypium tomentosum*), naio (*Myoporum sandwicense*), and alaheʻe (*Psydrax odoratum*). If native plants do not meet landscaping objectives, plants with a low risk of becoming invasive may be substituted. Additional information on selecting appropriate plants for landscaping can be obtained from the following site: http://www.plantpono.org/

In addition to using appropriate plant species for landscaping, the following best management practices could be adopted to minimize the introduction and spread of new invasive species on the project site:

1. All construction equipment and vehicles should arrive at the work site the first time clean and free of any soil; plants or plant parts, including seeds; insects, including eggs; reptiles and amphibians, including their eggs.
2. All materials imported to the project site, including gravel, soil, rock, and sand, should be free of invasive plants. Invasive species found on the stockpile should be removed either chemically or mechanically.
3. Only plants grown on Kauai should be used for landscaping purposes. If locally grown plants are not available, then imported plants may be used, but they should be thoroughly inspected or quarantined if necessary to ensure that they are free from invasive species, such as coqui frogs (*Eleutherodactylus coqui*), coconut rhinoceros beetle (*Oryctes rhinoceros*), little fire ants (*Wasmannia auropunctata*), and miconia (*Miconia calvescens*) seedlings that could arrive inadvertently.
4. Only weed-free seed mixtures should be used for hydroseeding and hydromulching on the project site. A qualified botanist should inspect the seeded areas a minimum of 60 days after the hydroseed/hydromulch is applied. Any species of plants other than those intended to be in the hydroseed/hydromulch should be removed. In particular, plant species that are not known to occur on Kauai and those that are actively being controlled on Kauai should be removed.

Section 5.0 References

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Appendix E: Traffic Assessment

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DRAFT

Department of Land and Natural Resources
West Kaua'i Field Operations Facility
Traffic Assessment

Hanapēpē, Island of Kaua'i, Hawai'i

June 13, 2016

Prepared for

INK Architects

Prepared by

SSFM INTERNATIONAL

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I. PROJECT DESCRIPTION

The State of Hawai'i, Department of Land and Natural Resources (DLNR), is proposing to redevelop a 10-acre site to be used as the West Kaua'i Field Operations Facility (WKFOF). The development will be utilized by eight State agencies including the Division of Aquatic Resources (DAR), Division of Boating and Ocean Resources (DOBOR), Division of Conservation and Resources Enforcement (DOCARE), Division of Forestry and Wildlife (DOFAW), Division of State Parks (PARKS), Engineering Division (ED), Land Division (LD), and the State Historic Preservation Division Kaua'i (SHPD). The project is located at Tax Map Key: (4) 1-8-008:020 on Lele Road in Hanapēpē on the Island of Kaua'i. The project site is boarded by Hanapēpē Park on the north, Lele Road to the east, and Kaua'i Veterans Cemetery to the south (see Figure 1).

The proposed facility will include office and storage space for each agency, a workshop and maintenance building, a multipurpose building, a lab building, an office and public services building, a wildlife rehabilitation area, a plant nursery and greenhouse, and a fueling and water fill station. The site plan of the proposed facility is shown in Figure 2. The completion year is unknown at this time however it is anticipated that the facility will be constructed by 2035.

This traffic assessment (TA) assesses existing traffic operations and impact of the proposed project. The TA was prepared in support of the environmental assessment.

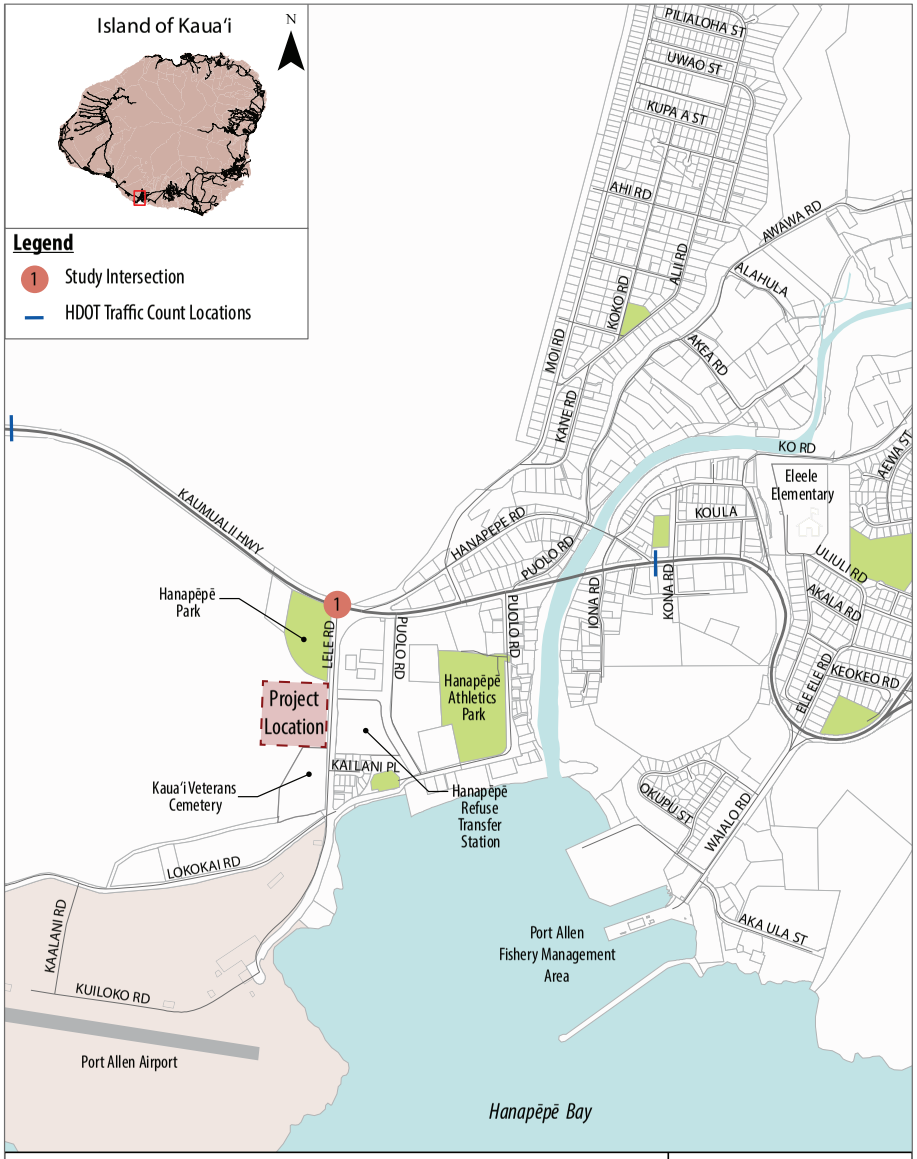

Figure 1: Project Location Map

DLNR West Kaua'i Field Operations Facility – Hanapēpē, Kaua'i

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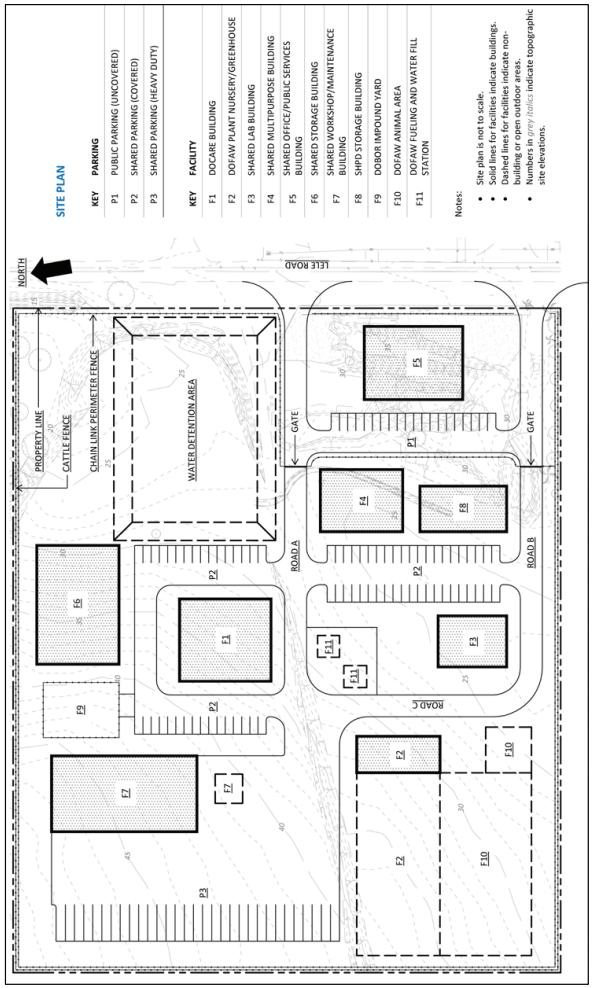

Source: *West Kaua'i Field Operations Facility Master Plan* (INK Architects, 2015)

Figure 2: Site Plan

II. EXISTING CONDITIONS

A. Geometric Configuration

Kaumuali'i Highway (State Route 50) is a two-lane, two-way, undivided roadway with narrow paved shoulders. It is a State-owned roadway with a functional classification of minor arterial. According to the road inventory maps shown in the *State Route System, County of Kaua'i* (DOT, 2014), Kaumuali'i Highway travels through a "Rural" area west of Lele Road and a "Small Urban" area east of Lele Road. The posted speed limit along Kaumuali'i Highway near Lele Road is 35 mph in each direction.

Lele Road is a 0.75-mile, two-lane, two-way, undivided roadway with narrow grassy shoulders and no paved sidewalks. It is owned by the County of Kaua'i. Lele Road intersects with Kaumuali'i Highway at the northern terminus and dead ends at the Port Allen Airport at the southern terminus. The posted speed limit along Lele Road is 25 mph. The lane configuration at the intersection of Kaumuali'i Highway and Lele Road is shown in Figure 3. Access to the proposed DLNR WKFOF will come off of Lele Road approximately ¼-mile south of the intersection with Kaumuali'i Highway.

B. Volumes

1. Roadway Volumes

a) Average Daily Traffic

The 2014 average daily traffic (ADT) along Kaumuali'i Highway west of Lele Road is 12,800 vehicles per day (vpd), based on Hawai'i Department of Transportation (HDOT) *Historical Traffic Station Maps.* The 2013 ADT along Kaumuali'i Highway east of Lele Road, between Puna Road and Kona Road, is 17,100 vpd. Table 1 provides the roadway ADT along Kaumuali'i Highway. Appendix A includes the detailed 24-hour HDOT traffic count data.

Table 1: Existing Roadway Traffic Volumes

Roadway	Location	HDOT Year	ADT (veh/day)
Kaumuali'i Highway	Between Lele Road and Kaumakani Village Road	2014	12,800
Kaumuali'i Highway	Between Puna Road and Kona Road	2013	17,100

b) Peak Hour Roadway Volumes

Approximately 1,150 vehicles travel along Kaumuali'i Highway between Lele Road and Kaumakani Village Road, during the AM peak hour (6:45-7:45 AM) and 1,105 vehicles during the PM peak hour (3:45-4:45 PM). During the AM peak hour, 450 vehicles were traveling in the westbound direction and 700 vehicles in the eastbound direction. During the PM peak hour, 655 vehicles were traveling in the westbound direction and 450 vehicles were traveling in the eastbound direction. Figure 4 shows a graph demonstrating directional hourly distribution along Kaumuali'i Highway at the HDOT counting station between Lele Road and Kaumakani Village Road.

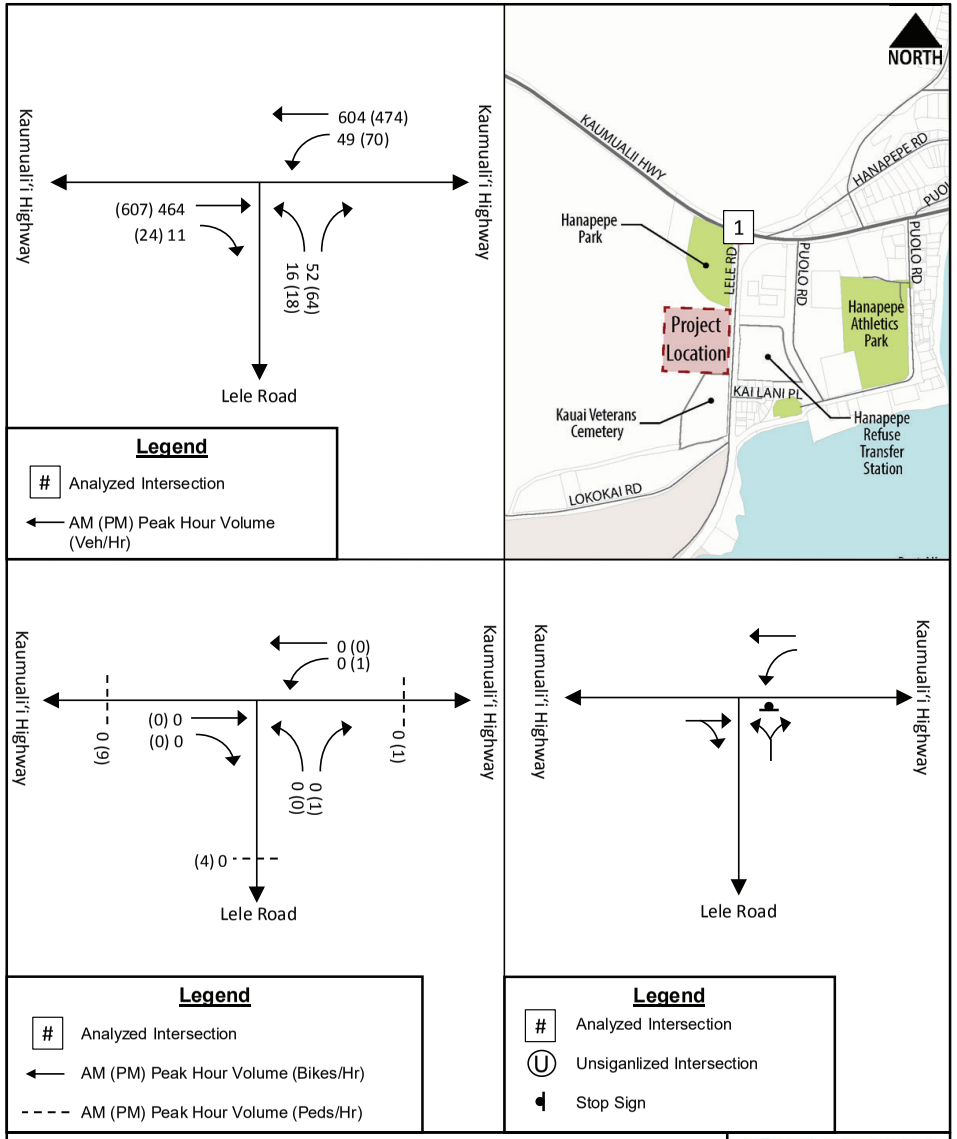

Figure 3: Existing (2015) Lane Configuration and Peak Hour Volumes
West Kaua'i Field Operations Facility - *Hapapēpē, Kaua'i*

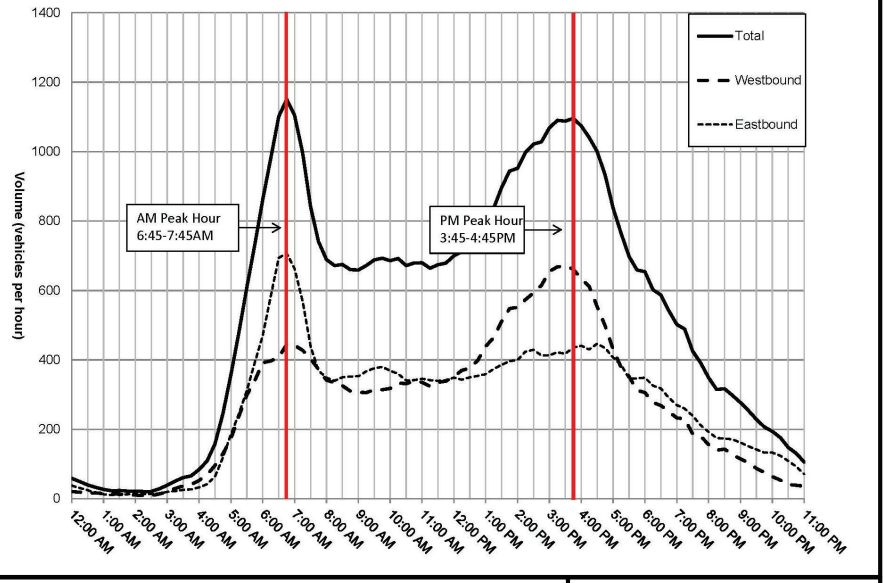

Figure 4: Kaumuali'i Highway between Lele Road and Kaumakani Village Road, 24-Hour Volume Distribution

West Kaua'i Field Operations Facility – Hanapēpē, Kaua'i

SSFM International

Approximately 1,300 vehicles traveled along Kaumuali'i Highway, between Puna Road and Kona Road, during the AM peak hour (6:45-7:45 AM) and approximately 1,500 vehicles traveled during the PM peak hour (3:45-4:45 PM). During the AM peak hour there was an even split between vehicles traveling in the westbound and eastbound directions. During the PM peak hour there were 700 vehicles traveling in the westbound direction and 800 vehicles traveling in the eastbound direction. Figure 5 shows a graph demonstrating directional hourly distribution along the roadway segment at the HDOT counting station between Puna Road and Kona Road.

2. Intersection Volumes

Turning movement classification counts were taken at the study intersection on Thursday, September 17, 2015 during the AM and PM peak periods from 6:15-8:15 AM and 3:15-5:15 PM. The counts included the tabulation and classification of passenger vehicles, heavy vehicles (buses, trucks, vehicles with trailers), bicycles, and pedestrians. Peak hour occurred from 7:00-8:00 AM and 3:45-4:45 PM. Peak hour volumes are presented in Figure 3. Detailed count data is included in Appendix A.

a) Transit Bus Volumes

The Kaua'i Bus is the bus transit system for the County of Kaua'i. The Kekaha-Līhu'e Mainline Route travels from Kekaha to Līhu'e, passing through Hanapēpē. This includes travel along Kaumuali'i Highway, past Lele Road. This route runs Monday through Friday between 5:30 AM through 9:30 PM. During the weekday, there are 18 buses travelling daily along Kaumuali'i Highway passing the study intersection. Appendix B includes the timetables for this route. The nearest bus stop to the proposed facility is about ¼-mile from Lele Road, at the intersection with Puolo Road.

b) Heavy Vehicle Volumes

The heavy vehicle percentage along Kaumuali'i Highway during the AM peak hour is 1.9% eastbound and 4.3% westbound. During the PM peak hour, the heavy vehicle percentage is 1.6% eastbound and 0.9% westbound. Heavy vehicle percentages along Lele Road are 4.4% during the AM peak hour and 4.9% during the PM peak hour. The higher heavy vehicle percentage along Lele Road are likely due to the refuse transfer station located off of Lele Road.

c) Pedestrians and Bicycle Volumes

There were no pedestrians or bicycles counted at the intersection of Kaumuali'i Highway and Lele Road during the AM peak hour. During the PM peak hour, 14 pedestrians and two bicyclists were counted passing through the intersection (shown in Figure 3). Although this area is classified as "Small Urban," the adjacent development and roadway is more rural in nature. The adjacent land use includes light industrial, residential, and parks. Lele Road has a narrow paved shoulder, no paved sidewalks, and include unimproved grassy areas next to the paved shoulder.

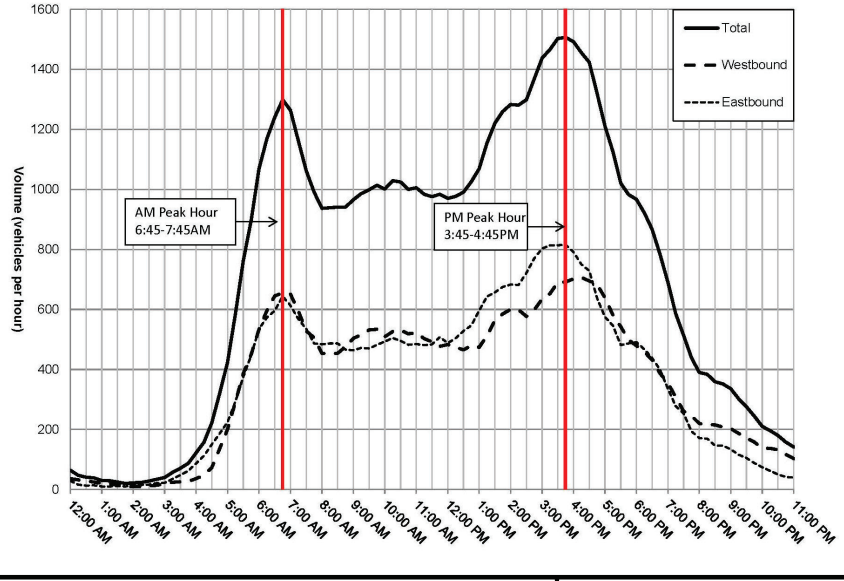

Figure 5: Kaumuali'i Highway between Kona Road and Puna Road, 24-Hour Volume Distribution

West Kaua'i Field Operations Facility - Hanapēpē, Kaua'i

SSFM International

C. Level of Service

1. Methodology

Level of service (LOS) is a rating system used in traffic engineering to measure the effectiveness of roadway operating conditions. There are six LOS ranging from A to F. LOS A is defined as being the least interrupted flow conditions with little or no delays, whereas LOS F is defined as conditions where extreme delays exist. *A Policy on Geometric Design of Highways and Streets* (AASHTO, 2011) states that an "appropriate" LOS for an urban arterial, which is the classification of Kaumuali'i Highway, is LOS C or D. Therefore, it is assumed that appropriate LOS for study intersection and turning movements should be LOS D or better. Intersection LOS and delay was determined for the AM and PM peak hours using *Synchro Version 9.0* traffic analysis software.

As stated in the *Highway Capacity Manual (HCM)* (TRB, 2010), LOS for a two-way stop controlled (TWSC) intersection is determined by the measured control delay (see Table 2) and is defined for each minor movement, not for the intersection as a whole. Vehicles traveling along the major, free-flow road, of a TWSC intersection, proceed through with minimal delay. Those vehicles approaching the intersection along the minor movement are controlled by a stop sign and thus experience delay attributable to the volume of vehicles passing along the free-flow road and the gaps available.

Table 2: LOS Criteria for Unsignalized Intersections

Average Control Delay (s/veh)	LOS by v/c Ratio	
	<=1.0	>1.0
≤ 10.0	A	F
>10 and ≤15	B	F
>15 and ≤25	C	F
>25 and ≤35	D	F
>35 and ≤50	E	F
>50	F	F

Source: *Highway Capacity Manual* (TRB, 2010)

2. Existing (2015) Intersection Conditions

Existing (2015) intersection conditions were analyzed at the intersection of Kaumuali'i Highway and Lele Road and resulted in LOS C or better with a low v/c ratio for the AM and PM peak hours (see Table 3). Detailed analysis reports are shown in Appendix C.

Table 3: Existing (2015) Intersection Level of Service

Unsignalized Intersection	App	Mvmt	AM			PM		
			Delay	v/c	LOS	Delay	v/c	LOS
Kaumuali'i Highway at Lele Road	NB	L	16.6	0.19	C	20.2	0.27	C
	WB	L	8.6	0.05	A	9.2	0.08	A

III. FUTURE (2035) WITHOUT PROJECT CONDITIONS

The proposed DLNR WKFOF is anticipated to be complete by 2035. Therefore, future conditions were analyzed for the year 2035.

A. Surrounding Area Conditions

1. Roadway Construction

From research into the Statewide Transportation Improvements Program (STIP), no roadway construction is expected along Kaumuali'i Highway that would change the lane configurations at the intersection with Lele Road.

2. Surrounding Developments

Research into the State of Hawaii Office of Environmental Quality Control (OEQC) library showed no future developments that were expected to be complete by 2035 that would affect the roadway geometrics or traffic volumes along Kaumuali'i Highway and Lele Road near the project location.

B. Geometric Conditions

With no anticipated changes in the area, the lane configuration at the intersection of Kaumuali'i Highway and Lele Road during the Future (2035) Without Project is expected to be similar to Existing (2015) conditions.

C. Volumes

1. Background Growth

Traffic volumes along Kaumuali'i Highway, from HDOT *Historical Traffic Maps,* showed an annual compounded growth of 0.71% in ADT over the past 15 years (from 1999 to 2014). There were no data along Lele Road. Recent planning efforts on Kaua'i have proposed no increase in vehicle miles traveled. There is no growth anticipated in the immediately surrounding area. A compounded annual growth rate of 0.71% was applied to all movements at the intersection of Kaumuali'i Highway and Lele Road in line with recent actual growth calculated and to account for future regional background growth.

2. Future (2035) Without Project Volumes

Future (2035) Without Project peak hour volumes at the study intersection of Kaumuali'i Highway and Lele Road are shown in Figure 6.

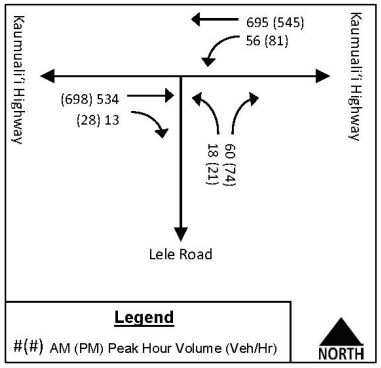

Figure 6: Future (2035) Without Project Volumes

D. Level of Service

The LOS for Future (2035) Without Project intersection conditions resulted in LOS D or better and low v/c ratio for intersection turn movements (see Table 4). The delay for the northbound left turn movement during the PM peak hour increased and resulted in LOS D. Detailed analysis reports can be found in Appendix D.

Table 4: Future (2035) Without Project Intersection LOS

Unsignalized Intersection	Approach	Movement	AM			PM		
			Delay	v/c	LOS	Delay	v/c	LOS
Kaumuali'i Highway and Lele Road	Northbound	Left	20.2	0.26	C	27.0	0.38	D
	Westbound	Left	8.9	0.06	A	9.7	0.10	A

IV. FUTURE (2035) WITH PROJECT CONDITIONS

The DLNR WKFOF is expected to be completed by 2035. Therefore, future conditions were analyzed for the year 2035.

A. Geometric Conditions

Access to the proposed facility will come off of Lele Road approximately ¼-mile south of the unsignalized intersection with Kaumuali'i Highway. The intersection of Kaumuali'i Highway and Lele Road is anticipated to retain the lane configuration similar to existing conditions.

B. Volumes

1. Project Related Volumes

a) Trip Generation

The proposed facility totals approximately 27,700 square-foot. The facility is being proposed for use as offices, a multi-use building, laboratory space, a workshop/maintenance building, and storage facilities to be used by the eight different State organizations. With the varied use, trips generated from the proposed facility were calculated using land use rates for a "General Office Building." The *Trip Generation, 8th Edition* (ITE, 2008) defines a General Office Building as "a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted." Calculated project related trips are shown in Table 5.

Table 5: Project Related Volumes Trip Generation

Land Use [ITE Code]	Quantity	Trip Generation						
		Daily	AM Peak Hour Volumes			PM Peak Hour Volumes		
		Total	In	Out	Total	In	Out	Total
General Office Building (710)	27,700 Square Feet	305	38	5	43	7	34	41

*Source: *Trip Generation, 8th Edition* (ITE, 2008)

b) Trip Distribution/Assignment

Trip distribution matches trip maker's origins and destinations to determine the number of trips from each development. Traffic assignment involves the selection of routes between the specified origins and destinations. Project related trips were assumed to be similar to the existing traffic distribution. Project related peak hour volumes are shown in Figure 7.

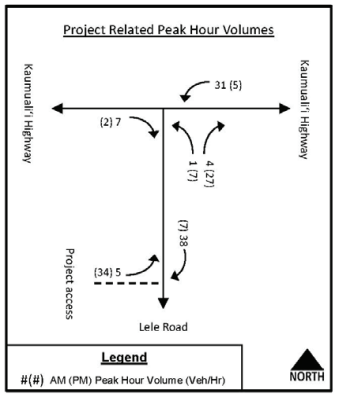

Figure 7: Project Related Peak Hour Volumes

2. Future (2035) With Project Volumes

Project related trips were added to the Future (2035) Without Project traffic volumes to calculate the Future (2035) With Project volumes (see Figure 8).

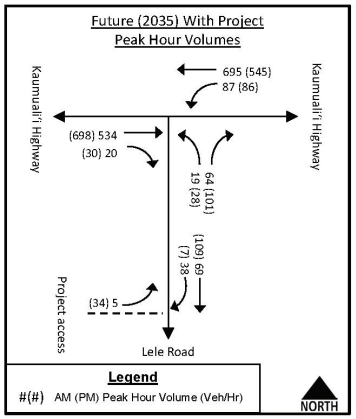

Figure 8: Future (2035) With Project Volumes

C. Level of Service

Future (2035) With Project conditions resulted in all movements at the intersection of Kaumuali'i Highway and Lele Road operating at LOS D or better. The intersection of Lele Road and the project driveway resulted in LOS B or better. The site plan indicates that there will be two driveways serving the property however impact from a single driveway access was analyzed to consider the worst case scenario. Future (2035) With Project LOS results are shown in Table 6. Detailed analysis reports can be found in Appendix E.

Table 6: Future (2035) With Project Intersection LOS

Unsignalized Intersection	Approach	Movement	AM			PM		
			Delay	v/c	LOS	Delay	v/c	LOS
Kaumuali'i Highway at Lele Road	Northbound	Left	22.2	0.30	C	33.3	0.53	D
	Westbound	Left	9.0	0.09	A	9.8	0.11	A
Lele Road at Project driveway	Northbound	Left	0.0	0.00	A	0.0	0.00	A
	Eastbound	Left	9.5	0.01	A	10.0	0.05	B

V. SUMMARY AND RECOMMENDATIONS

The proposed DLNR WKFOF will have a total building area of approximately 27,700 square-foot. The facility is being proposed for use by eight State agencies to improve access to the west side of Kaua'i. Vehicle access to the proposed facility will be through a driveway off of Lele Road.

Existing (2015) intersection operations at the intersection of Kaumuali'i Highway result in an acceptable LOS C or better. Traffic volumes were forecasted to increase at similar rates along Kaumuali'i Highway as they have over the past 15 years. Future (2035) Without Project intersection operations result in an acceptable LOS D or better.

A small number of trips are anticipated to be generated by the proposed facility which has a minor impact on the intersection operations. Future (2035) With Project conditions remained at an acceptable LOS D or better at the intersection of Kaumuali'i Highway and Lele Road. The LOS at the new intersection of Lele Road and the proposed driveway accessing the project site operated at LOS B or better.

In conclusion, the proposed DLNR WKFOF is anticipated to have a minimal impact to traffic along Lele Road at the intersection with Kaumuali'i Highway and the project driveway.

VI. REFERENCES

American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, 2011.

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State of Hawaii, Department of Transportation. *State Route System, County of Kaua'i*, December 2014.

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Transportation Research Board, National Research Council. *Highway Capacity Manual*, Washington, D.C., 2010 Edition.

Appendix A

24-Hour HDOT Traffic Count Data and Intersection Peak Period Counts

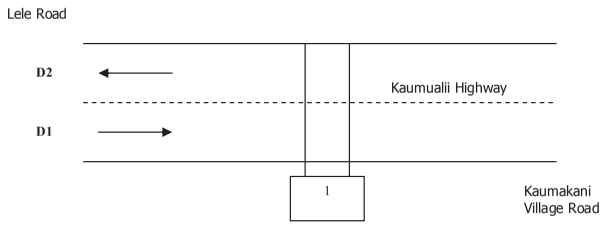
Traffic Data Service

Traffic Station Sketch

N

Island: Kauai
Area: Waimea

Section ID/Station #: B73005001702



	Meter #	File Name	GPS
1.	w189	D0430007_B73005001702	21.91647, -159.6166
2.		D0430008_B73005001702	

Station Description:

Kaumualii Highway: Lele Road to Kaumakani Village Road

Survey Beginning Date/Time: 4/30/14@ 0000		Survey Ending Date/Time: 5/1/14@ 2400

Survey Method:	Road Tube	Data Type:	Class
Survey Crew:	LM		C1B
Sketch Updated:		By:	SR
Remarks:	825		

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Kaumualii Highway		6		0050	

D1= Direction to End — D1: Kaumakani Village Rd/ N. entrance gate of Pacific Missile Range Facility

D2= Direction to Begin — D2: Lele Rd/Rice St

Run Date: 2015/06/24

Hawaii Department of Transportation
Highways Division — **Highways Planning Survey Section**

2014 Program Count - Summary

Site ID: B73005001702 — **Town:** Kauai — **DIR 1:** +MP — **DIR 2:** -MP — **Final AADT:** 12300
Functional Class: RURAL:MINOR ARTERIAL — **Count Type:** CLASS — **Counter Type:** Tube — **Route No:** 50
Location: Kaumualii Hwy: Lele Rd>Waimea River brdg

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 04/30/2014															
12:00-12:15	5	14	19	06:00-06:15	77	68	145	12:00-12:15	76	93	169	06:00-06:15	70	108	178
12:15-12:30	3	7	10	06:15-06:30	115	104	219	12:15-12:30	92	73	165	06:15-06:30	87	74	161
12:30-12:45	2	6	8	06:30-06:45	82	144	226	12:30-12:45	92	104	196	06:30-06:45	71	97	168
12:45-01:00	5	3	8	06:45-07:00	110	153	263	12:45-01:00	88	98	186	06:45-07:00	83	93	176
01:00-01:15	3	5	8	07:00-07:15	93	179	272	01:00-01:15	94	75	169	07:00-07:15	56	63	119
01:15-01:30	3	2	5	07:15-07:30	111	223	334	01:15-01:30	106	96	202	07:15-07:30	78	61	139
01:30-01:45	3	0	3	07:30-07:45	127	168	295	01:30-01:45	115	98	213	07:30-07:45	39	62	101
01:45-02:00	4	2	6	07:45-08:00	120	113	233	01:45-02:00	153	106	259	07:45-08:00	57	68	125
02:00-02:15	0	5	5	08:00-08:15	74	98	172	02:00-02:15	125	91	216	08:00-08:15	52	57	109
02:15-02:30	3	4	7	08:15-08:30	88	69	157	02:15-02:30	149	85	234	08:15-08:30	34	34	68
02:30-02:45	2	1	3	08:30-08:45	94	84	178	02:30-02:45	137	107	244	08:30-08:45	37	46	83
02:45-03:00	2	2	4	08:45-09:00	91	94	185	02:45-03:00	125	98	223	08:45-09:00	33	42	75
03:00-03:15	0	3	3	09:00-09:15	73	65	138	03:00-03:15	120	127	247	09:00-09:15	22	48	70
03:15-03:30	0	3	3	09:15-09:30	88	84	172	03:15-03:30	174	88	262	09:15-09:30	32	46	78
03:30-03:45	8	5	13	09:30-09:45	72	88	160	03:30-03:45	174	80	254	09:30-09:45	23	39	62
03:45-04:00	7	5	12	09:45-10:00	69	77	146	03:45-04:00	178	95	273	09:45-10:00	23	25	48
04:00-04:15	10	8	18	10:00-10:15	65	100	165	04:00-04:15	174	135	309	10:00-10:15	19	32	51
04:15-04:30	11	6	17	10:15-10:30	87	93	180	04:15-04:30	152	83	235	10:15-10:30	17	33	50
04:30-04:45	11	9	20	10:30-10:45	89	89	178	04:30-04:45	154	108	262	10:30-10:45	9	22	31
04:45-05:00	24	13	37	10:45-11:00	72	81	153	04:45-05:00	149	97	246	10:45-11:00	10	29	39
05:00-05:15	30	13	43	11:00-11:15	87	83	170	05:00-05:15	116	121	237	11:00-11:15	7	20	27
05:15-05:30	35	33	68	11:15-11:30	83	78	161	05:15-05:30	96	115	211	11:15-11:30	5	23	28
05:30-05:45	44	54	98	11:30-11:45	89	85	174	05:30-05:45	109	94	203	11:30-11:45	12	11	23
05:45-06:00	66	83	149	11:45-12:00	78	98	176	05:45-06:00	87	79	166	11:45-12:00	7	16	23

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	441	723	1164
AM - K FACTOR (%)			9.21
AM - D (%)	37.89	62.11	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	07:00 AM to 08:00 AM	06:45 AM to 07:45 AM	
AM - PEAK HR VOLUME	451	723	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:15 PM to 04:15 PM		
PM - PEAK HR VOLUME	700	398	1098
PM - K FACTOR (%)			8.69
PM - D (%)	63.75	36.25	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:15 PM to 04:15 PM	04:30 PM to 05:30 PM	
PM - PEAK HR VOLUME	700	441	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	441	723	1164
AM - K FACTOR (%)			9.21
AM - D (%)	37.89	62.11	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:15 PM to 04:15 PM		
PM - PEAK HR VOLUME	700	398	1098
PM - K FACTOR (%)			8.69
PM - D (%)	63.75	36.25	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM		
PEAK HR VOLUME	564	389	953
DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM	01:15 PM to 02:15 PM	
PEAK HR VOLUME	564	391	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	2,134	2,518	4,652
AM 12-HR PERIOD (00:00-12:00)	2,415	2,804	5,219
PM 6-HR PERIOD (12:00-18:00)	3,035	2,346	5,381
PM 12-HR PERIOD (12:00-24:00)	3,918	3,495	7,413
24 HOUR PERIOD	6,333	6,299	12,632
D (%)	50.13	49.87	100.00

Run Date: 2015/06/24

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2014 Program Count - Summary

Site ID: B73005001702 **Town:** Kauai **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 12300
Functional Class: RURAL:MINOR ARTERIAL **Count Type:** CLASS **Counter Type:** Tube **Route No:** 50
Location: Kaumualii Hwy: Lele Rd>Waimea River brdg

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 05/01/2014															
12:00-12:15	7	11	18	06:00-06:15	102	77	179	12:00-12:15	73	77	150	06:00-06:15	88	80	168
12:15-12:30	11	10	21	06:15-06:30	83	92	175	12:15-12:30	98	78	176	06:15-06:30	80	73	153
12:30-12:45	3	14	17	06:30-06:45	91	140	231	12:30-12:45	83	83	166	06:30-06:45	61	97	158
12:45-01:00	4	9	13	06:45-07:00	122	161	283	12:45-01:00	99	90	189	06:45-07:00	71	75	146
01:00-01:15	5	6	11	07:00-07:15	97	192	289	01:00-01:15	92	82	174	07:00-07:15	44	78	122
01:15-01:30	4	3	7	07:15-07:30	108	194	302	01:15-01:30	95	69	164	07:15-07:30	73	71	144
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02:00-02:15	5	2	7	08:00-08:15	88	87	175	02:00-02:15	111	97	208	08:00-08:15	41	65	106
02:15-02:30	3	3	6	08:15-08:30	81	86	167	02:15-02:30	146	105	251	08:15-08:30	32	56	88
02:30-02:45	1	4	5	08:30-08:45	93	86	179	02:30-02:45	159	109	268	08:30-08:45	44	40	84
02:45-03:00	3	3	6	08:45-09:00	72	91	163	02:45-03:00	151	107	258	08:45-09:00	37	45	82
03:00-03:15	2	4	6	09:00-09:15	73	102	175	03:00-03:15	160	109	269	09:00-09:15	39	38	77
03:15-03:30	6	4	10	09:15-09:30	66	91	157	03:15-03:30	160	111	271	09:15-09:30	39	42	81
03:30-03:45	6	5	11	09:30-09:45	83	85	168	03:30-03:45	165	104	269	09:30-09:45	27	41	68
03:45-04:00	10	8	18	09:45-10:00	89	110	199	03:45-04:00	178	113	291	09:45-10:00	22	45	67
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04:15-04:30	8	9	17	10:15-10:30	82	100	182	04:15-04:30	187	108	295	10:15-10:30	22	37	59
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04:45-05:00	17	12	29	10:45-11:00	94	84	178	04:45-05:00	153	121	274	10:45-11:00	11	40	51
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05:30-05:45	45	67	112	11:30-11:45	79	98	177	05:30-05:45	100	100	200	11:30-11:45	9	19	28
05:45-06:00	64	77	141	11:45-12:00	83	75	158	05:45-06:00	81	85	166	11:45-12:00	8	9	17

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	447	689	1136
AM - K FACTOR (%)			8.82
AM - D (%)	39.35	60.65	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM	06:45 AM to 07:45 AM	
AM - PEAK HR VOLUME	447	689	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:45 PM to 04:45 PM		
PM - PEAK HR VOLUME	663	449	1112
PM - K FACTOR (%)			8.64
PM - D (%)	59.62	40.38	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:00 PM to 04:00 PM	04:00 PM to 05:00 PM	
PM - PEAK HR VOLUME	663	457	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	447	689	1136
AM - K FACTOR (%)			8.82
AM - D (%)	39.35	60.65	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:45 PM to 04:45 PM		
PM - PEAK HR VOLUME	663	449	1112
PM - K FACTOR (%)			8.64
PM - D (%)	59.62	40.38	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM		
PEAK HR VOLUME	567	418	985
DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM	02:00 PM to 03:00 PM	
PEAK HR VOLUME	567	418	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	2,128	2,565	4,693
AM 12-HR PERIOD (00:00-12:00)	2,421	2,871	5,292
PM 6-HR PERIOD (12:00-18:00)	3,081	2,385	5,466
PM 12-HR PERIOD (12:00-24:00)	4,002	3,583	7,585
24 HOUR PERIOD	6,423	6,454	12,877
D (%)	49.88	50.12	100.00

Run Date: 2015/06/24

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2014

Site ID: B73005001702 **Route No:** 50 **Date From:** 2014/04/30 0:00
Town: Kauai **Direction:** +MP **Date To:** 2014/05/01 23:45
Location: Kaumualii Hwy: Lele Rd>Waimea River brdg

Functional Classification: 6 RURAL:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	79	0.31%	158
PC	16795	65.84%	33590
2A-4T	8136	31.89%	16272
LIGHT VEHICLE TOTALS	25010	98.04%	50020
HEAVY VEHICLES			
Bus	141	0.55%	352
SINGLE UNIT TRUCK			
2A-6T	194	0.76%	388
3A-SU	58	0.23%	174
4A-SU	3	0.01%	12
SINGLE-TRAILER TRUCKS			
4A-ST	26	0.10%	104
5A-ST	61	0.24%	305
6A-ST	9	0.04%	54
MULTI-TRAILER TRUCKS			
5A-MT	3	0.01%	15
6A-MT	0	0.00%	0
7A-MT	5	0.02%	35
HEAVY VEHICLE TOTALS	500	1.96%	1439
CLASSIFIED VEHICLES TOTALS	25510 (A)	100.00%	51460 (B)
UNCLASSIFIED VEHICLES TOTALS	-1	-0.00%	

AXLE CORRECTION FACTOR (A/C) = 0.991

ROADTUBE EQUIVALENT(B/2) = 25730 (C)

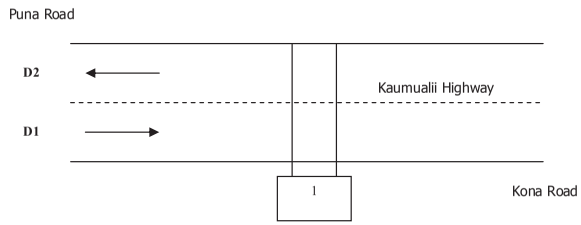
PEAK HOUR VOLUME : 1134 2014/04/30 07:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	13	(65A-1) 1.15%	198	12300	(65A-2) 1.61%	9.22%
COMBINATION (TYPE 8-13)	8	(65B-1) 0.71%	52		(65B-2) 0.42%	9.22%

Traffic Data Service
Traffic Station Sketch

N

Island: Kauai
Area: Hanapepe Heights

Section ID/Station #: B73005001629



Meter #	File Name	GPS
1. w650	D0311001_B73005001629 D0311002_B73005001629	21.90947, -159.5871

Station Description:
Kaumualii Highway: Puna Road to Kona Road

Survey Beginning Date/Time:		Survey Ending Date/Time:
3/11/2013 @ 0000		3/12/2013 @ 2400

Survey Method:	Road Tube	Data Type:	Class
Survey Crew:	LM		C1B
Sketch Updated:	3/21/13 - 824	By:	SR
Remarks:			

FACILITY NAME	JURI	FUNC CLASS	AREA TYPE	ROUTE NO.	ROUTE MILE
Kaumualii Highway		16		0050	

D1= Direction to End
D2= Direction to Begin

D1: Kona Road / N. Entrance gate of Pacific Missile Range Facility
D2: Puna Road / Kuhio Highway & Rice Street

Run Date: 2014/06/02

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**
2013 Program Count - Summary

Site ID: B73005001629 **Town:** Kauai **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 16200
Functional Class: URBAN:MINOR ARTERIAL **Count Type:** CLASS **Counter Type:** Tube **Route No:** 50
Location: Kaumualii Hwy - Puna Rd to Kona Rd

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 03/11/2013															
12:00-12:15	11	15	26	06:00-06:15	101	110	211	12:00-12:15	133	124	257	06:00-06:15	109	117	226
12:15-12:30	5	8	13	06:15-06:30	123	135	258	12:15-12:30	128	109	237	06:15-06:30	112	97	209
12:30-12:45	5	1	6	06:30-06:45	133	125	258	12:30-12:45	116	125	241	06:30-06:45	117	133	250
12:45-01:00	13	6	19	06:45-07:00	170	150	320	12:45-01:00	113	123	236	06:45-07:00	122	105	227
01:00-01:15	1	5	6	07:00-07:15	161	139	300	01:00-01:15	120	143	263	07:00-07:15	87	79	166
01:15-01:30	9	2	11	07:15-07:30	179	165	344	01:15-01:30	124	151	275	07:15-07:30	99	65	164
01:30-01:45	4	3	7	07:30-07:45	134	173	307	01:30-01:45	146	159	305	07:30-07:45	65	101	166
01:45-02:00	7	0	7	07:45-08:00	164	120	284	01:45-02:00	125	149	274	07:45-08:00	85	54	139
02:00-02:15	4	1	5	08:00-08:15	119	110	229	02:00-02:15	155	188	343	08:00-08:15	47	33	80
02:15-02:30	2	4	6	08:15-08:30	100	124	224	02:15-02:30	148	166	314	08:15-08:30	43	59	102
02:30-02:45	2	2	4	08:30-08:45	117	124	241	02:30-02:45	160	173	333	08:30-08:45	54	33	87
02:45-03:00	1	5	6	08:45-09:00	100	129	229	02:45-03:00	145	176	321	08:45-09:00	58	29	87
03:00-03:15	3	4	7	09:00-09:15	121	101	222	03:00-03:15	157	201	358	09:00-09:15	35	37	72
03:15-03:30	5	9	14	09:15-09:30	107	127	234	03:15-03:30	149	200	349	09:15-09:30	36	32	68
03:30-03:45	4	6	10	09:30-09:45	129	101	230	03:30-03:45	158	233	391	09:30-09:45	49	24	73
03:45-04:00	8	8	16	09:45-10:00	136	116	252	03:45-04:00	174	211	385	09:45-10:00	48	21	69
04:00-04:15	7	18	25	10:00-10:15	117	109	226	04:00-04:15	155	188	343	10:00-10:15	36	18	54
04:15-04:30	7	16	23	10:15-10:30	123	110	233	04:15-04:30	189	201	390	10:15-10:30	42	22	64
04:30-04:45	5	20	25	10:30-10:45	143	133	276	04:30-04:45	176	229	405	10:30-10:45	37	17	54
04:45-05:00	17	33	50	10:45-11:00	110	147	257	04:45-05:00	173	188	361	10:45-11:00	21	5	26
05:00-05:15	21	39	60	11:00-11:15	148	122	270	05:00-05:15	179	133	312	11:00-11:15	26	8	34
05:15-05:30	37	55	92	11:15-11:30	159	126	285	05:15-05:30	154	182	336	11:15-11:30	38	12	50
05:30-05:45	63	62	125	11:30-11:45	150	118	268	05:30-05:45	153	123	276	11:30-11:45	16	9	25
05:45-06:00	70	60	130	11:45-12:00	118	132	250	05:45-06:00	128	120	248	11:45-12:00	19	12	31

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	644	627	1271
AM - K FACTOR (%)			7.49
AM - D (%)	50.67	49.33	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM	06:45 AM to 07:45 AM	
AM - PEAK HR VOLUME	644	627	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:45 PM to 04:45 PM		
PM - PEAK HR VOLUME	694	829	1523
PM - K FACTOR (%)			8.97
PM - D (%)	45.57	54.43	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:15 PM to 05:15 PM	03:00 PM to 04:00 PM	
PM - PEAK HR VOLUME	717	845	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	644	627	1271
AM - K FACTOR (%)			7.49
AM - D (%)	50.67	49.33	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:45 PM to 04:45 PM		
PM - PEAK HR VOLUME	694	829	1523
PM - K FACTOR (%)			8.97
PM - D (%)	45.57	54.43	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM		
PEAK HR VOLUME	608	703	1311
DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM	02:00 PM to 03:00 PM	
PEAK HR VOLUME	608	703	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	3,162	3,046	6,208
AM 12-HR PERIOD (00:00-12:00)	3,473	3,428	6,901
PM 6-HR PERIOD (12:00-18:00)	3,558	3,995	7,553
PM 12-HR PERIOD (12:00-24:00)	4,959	5,117	10,076
24 HOUR PERIOD	8,432	8,545	16,977
D (%)	49.67	50.33	100.00

Run Date: 2014/06/02

Hawaii Department of Transportation
Highways Division **Highways Planning Survey Section**

2013 Program Count - Summary

Site ID: B73005001629 **Town:** Kauai **DIR 1:** +MP **DIR 2:** -MP **Final AADT:** 16200
Functional Class: URBAN:MINOR ARTERIAL **Count Type:** CLASS **Counter Type:** Tube **Route No:** 50
Location: Kaumualii Hwy - Puna Rd to Kona Rd

TIME-AM	DIR 1	DIR 2	TOTAL	TIME-AM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL	TIME-PM	DIR 1	DIR 2	TOTAL
DATE : 03/12/2013															
12:00-12:15	5	17	22	06:00-06:15	116	110	226	12:00-12:15	114	120	234	06:00-06:15	129	135	264
12:15-12:30	15	2	17	06:15-06:30	133	140	273	12:15-12:30	116	128	244	06:15-06:30	143	122	265
12:30-12:45	12	4	16	06:30-06:45	128	133	261	12:30-12:45	115	136	251	06:30-06:45	120	130	250
12:45-01:00	4	4	8	06:45-07:00	159	166	325	12:45-01:00	129	109	238	06:45-07:00	103	140	243
01:00-01:15	6	1	7	07:00-07:15	182	157	339	01:00-01:15	111	132	243	07:00-07:15	110	124	234
01:15-01:30	4	2	6	07:15-07:30	175	157	332	01:15-01:30	100	134	234	07:15-07:30	102	97	199
01:30-01:45	6	5	11	07:30-07:45	148	181	329	01:30-01:45	115	141	256	07:30-07:45	82	85	167
01:45-02:00	1	2	3	07:45-08:00	158	133	291	01:45-02:00	105	180	285	07:45-08:00	77	65	142
02:00-02:15	2	5	7	08:00-08:15	112	95	207	02:00-02:15	153	181	334	08:00-08:15	57	55	112
02:15-02:30	1	3	4	08:15-08:30	120	131	251	02:15-02:30	180	147	327	08:15-08:30	64	53	117
02:30-02:45	2	1	3	08:30-08:45	120	134	254	02:30-02:45	143	163	306	08:30-08:45	62	34	96
02:45-03:00	2	5	7	08:45-09:00	117	119	236	02:45-03:00	115	170	285	08:45-09:00	53	44	97
03:00-03:15	3	3	6	09:00-09:15	107	110	217	03:00-03:15	148	167	315	09:00-09:15	60	47	107
03:15-03:30	4	1	5	09:15-09:30	116	129	245	03:15-03:30	134	194	328	09:15-09:30	69	33	102
03:30-03:45	3	7	10	09:30-09:45	152	114	266	03:30-03:45	187	199	386	09:30-09:45	53	44	97
03:45-04:00	7	3	10	09:45-10:00	137	127	264	03:45-04:00	160	201	361	09:45-10:00	54	29	83
04:00-04:15	7	16	23	10:00-10:15	135	119	254	04:00-04:15	187	201	388	10:00-10:15	27	30	57
04:15-04:30	6	19	25	10:15-10:30	132	141	273	04:15-04:30	168	192	360	10:15-10:30	33	21	54
04:30-04:45	5	21	26	10:30-10:45	143	106	249	04:30-04:45	174	207	381	10:30-10:45	36	16	52
04:45-05:00	17	28	45	10:45-11:00	114	118	232	04:45-05:00	180	174	354	10:45-11:00	40	17	57
05:00-05:15	16	44	60	11:00-11:15	137	129	266	05:00-05:15	172	175	347	11:00-11:15	35	15	50
05:15-05:30	26	57	83	11:15-11:30	106	106	212	05:15-05:30	180	170	350	11:15-11:30	27	8	35
05:30-05:45	72	52	124	11:30-11:45	112	96	208	05:30-05:45	172	128	300	11:30-11:45	28	9	37
05:45-06:00	93	80	173	11:45-12:00	111	140	251	05:45-06:00	137	117	254	11:45-12:00	14	6	20

AM COMMUTER PERIOD (05:00-09:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	664	661	1325
AM - K FACTOR (%)			7.68
AM - D (%)	50.11	49.89	100.00
DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM	06:45 AM to 07:45 AM	
AM - PEAK HR VOLUME	664	661	

PM COMMUTER PERIOD (15:00-19:00)	DIR 1	DIR 2	
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:30 PM to 04:30 PM		
PM - PEAK HR VOLUME	702	793	1495
PM - K FACTOR (%)			8.66
PM - D (%)	46.96	53.04	100.00
DIRECTIONAL PEAK			
PM - PEAK HR TIME	04:00 PM to 05:00 PM	03:45 PM to 04:45 PM	
PM - PEAK HR VOLUME	709	801	

AM PERIOD (00:00-12:00)			
TWO DIRECTIONAL PEAK			
AM - PEAK HR TIME	06:45 AM to 07:45 AM		
AM - PEAK HR VOLUME	664	661	1325
AM - K FACTOR (%)			7.68
AM - D (%)	50.11	49.89	100.00

PM PERIOD (12:00-24:00)			
TWO DIRECTIONAL PEAK			
PM - PEAK HR TIME	03:30 PM to 04:30 PM		
PM - PEAK HR VOLUME	702	793	1495
PM - K FACTOR (%)			8.66
PM - D (%)	46.96	53.04	100.00

NON-COMMUTER PERIOD (09:00-15:00)			
TWO DIRECTIONAL PEAK			
PEAK HR TIME	01:45 PM to 02:45 PM		
PEAK HR VOLUME	581	671	1252
DIRECTIONAL PEAK			
PEAK HR TIME	02:00 PM to 03:00 PM	01:45 PM to 02:45 PM	
PEAK HR VOLUME	591	671	

6-HR, 12-HR, 24-HR PERIODS	DIR 1	DIR 2	Total
AM 6-HR PERIOD (06:00-12:00)	3,170	3,091	6,261
AM 12-HR PERIOD (00:00-12:00)	3,489	3,473	6,962
PM 6-HR PERIOD (12:00-18:00)	3,495	3,866	7,361
PM 12-HR PERIOD (12:00-24:00)	5,073	5,225	10,298
24 HOUR PERIOD	8,562	8,698	17,260
D (%)	49.61	50.39	100.00

Run Date: 2014/05/20

Hawaii Department of Transportation
Highways Division
Highways Planning Survey Section

Vehicle Classification Data Summary
2013

Site ID: B73005001629 **Route No:** 50 **Date From:** 2013/03/11 0:00
Town: Kauai **Direction:** +MP **Date To:** 2013/03/12 23:45
Location: Kaumualii Hwy - Puna Rd to Kona Rd

Functional Classification: 16 URBAN:MINOR ARTERIAL
REPORT TOTALS - 48 HOURS RECORDED

	VOLUME	%	NUMBER OF AXLES
Cycles	171	0.50%	342
PC	24464	71.45%	48928
2A-4T	8856	25.87%	17712
LIGHT VEHICLE TOTALS	33491	97.82%	66982
HEAVY VEHICLES			
Bus	94	0.27%	235
SINGLE UNIT TRUCK			
2A-6T	184	0.54%	368
3A-SU	220	0.64%	660
4A-SU	15	0.04%	60
SINGLE-TRAILER TRUCKS			
4A-ST	52	0.15%	208
5A-ST	147	0.43%	735
6A-ST	16	0.05%	96
MULTI-TRAILER TRUCKS			
5A-MT	6	0.02%	30
6A-MT	2	0.01%	12
7A-MT	10	0.03%	70
HEAVY VEHICLE TOTALS	746	2.18%	2474
CLASSIFIED VEHICLES TOTALS	34237 (A)	100.00%	69456 (B)
UNCLASSIFIED VEHICLES TOTALS	-0	-0.00%	

AXLE CORRECTION FACTOR (A/C) = 0.986

ROADTUBE EQUIVALENT(B/2) = 34728 (C)

PEAK HOUR VOLUME : 1499 2013/03/11 16:00	PEAK HOUR TRUCK VOLUME	% TOTAL PEAK HOUR VOLUME	24 HOUR TRUCK VOLUME	AADT	% OF AADT	HPMS K-FACTOR (PEAK/AADT) (ITEM 66)
SINGLE UNIT TRUCKS (TYPE 4-7)	10	(65A-1) 0.67%	256	16200	(65A-2) 1.58%	9.25%
COMBINATION (TYPE 8-13)	5	(65B-1) 0.33%	116		(65B-2) 0.72%	9.25%

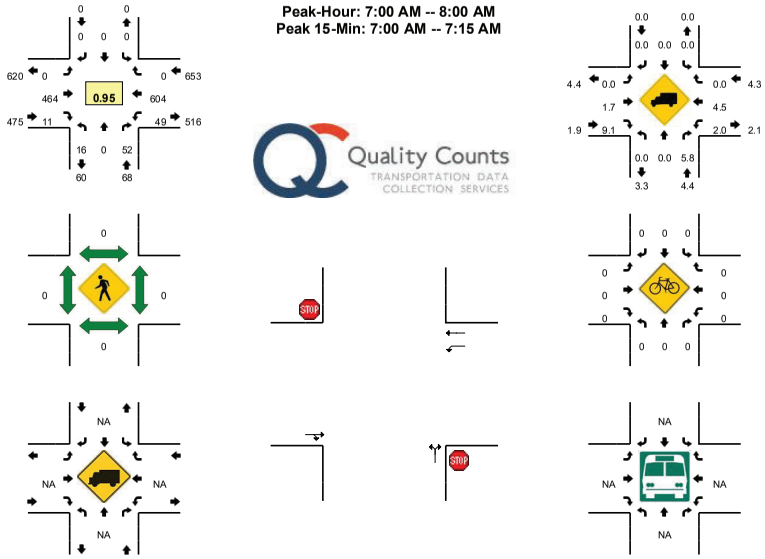
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Lele Rd -- Kaumuali'i Hwy
CITY/STATE: Eleele, HI

QC JOB #: 13584901
DATE: Thu, Sep 17 2015

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM



15-Min Count Period Beginning At	Lele Rd (Northbound)				Lele Rd (Southbound)				Kaumuali'i Hwy (Eastbound)				Kaumuali'i Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
6:15 AM	1	0	7	0	0	0	0	0	0	118	1	0	8	86	0	0	221	
6:30 AM	5	0	7	0	0	0	0	0	0	88	2	0	8	118	0	0	228	
6:45 AM	3	0	9	0	0	0	0	0	0	104	2	0	7	130	0	0	255	
7:00 AM	2	0	8	0	0	0	0	0	0	100	0	0	6	198	0	0	314	1018
7:15 AM	5	0	15	0	0	0	0	0	0	95	2	0	17	163	0	0	297	1094
7:30 AM	7	0	15	0	0	0	0	0	0	141	2	0	13	114	0	0	292	1158
7:45 AM	2	0	14	0	0	0	0	0	0	128	7	0	13	129	0	0	293	1196
8:00 AM	1	0	15	0	0	0	0	0	0	95	3	0	13	83	0	0	210	1092

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	0	32	0	0	0	0	0	0	400	0	0	24	792	0	0	1256
Heavy Trucks	0	0	0		0	0	0		0	0	0		4	40	0		44
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2015 6:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

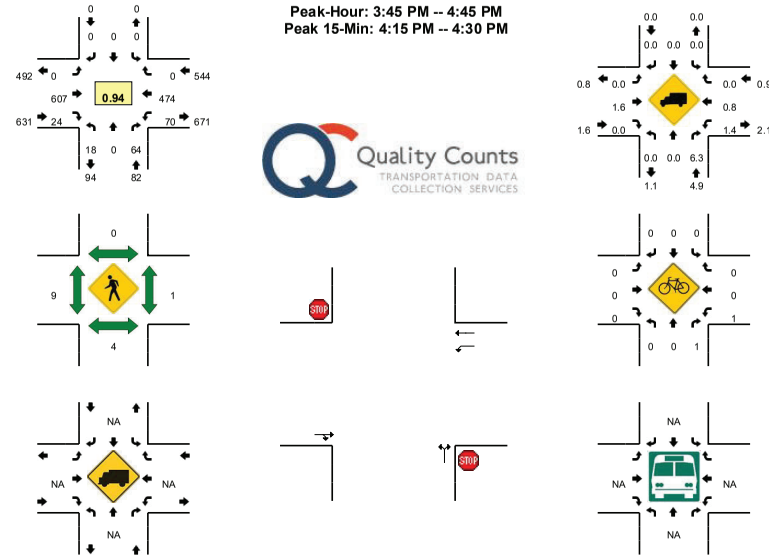
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Lele Rd -- Kaumuali'i Hwy
CITY/STATE: Eleele, HI

QC JOB #: 13584902
DATE: Thu, Sep 17 2015

Peak-Hour: 3:45 PM -- 4:45 PM
Peak 15-Min: 4:15 PM -- 4:30 PM



15-Min Count Period Beginning At	Lele Rd (Northbound)				Lele Rd (Southbound)				Kaumuali'i Hwy (Eastbound)				Kaumuali'i Hwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:15 PM	5	0	27	0	0	0	0	0	0	141	6	0	19	114	0	0	312	
3:30 PM	6	0	18	0	0	0	0	0	0	151	11	0	7	104	0	0	297	
3:45 PM	2	0	11	0	0	0	0	0	0	161	8	0	16	126	0	0	324	
4:00 PM	5	0	20	0	0	0	0	0	0	127	6	0	14	113	0	0	285	1218
4:15 PM	7	0	14	0	0	0	0	0	0	160	3	0	20	129	0	0	333	1239
4:30 PM	4	0	19	0	0	0	0	0	0	159	7	0	20	106	0	0	315	1257
4:45 PM	5	0	12	0	0	0	0	0	0	117	4	0	17	109	0	0	264	1197
5:00 PM	8	0	17	0	0	0	0	0	0	125	3	0	13	106	0	0	272	1184

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	0	56	0	0	0	0	0	0	640	12	0	80	516	0	0	1332
Heavy Trucks	0	0	4		0	0	0		0	4	0		0	8	0		16
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 9/23/2015 6:59 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B

The Kaua‘i Bus Kekaha-Līhu‘e Timetable

KEKAHA - LIHUE MAINLINE

	M-F 100	M-F 100	M-F 100	M-F 100 E	M-F SS/Hol 100	M-F 150	M-F SS/Hol 100	M-F 150	M-F 100	M-F SS/Hol 100	M-F 100	M-F SS/Hol 100	M-F 100	M-F 150	M-F SS/Hol 100	M-F 150	M-F SS/Hol 100	M-F 100	M-F 100	M-F 100	M-F 100
PMRF - OUTSIDE MAIN GATE			*O/C*		O/C		O/C		O/C	O/C	O/C	O/C	O/C		O/C		O/C	O/C	O/C	O/C	O/C
SYNGENTA			*O/C*		O/C		O/C		O/C	O/C	O/C	O/C	O/C		O/C		O/C	O/C	O/C	O/C	O/C
ELEPAIO RD/AKIALOA RD	5:30	6:00	***6:15***		7:30		8:30		9:30	10:30	11:30	12:30	1:30		2:30		3:30	4:30	5:30	6:30	7:30	8:30
ELEPAIO RD/AKBEKE RD	5:30	6:00	***6:15***		7:30		8:30		9:30	10:30	11:30	12:30	1:30		2:30		3:30	4:30	5:30	6:30	7:30	8:30
KEKAHA NEIGHBORHOOD CTR	5:31	6:01	***6:16***	6:15	7:31		8:31		9:31	10:31	11:31	12:31	1:31		2:31		3:31	4:31	5:31	6:31	7:31	8:31
A/C KEKAHA ELDERLY HOUSING	O/C	O/C	*O/C*		O/C		O/C		O/C	O/C	O/C	O/C	O/C		O/C		O/C	O/C	O/C	O/C	O/C	O/C
ELEPAIO RD/IO RD	5:32	6:02	***6:17***		7:32		8:32		9:32	10:32	11:32	12:32	1:32		2:32		3:32	4:32	5:32	6:32	7:32	8:32
ELEPAIO RD/IWA RD	5:32	6:02	***6:17***		7:32		8:32		9:32	10:32	11:32	12:32	1:32		2:32		3:32	4:32	5:32	6:32	7:32	8:32
ELEPAIO RD/PUEO RD	5:33	6:03	***6:18***		7:33		8:33		9:33	10:33	11:33	12:33	1:33		2:33		3:33	4:33	5:33	6:33	7:33	8:33
OLD KEKAHA STORE	5:33	6:03	***6:18***		7:33		8:33		9:33	10:33	11:33	12:33	1:33		2:33		3:33	4:33	5:33	6:33	7:33	8:33
KVMH FOYER	5:38	6:08	***6:25***		7:38		8:38		9:38	10:38	11:38	12:38	1:38		2:38		3:38	4:38	5:38	6:38	7:38	8:38
WAIMEA ATHLETIC FIELD	5:39	6:09	***6:26***	6:22	7:39		8:39		9:39	10:39	11:39	12:39	1:39		2:39		3:39	4:39	5:39	6:39	7:39	8:39
WAIMEA NEIGHBORHOOD CTR	O/C	O/C	*O/C*		O/C		O/C		O/C	O/C	O/C	O/C	1:41		2:41		3:41	4:41	5:41	6:41	7:41	8:41
ISHIHARA MARKET	5:42	6:12	***6:30***		7:42		8:42		9:42	10:42	11:42	12:42	1:42		2:42		3:42	4:42	5:42	6:42	7:42	8:42
MAKAWELI POST OFFICE	5:47	6:17	***6:35***		7:47		8:47		9:47	10:47	11:47	12:47	1:47		2:47		3:47	4:47	5:47	6:47	7:47	8:47
KAUMAKANI THRIFTY MART	5:51	6:21	***6:39***		7:51	8:21	8:51	9:21	9:51	10:51	11:51	12:51	1:51	2:21	2:51	3:21	3:51	4:51	5:51	6:51	7:51	8:51
HANAPEPE MULTIPURPOSE BLDG				6:34																		
HANAPEPE ARMORY	5:54	6:24	***6:42***		7:54	8:24	8:54	9:24	9:54	10:54	11:54	12:54	1:54	2:24	2:54	3:24	3:54	4:54	5:54	6:54	7:54	8:54
HANAPEPE 1ST UNITED CHURCH	5:55	6:25	***6:43***		7:55	8:25	8:55	9:25	9:55	10:55	11:55	12:55	1:55	2:25	2:55	3:25	3:55	4:55	5:55	6:55	7:55	8:55
KEALAULA ELEELE	5:58	6:28	***6:46***		7:58	8:28	8:58	9:28	9:58	10:58	11:58	12:58	1:58	2:28	2:58	3:28	3:58	4:58	5:58	6:58	7:58	8:58
KAUAI COFFEE VISITOR CENTER	O/C	O/C	*O/C*		O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C
BRYDEBWOOD	6:06	6:36	***6:54***		8:06	8:36	9:06	9:36	10:06	11:06	12:06	1:06	2:06	2:36	3:06	3:36	4:06	5:06	6:06	7:06	8:06	9:06
KALAHEO POST OFFICE	6:08	6:38	****6:56***	6:45	8:08	8:38	9:08	9:38	10:08	11:08	12:08	1:08	2:08	2:38	3:08	3:38	4:08	5:08	6:08	7:08	8:08	9:08
HALE KUPUNA	O/C	O/C	*O/C*		O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C
PUU RD/HOKUA RD	O/C	O/C	*O/C*		O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C
A/C LAWAI POST OFFICE	6:13	6:43	***7:01***		8:13	8:43	9:13	9:43	10:13	11:13	12:13	1:13	2:13	2:43	3:13	3:43	4:13	5:13	6:13	7:13	8:13	9:13
KCC PERFORMING ARTS CENTER (M-F)	Drop Only	Drop Only	*Drop Only*		Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:23
KAUMUALII HWY - A/C KCC	Drop Only	Drop Only	*Drop Only*		Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:23
KUKUI GROVE - FIRST HWN BANK***	Drop Only	Drop Only	*Drop Only*	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:27
EIWA STREET***	Drop Only	Drop Only	*Drop Only*	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:34
WAL-MART***	Drop Only	Drop Only	*Drop Only*	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:36
WILCOX HOSPITAL FOYER***	Drop Only	Drop Only	*Drop Only*	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	9:38
LIHUE NEIGHBORHOOD CTR **	Drop Only	Drop Only	*Drop Only*		Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	O/C

* Starts at 6:15 due to traffic conditions

**Transfers available to route 100E for direct route to Lihue
***Pick ups on Saturdays, Sundays & Holidays

LIHUE - KEKAHA MAINLINE

	M-F 200	M-F SS/Hol 200	M-F 200	M-F SS/Hol 200	M-F 200	M-F SS/Hol 200	M-F 200	M-F SS/Hol 200	M-F 200	M-F SS/Hol 200	M-F 200	M-F 200	M-F SS/Hol 200	M-F 200 E	M-F 200	M-F 200	M-F 200	M-F 200	M-F 200
LIHUE NEIGHBORHOOD CTR	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
WAL-MART	5:30	6:30	7:30	8:30	9:30	10:30	11:30	12:30	1:30	2:30	3:30	4:00	4:30	**4:45**	5:30	6:30	7:30	8:30	9:30
WILCOX HOSPTAL	5:32	6:32	7:32	8:32	9:32	10:32	11:32	12:32	1:32	2:32	3:32	4:02	4:32	**4:47**	5:32	6:32	7:32	8:32	9:32
EIWA STREET	5:36	6:36	7:36	8:36	9:36	10:36	11:36	12:36	1:36	2:36	3:36	4:06	4:36	**4:51**	5:36	6:36	7:36	8:36	9:36
KUKUI GROVE - FIRST HWN BANK	5:43	6:43	7:43	8:43	9:43	10:43	11:43	12:43	1:43	2:43	3:43	4:13	4:43	**4:58**	5:43	6:43	7:43	8:43	9:43
KCC PERFORMING ARTS CENTER	5:48	6:48	7:48	8:48	9:48	10:48	11:48	12:48	1:48	2:48	3:48	4:18	4:48		5:48	6:48	7:48	8:48	9:48
LAWAI POST OFFICE	5:58	6:58	7:58	8:58	9:58	10:58	11:58	12:58	1:58	2:58	3:58	4:28	4:58	BUS	5:58	6:58	7:58	8:58	9:58
PUU RD/HOKUA RD	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
HALE KUPUNA	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
KALAHEO NEIGHBORHOOD CTR	6:05	7:05	8:05	9:05	10:05	11:05	12:05	1:05	2:05	3:05	4:05	4:35	5:05	Drop Only	6:05	7:05	8:05	9:05	10:05
BRYDEBWOOD	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
KAUAI COFFEE VISITOR CENTER	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
ELEELE NANI (LAULEA ST)	6:15	7:15	8:15	9:15	10:15	11:15	12:15	1:15	2:15	3:15	4:15	4:45	5:15	EXPRESS	6:15	7:15	8:15	9:15	10:15
KEALAULA ELEELE	6:17	7:17	8:17	9:17	10:17	11:17	12:17	1:17	2:17	3:17	4:17	4:47	5:17		6:17	7:17	8:17	9:17	10:17
WESTSIDE PHARMACY	6:20	7:20	8:20	9:20	10:20	11:20	12:20	1:20	2:20	3:20	4:20	4:50	5:20		6:20	7:20	8:20	9:20	10:20
MARIKO STORE	6:24	7:24	8:24	9:24	10:24	11:24	12:24	1:24	2:24	3:24	4:24	4:54	5:24		6:24	7:24	8:24	9:24	10:24
HANAPEPE MULTIPURPOSE BLDG														Drop Only					
KAUMAKANI THRIFTY MART	6:28	7:28	8:28	9:28	10:28	11:28	12:28	1:28	2:28	3:28	4:28	4:58	5:28		6:28	7:28	8:28	9:28	10:28
MAKAWELI POST OFFICE	6:32	7:32	8:32	9:32	10:32	11:32	12:32	1:32	2:32	3:32	4:32	5:02	5:32		6:32	7:32	8:32	9:32	10:32
WAIMEA FIRST HWN BANK	6:36	7:36	8:36	9:36	10:36	11:36	12:36	1:36	2:36	3:36	4:36	5:06	5:36		6:36	7:36	8:36	9:36	10:36
WAIMEA NEIGHBORHOOD CTR	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	2:38	3:38	4:38	5:08	5:38		6:38	7:38	8:38	9:38	10:38
KVMH FOYER	6:41	7:41	8:41	9:41	10:41	11:41	12:41	1:41	2:41	3:41	4:41	5:11	5:41		6:41	7:41	8:41	9:41	10:41
WAIMEA ATHLETIC FIELD	6:42	7:42	8:42	9:42	10:42	11:42	12:42	1:42	2:42	3:42	4:42	5:12	5:42	Drop Only	6:42	7:42	8:42	9:42	10:42
OLD KEKAHA STORE	6:47	7:47	8:47	9:47	10:47	11:47	12:47	1:47	2:47	3:47	4:47	5:17	5:47		6:47	7:47	Drop Only	Drop Only	Drop Only
METHODIST CHURCH	6:47	7:47	8:47	9:47	10:47	11:47	12:47	1:47	2:47	3:47	4:47	5:17	5:47		6:47	7:47	Drop Only	Drop Only	Drop Only
ELEPAIO RD/IWA RD	6:48	7:48	8:48	9:48	10:48	11:48	12:48	1:48	2:48	3:48	4:48	5:18	5:48		6:48	7:48	Drop Only	Drop Only	Drop Only
ELEPAIO RD/IO RD	6:48	7:48	8:48	9:48	10:48	11:48	12:48	1:48	2:48	3:48	4:48	5:18	5:48	BUS	6:48	7:48	Drop Only	Drop Only	Drop Only
KEKAHA ELDERLY HSG	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	Drop Only	Drop Only	Drop Only
A/C KEKAHA NEIGHBORHOOD CTR	6:49	7:49	8:49	9:49	10:49	11:49	12:49	1:49	2:49	3:49	4:49	5:19	5:49	Drop Only	6:49	7:49	Drop Only	Drop Only	Drop Only
ELEPAIO RD/AKBEKE RD	6:50	7:50	8:50	9:50	10:50	11:50	12:50	1:50	2:50	3:50	4:50	5:20	5:50		6:50	7:50	Drop Only	Drop Only	Drop Only
ELEPAIO RD/AKIALOA RD	6:51	7:51	8:51	9:51	10:51	11:51	12:51	1:51	2:51	3:51	4:51	5:21	5:51		6:51	7:51	Drop Only	Drop Only	Drop Only
SYNGENTA	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C	O/C		O/C	O/C	O/C	O/C	O/C
PMRF - OUTSIDE MAIN GATE	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only	Drop Only		Drop Only	Drop Only	Drop Only	Drop Only	Drop Only

Drop off order may be adjusted

🚌	Serves PARK & RIDE facility
♿	ADA accessible bus stop
A/C	Across
O/C	ON-CALL stops; bus will not stop unless passenger notifies the office for pick-up or informs the driver for drop-off

Earlier and later routes are available on an on-call basis and printed information is available in alternate formats within seven (7) days of a request.

FARES

	MAINLINE	SHUTTLE
General Public	$2.00/trip	$0.50/trip
Seniors (60 + years)	$1.00/trip	$0.25/trip
Youth (7-18 years)	$1.00/trip	$0.25/trip

Children 6 and under travel free and must be accompanied by a paying passenger

Frequent Rider Passes

Monthly	$40	
12 Month	$400	with a photo ID

12 Month passes are only available at the Kauai Bus office
Monthly passes are available M-F, 8:00 am - 4:00 pm at the Civic Center, Treasury Division, the Kaua'i Bus office, Pono Market, and Kekaha, Kapahi, Kīlauea Menehune Food Marts.
Lost, stolen, destroyed or misplaced bus passes will not be replaced

ON BOARD GUIDELINES

ALLOWED:
Folding baby strollers
Guitars/Ukuleles/Band instruments
Body boards/Skateboards
All other items up to 10" X 17" X 30"

NOT ALLOWED:

Surfboards	Flammable Liquids
Eating/Drinking	Profanity
Smoking	Littering

Carry-ons stored in the aisle or on the seat
Animals, except trained service animals

Routes subject to cancel without notice. Schedules subject to change without notice. For the most current service information go to www.kauai.gov or contact the Kaua'i Bus Office

Appendix C

Analysis Reports
Existing (2015) Conditions

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	464	11	49	604	16	52
Future Vol, veh/h	464	11	49	604	16	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	488	12	52	636	17	55

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	500	0	1233	494
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	1054	-	193	571
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1054	-	183	571
Mov Cap-2 Maneuver	-	-	-	-	183	-
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	446	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	381	-	-	1054	-
HCM Lane V/C Ratio	0.188	-	-	0.049	-
HCM Control Delay (s)	16.6	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.7	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	607	24	70	474	18	64
Future Vol, veh/h	607	24	70	474	18	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	5	5
Mvmt Flow	646	26	74	504	19	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	671	0	1312	659
Stage 1	-	-	-	-	659	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	-	-	4.11	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.209	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	924	-	172	458
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	512	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	924	-	158	458
Mov Cap-2 Maneuver	-	-	-	-	158	-
Stage 1	-	-	-	-	509	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	-	-	924	-
HCM Lane V/C Ratio	0.27	-	-	0.081	-
HCM Control Delay (s)	20.2	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.3	-

Appendix D

Analysis Reports
Future (2035) Without Project Conditions

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	534	13	56	695	18	60
Future Vol, veh/h	534	13	56	695	18	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	562	14	59	732	19	63

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	576	0	1418	569
Stage 1	-	-	-	-	569	-
Stage 2	-	-	-	-	849	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	987	-	149	518
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	987	-	140	518
Mov Cap-2 Maneuver	-	-	-	-	140	-
Stage 1	-	-	-	-	562	-
Stage 2	-	-	-	-	391	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	319	-	-	987	-
HCM Lane V/C Ratio	0.257	-	-	0.06	-
HCM Control Delay (s)	20.2	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1	-	-	0.2	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	698	28	81	545	21	74
Future Vol, veh/h	698	28	81	545	21	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	5	5
Mvmt Flow	743	30	86	580	22	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	772	0	1509	757
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	752	-
Critical Hdwy	-	-	4.11	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.209	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	848	-	131	403
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	460	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	118	403
Mov Cap-2 Maneuver	-	-	-	-	118	-
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	413	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	27
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	263	-	-	848	-
HCM Lane V/C Ratio	0.384	-	-	0.102	-
HCM Control Delay (s)	27	-	-	9.7	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.7	-	-	0.3	-

Appendix E

Analysis Reports
Future (2035) With Project Conditions

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	5	0	0	78	69	38
Future Vol, veh/h	5	0	0	78	69	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	0	0	85	75	41

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	181	96	116	0	-	0
Stage 1	96	-	-	-	-	-
Stage 2	85	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	808	960	1473	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	938	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	808	960	1473	-	-	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	928	-	-	-	-	-
Stage 2	938	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1473	-	808	-	-
HCM Lane V/C Ratio	-	-	0.007	-	-
HCM Control Delay (s)	0	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	534	20	87	695	19	64
Future Vol, veh/h	534	20	87	695	19	64
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	4	4	4	4
Mvmt Flow	562	21	92	732	20	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	583	0	1488	573
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	915	-
Critical Hdwy	-	-	4.14	-	6.44	6.24
Critical Hdwy Stg 1	-	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	-	5.44	-
Follow-up Hdwy	-	-	2.236	-	3.536	3.336
Pot Cap-1 Maneuver	-	-	982	-	135	515
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	387	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	982	-	122	515
Mov Cap-2 Maneuver	-	-	-	-	122	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	22.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	296	-	-	982	-
HCM Lane V/C Ratio	0.295	-	-	0.093	-
HCM Control Delay (s)	22.2	-	-	9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.2	-	-	0.3	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	34	0	0	95	109	7
Future Vol, veh/h	34	0	0	95	109	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	37	0	0	103	118	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	225	122	126	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	763	929	1460	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	921	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	763	929	1460	-	-	-
Mov Cap-2 Maneuver	763	-	-	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	921	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1460	-	763	-	-
HCM Lane V/C Ratio	-	-	0.048	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	698	30	86	545	28	101
Future Vol, veh/h	698	30	86	545	28	101
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	55	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	1	1	5	5
Mvmt Flow	743	32	91	580	30	107

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	774	0	1522	759
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	763	-
Critical Hdwy	-	-	4.11	-	6.45	6.25
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.209	-	3.545	3.345
Pot Cap-1 Maneuver	-	-	846	-	128	402
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	455	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	846	-	114	402
Mov Cap-2 Maneuver	-	-	-	-	114	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	406	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.3	33.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	260	-	-	846	-
HCM Lane V/C Ratio	0.528	-	-	0.108	-
HCM Control Delay (s)	33.3	-	-	9.8	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	2.8	-	-	0.4	-