DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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DEPUTY DIRECTOR

EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

January 25, 2022

2022/ED-1(MS)

Ms. Mary Alice Evans, Director
State of Hawaii
Office of Planning and Sustainable Development
Environmental Review Program
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Ms. Evans:

SUBJECT:	Chapter 25, Revised Ordinances of Honolulu Draft Environmental Assessment (DEA)
Project:	Kahala Beach Villas Project
Applicant:	A'Yia LLC
Agent:	G70 (Jeffrey H. Overton)
Location:	4767-B, 4767-D, 4769, and 4775 Kahala Avenue - Kahala
Tax Map Keys (TMK):	3-5-006: 007, 009, 014, and 025

With this letter, the Department of Planning and Permitting hereby transmits the DEA and Anticipated Finding of No Significant Impact for the Kahala Beach Villas Project, located at 4767-B, 4767-D, 4769, and 4775 Kahala Avenue in Kahala (TMK 3-5-006: 007, 009, 014, and 025), Oahu, for publication in the February 8, 2022 edition of *The Environmental Notice*.

We have uploaded an electronic copy of this letter, the publication form, and the DEA to your online submittal site.

Should you have any questions, please contact Malynne Simeon, of our Land Use Approvals Branch, at 768-8023 or via email at msimeon@honolulu.gov.

Very truly yours,

for Dean Uchida
Director

cc: Jeffrey H. Overton (G70)

ERP SUBMITTAL: APPLICANT
PUBLICATION FORM

Action Name:	The Kahala Beach Villas
Applicable Law:	Chapter 25, Revised Ordinance of Honolulu, Special Management Area
Type of Document:	Draft Environmental Assessment – Anticipated Finding of No Significant Impact
Island:	O'ahu
Judicial District(s):	Honolulu
TMK(s):	(1) 3-5-006: 007, 009, 014, 025
Permit(s)/Approval(s):	Various - see Table 2-1, List of Required Government Permits and Approvals.
Applicant:	A'YIA LLC
Contact Name, Email, Telephone, Address	Tim Gutierrez Phone: (808) 734-1683 Email: tim@pyramidhawaii.com 4614 Kilauea Avenue, Suite 205 Honolulu, Hawaii 96816
Approving Agency:	City and County of Honolulu Department of Planning and Permitting
Contact Name, Email, Telephone, Address	Malynne Simeon Phone: (808) 768-8023 Email: msimeon@honolulu.gov 650 South King Street, 7th Floor Honolulu, Hawaii 96813
Consultant:	G70
Contact Name, Email, Telephone, Address	Jeffrey H. Overton, Principal Phone: (808) 441-2104 Email: jeff@g70.design 111 S. King Street, Suite 170 Honolulu, Hawaii 96813
Email address for receiving comments:	KahalaBeachVillasEA@g70.design
Status*:*	Draft EA

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

A'YIA LLC is proposing to undertake "The Kahala Beach Villas" (Project). The Project involves the demolition of seven existing dwellings, and redevelopment and construction of six new dwellings on the Project site. The site is located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue on Tax Map Key parcels: (1) 3-5-006:007, 009, 014 and 025. The Applicant also proposes to improve the existing shared, privately-owned driveway to continue access to the residences. The Project will be designed and constructed to attain certification from the U.S. Green Building COuncil's Leadership in Energy and Environmental Design program. The Project will be designed and constructed to attain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design program.

The Kahala Beach Villas

DRAFT ENVIRONMENTAL ASSESSMENT/ ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT

HONOLULU, ISLAND OF O'AHU

APPLICANT:

A'YIA LLC

PREPARED BY:

G70

JANUARY 2022

The Kahala Beach Villas

DRAFT ENVIRONMENTAL ASSESSMENT/ ANTICIPATED FINDING OF NO SIGNIFICANT IMPACT

HONOLULU, ISLAND OF O'AHU

TMK: (1) 3-5-006: 007, 009, 014, AND 025

APPLICANT:

A'YIA LLC
7908 LEWINSVILLE ROAD
MCLEAN, VA 22102-2407

APPROVING AGENCY:

CITY AND COUNTY OF HONOLULU
DEPARTMENT OF PLANNING AND PERMITTING
650 SOUTH KING STREET, 7TH FLOOR
HONOLULU, HAWAI'I 96813

The document and all ancillary documents were prepared under my direction and in accordance with the content requirements of Chapter 343, Hawai'i Revised Statutes, and Title 11, Chapter 200.1, Hawai'i Administrative Rules.

PREPARED BY:

G70

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

JANUARY 2022

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Appendices

Acronyms and Abbreviations

AIS	Archaeological Inventory Survey
BFE	Base Flood Elevations
BMPs	Best Management Practices
BS	Beaches
BWS	Honolulu Board of Water Supply, City
CAB	Clean Air Branch, DOH, State
CCC	Climate Change Commission
City	City and County of Honolulu
CCSR	Office of Climate Change, Sustainability and Resiliency, City
cfs	Cubic Feet per Second
CIA	Cultural Impact Assessment
CPHC	Central Pacific Hurricane Center
CPR	Condominium Property Regime
CWB	Clean Water Branch, DOH, State
CWRM	Commission on Water Resource Management, DLNR, State
CZM	Coastal Zone Management
dBA	A-weighted decibels
DEM	Department of Emergency Management, City
DLNR	Department of Land and Natural Resources, State
DOFAW	Division of Forestry and Wildlife, DLNR, State
DOH	Department of Health, State
DPP	Department of Planning and Permitting, City
DPR	Department of Parks and Recreation, City
DTS	Department of Transportation Services, City
EA	Environmental Assessment
EMS	Honolulu Emergency Services Department, City
ENV	Department of Environmental Services, City
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FT	Feet
GHG	Greenhouse Gases

Gpd	Gallons Per Day
HAR	Hawai‘i Administrative Rules
HECO	Hawaiian Electric Company
HFD	Honolulu Fire Department, City
HPD	Honolulu Police Department, City
HRS	Hawai‘i Revised Statutes
IBC	International Building Code
IRHB	Indoor and Radiological Health Branch, DOH, State
JaC	Jaucas Sand
LEED	Leadership in Energy and Environmental Design
LID	Low-impact Development
Mph	Miles per Hour
msl	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NB	Neighborhood Board
NPDES	National Pollutant Discharge Elimination System
NOAA	National Oceanic and Atmospheric Administration
OPSD	Office of Planning and Sustainable Development, State
PER	Preliminary Engineering Report
PTWC	Pacific Tsunami Warning Center
PUC DP	Primary Urban Center Development Plan
PVT	PVT Land Company Limited
ROH	Revised Ordinances of Honolulu
ROW	Right-of-way
SAAQS	State Ambient Air Quality Standards
SDC	Seismic Design Category
SF	Square Feet
SHPD	State Historic Preservation Division, DLNR, State
SLR	Sea Level Rise
SMA	Special Management Area
SMH	Sewer Manhole
State	State of Hawai‘i
TMK	Tax Map Key
TMP	Traffic Management Plan

USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WWTP	Wastewater Treatment Plant

Chapter 1

Introduction

Chapter 1

Introduction

1.1 Project Information Summary

Type of Document:	Draft Environmental Assessment
Project Name:	The Kahala Beach Villas
Applicant/Recorded Fee Owner:	A'YIA LLC 7908 Lewinsville Road Mclean, VA 22102-2407
Agent:	G70 111 S. King Street, Suite 170 Honolulu, HI 96813 Contact: Jeff Overton, Principal
Approving Agency:	City and County of Honolulu (City) Department of Planning and Permitting 650 South King Street, 7th Floor Honolulu, Hawai'i 96813
Hawai'i Revised Statutes Chapter 343 Req.:	Revised Ordinances of Honolulu Chapter 25, *Special Management Area*
Project Location:	4767-B, 4767-D, 4769 & 4775 Kāhala Avenue Honolulu, Hawai'i 96816 *(Figure 1-1, Project Location and Tax Map Key)*
Tax Map Key (TMK) Parcels and Recorded Fee Owners:	TMK Parcels: (1) 3-5-006: 007, 009, and 014 – A'YIA LLC TMK Parcel: (1) 3-5-006: 025 – Various Owners
Project Area:	Total: 1.84 acres (80,245 square feet [SF]) • TMK Parcel 007– approximately 0.64 acres (27,988 SF) • TMK Parcel 009 – approximately 0.82 acres (35,896 SF) • TMK Parcel 014 – approximately 0.22 acres (9,375 SF) • TMK Parcel 025 – approximately 0.16 acres (6,986 SF)
State Land Use District:	Urban District
City Zoning District:	R-5 – Residential District
Special Management Area (SMA):	Within SMA
Flood Zones:	Zone AE (subject to 100-year flood)
Anticipated Determination:	Finding of No Significant Impact

1.2 Project Overview

A'YIA LLC (Applicant/Proponent) is proposing to undertake "The Kahala Beach Villas" (Project). The Project primarily involves the demolition of seven existing residences, the redevelopment of six new residences (single-family detached dwellings), and the construction of six new residences (single-family detached dwellings). The Project site (Site) is located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue on Tax Map Key (TMK) parcels: (1) 3-5-006:007 (Parcel 007), 009 (Parcel 009), 014 (Parcel 014) and 025 (Parcel 025). See *Figure 1-1, Project Location and Tax Map Key*.

The Project improvements primarily include the following:

- Six existing residences on Parcel 007 (4775 Kāhala Avenue) will be replaced with five new residences.
- Six new residences will be developed on Parcel 009 (4767-D Kāhala Avenue), to replace a previously existing large ocean-front estate.
- One existing residence on Parcel 014 (4767-B Kāhala Avenue) will be replaced with one new residence.
- The existing shared, privately-owned driveway (driveway) on Parcel 025 (4769 Kāhala Avenue) will be improved to provide continued access to the residences.

1.3 Basis for Environmental Review

This Draft Environmental Assessment (EA) is required pursuant to Revised Ordinances of Honolulu (ROH) Chapter 25, in support of a Special Management Area (SMA) Use Permit Application. This Draft EA has been prepared in accordance with the content and procedural requirements of Hawai'i Revised Statutes (HRS) Chapter 343 and Hawai'i Administrative Rules (HAR) Chapter 11-200.1.

This Draft EA is presented in eight chapters and includes the following: a description of the Project; a list of necessary permits/approvals; a description of the existing environment; a discussion on potential impacts and proposed mitigation measures on identified natural, cultural, and socioeconomic resources as well as existing infrastructure; a description of alternatives; a discussion of the Project's relationship to land use plans and policies; findings supporting the determination; a list of agencies, organizations, and individuals that participated in the early consultation phase; and a list of references used in developing the Draft EA.

The notice of availability of the Draft EA will be published in the State, Office of Planning and Sustainable Development (OPSD), Environmental Review Program's bi-weekly bulletin, *The Environmental Notice*, which will commence a 30-day public comment period. After the 30-day comment period has concluded, comments received will be considered and addressed to the extent feasible in the Final EA.

Figure 1-1 **Project Location and Tax Map Key**

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Chapter 2

Description of the Proposed Action

Chapter 2

Description of the Proposed Action

This chapter primarily describes the Proposed Action/Project components, the purpose, need and background of the Project, anticipated Project schedule, costs and permits/approvals required.

2.1 Description of Existing Facilities and Uses

The Site includes the following existing facilities and uses:

- Parcel 007 (4775 Kāhala Avenue) is developed with six existing residences and a 6-car carport surrounding a courtyard (built in the early 1980s). The residences are currently rented. A concrete boundary wall surrounds the parcel.
- Parcel 009 (4767-D Kāhala Avenue) was previously developed with a large ocean-front estate (demolished in 2009) and a swimming pool (demolished in 2014). A deteriorated tennis court and concrete foundation slabs from the previously demolished estate and swimming pool remain. A chain link fence joins a concrete boundary wall to surround the parcel.
- Parcel 014 (4767-B Kāhala Avenue) is developed with one existing residence (built circa 2001-2002). The residence is currently rented. A concrete boundary wall surrounds the parcel.
- Parcel 025 (4769 Kāhala Avenue) is a shared, privately-owned driveway which provides access to the Site as well as residents on adjacent TMK parcels: (1) 3-5-006:006, 012, and 013. A 6-foot-high chain link fence and gate span the length of the driveway, located approximately 400 feet (FT) makai of the driveway entry.

2.2 Permit History

The following includes a brief building and land use permit history (in chronological order) for the existing facilities and structures on the Site:

- Parcel 007 (4775 Kāhala Avenue)
  - 81/EU-9 – Land Permit Application for the renovation of units 1, 2, & 3; demolition of units 4 & 5; and construction of units (issued August 10, 1981).
  - 81/SMA-94 – Land Permit Application for the conformance of 5 dwellings (issued August 13, 1981).
  - 81/SD-3 – Land Permit Application for the site development plan of Lot 20, Section A into 3 lots (issued October 29, 1981).
  - BP #565900 – Building Permit for a new concrete masonry unit wall at the rear right corner of the parcel (issued May 20, 2004).
  - 2021/SCA-0421 – Sewer Connection Application (issued March 30, 2021).
- Parcel 009 (4767-D Kāhala Avenue)
  - BP #648676 – Building Permit to demolish an existing 2-family detached dwelling/estate (issued October 30, 2009).

  - BP #740706 – Building Permit to demolish an existing swimming pool (issued January 7, 2014).
  - 2021/SCA-0421 – Sewer Connection Application (issued March 30, 2021).
- Parcel 014 (4767-B Kāhala Avenue)
  - BP #518002 – Building Permit for the construction of a new single-family dwelling (issued February 7, 2001).
  - 2021/SCA-0421 – Sewer Connection Application (issued March 30, 2021).
- Parcel 025 (4769 Kāhala Avenue)
  - 2004/SMA-71 – A SMA minor permit was approved for the construction of a 6-foot-high chain link fence and gate on the privately-owned driveway, to replace an existing wooden fence (approved October 15, 2004).

2.3 Description of the Proposed Action

The Project (Proposed Action) primarily involves the demolition of seven existing residences, the redevelopment of six new residences (single-family detached dwellings), and the construction of six new residences (single-family detached dwellings). See *Figure 2-1, Conceptual Site Plan, Figure 2-2, Kāhala Avenue Perspective, Figure 2-3, Kāhala Beach Perspective*, *Figure 2-4, Typical Elevation of Dwelling Fronting Kāhala Avenue, Figure 2-5, Typical Elevation of Dwelling Fronting Kāhala Beach, Figure 2-6, Typical Section of Dwelling Fronting Kāhala Avenue,* and *Figure 2-7, Typical Section of Dwelling Fronting Kāhala Beach,* and *Appendix A, Conceptual Plans*.

The Project improvements include the following:

- Parcel 007 (4775 Kāhala Avenue)
  - Demolition of the six existing residences, 6-car carport and concrete boundary wall.
  - Redevelopment of five new residences (single-family detached dwellings). The 2-story residences will have a building area of approximately 3,712 square feet (SF), a 2-car garage, and 4-FT deep pool (approximately 128 SF). Residences will surround a courtyard.
  - A 5-space garage will be built.
- Parcel 009 (4767-D Kāhala Avenue)
  - Demolition of the deteriorated tennis court and concrete foundation slabs, chain link fence and concrete boundary wall.
  - Construction of six new residences (single-family detached dwellings). The 2-story residences will have a building area of approximately 4,000 SF, a 2-car garage, and 4-FT deep pool (approximately 180 SF). Residences will be separated by a 6.0-FT coral paver path.
- Parcel 014 (4767-B Kāhala Avenue)
  - Demolition of the one existing residence and concrete boundary wall.
  - Redevelopment of one new residence (single-family detached dwellings). The 2-story residence will have a building area of approximately 3,825 SF, a 2-car garage, and 4-FT deep pool (approximately 180 SF).
  - A 6-space garage will be built.
- Parcel 025 (4769 Kāhala Avenue)
  - Demolition of the 6-foot-high chain link fence and gate.
  - The existing shared, privately-owned 14-FT wide driveway will be widened approximately 11.0 FT to meet City standards and support fire truck access. The driveway will connect to a new hammerhead turnaround near the entry of Parcel 007, to provide fire vehicle access. The driveway will provide continued access to the residences on the Site, as well as residents on adjacent TMK parcels: (1) 3-5-006: 006, 012, and 013.

  - Construction of a new gate to provide continued security at the makai end of the driveway, leading to the beach path.
- Installation of lush landscaping; on-site and off-site infrastructure improvements; and pedestrian improvements.
  - A variety of palm trees, native canopy trees, flowering trees, and native, drought, wind and salt-tolerant plants will be planted throughout the Site.
  - Overhead utility lines across Kāhala Avenue will be relocated underground within the driveway, which will eliminate fire hazards, accidents, power outages, benefit adjacent parcels and improve aesthetics fronting the Site.
  - A new coral stone boundary wall will be rebuilt, fronting Parcel 007 along Kāhala Avenue.
- A condominium property regime (CPR) will be created for Parcel 007; a separate CPR will be created for Parcel 009 and 014.
- Off-site improvements
  - In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. This vegetation and supporting irrigation system had been installed by a prior landowner and was left unmanaged for many intervening years. The overgrown vegetation along this frontage also allowed for illicit behavior (e.g., waste dumping, ad-hoc public urination, and encampment). Clearing of the non-native vegetation, waste, and debris has allowed for the natural beach grass to re-establish, removed an encroaching condition on lateral shoreline access, increased the useable public beach area, restored potential ground-nesting seabird habitat areas, and eliminated overgrown shrub hiding areas and associated illicit activities. Management of the shoreline vegetation will continue to be maintained.
  - In late 2021, the Proponent and landowner cleared overgrown and overhanging vegetation on Parcel 007 and the adjoining TMK parcel: (1) 3-5-006:006 bordering the City-owned drainage channel (Aukai Ditch) on TMK parcel: (1) 3-5-006:033. The proposed new landscaping on Parcel 007 bordering the drainage channel will not overhang and generate debris in the drainage channel. Maintenance of vegetation on Project parcels to prevent debris from entering the drainage channel will continue as needed.
  - Support for modest improvements at the City's Wai'alae Beach Park, such as a new bicycle rack and/or trash bins.
  - Coordination with the City Department of Transportation Services (DTS) for upgrade of the nearest TheBus stop on the makai side of Kāhala Avenue, approximately 100 FT from the Site.

The Project will be designed and constructed to attain certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program. The Project will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, use of sustainable materials, and lush landscaping. LEED components include installation of energy efficient lighting and appliances, energy sub-metering, photovoltaic panels, low-impact development (LID) designs such as use of concrete permeable pavers and detention/infiltration chambers beneath the privately-owned driveway and courtyard. This will set a precedence for future environmentally conscious, sustainable, and energy-efficient residences in Kāhala, which will help to advance the quality and character of this neighborhood.

2.4 Project Background

A'YIA LLC, a locally owned company, acquired the Site in December 2019.

Parcel 009 was previously owned by Estate of Kahala LLC, who purchased the parcel from Genshiro Kawamoto in 2013, along with 30 other properties in Kāhala. Genshiro Kawamoto bought these properties in Kāhala in the 1980s, which were predominantly unoccupied, boarded up, often vandalized, and eventually fell into disrepair. Parcel 007 was previously owned by Harold Holmdahl. Parcel 014 was previously owned by Thomas Hasegawa.

A'YIA LLC retained Pyramid Premier Properties and JTG LLC, to design and build out the Site. Pyramid Premier Properties and JTG LLC has extensive experience building and renovating more than 50 custom luxury residences in Kāhala for over 35 years.

2.5 Project Purpose and Need

The primary purpose of the Project is construct/redevelop residences on underutilized and neglected parcels. Additionally, the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala.

The Project is needed to contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala. Additionally, the Project will contribute significant beneficial public improvements to the Kāhala community. Furthermore, the Project will have a positive short-term direct, indirect, and cumulative impact on job creation and increased State and City tax revenues.

2.6 Project Site Location

The Site is located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue on TMK Parcels: (1) 3-5-006:007, 009, 014 and 025. See *Figure 1-1, Project Location and Tax Map Key*.

The Site is within the Waiʻalae-Kāhala neighborhood, and is makai of Kāhala Avenue, between Koloa Street and Pueo Street. A portion of the Site abuts the beach, with the Pacific Ocean to the southeast, and is predominantly surrounded by single-family residences. Residents on adjacent TMK parcels: (1) 3-5-006: 006, 012, and 013, jointly (privately) own and maintain the shared driveway (Parcel 025) which also provides access to the Site. Immediately northeast of the Site, abutting Parcel 007 is a City-owned drainage channel on TMK parcel: (1) 3-5-006:033. Further northeast of the Site is the Waiʻalae Beach Park, Waiʻalae Country Club, Kahala Beach Apartments, and The Kahala Hotel & Resort. The Site is within the State's Urban District and the City's R-5 (Residential) zoning district.

2.7 Schedule and Costs

2.7.1 Schedule

The Project design and construction is anticipated to be completed by 2024.

2.7.2 Cost

The design and construction budget for the Project is estimated at $30 million.

2.8 Required Permits and Approvals

The State and City permits and approvals that will likely be required for the Project are listed below in *Table 2-1, List of Required Government Permits and Approvals.*

Table 2-1 List of Required Government Permits and Approvals

Permit or Approval	Approving Agency
General National Pollutant Discharge Elimination System Permits – Construction Stormwater, Dewatering and Hydrotesting	State Department of Health (DOH), Clean Water Branch
Noise Permit	State DOH, Indoor and Radiological Health Branch
HRS Chapter 6E Compliance	State Department of Land and Natural Resources (DLNR), State Historic Preservation Division
Certified Shoreline Survey	State DLNR
Environmental Assessment	City Department of Planning and Permitting (DPP)
Special Management Area (SMA) Use Permit Application	City DPP
Building Permits for Building, Electrical, Plumbing, Driveway and Demolition Work	City DPP
Grubbing, Excavation, Grading, and Stockpiling Permits	City DPP
Conditional Use Permit (minor) – Joint Development	City DPP
Park Dedication Application	City DPP
Sewage Connection Permit	City Department of Environmental Services
Water Use Permit	City Honolulu Board of Water Supply
Street Usage Permit	City Department of Transportation Services

2.9 Early Consultation

Listed below are the Federal, State and City agencies, elected officials, organizations, neighbors, and individuals who were contacted for early consultation, prior to the publication of the Draft EA. For more information regarding the comments received and associated responses, see Chapter 7.

Federal Agencies
U. S. Department of the Interior, Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office

State of Hawai'i Agencies
Department of Business, Economic Development and Tourism, Office of Planning and Sustainable Development
Department of Health, Environmental Management Division
Department of Land and Natural Resources (DLNR)
- DLNR, Division of Forestry and Wildlife
- DLNR, State Historic Preservation Division

Department of Transportation

City and County of Honolulu Agencies
Department of Design and Construction
Department of Emergency Management
Department of Environmental Services
Department of Facility Maintenance
Department of Parks and Recreation
Department of Planning and Permitting
Department of Transportation Services
Honolulu Board of Water Supply
Honolulu Fire Department
Honolulu Police Department
Office of Climate Change, Sustainability and Resiliency

Elected Officials
Senate District 9, Senator Stanley Chang
House District 19, Representative Bertrand Kobayashi
Office of the Mayor, Rick Blangiardi
Honolulu City Council District 4, Councilmember Tommy Waters
Waiʻalae-Kāhala Neighborhood Board (NB) No. 03, Chair Richard Turbin

Utility Companies
Hawaiian Electric Company
Hawaiian Telcom

Organizations, Individuals and Neighbors
Kahala Beach Apartments
Kahala Community Association
Lucinda and John Pyles (Lucinda Pyles, Waiʻalae-Kāhala NB No. 03, Secretary)
The Kahala Hotel & Resort
Waiʻalae Country Club
4757 Kāhala Avenue
4771 Kāhala Avenue (Mr. Jeffrey Weldon and Mr. Edward J. III Weldon)
4747 Kāhala Avenue
4801 Kāhala Avenue
4801E Kāhala Avenue
4767 Kāhala Avenue

Figure 2-1 **Conceptual Site Plan**

Figure 2-2 **Kāhala Avenue Perspective**

Figure 2-3 **Kāhala Beach Perspective**

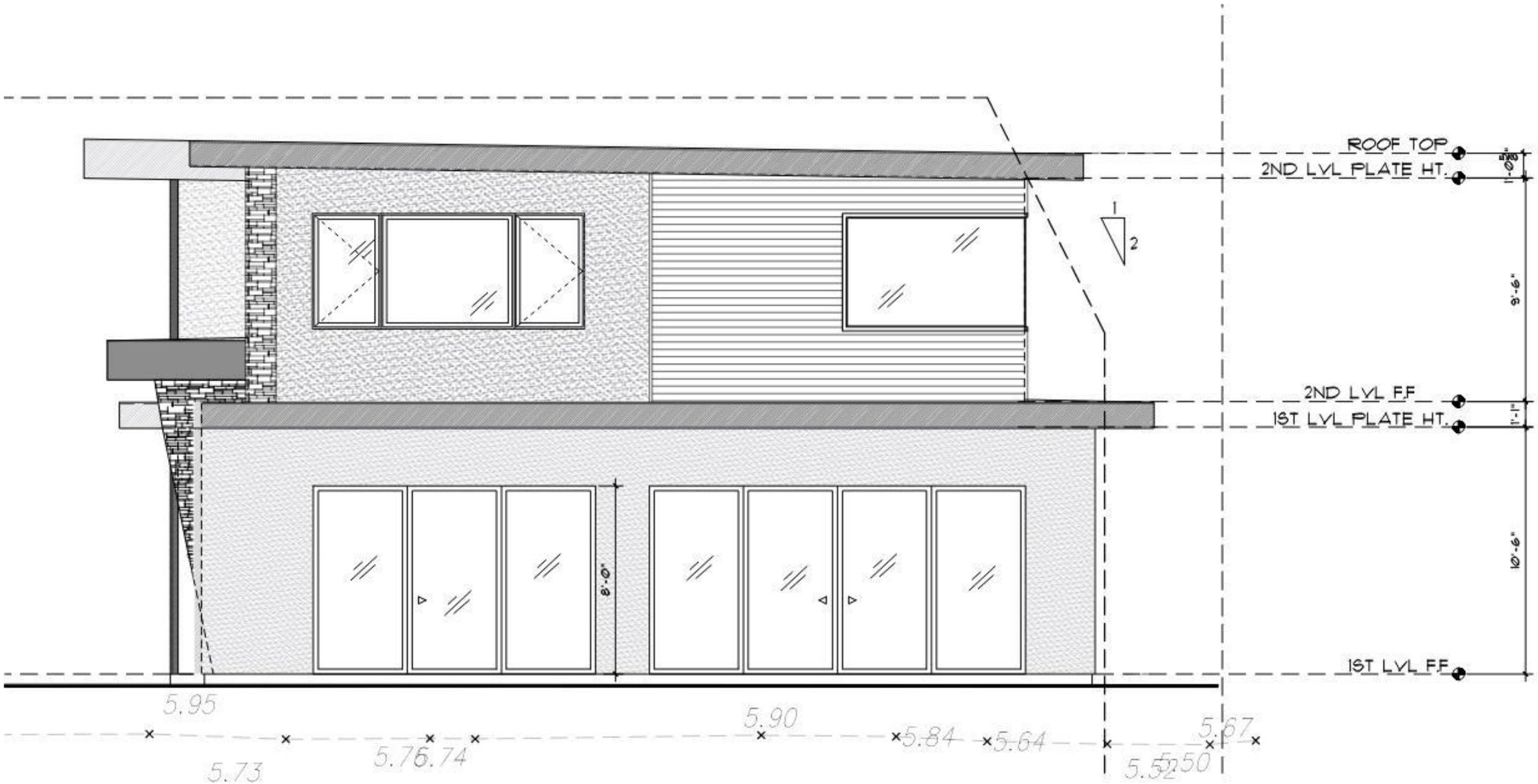

Figure 2-4 **Typical Elevation of Dwelling Fronting Kāhala Avenue**

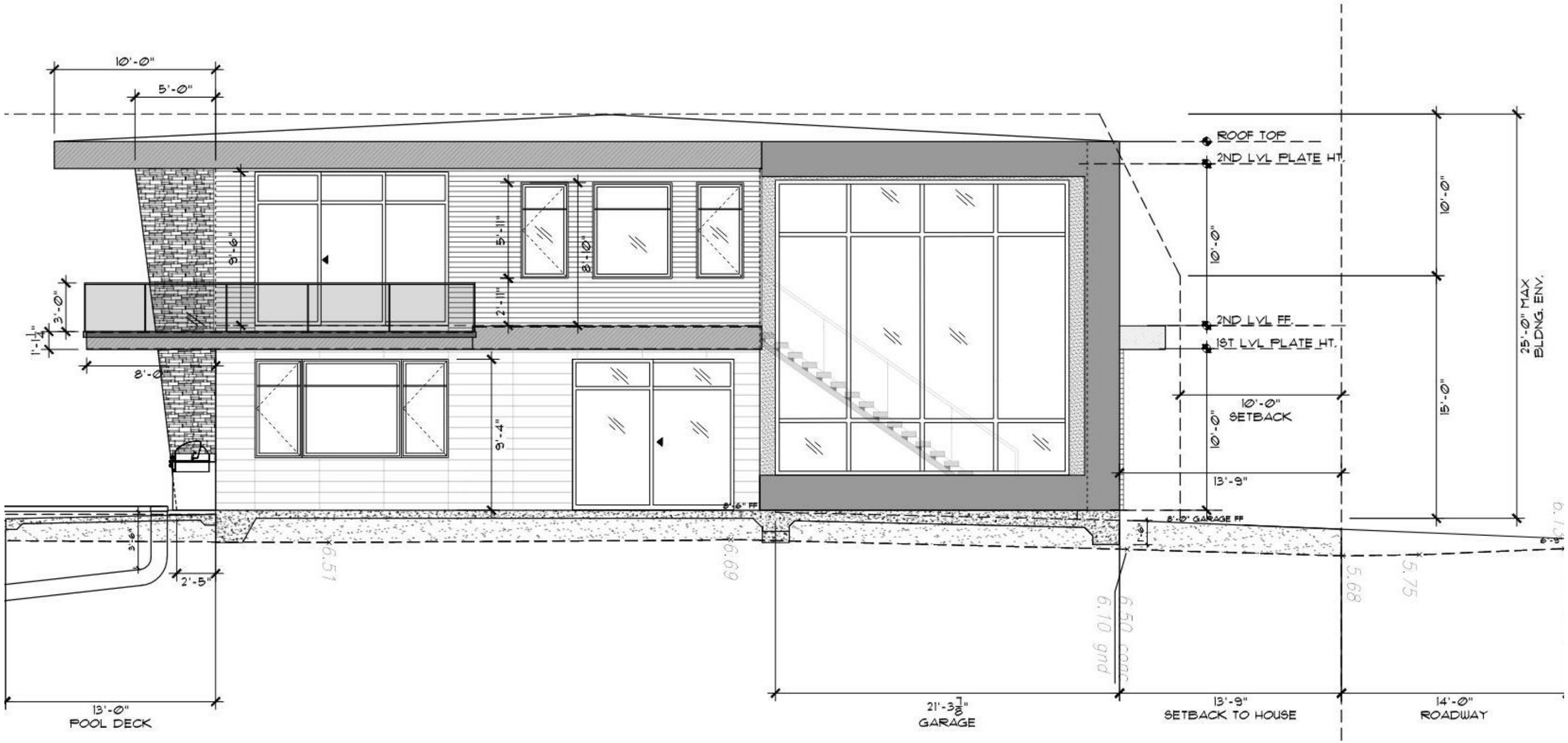

Figure 2-5 **Typical Elevation of Dwelling Fronting Kāhala Beach**

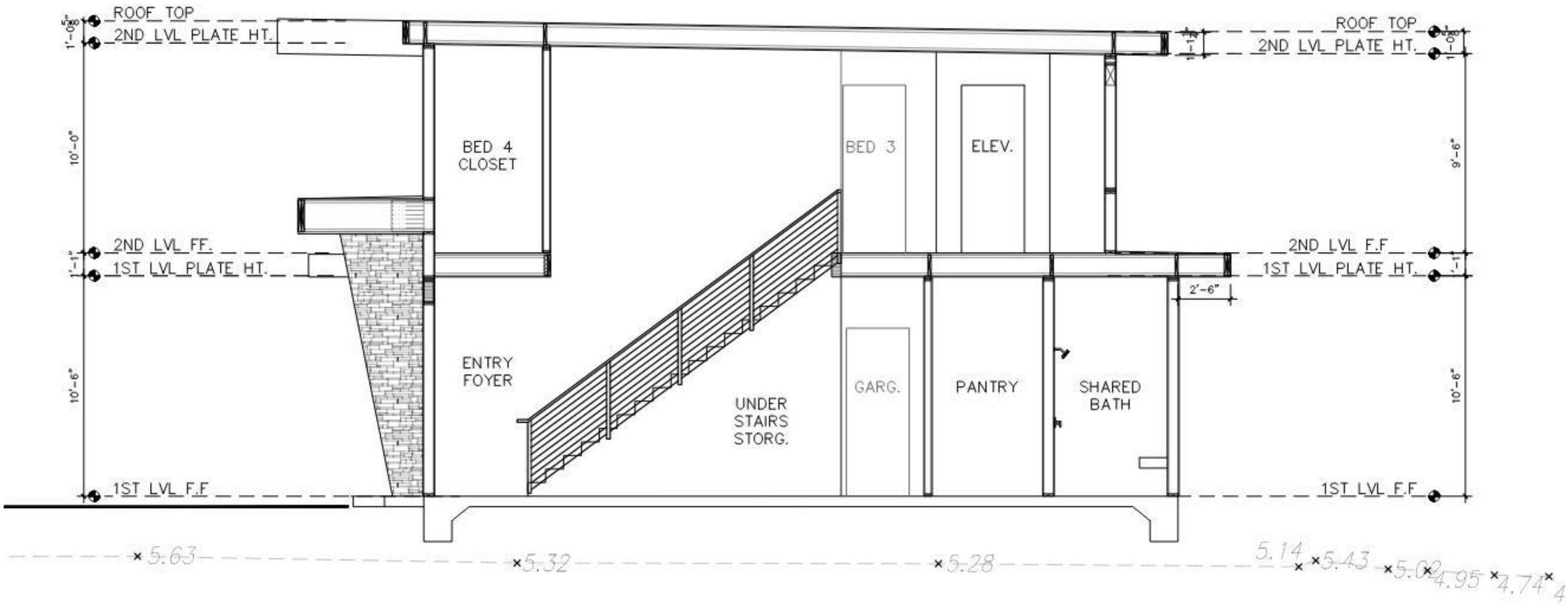

Figure 2-6 **Typical Section of Dwelling Fronting Kāhala Avenue**

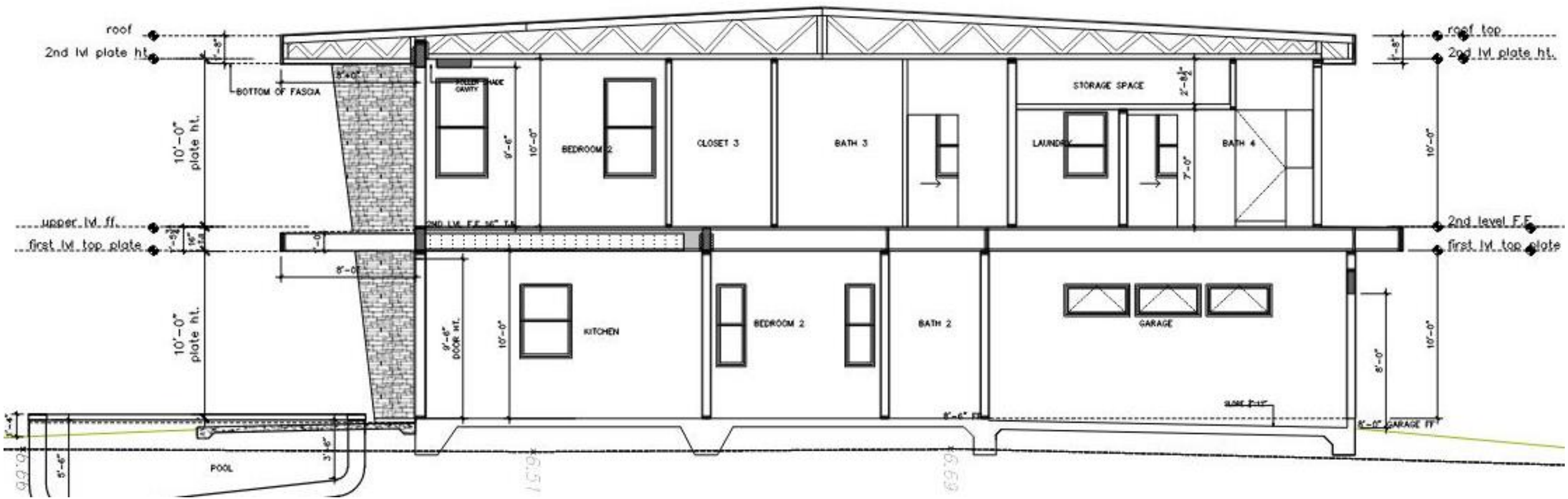

Figure 2-7 **Typical Section of Dwelling Fronting Kāhala Beach**

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Chapter 3

Existing Conditions, Potential Impacts, and Mitigation Measures

Chapter 3

Existing Conditions, Potential Impacts, and Mitigation Measures

This chapter describes the existing environmental setting and conditions, evaluates the potential impacts of the Proposed Action, and proposes mitigation measures to minimize, mitigate and/or resolve potential impacts.

3.1 Geology, Topography, and Soils

Existing Conditions

The island of Oʻahu was created from two major shield volcano formations, Waiʻanae Volcano and Koʻolau Volcano. Oʻahu was formed when lava from the Koʻolau Volcano ponded against the eroded slopes of the Waiʻanae Volcano (Shinsato, 2021). This created the central portion of Oʻahu known as the Schofield Plateau. These late-stage eruptions formed familiar landmarks such as Diamond Head, Punchbowl Crater, Tantalus, Round Top and Salt Lake Crater (Stearns and Vaksvik, 1935 in Shinsato, 2021).

The Site is located on the southeast coastline of Oʻahu, on sandy soils overlying coral reef. The Site rises from roughly 3.6 FT to 6.0 FT above mean sea level (msl) near the makai side of the Kāhala Avenue right-of-way (ROW), and slopes down to sea level at the beach, over an approximate distance of 500 FT (G70, 2021). Soil types within the Site include Jaucas Sand (JaC) and Beaches (BS). JaC are very deep, excessively drained, calcareous, sandy soils formed along the coast from coral and seashells; permeability is rapid, and runoff is very slow to slow. BS are sandy shores washed and rewashed by waves; partly covered with water during high tide or storms (USDA, 1972).
See *Figure 3-1, Soils.*

Potential Impacts and Mitigation Measures

During construction, clearing and grubbing activities will temporarily disturb and expose soils. To minimize erosion and control dust and prevent sediment and pollutants from entering State waters, the Contractor will comply with all applicable State and City regulations and will implement temporary Best Management Practices (BMPs), which may include but are not limited to the following:

- Installing silt fences, dust screens and filter socks around active work areas and inlet protection devices near drainage outlets;
- Minimizing disturbed areas to reduce the fugitive dust;
- Centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least disturbance;
- Retaining existing ground cover as long as possible;
- Installing a gravel entrance;

- Providing a water truck on-site during the construction period to provide for immediate sprinkling when ground cover is removed;
- Watering graded areas when construction activity for each day has ceased; and
- Installing retention basin and/or diversion berms/ditches.

The Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE and associated base flood elevations (BFE) of 7-8 FT above msl. The residences will be constructed via conventional slab-on-grade. Fill and backfill material will consist of soil which is free of organics and debris (Shinsato, 2021). Once construction is complete, soils on the Site will be stabilized through the installation of permanent BMPs such as concrete permeable pavers, landscaping, and storm runoff detention/infiltration chambers beneath the privately-owned driveway and courtyard.

The Project is not anticipated to result in a significant impact on geology, topography, or soils, as the proposed improvements do not involve the alteration of topographic conditions that adversely impact drainage patterns; or the excavation and/or disturbance of hazardous contaminants that compromise public health and safety. No additional mitigation is recommended.

Figure 3-1 **Soils**

3.2 Climate, Climate Change, and Sea Level Rise

Existing Conditions

Climate

The National Weather Service defines climate as the expected frequency and state of the atmosphere, ocean, and land including variables such as temperature and wind speed and direction. Climate encompasses the weather over different periods of time (NWS, 2020a).

Hawai‘i's climate is typically characterized by mild temperatures throughout the year, moderate humidity, persistent northeasterly trade winds, significant differences in rainfall within short distances, and infrequent severe storms (NWS, 2020b).

The Site is located in Honolulu, on the island of O‘ahu, which has a climate similar to the leeward coastal lowlands in Hawai‘i. Climate on O‘ahu can be characterized as having low day-to-day and month-to-month variability. Differences in the climates of various areas are generally attributable to the island’s geologic formation and topography creating miniature ecosystems ranging from tropical rain forests to drier plains. Annual and daily variation in temperature depends to a large degree on elevation above sea level, distance inland, and exposure to trade winds. The average annual temperature recorded at the Daniel K. Inouye International Airport is 77.7° F. Winds are primarily northeasterly trade winds. Average wind speeds for Honolulu range from approximately 10 to 15 miles per hour (mph). Relative humidity ranges between 56% and 72%. Average annual precipitation is approximately 24 inches, with rainfall occurring mostly between November and April (NOAA, 2021a).

Climate Change and Sea Level Rise

Climate scientists estimate that if greenhouse gases (GHG) emissions continue to accelerate at current output trends, then the average global temperature will likely increase by three to seven degrees Fahrenheit (1.7 to 3.9 degrees Celsius) by the year 2100. As the Earth’s atmosphere warms, so does the ocean; and as the ocean warms it expands and increases in volume, producing thermosteric sea level rise (SLR). Changes in Hawai‘i’s local climate has been associated with global climate change. The University of Hawai‘i, Center for Island Climate Adaptation and Policy published a *Briefing Sheet* summarizing climate changes observed in Hawai‘i, such as rising surface temperatures, decreased rainfall and stream flow, increased rain intensity, increased sea level and sea surface temperatures, and ocean acidification (Fletcher, 2010).

In 2016, the City Office of Climate Change, Sustainability and Resiliency (CCSR) and the Climate Change Commission (CCC) were established. The CCSR is tasked with tracking climate change science and coordinating with City agencies to assess potential impacts on City facilities and develop resilient infrastructure in response to climate change. The CCC is tasked with providing advice and recommendations to the Mayor, City Council, and City departments. In 2017, the CCC, State Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands and Tetra Tech, Inc., prepared the *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report* (“2017 SLR Report”). The 2017 SLR Report produced a vulnerability model using the best available data and methods to determine the potential future exposure of each island to multiple coastal hazards due to SLR. Three chronic flooding hazards were modeled: passive “bathtub” flooding, annual high wave flooding, and coastal erosion and were combined to define the projected extent of chronic flooding due to SLR – the SLR exposure area (SLR-XA) (Tetra Tech et. al., 2017). The “Hawai‘i Sea Level Rise Viewer” is an online interactive map which illustrates the SLR-XA at 0.5 FT, 1.1 FT, 2.0 FT and 3.2 FT.

The Intergovernmental Panel on Climate Change predicts up to 3.2 FT of global SLR by year 2100, based on a "business as usual" scenario where GHG emissions continue at the current rate of increase; however, recent observations and projections suggest that SLR could occur as early as 2060 (Tetra Tech et. al., 2017).

Per early consultation letter from the Department of Planning and Permitting (DPP) (dated November 5, 2021), the Mayor's Directive 18-2 (issued on July 16, 2018) requires City agencies to use the 2017 SLR Report (and Hawaiʻi Sea Level Rise Viewer), the SLR Guidance and the Climate Change Brief for baseline planning decisions. The 2017 SLR Report and Directive 18-2 note that the projected global msl is 0.5 to 1.2 FT for 2050, and 1.0 to 4.3 FT by 2100; however, Directive 18-2 recommends using 3.2 FT by 2050 and 6.0 FT in the later decades of the century, as an appropriate planning target (City, 2018). Directive 18-2 requires the City to plan for the upper range of the SLR-XA model; however, it should be noted that the 2017 SLR Report and the SLR-XA model are "resources," which provide guidance, they are not laws, regulations, or ordinances. The SLR-XA model is a planning tool with limitations that requires verification at each individual site.

The National Oceanic and Atmospheric Administration (NOAA), Office for Coastal Management's "Sea Level Rise Viewer" illustrates a 6.0 FT SLR (passive flooding) scenario. Passive flooding refers to still water high tide flooding in areas that are connected to the ocean (marine flooding) and isolated low-lying areas (groundwater inundation).

Potential Impacts and Mitigation Measures

All proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. Additionally, the Site will be graded and finished floor elevations will be 8.6 FT above msl (vertical retreat), to comply with the underlying Flood Zone AE and associated BFE of 7-8 FT above msl. Based on the SLR-XA model, the Site will not be inundated by 1.1 FT of SLR. A small portion of Parcel 009 will be slightly inundated by 3.2 FT in SLR; however, the SLR demarcation is within the 40-FT shoreline setback area and will not touch any residences or structural improvements on the Site. See *Figure 3-2, Sea Level Rise 3.2 FT* and *Figure 3-4, Sea Level Rise 1.1 FT and 3.2 FT.* Much of the eastern portion of the Waialae-Kāhala community, including the Site, is shown as inundated in NOAA's model projection of +6.0 FT in SLR. Note: Much of Oʻahu's low coastal areas including all of Waikīkī will be inundated by 6.0 FT in SLR. See *Figure 3-3, Sea Level Rise 6.0 FT.*

Construction-related activities such as earthwork, grading, excavation, concrete work, stockpiling, and transport of building materials and construction spoils and debris, will result in the production of GHG emissions due to the generation of exhaust from construction vehicles and equipment. However, construction-related impacts will be temporary and cease upon the completion of the Project.

The residences will be designed to attain LEED certification. The residences will be fitted with energy efficient lighting and appliances on the interior and exterior. Energy sub-metering will be installed to measure energy performance. Photovoltaic panels will be installed on the residences to produce renewable energy. An abundance of lush landscaping will be incorporated throughout the Site which will remove and sequester carbon dioxide (CO_2) from the atmosphere. Installation of LID designs such as use of concrete permeable pavers and detention/infiltration chambers beneath the privately-owned driveway and courtyard will mitigate potential impacts of flooding due to SLR. Adaptive design elements and stormwater management strategies will be explored during the design phase of the Project to mitigate potential impacts of the SLR. The impacts of GHG emissions are inherently indirect and cumulative. The Project is not anticipated to significantly contribute to climate change, as proposed improvements will not lead to a substantial increase in GHG emissions, associated with the consumption of electricity, compared to baseline conditions. No additional mitigation is recommended.

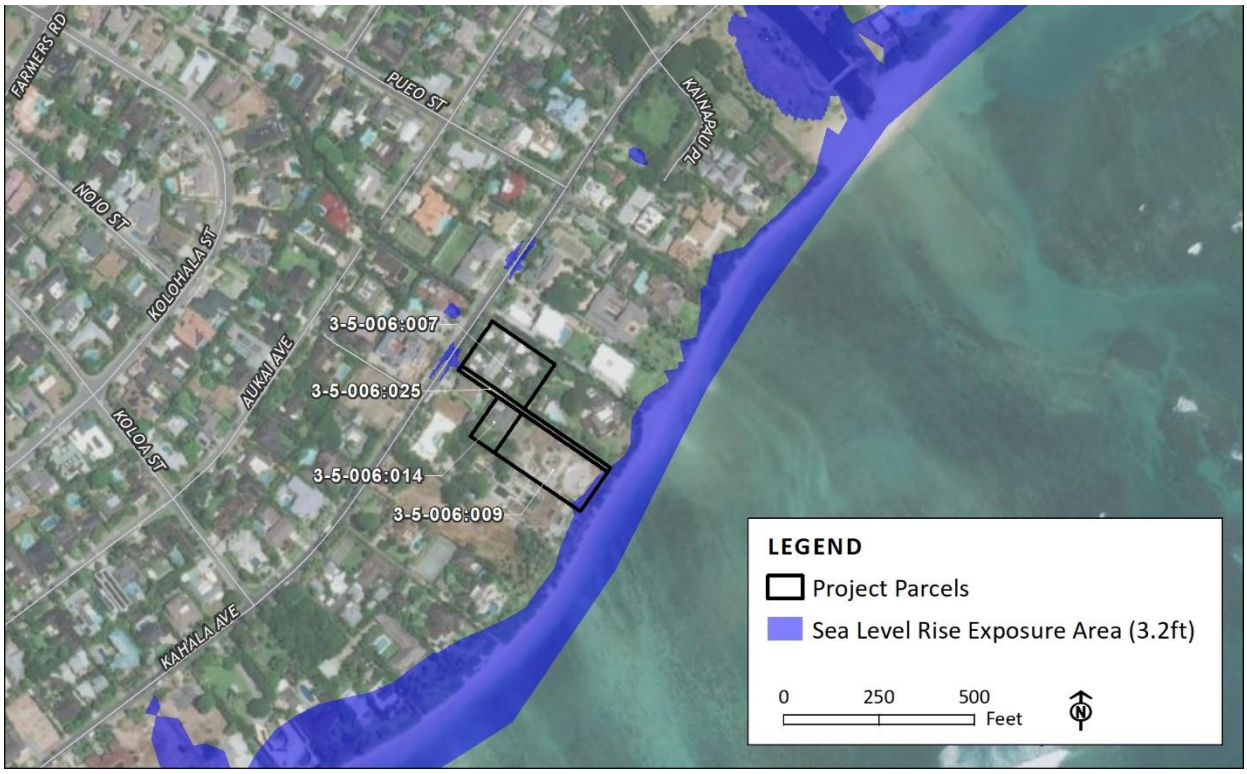

Figure 3-2 **Sea Level Rise 3.2 FT**

Figure 3-3 **Sea Level Rise 6.0 FT**

Figure 3-4 **Sea Level Rise 1.1 FT and 3.2 FT**

3.3 Natural Hazards

3.3.1 Hurricanes

Existing Conditions

Tropical cyclones (hurricanes, tropical storms, and tropical depressions) form in warm tropical waters and typically have sustained winds exceeding 73 mph. Hurricanes in Hawaiʻi typically occur during the summer to early winter months (June 1 to November 30). Hawaiʻi has been effected by hurricane near misses, which generate large wave swells and moderately high winds; however, hurricane strikes have been relatively rare (Fletcher, et al., 2002).

Hawaiʻi has been affected twice since 1982 by significant hurricanes; hurricane ʻIwa was a category 1 hurricane (sustained winds of 74-95 mph), which passed over Kauaʻi on November 23, 1982 and hurricane ʻIniki was a category 4 hurricane (sustained winds of 130-156 mph), which passed over Kauaʻi on September 11, 1992. The most recent hurricane to threaten Hawaiʻi was hurricane Douglas, which entered the Central Pacific basin on July 24, 2020 as a category 4 hurricane, and weakened to a category 1 hurricane as it passed northwest of Maui and northeast of Oʻahu. While hurricane strikes are a rare phenomenon in Hawaiʻi, it is prudent to assume that future events will occur.

Potential Impacts and Mitigation Measures

The Central Pacific Hurricane Center (CPHC) issues tropical cyclone warnings, watches, and advisories for tropical cyclones. The CPHC is activated when a tropical cyclone moves into the Central Pacific from the Eastern Pacific or the West, or forms in the Central Pacific. During Central Pacific tropical cyclone events, bulletins are regularly scheduled every six hours (CPHC, n.d.). A “Hurricane Watch” is typically issued 48 hours in advance of a potential hurricane and a “Hurricane Warning” is typically issued when sustained winds of at least 74 mph are expected within 36 hours. Upon issuance of a “Hurricane Warning,” construction activities will cease, construction workers will secure the Site, and evacuate the site until the hurricane threat has passed. Upon issuance of a “Hurricane Watch,” construction workers will secure the Site as follows:

- Remove or secure equipment, machinery, construction materials, and portable toilets;
- Clean up all construction debris;
- Stop scheduled deliveries of building materials;
- Remove jobsite signage, dust screens, silt screens, and other temporary installations; and
- Locate and turn off jobsite utilities, including electricity, water, and gas.

The Site’s projected storm surge inundation during a Category 1 and Category 4 hurricane event are illustrated in *Figure 3-5, Hurricane Storm Surge Cat. 1* and *Figure 3-6, Hurricane Storm Surge Cat. 4*. The effect of a Category 2 or Category 3 hurricane event on the Site would be similar to a Category 1 hurricane event. During a Category 1, 2 or 3 hurricane event, most of the Site may be subject to 0-3 FT of flooding above ground level. During a Category 4 hurricane event, most of the Site may be subject to 0-6 FT of flooding above ground level. The Site will be graded and finished floor elevations will be 8.6 FT above msl.

The Project is not anticipated to result in a significant impact to the surrounding neighborhood during a hurricane event. No additional mitigation is recommended.

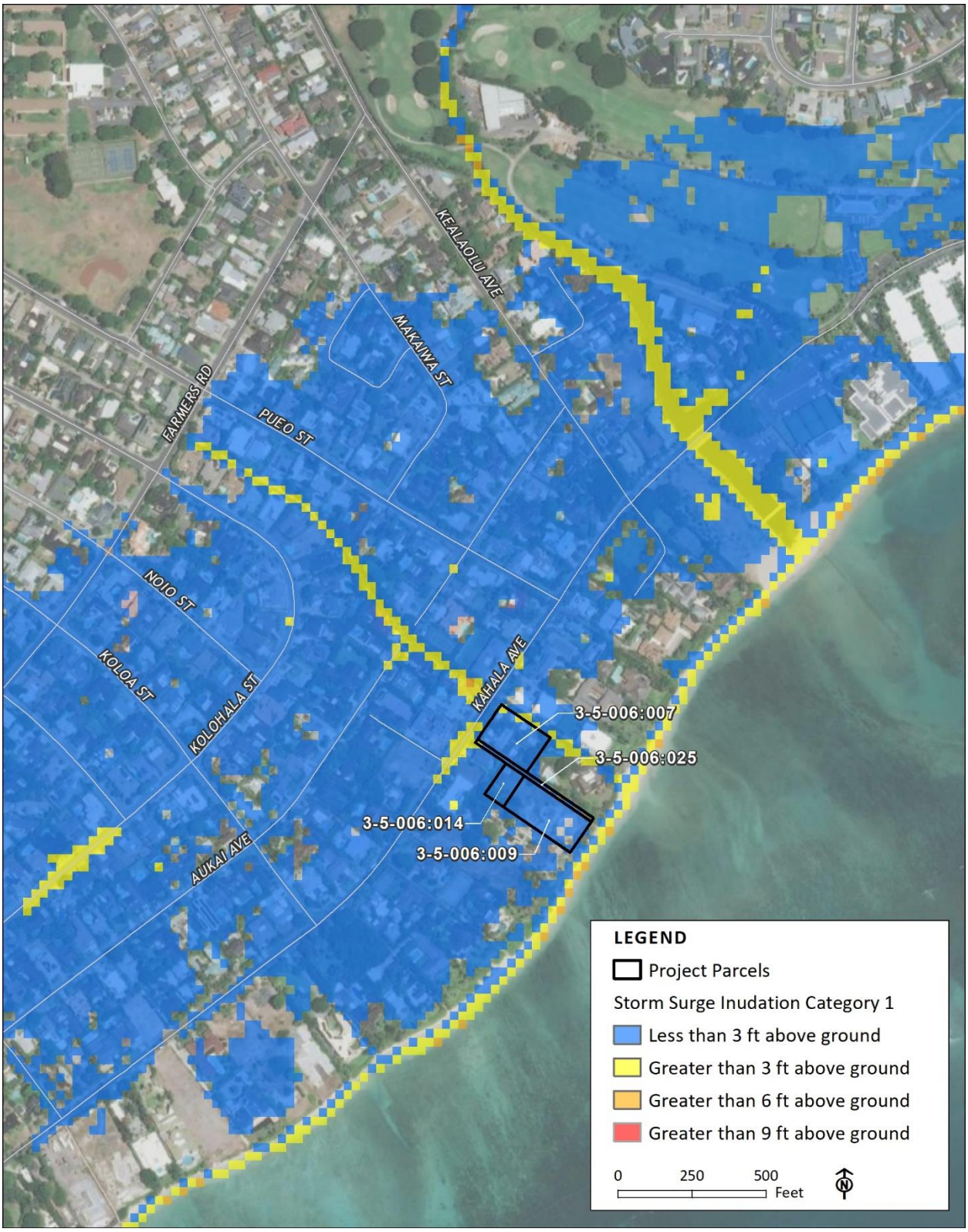

Figure 3-5 **Hurricane Storm Surge Cat. 1**

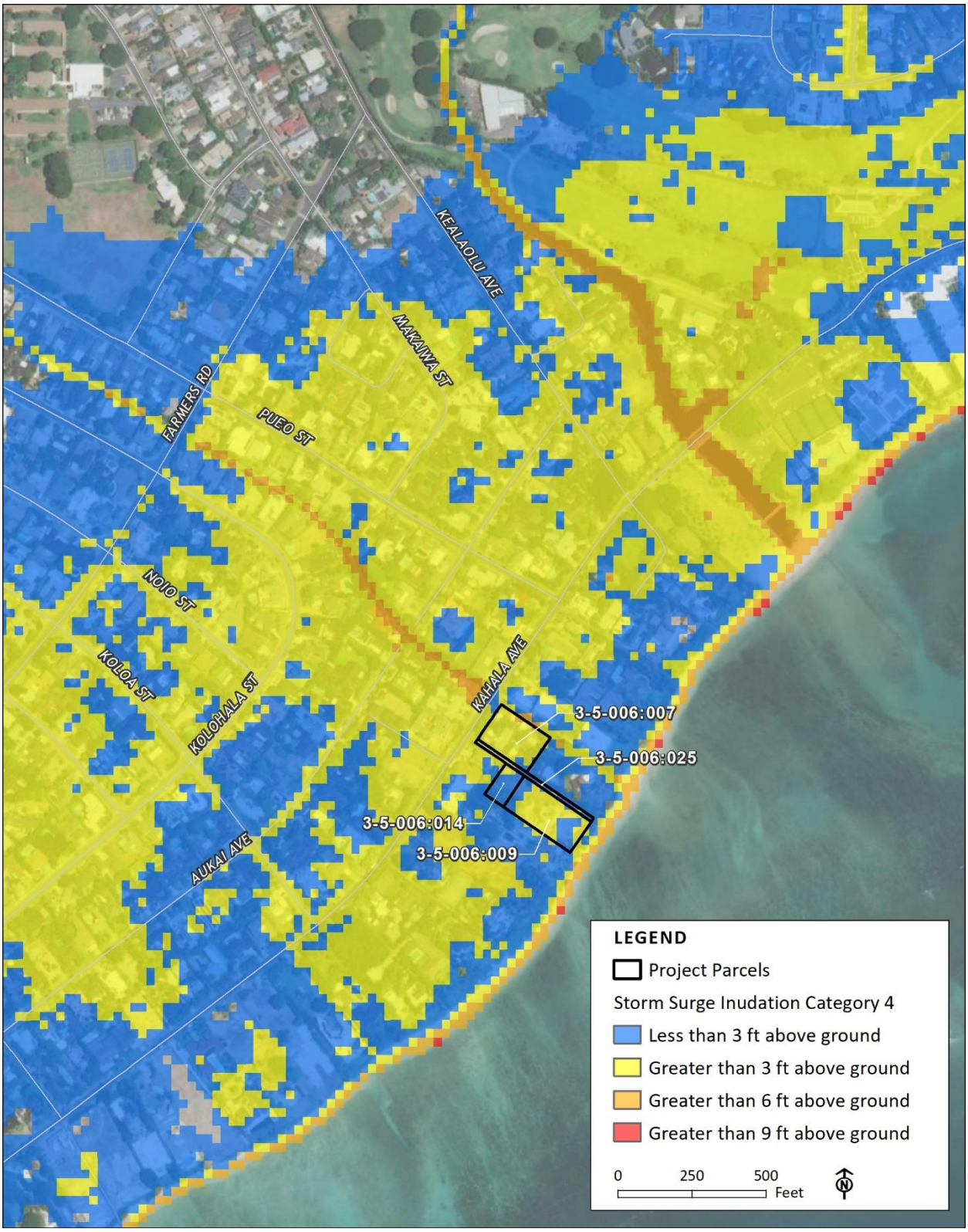

Figure 3-6 **Hurricane Storm Surge Cat. 4**

3.3.2 Flooding

Existing Conditions

Flooding in Hawaiʻi primarily occurs as a result of stream overflow and surface runoff, following torrential rains that fall on steep slopes of mountain ranges and runoff into small drainage basins. Low elevation coastal plains and shallow groundwater tables are prevalent in Hawaiʻi, which often result in flooding from rising groundwater and storm drain backflow (Anderson, et al., 2018). The most frequent and severe flooding on Oʻahu occurs where steep mountain ranges abruptly meet flat coastal plains, as found in Waimanālo, Kailua, Kāneʻohe, and Lāʻie. While floods are principally a natural event, most flood damage is a result of development on lands susceptible to flooding (Fletcher, et al., 2002).

The Federal Emergency Management Agency (FEMA) prepares Flood Insurance Rate Maps (FIRM) based on flood studies to identify flood hazard areas and associated BFEs. Based on the FEMA-FIRM panel 15003C0369H (dated November 5, 2014), the Site is in Flood Zone AE with a BFE of 7-8 FT. Flood Zone AE is subject to inundation by the 1% annual chance flood (100-year). See *Figure 3-7, Flood Zones*. Immediately northeast of the Site, abutting Parcel 007 is a City-owned drainage channel on TMK parcel: (1) 3-5-006:033.

Potential Impacts and Mitigation Measures

During construction, the Site will be at minimal risk from the threat of flooding. However, the Site is no more vulnerable to flood events than the surrounding area in Flood Zone AE. If there is a flood event, construction activities will cease; equipment and materials will be secured; and all Federal, State and City requirements will be implemented to ensure the safety of staff, construction crews and community members near the Site.

The Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE and associated BFE of 7-8 FT above msl, or the elevation at which water is anticipated to rise during the 1-percent annual chance flood or 100-year flood. Project improvements will adhere to the ROH §21-9.10, *Flood Hazard Districts* and HAR §15-217-61, *Flood zone*. Installation of LID designs such as use of concrete permeable pavers and detention/infiltration chambers beneath the privately-owned driveway and courtyard will mitigate potential flooding. If there is a flood event, the Contractor will implement its emergency response plan.

The Project is not anticipated to result in a significant impact to the surrounding neighborhood during a flood event. No additional mitigation is recommended.

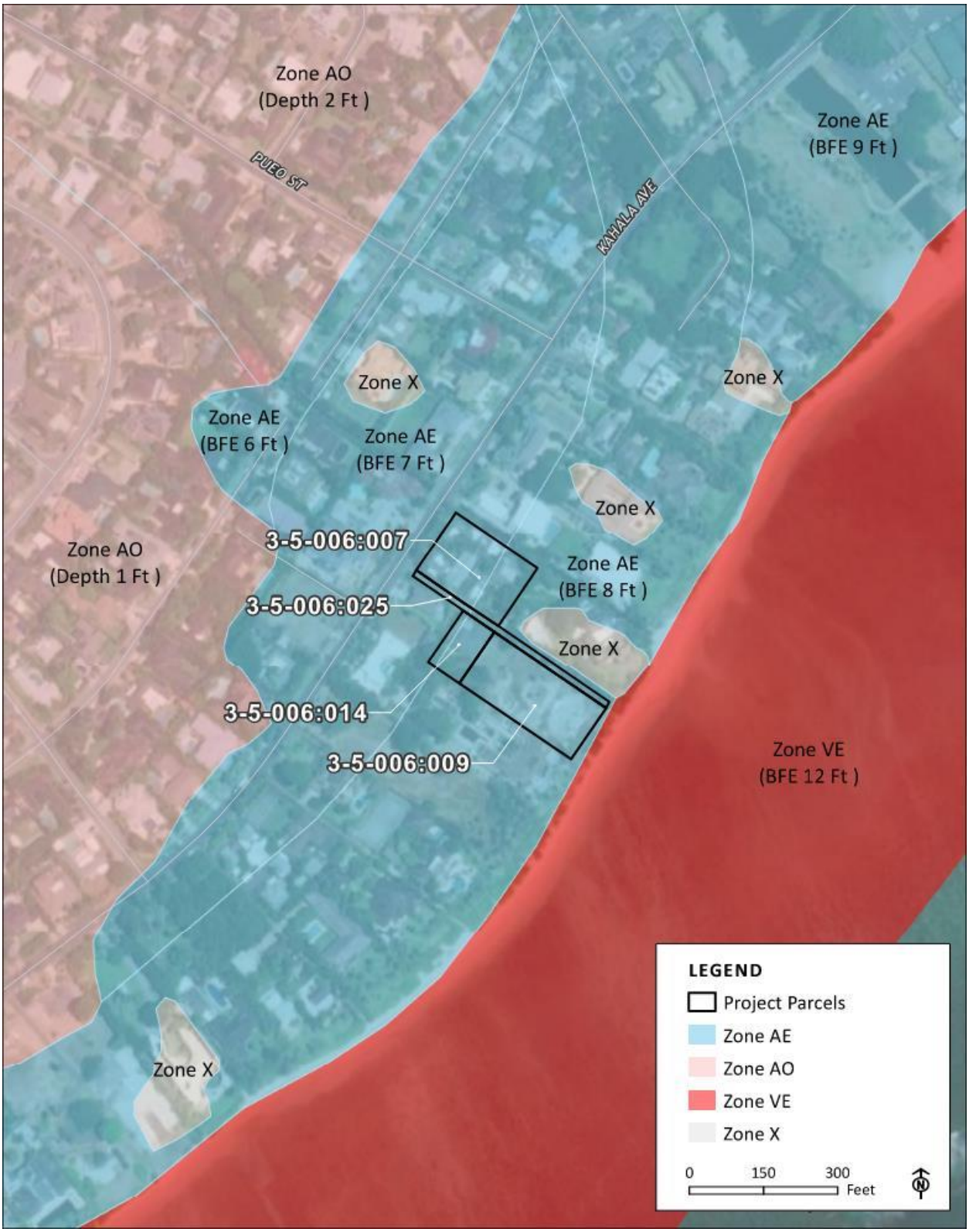

Figure 3-7 **Flood Zones**

3.3.3 Seismic Activity

Existing Conditions

Thousands of earthquakes occur every year in Hawaiʻi. Most are insignificant, too small to be felt, and can only be detected by seismometers. The majority of earthquakes in Hawaiʻi occur on and around Hawaiʻi Island, especially near Kīlauea, Mauna Loa, and the Lōʻihi volcanoes (USGS, n.d.a). The rare occurrence of earthquakes on Oʻahu is generally related to tectonic activity along seafloor fractures and faults, such as the Diamond Head Fault or volcanic activity on Hawaiʻi Island. Earthquakes that reach Oʻahu are generally insignificant and cause little to no damage (Fletcher, et al., 2002). Per the 2015 United States Geological Survey (USGS) International Building Code (IBC) seismic design maps, Honolulu could experience seismic activity around 0.15 of the earth's gravitational acceleration (g-force). In contrast, the Mauna Loa and Kīlauea Volcanoes on Hawaiʻi Island could experience up to 1.47 g-force (USGS, 2015).

The severity of an earthquake is classified by magnitude and intensity. Magnitude is a measure of the amount of energy released during an earthquake, while intensity is a measure of the severity of ground shaking. Seismic hazards are often characterized by peak ground acceleration, which is defined as the greatest increase in velocity or ground shaking at a particular geographic point during an earthquake (measure in percentage of gravity). A seismic design category (SDC) is a classification assigned to buildings/structures based on occupancy and the severity of an earthquake, to ensure buildings/structures are earthquake resistant. Oʻahu is in SDC classification "B," where individuals "could experience shaking of moderate intensity" (USGS, n.d.b).

Potential Impacts and Mitigation Measures

During construction, the Site will be at minimal risk from the threat of seismic activity. However, the Project is no more vulnerable to seismic events than the entire island of Oʻahu. In the event of an earthquake, the USGS, Central North Pacific office is the official source for earthquake information in Hawaiʻi, and provides updates on seismic activity. In the event of an earthquake event, construction activities will cease; equipment and materials will be secured; and all Federal, State and City requirements will be implemented to ensure the safety of staff, construction crews and community members near the Site.

Project improvements will meet the current IBC and City seismic design standards. In the event of an earthquake, the Contractor will implement its emergency response plan.

The Project is not anticipated to result in a significant impact to the surrounding neighborhood during a seismic event. No additional mitigation is recommended.

3.3.4 Tsunami

Existing Conditions

A tsunami involves the generation of destructive waves, created by sea floor movements triggered by earthquakes, landslides, or submarine faulting and volcanic eruptions. Tsunamis that strike Hawaiʻi typically originate from distant, seismically active areas bordering the Pacific Ocean, or from local, undersea earthquakes (HI-EMA, 2021). Tsunamis are often difficult to predict, as there are several determining factors, including the slope, geology, and morphology of the offshore region and shoreline (Fletcher, et al., 2002).

Tsunamis hit O‘ahu in 1946, 1952, 1957, 1960, and 1964, and 2011 (NOAA, 2021b). Flooding can increase in low-lying coastal areas when tsunamis strike, and tsunamis occurring during high tide historically cause greater flood damage. While tsunamis are a rare phenomenon on O‘ahu, it is prudent to assume that future events will occur.

The Pacific Tsunami Warning Center (PTWC) issues warnings when a potential tsunami with significant widespread inundation is imminent or expected. Tsunami warnings alert the public that tsunami coastal flooding is possible and alert emergency management officials to evacuate tsunami hazard zones. The City Department of Emergency Management (DEM) prepares Tsunami Evacuation Zone Maps for the island of O‘ahu. According to City’s Map 2, Inset 2 for Waikiki to Wailupe (dated April 2015), the Site is located within the “Tsunami Evacuation Zone,” which requires evacuation during any tsunami warning (City, 2015). See *Figure 3-8, Tsunami Evacuation Zone*.

Potential Impacts and Mitigation Measures

During construction, the Site will be at minimal risk from the threat of tsunamis. However, the Site is no more vulnerable to tsunamis than the surrounding area, and in some cases the rest of O‘ahu. Depending on the type of tsunami warning issued by the PTWC, construction activities may have to come to a halt; equipment and materials will be secured; and all Federal, State and City requirements will be implemented to ensure the safety of staff, construction crews and community members near the Site.

The Project does not involve improvements that increase the risk to the public’s safety during a tsunami event. In the event of a tsunami, the Contractor will implement its emergency response plan. The Project is not anticipated to result in a significant impact to the surrounding neighborhood during a tsunami event. No additional mitigation is recommended.

Figure 3-8 **Tsunami Evacuation Zone**

3.4 Water Resources

3.4.1 Groundwater

Existing Conditions

The DLNR, Commission on Water Resource Management (CWRM) defines and regulates groundwater management areas. The Site is located within the Honolulu sector, which is one of six groundwater management areas on Oʻahu defined by the DLNR, CWRM. The Honolulu sector is comprised of six sub-sectors: Pālolo, Nuʻuanu, Kalihi, Moanalua, and Waiʻalae-West and Waiʻalae-East. The DLNR, CWRM also establishes groundwater hydrologic units for sector/sub-sectors, to provide a basis for managing groundwater resources and optimizing island-wide pumpage for aquifer systems. The Site is within the Waiʻalae-East sub-sector and has a hydrologic unit sustainable yield of 2 million gallons per day (gpd) (DLNR-CWRM, 2018).

The Site overlies the Waiʻalae aquifer, which has an upper and lower aquifer. Groundwater was at the Site was encountered at depths ranging from 4.08 FT to 5.33 FT below grade (Shinsato, 2021). Groundwater at the Site is evaluated as basal, unconfined in sedimentary geology and the groundwater status code assigned to the sedimentary caprock layer indicates high salinity and vulnerability to contamination (Mink and Lau, 1990 in G70, 2021). The Site lies below or makai of the Underground Injection Control boundary line, which renders the underlying aquifer an unsuitable source for potable water (DOH-SDWB, 2021).

Potential Impacts and Mitigation Measures

During construction, groundwater may be encountered. The Contractor will shore up and seal excavated work areas during deep excavation, to minimize the potential of groundwater infiltrating active work areas and to prevent potential pollutants discharging into and arising from groundwater, as necessary. If construction dewatering is required, a National Pollutant Discharge Elimination System (NPDES) permit for construction dewatering will be obtained from the State Department of Health (DOH), Clean Water Branch (CWB).

The Project is not anticipated to have a significant impact on groundwater, as the proposed improvements do not involve the installation of an injection well or detention/infiltration basin, or a long-term release of pollutants. No additional mitigation is recommended.

3.4.2 Surface Water

Existing Conditions

There are no surface waters (e.g., streams, lakes, ponds, open bodies of water, or wetlands) on the Site. The nearest surface waters to the Site include an unnamed City-owned drainage channel (intermittent), which is immediately northeast of the Site abutting Parcel 007 (on TMK parcel: (1) 3-5-006:033), and the Waiʻalae Stream (perennial), approximately 920 FT northeast of the Site; both discharge into the Pacific Ocean. See *Figure 3-9, Surface Waters*.

According to the DOH's *Water Quality Standards Map*, both the unnamed drainage channel and the Waiʻalae Stream are Class 2 inland waters (DOH, 2014). Per HAR Chapter 11-54, Class 2 inland waters are to be protected for recreation purposes, to support and propagate aquatic life, and agricultural and industrial water supplies, shipping, and navigation. The Pacific Ocean near the Site is a Class A

marine water (DOH, 2014). Per HAR Chapter 11-54, Class A marine waters are to be protected for recreation purposes and aesthetic enjoyment. Other uses are permitted in Class 2 inland waters and Class A marine waters, if they are compatible with the protection and propagation of fish, shellfish, and wildlife, and recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class.

Potential Impacts and Mitigation Measures

During construction, there is the potential for construction-related pollutants (e.g., sediment, concrete, paint, petroleum products, and debris) to enter surface waters. However, the Contractor will install temporary BMPs such as filter socks around active work areas, inlet protection devices near drainage outlets, retention basins and/or diversion berms/ditches to handle the treatment of storm water runoff and mitigate potential construction-related pollutants from entering surface waters. The Contractor will comply with HAR Chapters 11-54 and 11-55. Since the Project involves the disturbance of more than one acre of land, a NPDES General Permit for discharges of storm water associated with construction activities will be required from the DOH, CWB. Separate NPDES General Permits for discharges of construction dewatering and hydrotesting waters may also be obtained from the from the DOH, CWB.

Once construction is complete, permanent BMPs will be implemented to reduce potential transport of storm water pollution from the Site, such as concrete permeable pavers, landscaping, and storm runoff detention/infiltration chambers beneath the privately-owned driveway and courtyard.

The Project is not anticipated to have a significant impact on surface waters, as the proposed improvements do not involve a long-term release of pollutants. No additional mitigation is recommended.

Figure 3-9 **Surface Waters**

3.5 Flora and Fauna

3.5.1 Flora

Existing Conditions

The Site has been highly disturbed by previous development. Approximately eight royal palm trees front Parcel 007 along Kāhala Avenue. Other existing flora on or near the Site consists of various palm trees including coconut (*Cocos nucifera*), pygmy date palm (*Phoenix roebelenni*), Manila palm (*Veitchia merrillii*), Macarthur palm (P*tychosperma macarthurii*) and Royal palm (*Roystonea regia*). Various grasses are on the Site, including guinea grass (*Megathyrsus maximus*), crabgrass (*Digitaria* sp.), and fingergrass (*Chloris* sp.). Koa haole (*Leucaena leucocephala)* and hau (*Hibiscus tiliaceus)* are also on the Site.

There are no known Federally- or State-listed, threatened, or endangered flora species or designated critical habitats on the Site. Per the DLNR, Division of Forestry and Wildlife's (DOFAW) Hawaii's Urban Tree Inventory, there are no noteworthy trees on or in the vicinity of the Site (DLNR-DOFAW, n.d.). Per the Department of Parks and Recreation's (DPR) list of Exceptional Trees, there are no 'exceptional trees,' on or in the vicinity of the Site.

Potential Impacts and Mitigation Measures

In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the non-native vegetation, waste, and debris has allowed for the natural beach grass to re-establish and restored potential ground-nesting seabird habitat areas.

The Project involves the removal/relocation of approximately eight royal palm trees fronting Parcel 007 along Kāhala Avenue. Most existing flora on the Site will be grubbed to accommodate the residences and new landscaping. Palm trees will be re-planted and spaced equidistantly along the boundary wall fronting Kāhala Avenue to seamlessly blend in with existing landscaping. Palm trees (e.g. areca, macarthur, and coconut); coastal or native canopy trees such as hala (*Pandanus tectorius*) and heliotrope (*Heliotropium arboreum*); buffer plantings such as laua'e iki (*Microsorum scolopendrium*) and pualoalo (*Hibiscus arnotiianus*); and flowering trees such as puakenikeni (*Fagraea berteroana*) and Singapore plumeria (*Plumeria obtusa*) will be planted on Parcel 007 along the boundary walls and the private road. Flowering shrubs such as "kimi dark pink" ginger (*Alpinia purpurata*), shell ginger (*Alpinia zerumbet*), torch ginger (*Etlingera elatior*), and parakeet heliconia (*Heliconia psittacorum*) will be planted along the boundary on Parcels 014 and 009. Nā'ū or native gardenia (*Gardenia brighamii*), pualoalo, and rhapis palm will be planted near the pools on Parcels 007, 009 and 014. Groundcover such as green liriope (*Liriope muscari*), kupukupu (*Nephrolepis cordifolia*), laua'e iki will be planted near the makai residence on Parcel 009. Coconut palms will be interspersed throughout the makai side of Parcel 009, to screen the residences and provide visual continuity along the shoreline. Native, drought, wind and salt-tolerant plants such as 'aki'aki (*Sporobolus virginicus*), naupaka (*Scaevola taccada*), nanea (*Vigna marina*), pohuehue (*pomea pes-caprae*), and "Queen Emma" spider lily (*Crinum augustum*) will be planted near the shoreline setback. Open space and lawns between the residences will consist of grasses such as seashore paspalum (*Paspalum vaginatum*) and el toro (*zoysia*). Grass species will also be planted in between concrete permeable pavers along the private road and courtyard on Parcel 007. Water features on Parcels 007 and 009 will consist of kalo (taro) water lily.

The Project is not anticipated to have a significant impact on State or Federally listed, threatened, or endangered flora species, as the proposed improvements will not result in a take of a protected species or substantial damage of a designated critical habitat. No additional mitigation is recommended.

3.5.2 Fauna

Existing Conditions

There are no known federally-, State-listed, threatened, or endangered fauna species, or designated critical habitats on the Site. Terrestrial and avifauna species such as the common myna bird (*Acridotheres tristis*), cat (*Felis catus*), domestic dog (*Canis familaris*), rat (*Rattus spp.*), mouse (*Mus domesticus*), small Asian mongoose (*Herpestes auropunctatus*), and other fauna species that have adapted to the Honolulu urban environment may be present on the Site.

Per early consultation letter from the United States Fish and Wildlife Service (USFWS) (dated October 27, 2021), the federally- and State-listed endangered, endemic ʻŌpeʻapeʻa or Hawaiian hoary bat (*Lasiurus cinereus semotus*) – Hawaiʻi's only native terrestrial mammal – is known to roost in trees near forests, though occasionally flies within the Honolulu urban environment. Seabird species such as the endangered band-rumped storm-petrel Hawaiʻi DPS or ʻakēʻakē (*Oceanodroma castro*), endangered Hawaiian petrel or ʻuaʻu (*Pterodroma sandwichensis*), and threatened Newell's shearwater or ʻaʻo (*Puffinus auricularis newelli*) may fly over the Site. Additionally, seabird species that are protected under the Migratory Bird Treaty Act, such as the wedge-tailed shearwater or ʻuaʻu kani (*Puffinus pacificus*) and manu-o-Kū or white (fairy) tern (*Gygis alba rothschildi*) may fly over the Site. According to the Hui Manu-o-Kū's *Breeding Range Map*, a recent sighting of an egg (at nesting spot KH41) was located approximately 0.5 miles away from the Site (Hui, 2021).

Per early consultation letter from the DLNR, DOFAW (dated November 09, 2021), the State endangered Hawaiian Monk Seal (*Monachus schauinslandi*) and threatened Green Sea Turtle (*Chelonia mydas*) may occur or haul out on shore within the vicinity of the Site.

Potential Impacts and Mitigation Measures

During construction, the following mitigation measures will be implemented.

- Hawaiian Hoary Bats: Woody plants greater than 15 FT tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). If this cannot be avoided, DLNR, DOFAW should be consulted prior to disturbing, removing, or trimming woody plants greater than 15 FT tall. Additionally, barbed wire will not be used for fencing.
- Seabirds: Nighttime construction will be avoided during the seabird fledging period (September 15 through December 15) to prevent injury to seabirds. Outdoor construction lights will be fully shielded, so the bulb can only be seen from below and as much as possible the lowest wattage bulbs will be used. The Contractor will provide construction crews with information about seabird fallout prior to the initiation of work. If a downed seabird is found, the Contractor will contact the USFWS immediately.
- Hawaiian Monk Seal: If detected within 100 meters (328 FT) of Parcel 009, construction will cease and not continue until the seal has departed the area on its own accord.
- Green Sea Turtle: If detected within 100 meters (328 FT) of Parcel 009, construction will cease and not continue until the turtle has departed the area on its own accord.

- Invasive Species: The movement of plant or soil material will be minimized to avoid the spread of invasive fungal pathogens, vertebrate and invertebrate pests (e.g. Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts. All equipment, materials, personnel and visitors will be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the non-native vegetation, waste, and debris has allowed for the natural beach grass to re-establish and restored potential ground-nesting seabird habitat areas.

Exterior lights will be installed on the residences. The brightness of exterior lights will be equivalent to existing lights and will not result in light spillage. To avoid disturbances to seabirds, exterior lights will have automatic motion sensor switches and timer controls and will be fully shielded. Residents will be provided with information about seabird fallout. If a downed seabird is found, the USFWS will be contacted immediately.

The Project is not anticipated to have a significant impact on fauna species, as the proposed improvements will not result in a substantial decline or take of a protected, threatened, or endangered species, a substantial damage of a designated critical habitat or a substantial interference with seasonal movements of seabirds or migratory avifauna. No additional mitigation is recommended.

3.6 Air Quality

Existing Conditions

The Clean Air Act (42 U.S.C. 7401 et seq.) requires the U.S. Environmental Protection Agency to set National Ambient Air Quality Standards (NAAQS) for seven criteria pollutants that are harmful to public health and the environment: carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), and particulate matter less than 10 and 2.5 microns respectively (PM_{10} and $PM_{2.5}$).

The DOH, Clean Air Branch (CAB) has established State Ambient Air Quality Standards (SAAQS) for criteria pollutants in in the HAR §11-59, *Ambient Air Quality Standards* and §11-60, *Air Pollution Control*. The SAAQS for carbon monoxide and nitrogen dioxide are more stringent than NAAQS (DOH-CAB, 2015). Hawai‘i also has a stringent standard for hydrogen sulfide, which is a common odorous pollutant associated with wastewater treatment facilities. The DOH, CAB, Air Surveillance and Analysis Section, collects measurements of ambient level pollutants in the air through a statewide monitoring network. The closest ambient air quality monitoring station to the Site is the Honolulu Station (“Honolulu Sta.”) located on the roof of the DOH building in downtown Honolulu (DOH-CAB, 2019).

Hawai‘i lies within the Northern Hemisphere Hadley Cell, which is responsible for persistent northeast trade winds. Consequently, air quality is relatively good on the island of O‘ahu and consistently meets SAAQS for all monitored parameters; however, occasional exceedances for carbon monoxide may occur near congested roadway intersections. Annual air quality data from the Honolulu Sta. suggests that all SAAQS and NAAQS were met in 2019 (DOH-CAB, 2019). The Site vicinity likely has lower levels of pollutants in the air than downtown Honolulu, as traffic congestion and vehicular emissions are lower.

Potential Impacts and Mitigation Measures

Construction-related activities will result in the generation of fugitive dust from grubbing, grading, excavation, aggregate processing, vehicle and equipment exhaust and emissions, and the transport of building materials and spoils/debris. Additionally, constructed-related traffic may lead to increased vehicle emissions in the Site vicinity. The Contractor will comply with HAR Chapter 60.1, *Air Pollution Control* and may implement BMPs such as phasing/limiting disturbed areas, landscaping bare areas promptly, watering active work areas, installing dust screens, keeping adjacent paved roads clean, washing of tires/adjacent roadways, covering open-bodied trucks when in motion when transporting materials, centralizing on-site vehicular traffic routes, scheduling construction workers to commute on off-peak hours.

Potential long-term impacts on air quality will primarily be associated with vehicular emissions; however, Project-related traffic impacts are relatively minor and should have negligible impacts on air quality in the Site vicinity. The Project is not anticipated to have a significant impact on air quality, as the proposed improvements do not involve permanent air-polluting activities that will impair the State's ability to meet Federal or State air quality standards. No additional mitigation is recommended.

3.7 Noise Conditions

Existing Conditions

Noise is defined as any unwanted or unpleasant sound that causes a disturbance or interferes with normal activities. It may be intermittent or continuous, steady, or impulsive, and stationary or temporary. Existing ambient noise in the Project vicinity is attributable to both the natural environment and human activity, from sources that are typical of urban environments.

Noise is regulated by the DOH, Indoor and Radiological Health Branch (IRHB), in accordance with HAR §11-46, *Community Noise Control*. HAR §11-46-3 defines maximum permissible sound levels (at property lines) for three land use classifications (i.e., zoning districts) and provides for the abatement and control of excessive noise sources, including stationary and temporary construction and industrial generated noise sources. The Site is in the Class A zoning district. The Class A zoning district includes residential, conservation, preservation, public space, open space, or similar types of zoning districts. The maximum permissible sound levels in the Class A zoning district are 55 A-weighted decibels (dBA) between 7:00 AM and 10:00 PM and 45 dBA between 10:00 PM and 7:00 AM. To illustrate, leaves rustling, soft music, or whisper is approximately 30 dBA; normal conversation or background music is approximately 60 dBA; and a vacuum cleaner is approximately 75 dBA.

Per HAR §11-46, noise levels are not permitted to exceed the maximum permissible sound levels for more than 10% of the time within any 20-minute period, except by permit or variance from DOH, IRHB. A noise permit is required for construction activities (during 7:00 AM to 6:00 PM Monday through Friday and 9:00 to 6:00 PM on Saturday) that exceed 78 dBA or have a total cost of more than $250,000 (based on the value of the building permit).

The Kāhala area is generally a quiet residential area. Ambient noise levels at the Site are typical of sub-urban residential areas. The primary source of existing noise in the Project vicinity occurs from traffic and pedestrians traversing along Kāhala Avenue, and beachgoers at the Kāhala Beach.

Potential Impacts and Mitigation Measures

During construction, short-term noise generation will be most prominent throughout the site work and earthwork phases (e.g., grading, excavation, and filling). Construction-related noise may range from 75 to 85 dBA at distances of 100 FT from the Site. Construction noise will gradually diminish as the exterior structures of the new residences are built and roofed, as construction activities within the new residences and exterior walls will attenuate noise. Construction-related noise will be temporary. The Contractor will obtain a noise permit from DOH, IRHB and will employ the following mitigation measures to minimize construction-related noise:

- Construction equipment and vehicles will be appropriately muffled and maintained to reduce backfires. All generators will be housed in baffle boxes (a sound-resistant box placed over or around a generator), be equipped with an attached muffler, or use other noise-abatement methods in accordance with industry standards.
- The use of certain construction equipment, including pile drivers, hydraulic hammers, and jackhammers, will be limited to 9:00 AM to 5:30 PM, Monday through Friday.
- Use of broadband back up alarms rather than high frequency beeper backup alarms on operating equipment.
- Equipment staging and material storage areas will be distanced from classroom buildings and noise sensitive neighbors. Noisy construction activities will be scheduled after school hours or on Saturdays.
- If construction-related noise exceeds the DOH's "maximum permissible" noise levels at the property line, the Contractor will obtain a noise permit or variance.

Once the residences are constructed and occupied, the noise levels will be consistent with existing ambient noise that is typical of sub-urban residential areas. The primary source of noise in the Project vicinity will continue to be from vehicular traffic and pedestrians traversing along Kāhala Avenue and beachgoers at the Kāhala Beach.

The Project is not anticipated to result in a significant impact to existing noise conditions. No additional mitigation is recommended.

3.8 Utilities and Infrastructure

A Preliminary Engineering Report (PER) was prepared for the Project by G70. The PER evaluated the existing and proposed capacity for potable water, wastewater and drainage utilities and infrastructure for the Project. See *Appendix B, Preliminary Engineering Report*.

3.8.1 Potable Water

Existing Conditions

The City Honolulu Board of Water Supply (BWS) constructs, operates and maintains O'ahu's municipal potable water system, which comprises of an interconnected distribution network of reservoirs, wells, shafts, water tunnels, booster and pumping stations and water mains.

The BWS operates and maintains the potable water system serving the Site. An existing 2-inch water line in the privately-owned driveway provides potable water to Parcels 007 and 014, which connects to an 8-inch water main in the makai side of the Kāhala Avenue ROW. Two additional water meters in

the makai side of the Kāhala Avenue ROW serve Parcel 007 (G70, 2021). The existing average daily water demand for Parcels 007 and 014 is 2,500 gpd. See *Appendix B, Preliminary Engineering Report.*

Potential Impacts and Mitigation Measures

Construction activities will require use of water for dust control, vehicle wash down, concrete mixing, general housekeeping activities, and for pipe pressure testing. These uses will be intermittent and of short duration and will cease upon project completion. Quantities of water required for these uses are relatively minor. The existing water system has sufficient capacity to accommodate the temporary demands from construction-related activities and will not result in a disruption of potable water service to neighboring parcels.

The existing 2-inch water line in the driveway will be extended near the makai end of the driveway. Existing water meters on the makai side of the Kāhala Avenue ROW and along the driveway will be reassigned to serve the new residences; several meters will be added so each residence will be served by its own meter. The average daily water demand for the Project is estimated at 6,000 gpd, based on BWS Water System Standards (dated 2002). The maximum daily water demand is estimated at 9,000 gpd. Fire flow for the Project is estimated at 1,000 gallons per minute for 1 hour (G70, 2021). Per an early consultation letter from the BWS (dated October 20, 2021), coordination with the HFD is needed to provide adequate fire hydrant spacing of 350 FT with a flow of 1,000 gpm for off-site fire protection. For further information, see **Section 3.10.4, Fire**. Construction drawings and a construction schedule will be submitted to BWS for review and approval; and a Water System Facilities Charge will be required for resource development, transmission, and daily storage. Water conservation measures will be implemented, such as the planting of drought-tolerant species to reduce irrigation demands, the use of efficient irrigation systems, such as a drip system and moisture sensors and the use of Water Sense labeled ultra-low flow water fixtures and toilets. Additionally, the feasibility of sourcing non-potable water for irrigation will be investigated, such as harvesting rainwater in catchments or storm water in holding tanks.

The Project is not anticipated to result in a significant impact on the potable water system, as proposed improvements do not involve the creation of point-source pollution that leads to permanent damage to O‘ahu’s potable water supply; a substantial alteration to any portion of the existing potable water system; or a substantial consumption of potable water. No additional mitigation is recommended.

3.8.2 Wastewater

Existing Conditions

The City Department of Environmental Services (ENV) constructs, operates and maintains O‘ahu’s wastewater infrastructure, including wastewater treatment pump stations and wastewater treatment plants (WWTPs). Wastewater is screened to remove debris, settled to remove organic solids, and treated at the WWTPs.

An existing 8-inch sewer line runs approximately 180 FT along the privately-owned driveway and connects to an existing sewer manhole (SMH). Several existing sewer laterals serve the residences on Parcels 007 and 014. Wastewater at the Site is primarily generated from domestic use. The existing sewer system is estimated to handle an average daily wastewater flow of 1,680 gpd (G70, 2021). Wastewater is eventually pumped to the Sand Island Wastewater Treatment Plant, where it is treated and disposed. See *Appendix B, Preliminary Engineering Report.*

Potential Impacts and Mitigation Measures

During construction, the Contractor will provide portable toilets for use by the construction workers. Wastewater from the portable toilets will be collected and discharged into a SMH designated for septage receiving. The Contractor will adhere to strict BMPs to minimize and control the generation of construction-related wastewater and pollutants that could be discharged in storm water runoff. Construction will not result in a disruption of wastewater service to neighboring parcels.

The existing 8-inch sewer line in the privately-owned driveway will be extended makai to connect to new 4-inch and 6-inch sewer laterals which will serve the residences on Parcels 009 and 014. A new 8-inch sewer line will be constructed and connect to the existing 8-inch sewer line in the driveway to serve Parcel 007. Two new SMHs will be constructed in the driveway and on Parcel 007. The Project is estimated to have a design flow of 15,125 gpd. The peak dry weather flows are estimated at 10,080 gpd; while the wet weather infiltration flows are estimated at 5,045 gpd. The new sewer line will be designed in accordance with the *City and County of Honolulu Wastewater System Design Standard*s, Volume 1, dated July 2017. A Sewer Connection Application for the Project (2021/SCA-0421) was approved in March 2021 by the City.

The Project is not anticipated to result in a significant impact on the existing wastewater system, as the proposed improvements will not result in a substantial increase in generation of wastewater on the Site. No additional mitigation is recommended.

3.8.3 Drainage

Existing Conditions

The City Department of Facility Maintenance, Storm Water Quality Branch, is responsible for maintaining the drainage system on Oʻahu and aims to improve the quality of runoff that enters the City drainage system and eventually discharges into the Pacific Ocean.

Drainage infrastructure in the Site vicinity consists of a catch basin and culvert along the makai curb of Kāhala Avenue, which discharges storm water into the drainage channel northeast of the Site. Due to lack of substantial rainfall, relatively flat topography, high permeability of the existing ground surface and rock walls bordering the Site, storm water runoff on Parcels 007, 009, and 014 are maintained within the Site. Runoff from the shared, privately-owned, paved driveway sheet flows into the City-owned MS4 catch basin on the makai side of Kāhala Avenue ROW and into the drainage channel (Shinsato, 2021; G70, 2021). See Figure 5, Conceptual Grading & Drainage Plan in *Appendix B, Preliminary Engineering Report.*

Potential Impacts and Mitigation Measures

During construction, drainage will be provided to minimize the ponding of water adjacent to or on foundation and pavement areas (Shinsato, 2021). There is the potential for pollution associated with storm water runoff to discharge into City drainage infrastructure and nearby surface waters. The Contractor will comply with HAR Chapters 11-54 and 11-55 and install temporary BMPs such as filter socks around active work areas, inlet protection devices near drainage outlets, retention basins and/or diversion berms/ditches to handle the treatment of storm water runoff and mitigate potential construction-related pollutants from entering drainage infrastructure and surface waters. Since the Project involves the disturbance of more than one acre of land, a NPDES General Permit for discharges of storm water associated with construction activities will be required from the DOH, CWB. Separate NPDES General Permits for potential discharges of construction activity dewatering and hydrotesting

waters may also be obtained from the from the DOH, CWB. Per early consultation letter from the Department of Facility Maintenance (dated October 18, 2021) if any damages/deficiencies along the sidewalks, catch basins, and/or roadways; inlet and outlet on Parcel 007; and/or the drainage channel (Aukai Ditch) occur as a result of construction, repairs will be made to City standards and accepted by the City at no cost to the City.

The Project will result in a total peak runoff flow estimated at 9.02 cubic feet per second (cfs), based on a 10-year recurrence interval and a 1-hour rainfall duration. This is an increase of 3.15 cfs due to additional impervious areas. The Site will be graded to direct storm water runoff to infiltrate into concrete permeable pavers in the privately-owned driveway and courtyard and landscaping and will be detained in underground infiltration chambers. An inverted crown in the courtyard of Parcel 007 will direct excess runoff to the driveway and eventually to the existing catch basin in the Kāhala Avenue ROW. Excess runoff on Parcels 009 and 014 will overflow the subsurface infiltration system at the drain inlet furthest makai and sheet flow into the landscaped area where it will spread and infiltrate further. There will be no direct release of runoff to the beach or nearshore waters (G70, 2021). An Erosion and Sediment Control Plan, Storm Water Quality Report and Storm Water Quality Strategic Plan will be prepared to comply with the City's *Rules Relating to Water Quality*. Water conservation measures such as stormwater harvesting to provide a non-potable water source for irrigation use will be considered. Additionally, the Proponent will maintain vegetation on the Project parcels to prevent debris from entering the City-owned drainage channel on TMK parcel: (1) 3-5-006:033.

The Project is not anticipated to have a significant impact on existing drainage infrastructure. The Project will result in an increase in impervious surfaces and related storm water runoff; however, the increases in storm water runoff will be negligible and retained and treated on-site. No additional mitigation is recommended.

3.8.4 Solid and Hazardous Waste

Existing Conditions

Solid waste on Oʻahu is collected by the City ENV, Refuse Division as well as private vendors. The ENV, Refuse Division is responsible for the collection, transport and disposal of most of Oʻahu's solid waste. Solid waste is primarily disposed of at H-POWER (City's waste-to-energy plant) located at Campbell Industrial Park or the Waimānalo Gulch Sanitary Landfill. The ENV, Refuse Division currently collects solid waste from the existing residences on Parcels 007 and 014.

The PVT Land Company Limited (PVT) owns and operates the PVT Landfill, which accepts non-combustible construction and demolition materials and recyclable materials from contractors on a pre-arranged basis. PVT is Hawaii's largest recycler by volume of material; approximately 7 million tons of wood, glass, metal, plastic, roofing materials, carpet, and concrete are recycled at PVT every year.

Potential Impacts and Mitigation Measures

Prior to the demolition of the existing residences, hazardous material sampling will be conducted by a qualified inspector. Building materials should use destructive sampling protocols to collect representative samples for asbestos, lead paint, and Polychlorinated Biphenyls containing light ballasts and mercury containing lamps.

During construction, green waste and demolition waste will be generated from grubbing, grading and demolition. Green waste will be disposed of at a composting facility such as Hawaiian Earth Recycling, or another approved facility. Non-combustible construction and demolition materials, such as wood,

glass, metal, plastic, roofing materials, carpet, and concrete, will be recycled or disposed of at the PVT Landfill or another approved facility. Hazardous wastes will be disposed at the PVT Landfill, or another landfill permitted by the DOH, SHWB. Construction will not result in a disruption of solid waste collection services to neighboring parcels. After construction, solid waste generated by residents will continue to be collected by the ENV, Refuse Division and disposed of at approved solid waste disposal facilities.

The Project is not anticipated to result in a significant impact on the existing solid waste disposal system, as the proposed improvements will not lead to a substantial increase in the generation of solid waste during and/or post-construction or a delay or disruption in the collection of solid waste for the surrounding community. No additional mitigation is recommended.

3.8.5 Electrical System

Existing Conditions

Electrical power to the residences on Parcels 007 and 014 is provided by overhead power lines via Hawaiian Electric Company (HECO).

Potential Impacts and Mitigation Measures

Construction of the Project will not disrupt the provision of electrical power to the neighboring parcels or surrounding community. The existing HECO system has adequate capacity to meet the power requirements during construction activities. In the event of a utility power outage, the Contractor should be prepared with a backup power generator on-site. Construction will not result in a disruption of electrical power to neighboring parcels.

The Project improvements include undergrounding the utility lines within the privately-owned driveway, which will eliminate fire hazards, accidents, power outages, benefit adjacent parcels to the Site and improve aesthetics fronting the Site on Kāhala Avenue. Electrical power to the residences will continue to be provided by HECO via these underground utility lines. Additionally, photovoltaic panels will be installed on the residences to produce renewable energy and energy sub-metering will be installed to measure energy performance.

Per early consultation letter from HECO (dated October 20, 2021), the Project is not anticipated to have a significant impact on HECO facilities. HECO facilities will provide adequate power without causing delays or disruptions to the surrounding community. The Proponent will coordinate with HECO regarding any existing/proposed easements and facilities on the Site, to ensure continued access for facility maintenance. No additional mitigation is recommended.

3.8.6 Telecommunications

Existing Conditions

Spectrum and Hawaiian Telcom, Inc. provide cable and internet services, and operate overhead and underground coax and fiber systems in the Project vicinity. Telecommunication services to the residences on Parcels 007 and 014 is provided via overhead power lines.

Potential Impacts and Mitigation Measures

Construction will not disrupt the provision of telecommunication services to neighboring parcels.

The Project improvements include undergrounding the utility lines within the privately-owned driveway, which will benefit adjacent parcels to the Site and improve aesthetics fronting the Site on Kāhala Avenue. Telecommunication services to the residences will continue to be provided by Spectrum and Hawaiian Telcom via these underground utility lines.

The Project is not anticipated to have a significant impact on telecommunication services to the surrounding community. No additional mitigation is recommended.

3.9 Transportation System

3.9.1 Roadways, Access, Traffic and Parking

Existing Conditions

The Site is accessed via a shared, privately-owned driveway that connects to Kāhala Avenue. Key streets within the Project vicinity are described below:

- Kāhala Avenue extends parallel to the coastline in the east-west direction, and is primarily used for residential traffic and access to the Waiʻalae Beach Park, Waiʻalae Country Club, Kahala Beach Apartments, and The Kahala Hotel & Resort. The posted speed limit is 25 mph. Kāhala Avenue is City-owned.
- Koloa Street is a two-lane street that runs perpendicular to Kāhala Avenue, west of the Site. Koloa Street is City-owned.
- Kilauea Avenue is a four-lane avenue that runs parallel to Kāhala Avenue, located north of the Site. The posted speed limit is 30 mph. Kilauea Avenue is owned by various owners (HoLIS, 2021).

Traffic flow in Kāhala and along Kāhala Avenue is generally light, except during annual high-traffic events such as the Honolulu Marathon and Sony Open golf tournament.

The existing residences on Parcels 007 and 014 have ample on-site parking.

Potential Impacts and Mitigation Measures

Construction-related traffic will be temporarily noticeable but will not significantly increase traffic on surrounding streets. The Contractor will implement a Traffic Management Plan (TMP) to minimize construction-related traffic on the surrounding area. Additionally, the following mitigation measures are recommended:

- Trucks delivering construction material and disposing of construction waste should be scheduled on weekdays during times of non-peak commuter periods (9:00 AM to 3:00 PM).
- All construction vehicles will be kept in proper operating condition to prevent disruptions on public roadways.
- A street usage permit will be obtained from the City DTS for any construction-related work that may require the temporary closure of a City-owned street.

- Per early consultation letter from the DTS (dated November 05, 2021) area representatives, the Waiʻalae-Kāhala Neighborhood Board (NB) No. 03, area residents, businesses, emergency personnel (fire, ambulance, and police), and the Oahu Transit Services, Inc. (TheBus and TheHandi-Van) will be updated of temporary construction-related disruptions on the local street network, as necessary.

The existing 14-FT wide privately-owned driveway serving the Site, will be widened to a minimum of 20-FT (proposed widening of 11.0 FT) to meet City standards and support fire truck access, and will connect with the Kāhala Avenue ROW. The existing driveway will connect to a new hammerhead turnaround near the entry of Parcel 007, to provide fire vehicle access.

The residences will have ample on-site parking for residents and guests. Each residence on Parcels 007, 009 and 014 will have 2-car garages. Additionally, a 5-space garage will be provided on Parcel 007 and a 6-space garage will be provided on Parcel 014 for guest parking. The Project will comply with HAR §15-217-63, *Parking and loading.*

The Project is not anticipated to result in a significant impact on the existing roadways, access driveways, or traffic and circulation. The privately-owned driveway has previously served 11 residences, and will serve 16 homes in the future, including adjacent residences. The proposed improvements will not involve an alteration or degradation of the existing roadway network that would cause traffic delays or a substantial increase in traffic. No additional mitigation is recommended.

3.9.2 Mass Transit, Pedestrian and Bicycle Facilities

Existing Conditions

The DTS manages a municipal bus services – TheBus, which is operated by Oʻahu Transit Services. The Site is serviced by TheBus Route 14; the nearest bus stop is on the makai side of Kāhala Avenue, approximately 100 FT from the Site. The DTS also manages TheHandi-Van, which is a municipal transit service for people with disabilities who are unable to use TheBus. TheHandi-Van service is generally available island-wide and operates Monday – Sunday during 4:00 AM – 1:00 AM; 24-hour service is available in areas located within 0.75 miles of TheBus Routes 2 and 40.

Kāhala Avenue does not have sidewalks on either side of the roadway. The nearest crosswalk to the Site is located at the Waiʻalae Country Club, approximately 0.3 miles from the Site.

There are no bicycle lanes on Kāhala Avenue. However, per the *Oʻahu Bike Plan Update*, bike lanes are proposed for Kāhala Avenue. Bike lanes will be provided in both directions on two-way sections and in one direction for one-way sections (DTS, 2019).

Potential Impacts and Mitigation Measures

During construction, public transit provided by TheBus and TheHandi-Van para-transit vehicles will remain accessible. Sidewalks and bicycle infrastructure will also remain available to bicyclists and pedestrians. Per early consultation letter from the DTS (dated November 05, 2021), the Proponent will coordinate with the City DTS — Transportation Mobility Division regarding potential temporary construction-related disturbances the nearest TheBus stop on the makai side of Kāhala Avenue. Additionally, the Proponent will coordinate with the City DTS to improve the nearest TheBus stop, on the makai side of Kāhala Avenue, as an off-site community benefit.

The Project is not anticipated to result in a significant impact on mass transit services, as the proposed improvements do not involve the obstruction or removal of a transit stop that would limit the public's use of mass transit or result in a substantial increase in the use of municipal mass transit which taxes services. The Project is not anticipated to result in a significant impact on pedestrians or bicyclists, as the proposed improvements do not involve the obstruction or removal of pedestrian infrastructure that would limit the public's use of sidewalks or crosswalks or bicycle infrastructure. No additional mitigation is recommended.

3.10 Public Facilities and Services

3.10.1 Recreational Facilities

Existing Conditions

The Site abuts the Kāhala Beach and is approximately 0.09 miles (485 FT) southwest from the Thukkie Beach Lookout access – the nearest public beach and shoreline access. Other public recreational facilities located near the Site include the following:

- Wai'alae Beach Park, located approximately 0.2 miles from the Site;
- Kāhala Community Park, located approximately 0.5 miles from the Site;
- Hunakai Park, located approximately 0.5 miles from the Site;
- Fort Ruger Park, located approximately 1.2 miles from the Site;
- Diamond Head Memorial Park, located approximately 1.5 miles from the Site; and
- Kuilei Cliffs Beach Park, located approximately 1.8 miles from the Site.

Potential Impacts and Mitigation Measures

During construction, temporary traffic may present a minimal inconvenience on the public's ability to access recreational facilities in the Site vicinity. However, the Contractor will conduct construction activities in accordance with a TMP.

The Project will not obstruct existing public access to the beach, shoreline areas used for recreational purposes or inland recreational facilities in the vicinity. All proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. Conversely, the Project involves the removal of overgrown and non-native vegetation in the shoreline area fronting Parcel 009, and management of shoreline vegetation going forward, which will increase the useable public beach area, and eliminate overgrown shrub hiding areas and associated illicit activities. The Project will also comply with the requirements of the Park Dedication Ordinance, ROH Article 7, *Parks and Playgrounds*. Additionally, the Project will support modest improvements at the City's Wai'alae Beach Park, such as the provision of a new bicycle rack and/or trash bins, as an off-site community benefit.

The Project is not anticipated to have a significant impact on existing recreational facilities in the vicinity, as the proposed improvements will not involve a long-term loss of access to or use of recreational park space or shoreline areas; a permanent change to a recreational area; or a long-term conflict with existing recreational uses. No additional mitigation is recommended.

3.10.2 Educational Facilities

Existing Conditions

Numerous public and private educational facilities are located near the Site. Nearby elementary, middle school, high school and post-secondary institutions include the following:

- Kāhala Elementary School, located approximately 0.7 miles from the Site;
- Kaimukī Middle School, located approximately 1.4 miles from the Site;
- Variety School of Hawaiʻi, located approximately 1.5 miles from the Site; and
- Kapiʻolani Community College, located approximately 1.5 miles from the Site.

Potential Impacts and Mitigation Measures

The Project is not anticipated to have a significant impact on existing educational facilities in the Project vicinity, as the proposed improvements will not result in population growth, a demographic shift or a substantial increase in school attendance that will tax the public school system. No additional mitigation is recommended.

3.10.3 Police

Existing Conditions

The City Honolulu Police Department (HPD) provides police protection services on Oʻahu. HPD has eight patrol districts on Oʻahu. The Site is within District 7 – East Honolulu, which encompasses approximately 40 square miles in East Honolulu. The district includes Mānoa, McCully, Mōʻiliʻili, Kaimukī, Pālolo, Diamond Head, Waiʻalae, Kāhala, ʻĀina Haina, Kuliʻouʻou, Hawaiʻi Kai, Kalama Valley, and Sandy Beach (HPD, 2021). The nearest HPD station to the Site is the Waikiki Station, located approximately 4.7 miles from the Site.

Potential Impacts and Mitigation Measures

During construction, there may be Project-related traffic. Per an early consultation letter from the HPD (dated October 21, 2021), the Contractor will install necessary signs, lights, barricades, and other safety equipment on Kāhala Avenue to facilitate a safe-flow of traffic. Additionally, area residents will be notified prior to temporary construction-related disruptions on the local street network, as necessary.

The Project is not anticipated to have a significant impact on HPD's operations or ability to provide adequate protection services to the surrounding community. The proposed improvements will not result in an appreciable increase on the long-term demand for police services, which would endanger the health and safety of residents on the Site or surrounding community. No additional mitigation is recommended.

3.10.4 Fire

Existing Conditions

The City Honolulu Fire Department (HFD) provides fire protection services on Oʻahu. HFD responds to emergencies, including but not limited to fires, emergency medical calls, hazardous materials incidents, motor vehicle accidents, natural disasters, and technical rescues. HFD works with the City Emergency Services Department, Emergency Medical Services Division (EMS), who dispatches the closest available unit. The nearest HFD fire stations to the Site include the following:

- Station 5 in Kaimukī is located at 971 Koko Head Avenue, approximately 1.6 miles from the Site; and
- Station 7 in Waikīkī is located at 381 Kapahulu Avenue and is approximately 3.2 miles from the Site.

There are two existing fire hydrants located on the mauka side of Kāhala Avenue. Hydrant 1485 is approximately 60 FT east of the northeast corner of the Site and Hydrant M01486 is approximately 360 FT west of the Site (G70, 2021).

Potential Impacts and Mitigation Measures

During construction, there may be a minimal increase in the demand on fire services, should worker safety emergency situations arise. Fire vehicle access to the Site will be maintained during construction.

A new 6-inch detector check meter and meter box will be constructed in the Kāhala Avenue ROW. A new 8-inch fire main will be constructed within the driveway and connect to an existing 8-inch water main in the Kāhala Avenue ROW. The new 6-inch detector check meter and new 8-inch fire main will connect to a new fire hydrant, which will be installed within the driveway near the makai edge of Parcel 007. A new 18-FT wide fire apparatus turnaround with a 3-FT clearance will be constructed to provide fire apparatus access along the driveway. Each residence will be provided with an automatic fire sprinkler system serviced by the new 8-inch fire main (G70, 2021). The actual required fire flow will be determined based on the sprinkler system layout.

Per an early consultation letter from the HFD (dated October 25, 2021), fire department access roads will be within 150 FT of any portion of the residences and within 50 FT of an exterior door that provides access to the interior of the building. A water supply capable of delivering the required fire flow for fire protection shall be provided to all residences and facilities. HFD access roads will have unobstructed width and vertical clearance to meet City requirements. All Project improvements will be designed and constructed in compliance with ROH, Chapter 20, *Fire Code of the City and County of Honolulu* and relevant provisions of the Uniform Fire Code, 2006 Edition. Construction drawings will be submitted to the HFD for review and approval. The Proponent will coordinate with the City BWS and HFD, Fire Prevention Bureau to ensure off-site fire protection is adequate to serve the residences.

The Project is not anticipated to result in a significant impact on HFD's operations, as the proposed improvements will not result in an appreciable increase on the demand for such services; or lead to an obstruction or reduction of HFD's ability to provide fire protection services to the Site or surrounding community. The planned residence will be designed to meet fire and building code requirements. Appropriate design plans will also be coordinated with the Fire Prevention Bureau of the HFD for their review. No additional mitigation is recommended.

3.10.5 Emergency Medical

Existing Conditions

The EMS provides emergency medical services on Oʻahu. The EMS has three districts and 21 ambulance units on Oʻahu. The Wailupe Fire Station is located within District 2 (EMS, 2021). The EMS dispatches paramedic crews to respond to medical emergencies and transports patients to the nearest emergency room. Major hospitals and clinics located near the Site include the following*:*

- Queen's Island Urgent Care – Kahala, located approximately 1.0 mile from the Site;
- Straub Medical Center - Kahala Clinic & Urgent Care, located approximately 1.2 miles from the Site; and
- Kapiʻolani Medical Center, located approximately 4.6 miles from the Site.

Potential Impacts and Mitigation Measures

During construction, there may be a minimal increase in the demand for medical services, should worker safety emergency situations arise. Emergency vehicle access to the Site will be maintained for the duration of construction.

Nearby hospitals and clinics will continue to function and be accessible to the serviced community. The Project will not result in an appreciable increase on the demand for medical services or lead to an obstruction or reduction of medical services which would endanger the health and safety of individuals in the surrounding community. No additional mitigation is recommended.

3.11 Historic, Archaeological, and Cultural Resources

3.11.1 Historic and Archaeological Resources

Existing Conditions

A Draft Archaeological Inventory Survey (AIS) was prepared by Keala Pono for the Project in 2021. See *Appendix C, Archaeological Inventory Survey.* The Draft AIS was prepared in accordance with HRS §6E-42 and HAR §13-276. The Draft AIS includes a description of historical land use, Hawaiian traditions, and past archaeological studies in the vicinity; results of the survey fieldwork and recommendations are also provided. Consultation with the DLNR, State Historic Preservation Division (SHPD) has been ongoing since May 2021.

The Site is in the ahupuaʻa of Waikīkī, the ʻili of Waiʻalae Nui, and the Kāhala neighborhood. Waikīkī translates to "spouting water," named for the numerous swamps in the area. Waiʻalae means "mudhen water" and Waiʻalae Nui means "large Waiʻalae." Kāhala translates to "amberjack fish," as it was known for its freshwater springs, inland terraces, and fishponds at the coast. A portion of the Site is located along the coastline, and underlying soils at the Site consist of JaC and BS soils. Based on a review of past land use and previous archaeological investigations, there is high potential for historic properties and iwi kūpuna (human burials) to occur in the Project vicinity (Keala Pono, 2021a).

As part of the Draft AIS, a pedestrian survey and subsurface testing were conducted on the Site during November 1–6, 2021. During the pedestrian survey the entire Site was visually inspected in transects; no surface archaeological remains were observed within the Site, largely due to past

development, construction and paving of the Site. A total of 19 subsurface mechanical test trenches were excavated on the Site, in accordance with a SHPD-approved trench plan (see Figure 14 in the Draft AIS). The 19 excavated trenches identified one subsurface archaeological deposit found within Trench 7 (Parcel 009), which contained a variety of cultural material and one subsurface firepit (Feature 7-1); and a subsurface historic trash pit (Feature 10-1) identified within Trench 10 (Parcel 009) (Keala Pono, 2021a).

The subsurface archaeological deposit is part of a cultural layer that was assigned a State Inventory of Historic Places (SIHP) number 50-80-14-6632 and was previously identified on a neighboring property (4773 Kāhala Avenue). Site 6632 is a late pre-contact to early historic cultural layer that was likely used for habitation, resource procurement, and tool making. The lack of structural features or post holes suggests temporary habitation; the coastal location and artifact and midden finds indicate marine resource procurement; and tool making may have taken place to support activities such as the manufacture of basalt adzes for canoe making (Keala Pono, 2021a).

Cultural material was collected from Site 6632 and from other parts of the Site. Cultural material from Site 6632 consisted of marine shell and other invertebrates (crab and sea urchin), faunal remains (mammals, fish, bird, frog), traditional artifacts (bone fishhook, coral abrader and rubbing stone fragments, and basalt debitage), post-contact material, unburned kukui nutshell, and charcoal. A total of 124 non-traditional (modern, post-contact) artifacts were encountered across the Site; these included 80 glass bottles, 10 glass objects, eight fragments of ceramic tableware, five aluminum cans, 16 metal objects, three plastic objects, a wooden button, and a stone tile. Two samples of kukui nutshell were submitted for radiocarbon dating. No human burials were identified within the Site; all discovered bones were identified as non-human. One sample was from the subsurface firepit (Feature 7-1) of Site 6632, and the other from scattered, isolated charcoal within the archaeological deposit of Site 6632. The highest probability of dates for the two samples at AD 1722–1814 (calibrated) or the late pre-contact to early historic period (Keala Pono, 2021a).

Potential Impacts and Mitigation Measures

The Project involves the demolition of seven existing residences. The new residences will be constructed on concrete slab. Utilities and infrastructure (e.g., water, sewer, drainage) will require excavation at depths below 3.0 FT from the surface.

As documented in the Draft AIS, SIHP 6632 retains integrity of location, design, setting, materials, and workmanship, but lacks integrity of feeling and association. SIHP 6632 is significant under Criterion d of HAR §13-284-6(b), as it may provide further information on habitation, marine resource procurement, and tool making at a coastal site that dates to the late pre-contact to early post-contact period. The Draft AIS supports a project-effect determination of "Effect, with agreed upon mitigation commitments." The proposed recommended mitigation measures include preparation of an archaeological monitoring plan and implementation of archaeological monitoring during construction (Keala Pono, 2021a).

The extent of archaeological monitoring will be further refined during consultation with SHPD, prior to construction. Project construction workers will be informed of the possibility of inadvertent finds, including iwi kūpuna. In the event deposits or materials are discovered, all work shall cease immediately and an archaeologist from SHPD Archaeology Branch and the HPD shall be notified. All work in the area will be suspended until further recommendations are made for the appropriate treatment of archaeological deposits or materials.

3.11.2 Cultural Resources

Existing Conditions

A Preliminary Draft Cultural Impact Assessment (CIA) was prepared by Keala Pono for the Project in 2021. See *Appendix D, Cultural Impact Assessment.* The purpose of the Draft CIA is to identify traditional Hawaiian and/or historic cultural resources and traditional cultural practices that may have been present in the Site vicinity and potential Project disruptions to resources and practices. The Draft CIA includes a description of historical land use, Hawaiian traditions, and past studies in the vicinity, and two ethnographic interview accounts.

Several potential interviewees were contacted (see Table 3 in the Draft CIA), which resulted in three interviews. Interviews were conducted with Mana Caceres, Richard Turbin and Lucinda Pyles; interviewees are/were either residents of Kāhala and/or frequent Kāhala regularly and have cultural ties and knowledge of Kāhala. Mana Caceres is a Kona District Burial Council Representative and descendent with ties to Waikīkī; Richard Turbin is the Chair of the Waiʻalae-Kāhala NB No. 03; and Lucinda Pyles is the Secretary of the Waiʻalae-Kāhala NB No. 03. Note: Lucinda Pyles was interviewed on January 5, 2022; the interview transcript is currently being reviewed, and upon approval, the transcript, interview responses, and recommendations will be incorporated into the CIA (Keala Pono, 2021b).

Below is a summary of Mana Caceres' and Richard Turbin's knowledge of existing cultural resources, practices, and concerns:

- Cultural Practices: Kāhala was traditionally prized for its subsistence practices such as the gathering of limu (seaweed), heʻe (octopus), and honu (turtle). The ahupuaʻa was known for having freshwater springs, inland terraces, and fishponds at the coast. While gathering practices have declined, the area is still popular for fishing, surfing, and water sports.
- Burial Sites: There are multiple human burial sites (iwi kūpuna) along the Kāhala coast and a traditional and historic cemetery near the Waiʻalae Country Club.
- Coastal Erosion: Climate change and coastal erosion has resulted in a loss of Kāhala beach in some areas. As iwi kūpuna were sometimes buried in the sand beneath tree roots, certain species of trees are more likely to contain iwi kūpuna. One interviewee noted that iwi kūpuna along the shoreline are disturbed (revealed/exposed) by coastal erosion, and that the removal of coastal vegetation such as naupaka and hau may exacerbate exposure, as tree roots aid in mitigating coastal erosion and prevent the revealing of iwi kūpuna.
- Beach Use: People often let their dogs off leash at Kāhala beach, which can be unsafe.
- Homelessness: Homeless individuals set up camp at Kāhala beach fronting the Site.
- Project Aesthetic: One interviewee generally supported the Project. The other interviewee supported some type of development at the Site; however, had concerns regarding the number of units in relation to the lot size, and did not feel the current design fit the character, aesthetic, and feeling of the existing neighborhood (Keala Pono, 2021b).

Potential Impacts and Mitigation Measures

Below is a summary of Mana Caceres' and Richard Turbin's recommendations to address cultural resources and practices and concerns:

- Cultural Practices: Interviewees agreed that cultural practices (beach access) would not likely be affected by the project.

- **Burial Sites/Coastal Erosion**: Recommendations to curtail coastal erosion were conflicting, with one interviewee advising to leaving vegetation in place, and another advising to remove vegetation. The former interviewee recommended keeping all vegetation near the coastline in place, particularly hau and naupaka, to protect the shoreline from erosion, and prevent iwi kūpuna from being inadvertently exposed.
- **Homelessness:** The presence of permanent residents could potentially inhibit homeless encampment.
- **Project Aesthetic:** One interviewee recommended reducing the number of units on the Project parcel, and to construct homes that fit in with the neighborhood, such as single-family homes with more greenery (Keala Pono, 2021b).

The Project involves the demolition of seven existing residences, the redevelopment of six new residences (single-family detached dwellings), and the construction of six new residences (single-family detached dwellings). Additionally, a variety of palm trees, native canopy trees, flowering trees, and native, drought, wind and salt-tolerant plants will be planted throughout the Site. It should be noted that per ROH §21-3.70-1, the Proponent is allowed to develop seven units on Parcel 009, which is one more than what is being proposed. Various design configurations were considered for the Site, including "maximum development" and "lower-density development" options; however, for various reasons they were not considered viable alternatives. For further discussion, see **Section 4.4, Alternative D – Different Design**.

In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the vegetation, waste, and debris has allowed for the natural beach grass to re-establish, increased the useable public beach area, restored potential ground-nesting seabird habitat areas, and eliminated overgrown shrub hiding areas and associated illicit activities, such as homeless encampment. Coastal erosion will be abated as the natural beach grass continues to re-establish. As a community benefit, the Applicant is proposing to maintain the shoreline vegetation, so overgrowth does not occur.

The Project is not anticipated to result in a significant impact to existing Hawaiian cultural beliefs, practices, traditions, resources (historic and/or cultural properties), cultural objects, or sacred sites, as the Project will not prevent access to or along the shoreline and beach, and will not result in a degradation of plants, animals, or resources customarily used for subsistence or traditional cultural practices. No additional mitigation is recommended.

3.12 Socio-Economic Characteristics

Existing Conditions

The Site is situated within the U.S. Census Bureau's Census Tract 5 (Waiʻalae-Kāhala), which generally spans from Black Point Road to the east side of Wailupe Beach Park. From 2013 to 2017, the total population in Census Tract 5 was 3,813, with a median age of 49.9 years. There were 1,347 households, with an average household size of 2.83 people. Of the population, 98.2% of people 25 years and over had graduated from high school, 61.3% had a bachelor's degree or higher, and 53.3% (16 and over) were employed. The median income of households was $127,582. Census Tract 5 had a total of 1,690 housing units; 83.7% of the housing units were single-family houses, while 16.3% were in multi-unit structures, or buildings that contained two or more apartments. The median property value for owner-occupied houses was $1,662,900 (USCB, n.d.).

Potential Impacts and Mitigation Measures

During construction, the Project will generate short-term economic benefits through the employment of design and construction firms and construction material suppliers.

The Project involves the construction/redevelopment of residences on an underutilized property. This will increase the stock of housing in Honolulu and the diversity of housing types in the Kāhala community. The Project will also create long-term jobs, as property management and site maintenance will be required for the residences. No induced population growth is anticipated in association with the Project.

The Project will have a positive short-term direct, indirect, and cumulative impact on job creation and increased State and City tax revenues during and post-construction. The Project will not result in a substantial population or demographic shift in the community. No additional mitigation is recommended.

3.13 Visual and Scenic Resources

Existing Conditions

Visual and scenic resources include panoramic views and vistas, landmarks, and landscape features such as significant trees and open space areas.

The Site is within the City's *Primary Urban Center Development Plan* (PUC DP) plan area. The PUC DP recognizes vantage points and panoramic views of the Koʻolau Range, the Pacific Ocean and the craters of Lēʻahi (Diamond Head). Map A.1: Significant Panoramic Views in the PUC DP illustrates east-west views from Kaimukī towards Kāhala Beach and mauka-makai views towards Black Point. Views of Lēʻahi from Kāhala Avenue are also identified. There are no significant view "corridors" near the Site.

Existing views of the Site from Kāhala Avenue are shielded by a boundary wall along Parcel 007 and lush landscaping. Existing mauka views into the Site from the shoreline are shielded by a fence and dust screens. See *Figure 3-10, Existing View of Site from Kāhala Avenue* and *Figure 3-11, Existing View of Site from Kāhala Beach*.

Potential Impacts and Mitigation Measures

Construction activities will be visible from adjacent parcels and neighboring areas, and construction equipment may occasionally obstruct mauka-makai views. However, construction-related obstructions to scenic resources will be temporary. Additionally, dust screens (12 to 16 FT tall) will be installed around active work areas, which will have a dual aesthetic function by screening unpleasant views into construction areas and mitigating visual distractions.

The architectural design of the residences will blend in with the unique and eclectic architectural character of the Kāhala community. Additionally, lush landscaping will be interspersed throughout the Site, which will conceal the residences from public viewpoints. The residences will be oriented and staggered so residents will have an ocean-view. The Project will adhere to maximum building heights standards per ROH §21-3.70-1. See *Figure 2-2, Kāhala Avenue Perspective, Figure 2-3, Kāhala Beach Perspective, Figure 2-4, Typical Elevation of Dwelling Fronting Kāhala Avenue,* and *Figure 2-5, Typical Elevation of Dwelling Fronting Kāhala Beach*.

The Project is not anticipated to result in a significant impact to visual resources, as the Project will not result in a significant alteration of the visual character of the surrounding area, will not obstruct significant panoramic views, vantage points or view corridors recognized or identified in the PUC DP. No additional mitigation is recommended.

Figure 3-10 **Existing View of Site from Kāhala Avenue**

Figure 3-11 **Existing View of Site from Kāhala Beach**

3.14 Potential Cumulative, Indirect, and Secondary Impacts

Cumulative impacts result from the incremental effects of an activity when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertake such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period. Indirect/secondary impacts are associated with, but do not result directly from, an activity. The environmental analysis of the proposed Project addresses development in the context of known planned or approved land uses in the vicinity.

The Project is anticipated to result in significant beneficial cumulative, indirect, and secondary impacts for the Kāhala community through the following:

- Construct/redevelop residences on underutilized and neglected parcels, to contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala.
- Creation of a sustainable, LEED certified residential project, serving as a model for future residences in Kāhala.
- Removal of overgrown and non-native vegetation in the shoreline area fronting Parcel 009, and management of shoreline vegetation going forward, which will increase the useable public beach area, and eliminate overgrown shrub hiding areas and associated illicit activities.
- Maintenance of vegetation on Project parcels to prevent debris from entering the City-owned drainage channel on TMK parcel: (1) 3-5-006:033.
- Support for modest improvements at the City's Waiʻalae Beach Park, such as a new bicycle rack and/or trash bins.
- Coordination with City DTS for upgrade of the nearest TheBus stop on the makai side of Kāhala Avenue, approximately 100 FT from the Site.
- Creation of short- and long-term jobs, and increased State and City tax revenues.

The impacts of climate change are inherently indirect and cumulative. The Project's contribution to the cumulative impact of global GHG emissions will be relatively insignificant.

Chapter 4

Alternatives to the Proposed Action

Chapter 4

Alternatives to the Proposed Action

This chapter describes a range of alternatives considered to the Proposed Action, and a high-level analysis of the potential impacts in comparison to the Proposed Action.

4.1 Alternative A – No Action

The "No Action" alternative would involve maintaining the status quo of the Site, should the Project not proceed. Under Alternative A, the Site would remain in its current state; the existing residences on Parcels 007 and 014 would continue to age and eventually fall into disrepair if not properly maintained or renovated. Parcel 009 would continue to remain an empty, underutilized lot.

Under Alternative A, there would be no potential short-term, construction-related impacts or long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) or existing human environment (e.g., potable water system, wastewater system, traffic conditions, noise conditions, and visual resources). However, Alternative A would also not provide the multitude of beneficial long-term and cumulative impacts associated with the construction/redevelopment of the residences, including contributing to the increase of housing stock in Honolulu; the diversity of housing types in the Kāhala community; and the benefits of job creation and increased State and City tax revenues. Under Alternative A, the shoreline vegetation would continue to overgrow and encroach on public, useable beach area, which might encourage the use of the shoreline and Parcel 009 for illicit behavior (e.g., waste dumping, ad-hoc public urination, encampment, and substance use). Additionally, Under Alternative A, vegetation overgrowth and debris would continue to build up in the City-owned drainage channel with less active management.

Therefore, Alternative A would not meet the purpose and need of the Proposed Action. For these reasons, Alternative A was not considered a viable alternative.

4.2 Alternative B – Delayed Action

The "Delayed Action" alternative would involve delaying the commencement of the Project until a future undetermined date. Under Alternative B, the Site would remain in its current state, until the commencement of the Project.

Once the Project commences, Alternative B would generally result in the same potential impacts and proposed mitigation measures of the Proposed Action. Under Alternative B, there would be the potential for short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise); however, mitigation measures would be implemented, and potential impacts would cease upon the completion of the Project.

Though in the near term, delaying the commencement of the Project would also delay the multitude of benefits associated with the Proposed Action. The proposed construction/redevelopment of the residences would contribute to the increase of housing stock in Honolulu, increase the diversity of

housing types in the Kāhala community, and result in increased job creation and State and City tax revenues. Delaying construction to a future date would likely result in higher planning, entitling, design and construction costs due to inflation. Under Alternative B, the shoreline vegetation would continue to overgrow and encroach on public, useable beach area, which might encourage the use of the shoreline and Parcel 009 for illicit behavior (e.g., waste dumping, ad-hoc public urination, encampment, and substance use). Additionally, Under Alternative B, vegetation overgrowth and debris would continue to build up in the City-owned drainage channel with less active management.

Therefore, the Delayed Action alternative would delay the purpose and need of the Proposed Action. For these reasons, Alternative B was not considered a viable alternative.

4.3 Alternative C – Different Location

The "Different Location" alternative would involve siting the proposed improvements at a different location (in the same zoning district with similar site characteristics). Under Alternative C, the Site would remain in its current state and a different site would be developed.

Under Alternative C, there is the potential for a different site to generally have the same short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise); however, mitigation measures would be implemented, and potential impacts would cease upon the completion of the Project. Under Alternative C, there could be potential long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) or existing human environment (e.g., potable water system, wastewater system, traffic conditions, noise conditions, and visual resources). It is unknown what the potential long-term impacts would be from the development of a different site. Therefore, the benefits of Alternative C, are imperceptible to the benefits of the Proposed Action. Under Alternative C, the multitude of benefits associated with the Proposed Action would not come to fruition. The shoreline vegetation fronting the Site at Parcel 009 would continue to overgrow and encroach on public, useable beach area, which might encourage the use of the shoreline and Parcel 009 for illicit behavior (e.g., waste dumping, ad-hoc public urination, encampment, and substance use). Additionally, Under Alternative C, vegetation overgrowth and debris would continue to build up in the City-owned drainage channel with less active management.

For these reasons, Alternative C was not considered a viable alternative.

4.4 Alternative D – Different Design

The "Different Design" alternative would involve a variation of design configurations for the proposed improvements. For discussion purposes, two options are presented below:

- Option 1: "Maximum Development": Per ROH §21-3.70-1, *Residential uses and development standards* and ROH §21-8.20A, *Housing—Multiple dwelling units on a single country or residential district zoning lot*, the Proponent would potentially be able to develop a total of 13 dwelling units on the Site. Specifically, Option 1 would involve the development of more units than the Proposed Action on Parcel 009 (seven versus six units). See *Figure 4-1, Option 1: Maximum Development.*

  There would be fixed costs associated with site development such as utilities/infrastructure improvements and landscaping, similar to the Proposed Action. These fixed costs would be shared across a higher unit count; therefore, the individual residences would be less expensive. As a result, the lower price points of the residences may be more of a viable

purchase option for local Hawai‘i buyers. However, the development of more residences on Parcel 009 would result in a greater collective building scale/mass, would reduce separations between the units, reduce setbacks from the parcel boundaries on Parcel 009, reduce landscaping and open space, restrict internal pedestrian circulation, reduce the flow of air and light throughout the Site, and create an obstruction of shoreline views on Parcel 009. The attached design of the units would result in an increased density of structures that would be undesirable by the Kāhala community. Under Option 2, potential short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise) would be similar to the Proposed Action; mitigation measures would be implemented, and potential impacts would cease upon the completion of the Project. Potential long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) and existing human environment (e.g., potable water system, wastewater system, traffic conditions, and noise conditions) might be greater than the Proposed Action. Additionally, more residences on Parcel 009 would be more of an imposition and obstruction on public mauka and makai views from Kāhala Beach and Kāhala Avenue.

For these reasons, Alternative D: Option 1 was not considered a viable alternative.

- Option 2: “Lower-Density Development”: This option would involve developing fewer dwelling units on the Site than what is proposed by the Proposed Action. Specifically, Option 2 would involve the development of fewer dwelling units than the Proposed Action on Parcel 009 (four versus six units), and Parcel 007 (four versus five units). The objective of Option 2 would be to develop fewer units and theoretically reduce potential short-term and long-term impacts.

  However, there would be fixed costs associated with site development such as utilities/infrastructure improvements and landscaping, similar to the Proposed Action. These fixed costs must be shared across a lower unit count; therefore, the individual residences would need to be larger (>7,500 SF) and more expensive to offset these fixed development costs. The development of larger residences also results in greater unit scale/massing, less setbacks from the parcel boundaries on Parcels 007 and 009, less landscaping and open space, and creates an obstruction of shoreline views on Parcel 009. The required higher price points of the residences may not be a viable purchase option for local Hawai‘i buyers, resulting in a less community-oriented approach to the use of the property. Moreover, the principal purpose of the Proposed Action is to meaningfully contribute to the increase of housing stock in Honolulu and the diversity of housing types in the Kāhala community. Under Option 2, potential short-term, construction-related impacts (e.g., dust generation, vehicular traffic, intermittent noise) would be similar to the Proposed Action; mitigation measures would be implemented, and potential impacts would cease upon the completion of the Project. Potential long-term, operational impacts to the existing natural environment (e.g., water resources, air quality, and flora/fauna) and existing human environment (e.g., potable water system, wastewater system, traffic conditions, and noise conditions) would also be similar to the Proposed Action. However, the larger residences would be more of an imposition and obstruction on public mauka and makai views from Kāhala Beach and Kāhala Avenue.

  For these reasons, Alternative D: Option 2 was not considered a viable alternative.

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Figure 4-1 **Option 1: Maximum Development**

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Chapter 5

Relationship to Plans and Policies

Chapter 5

Relationship to Plans and Policies

This chapter outlines the Project's consistency with applicable State and County land use plans and policies. Plans and policies include the *Hawai'i State Plan, Hawai'i 2050 Sustainability Plan, Hawai'i State Land Use District Boundaries, Hawai'i Coastal Zone Management Program, City and County of Honolulu General Plan, Primary Urban Center Development Plan, City and County of Honolulu Zoning, Special Management Area,* and *Shoreline Setbacks.*

5.1 Hawai'i State Plan

The Hawai'i State Planning Act, adopted in 1978, and promulgated in HRS Chapter 226, resulted in the *Hawai'i State Plan*, recently revised in 1991. The *Hawai'i State Plan* provides goals, objectives, policies, and priority guidelines for growth, development and the allocation of resources throughout the state in various areas of State interest. The purpose of the *Hawai'i State Plan* is to improve the planning process in the State; increase the effectiveness of government and private actions; improve coordination among different agencies and levels of government; provide for wise use of Hawai'i's resources and to guide the future development of the State.

State goals under the Hawai'i State Planning Act are set to guarantee, for present and future generations, those elements of choice and mobility that insure individuals and groups may approach their desired levels of self-reliance and self-determination:

- A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai'i present and future generations.
- A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.
- Physical, social, and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life.

Objectives and policies of the *Hawai'i State Plan* are presented and discussed based on their relevance to the Project in the below *Table 5.1, Hawai'i State Plan*.

Table 5-1: Hawai'i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-1: Findings and Purpose			
§226-2: Definitions			
§226-3: Overall Theme			
§226-4: State Goals. In order to guarantee, for the present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i’s present and future generations			x
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.			X
(3) Physical, social and economic well-being, for individuals and families in Hawai‘i, that nourishes a sense of community responsibility, of caring, and of participation in community life.			x
Discussion: While the Project will contribute to the social and economic well-being for residents; support a physical environment, characterized by beauty, cleanliness; and contribute to economic growth; the goals specified in HRS §226-4(1-3) are not directly applicable to the Project.			
§226-5: Objective and policies for population (a) It shall be the objective in planning for the State’s population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter; (b) To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai‘i’s people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.			X
(2) Encourage an increase in economic activities and employment opportunities on the neighbor islands consistent with community needs-and desires.			X
(3) Promote increased opportunities for Hawai‘i's people to pursue their socioeconomic aspirations throughout the islands.			X
(4) Encourage research activities and public awareness programs to foster and understanding of Hawai‘i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai‘i's population.			X
(5) Encourage federal actions and coordination among major governmental agencies to promote a more balanced distribution of immigrants among states, provided that such actions do not prevent the reunion of immediate family members.			X
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state’s population			X
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area			X
Discussion: While the Project will contribute to increased short- and long-term jobs and earnings, the objectives and policies specified in HRS §226-5 are not directly applicable to the Project.			
§226-6 Objectives and policies for the economy in general. (a) Planning for the State’s economy in general shall be directed toward achievement of the following objectives:			
(1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai‘i's people.			X
(2) A steadily growing and diversified economic base that is not overly dependent on a few industries and includes the development and expansion of industries on the neighbor islands.			X
(b) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Promote and encourage entrepreneurship within Hawai‘i by residents and nonresidents of the State.			X
(2) Expand Hawai‘i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(3) Promote Hawai‘i as an attractive market for environmentally and socially sound investment activities that benefit Hawai‘i's people.			X
(4) Transform and maintain Hawai‘i as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.			X
(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawai‘i.			X
(6) Seek broader outlets for new or expanded Hawai‘i business investments.			X
(7) Expand existing markets and penetrate new markets for Hawai‘i's products and services.			X
(8) Assure that the basic economic needs of Hawai‘i's people are maintained in the event of disruptions in overseas transportation.			X
(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.			X
(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai‘i's small-scale producers, manufacturers, and distributors.			X
(11) Encourage labor-intensive activities that are economically satisfying, and which offer opportunities for upward mobility.			X
(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawai‘i.			X
(13) Foster greater cooperation and coordination between the government and private sectors in developing Hawai‘i's employment and economic growth opportunities.			X
(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			X
(15) Maintain acceptable working conditions and standards for Hawai‘i's workers.			X
(16) Provide equal employment opportunities for all segments of Hawai‘i's population through affirmative action and nondiscrimination measures.			X
(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			X
(18) Encourage businesses that have favorable financial multiplier effects within Hawai‘i's economy.			X
(19) Promote and protect intangible resources in Hawai‘i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			X
(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.			X
(21) Foster a business climate in Hawai‘i--including attitudes, tax and regulatory policies, and financial and technical assistance programs--that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
Discussion: While the Project will contribute to increased short- and long-term jobs and earnings, the objectives and policies specified in HRS §226-6 are not directly applicable to the Project.			
§226-7 Objectives and policies for the economy - agriculture. (a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives:			
(1) Viability of Hawai‘i's sugar and pineapple industries.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(2) Growth and development of diversified agriculture throughout the State.			X
(3) An agriculture industry that continues to constitute a dynamic and essential component of Hawai‘i's strategic, economic, and social well-being.			X
(b) To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawai‘i's agriculture through stakeholder commitment and advocacy.			X
(2) Encourage agriculture by making best use of natural resources.			X
(3) Provide the governor and the legislature with information and options needed for prudent decision making for the development of agriculture.			X
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			X
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai‘i's economy.			X
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai‘i's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai‘i's producers and consumer markets locally, on the continental United States, and internationally.			X
(8) Support research and development activities that provide greater efficiency and economic productivity in agriculture.			X
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			X
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			X
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			X
(12) Expand Hawai‘i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.			X
(13) Promote economically competitive activities that increase Hawai‘i's agricultural self-sufficiency.			X
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture.			X
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			X
(16) Facilitate the transition of agricultural lands in economically non-feasible agricultural production to economically viable agricultural uses.			X
(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i‘a, māla, and irrigated lo‘i, and growth of traditional Hawaiian crops, such as kalo, ‘uala, and ‘ulu.			X
(18) Increase and develop small-scale farms.			X
Discussion: The objectives and policies specified in HRS §226-7 are not directly applicable to the Project.			
§226-8 Objective and policies for the economy--visitor industry. (a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai‘i's economy. (b) To achieve the visitor industry objective, it shall be the policy of this State to:			
(1) Support and assist in the promotion of Hawai‘i's visitor attractions and facilities.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai‘i's people.			X
(3) Improve the quality of existing visitor destination areas.			X
(4) Encourage cooperation and coordination between the government and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			X
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai‘i's people.			X
(6) Provide opportunities for Hawai‘i's people to obtain job training and education that will allow for upward mobility within the visitor industry.			X
(7) Foster a recognition of the contribution of the visitor industry to Hawai‘i's economy and the need to perpetuate the aloha spirit.			X
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai‘i's cultures and values.			X
Discussion: The objectives and policies specified in HRS §226-8 are not directly applicable to the Project.			
§226-9 Objective and policies for the economy--federal expenditures. (a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai‘i's economy. (b) To achieve the federal expenditures objective, it shall be the policy of this State to:			
(1) Encourage the sustained flow of federal expenditures in Hawai‘i that generates long-term government civilian employment.			X
(2) Promote Hawai‘i's supportive role in national defense.			X
(3) Promote the development of federally supported activities in Hawai‘i that respect state-wide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai‘i's environment.			X
(4) Increase opportunities for entry and advancement of Hawai‘i's people into federal government service.			X
(5) Promote federal use of local commodities, services, and facilities available in Hawai‘i.			X
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai‘i.			X
(7) Pursue the return of federally controlled lands in Hawai‘i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			X
Discussion: The objectives and policies specified in HRS §226-9 are not directly applicable to the Project.			
§226-10 Objectives and policies for the economy--potential growth and innovative activities. (a) Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawai‘i's economic base. (b) To achieve the potential growth and innovative activity objective, it shall be the policy of this State to:			
(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawai‘i's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors;			x
(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawai‘i through the export of services or products or substitution of imported services or products;			x

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements;			x
(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity;			x
(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus;			x
(6) Expand Hawai‘i's capacity to attract and service international programs and activities that generate employment for Hawai‘i's people;			x
(7) Enhance and promote Hawai‘i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts;			x
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, underground resources, and solid waste;			x
(9) Promote Hawai‘i's geographic, environmental, social, and technological advantages to attract new or innovative economic activities into the State;			x
(10) Provide public incentives and encourage private initiative to attract new or innovative industries that best support Hawai‘i's social, economic, physical, and environmental objectives;			x
(11) Increase research and the development of ocean-related economic activities such as mining, food production, and scientific research;			x
(12) Develop, promote, and support research and educational and training programs that will enhance Hawai‘i's ability to attract and develop economic activities of benefit to Hawai‘i;			x
(13) Foster a broader public recognition and understanding of the potential benefits of new or innovative growth-oriented industry in Hawai‘i;			x
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawai‘i's social, economic, physical, and environmental objectives;			x
(15) Increase research and development of businesses and services in the telecommunications and information industries;			x
(16) Foster the research and development of nonfossil fuel and energy efficient modes of transportation; and			x
(17) Recognize and promote health care and health care information technology as growth industries.			x
Discussion: The objectives and policies specified in HRS §226-10 are not directly applicable to the Project.			
§226-10.5 Objectives and policies for the economy--information industry. (a) Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawai‘i as a leader in broadband and wireless communications and applications in the Pacific Region. (b) To achieve the information industry objective, it shall be the policy of this State to:			
(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawai‘i and between Hawai‘i and the world, and make high speed communication available to all residents and businesses in Hawai‘i;			X
(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai‘i to accommodate future growth and innovation in Hawai‘i's economy;			X
(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawai‘i;			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawai‘i, using technology to communicate with their headquarters, offices, or customers located out-of-state;			X
(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry;			X
(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawai‘i's people;			X
(7) Provide opportunities for Hawai‘i's people to obtain job training and education that will allow for upward mobility within the information industry;			X
(8) Foster a recognition of the contribution of the information industry to Hawai‘i's economy; and			X
(9) Assist in the promotion of Hawai‘i as a broker, creator, and processor of information in the Pacific.			X
Discussion: The objectives and policies specified in HRS §226-10 are not directly applicable to the Project.			
§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources. (a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives:			
(1) Prudent use of Hawai‘i's land-based, shoreline, and marine resources.	X		
(2) Effective protection of Hawai‘i's unique and fragile environmental resources.	X		
(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1) Exercise an overall conservation ethic in the use of Hawai‘i's natural resources.	X		
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	X		
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	X		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.			X
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.			X
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai‘i.	X		
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			X
(8) Pursue compatible relationships among activities, facilities and natural resources.	X		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational and scientific purposes.	X		
Discussion: The Project improvements are consistent with State and City land use designations. The Site is in a residential neighborhood, on a previously disturbed site. Physical attributes of the Site were considered to ensure that the Site was used in a prudent manner and the proposed improvements were compatible with existing activities and natural resources. The Project will not obstruct public access to inland or shoreline areas used for public recreational purposes. Proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. Proper mitigation measures will be implemented to ensure that threatened or endangered flora and fauna species that traverse the Site are protected. For further discussion, see Section 3.5, Flora and Fauna.			

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources. (a) Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai‘i's scenic assets, natural beauty, and multi-cultural/historical resources. (b) To achieve the scenic, natural beauty, and historic resources objectives, it shall be the policy of this State to:			
(1) Promote the preservation and restoration of significant natural and historic resources.	X		
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.			X
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	X		
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai‘i's ethnic and cultural heritage.	X		
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	X		
Discussion: The Project is not anticipated to have an impact on significant views or vistas. The Project will not detract from surrounding natural beauty, instead the residences will be designed to complement the existing environment through design and material selection. The Project will promote the preservation and protection of historic resources. For further discussion, see Section 3.11, Historic, Archaeological, and Cultural Resources and Section 3.13, Visual and Scenic Resources.			
§226-13 Objectives and policies for the physical environment--land, air, and water quality. (a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives:			
(1) Maintenance and pursuit of improved quality in Hawai‘i's land, air, and water resources.	X		
(2) Greater public awareness and appreciation of Hawai‘i's environmental resources.			X
(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:			
(1) Foster educational activities that promote a better understanding of Hawai‘i's limited environmental resources.			X
(2) Promote the proper management of Hawai‘i's land and water resources.	X		
(3) Promote effective measures to achieve desired quality in Hawai‘i's surface, ground and coastal waters.	X		
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai‘i's people.	X		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.	X		
(6) Encourage design and construction practices that enhance the physical qualities of Hawai‘i's communities.	X		
(7) Encourage urban developments in close proximity to existing services and facilities.	X		
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawai‘i's people, their cultures and visitors.			X
Discussion: The Project is not anticipated to have a significant impact on land, air, and water (surface, ground and coastal) resources. The Project is on a site that has been previously developed that is near existing infrastructure services and facilities. The Project will not increase the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters. In contrast, the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. For further discussion, see Section 3.2, Climate, Climate Change, and Sea Level Rise, Section 3.3, Natural Hazards, Section 3.4, Water Resources and Section 3.6, Air Quality.			

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§226-14 Objective and policies for facility systems--in general. (a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives. (b) To achieve the general facility systems objective, it shall be the policy of this State to:			
(1) Accommodate the needs of Hawai‘i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.			X
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.			X
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.			X
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.			X
Discussion: The objectives and policies specified in HRS §226-14 are not directly applicable to the Project.			
§226-15 Objectives and policies for facility systems--solid and liquid wastes. (a) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives:			
(1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.	X		
(2) Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.			X
(b) To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.	X		
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	X		
(3) Promote research to develop more efficient and economical treatment and disposal of solid and liquid wastes.			X
Discussion: The Project involves the development of wastewater infrastructure to adequately meet the needs of the residences. Residents will be encouraged to re-use and recycle to reduce solid and liquid wastes. For further discussion, see Section 3.8, Utilities and Infrastructure.			
§226-16 Objective and policies for facility systems--water. (a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities. (b) To achieve the facility systems water objective, it shall be the policy of this State to:			
(1) Coordinate development of land use activities with existing and potential water supply.	X		
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			X
(3) Reclaim and encourage the productive use of runoff water and wastewater discharges.	X		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.			X
(5) Support water supply services to areas experiencing critical water problems.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.	X		
Discussion: The existing water system is adequate to accommodate the Project. However, the availability of water will be confirmed when the building permit application is submitted. The Project will implement water conservation measures such as incorporating drought tolerant landscaping to reduce water irrigation demands and will explore sourcing non-potable water for irrigation, such as harvesting rainwater in catchments or storm water in holding tanks. For further discussion, see Section 3.8.1, Potable Water.			
§226-17 Objectives and policies for facility systems--transportation. (a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives:			
(1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods.			X
(2) A statewide transportation system that is consistent with and will accommodate planned growth objectives throughout the State.			X
(b) To achieve the transportation objectives, it shall be the policy of this State to:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter;			X
(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives;			X
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties;			X
(4) Provide for improved accessibility to shipping, docking, and storage facilities;			X
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs;			X
(6) Encourage transportation systems that serve to accommodate present and future development needs of communities;			X
(7) Encourage a variety of carriers to offer increased opportunities and advantages to inter-island movement of people and goods;			X
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs;			X
(9) Encourage the development of transportation systems and programs which would assist statewide economic growth and diversification;			X
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai‘i's natural environment;			X
(11) Encourage safe and convenient use of low-cost, energy- efficient, non-polluting means of transportation;			X
(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives; and			X
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.			X
Discussion: The objectives and policies specified in HRS §226-17 are not directly applicable to the Project.			

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§226-18 Objectives and policies for facility systems--energy. (a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:			
(1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;			X
(2) Increased energy security and self-sufficiency through the reduction and ultimate elimination of Hawai‘i's dependence on imported fuels for electrical generation and ground transportation;	X		
(3) Greater diversification of energy generation in the face of threats to Hawai‘i's energy supplies and systems;	X		
(4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use; and	X		
(5) Utility models that make the social and financial interests of Hawai‘i's utility customers a priority.			X
(b) To achieve the energy objectives, it shall be the policy of this State to ensure the short- and long-term provision of adequate, reasonably priced, and dependable energy services to accommodate demand. (c) To further achieve the energy objectives, it shall be the policy of this State to:			
(1) Support research and development as well as promote the use of renewable energy sources;	X		
(2) Ensure that the combination of energy supplies and energy-saving systems is sufficient to support the demands of growth;			X
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits;			X
(4) Promote all cost-effective conservation of power and fuel supplies through measures, including: (A) Development of cost-effective demand-side management programs; (B) Education; (C) Adoption of energy-efficient practices and technologies; and (D) Increasing energy efficiency and decreasing energy use in public infrastructure;			X
(5) Ensure to the extent that new supply-side resources are needed, the development or expansion of energy systems utilizes the least-cost energy supply option and maximizes efficient technologies;			X
(6) Support research, development, and demonstration of energy efficiency, load management, and other demand-side management programs, practices, and technologies;			X
(7) Promote alternate fuels and energy efficiency by encouraging diversification of transportation modes and infrastructure;	X		
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications; and	X		
(9) Support actions that reduce, avoid, or sequester Hawai‘i's greenhouse gas emissions through agriculture and forestry initiatives.			X
(10) Provide priority handling and processing for all state and county permits required for renewable energy projects;			X
(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not impede the development and use of other cost-effective renewable energy sources; and			X
(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawai‘i.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
Discussion: The Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. The Project will deliver significant environmental benefits, including energy conservation, green energy production, use of energy-efficient fixtures and appliances. For further discussion, see Section 2.3, Description of the Proposed Action, and Section 3.2, Climate, Climate Change, and Sea Level Rise.			
§226-18.5 Objectives and policies for facility systems--telecommunications.			
(a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people.			
(b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand.			
(c) To further achieve the telecommunications objective, it shall be the policy of this State to:			
(1) Facilitate research and development of telecommunications systems and resources;			X
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunications planning;			X
(3) Promote efficient management and use of existing telecommunications systems and services; and			X
(4) Facilitate the development of education and training of telecommunications personnel.			X
Discussion: The objectives and policies specified in HRS §226-18 are not directly applicable to the Project. However, the Project involves undergrounding the utility lines within the privately-owned driveway, which will eliminate fire hazards, accidents, power outages, benefit adjacent parcels to the Site and improve aesthetics fronting the Site on Kāhala Avenue.			
§226-19 Objectives and policies for socio-cultural advancement--housing.			
(a) Planning for the State's socio- cultural advancement with regard to housing shall be directed toward the achievement of the following objectives:			
(1) Greater opportunities for Hawai‘i's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more rental and for sale affordable housing is made available to extremely low-, very low-, lower-, moderate-, and above moderate-income segments of Hawai‘i's population.	X		
(2) The orderly development of residential areas sensitive to community needs and other land uses.	X		
(3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawai‘i's people.			X
(b) To achieve the housing objectives, it shall be the policy of this State to:			
(1) Effectively accommodate the housing needs of Hawai‘i's people.	X		
(2) Stimulate and promote feasible approaches that increase affordable rental and for sale housing choices for extremely low-, very low-, lower-, moderate-, and above moderate-income households.	X		
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.	X		
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing rental and for sale housing units and residential areas.			X
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.	X		
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.	X		

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(7) Foster a variety of lifestyles traditional to Hawai‘i through the design and maintenance of neighborhoods that reflect the culture and values of the community.			X
(8) Promote research and development of methods to reduce the cost of housing construction in Hawai‘i.			X
Discussion: The primary purpose of the Project is construct/redevelop residences on underutilized and neglected parcels. The Project is needed to contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala. The Project will provide increased homeownership opportunities and housing choices for moderate-, and above moderate-income households. The Project is taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.			
§226-20 Objectives and policies for socio-cultural advancement--health. (a) Planning for the State's socio- cultural advancement with regard to health shall be directed towards achievement of the following objectives:			
(1) Fulfillment of basic individual health needs of the general public.			X
(2) Maintenance of sanitary and environmentally healthful conditions in Hawai‘i's communities.			X
(b) To achieve the health objectives, it shall be the policy of this State to:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			X
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			X
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			X
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			X
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.			X
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement.			X
(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.			X
Discussion: The objectives and policies specified in HRS §226-20(b) are not directly applicable to the Project.			
§226-21 Objective and policies for socio-cultural advancement--education. (a) Planning for the State's socio- cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. (b) To achieve the education objective, it shall be the policy of this State to:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			X
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			X
(3) Provide appropriate educational opportunities for groups with special needs.			X
(4) Promote educational programs which enhance understanding of Hawai‘i's cultural heritage.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(5) Provide higher educational opportunities that enable Hawai‘i's people to adapt to changing employment demands.			X
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			X
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			X
(8) Emphasize quality educational programs in Hawai‘i's institutions to promote academic excellence.			X
(9) Support research programs and activities that enhance the education programs of the State.			X
Discussion: The objectives and policies specified in HRS §226-21(b) are not directly applicable to the Project.			
§226-22 Objective and policies for socio-cultural advancement--social services. (a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being. (b) To achieve the social service objective, it shall be the policy of the State to:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			X
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.			X
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai‘i's communities.			X
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			X
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			X
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			X
Discussion: The objectives and policies specified in HRS §226-22 are not directly applicable to the Project.			
§226-23 Objective and policies for socio-cultural advancement--leisure. (a) Planning for the State's socio- cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations. (b) To achieve the leisure objective, it shall be the policy of this State to:			
(1) Foster and preserve Hawai‘i's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			X
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			X
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			X
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.	X		

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(5) Ensure opportunities for everyone to use and enjoy Hawai‘i's recreational resources.	X		
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs.			X
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai‘i's people.			X
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			X
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai‘i's population to participate in the creative arts.			X
(10) Assure adequate access to significant natural and cultural resources in public ownership.	X		
Discussion: The Project will not obstruct public access to the shoreline or beach. In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the non-native vegetation, waste, and debris has allowed for the natural beach grass to re-establish, removed an encroaching condition on lateral shoreline access, increased the useable public beach area, and restored potential ground-nesting seabird habitat areas			
§226-24 Objective and policies for socio-cultural advancement--individual rights and personal well-being. (a) Planning for the State's socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations. (b) To achieve the individual rights and personal well-being objective, it shall be the policy of this State to:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			X
(2) Uphold and protect the national and state constitutional rights of every individual.			X
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			X
(4) Ensure equal opportunities for individual participation in society.			X
Discussion: The objectives and policies specified in HRS §226-24 are not directly applicable to the Project.			
§226-25 Objective and policies for socio-cultural advancement--culture. (a) Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai‘i's people. (b) To achieve the culture objective, it shall be the policy of this State to:			
(1) Foster increased knowledge and understanding of Hawai‘i's ethnic and cultural heritages and the history of Hawai‘i.			X
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawai‘i's people and which are sensitive and responsive to family and community needs.			X
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community lifestyles in Hawai‘i.			X
(4) Encourage the essence of the aloha spirit in people's daily activities to promote harmonious relationships among Hawai‘i's people and visitors.			X
Discussion: The objectives and policies specified in HRS §226-25 are not directly applicable to the Project.			

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
§226-26 Objectives and policies for socio-cultural advancement--public safety.			
(a) Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives:			
(1) Assurance of public safety and adequate protection of life and property for all people.			X
(2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances.			X
(3) Promotion of a sense of community responsibility for the welfare and safety of Hawai‘i's people.			X
(b) To achieve the public safety objectives, it shall be the policy of this State to:			
(1) Ensure that public safety programs are effective and responsive to community needs.			X
(2) Encourage increased community awareness and participation in public safety programs.			X
(c) To further achieve public safety objectives related to criminal justice, it shall be the policy of this State to:			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			X
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			X
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			X
(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war-related, natural, or technological disasters and civil disturbances at all times.			X
(2) Enhance the coordination between emergency management programs throughout the State.			X
Discussion: The objectives and policies specified in HRS §226-26 are not directly applicable to the Project. However, during construction, Federal, State and City requirements will be implemented to ensure the safety of staff, construction crews and community members at the Site.			
§226-27 Objectives and policies for socio-cultural advancement--government.			
(a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives:			
(1) Efficient, effective, and responsive government services at all levels in the State.			X
(2) Fiscal integrity, responsibility, and efficiency in the state government and county governments.			X
(b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.			X
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			X
(3) Minimize the size of government to that necessary to be effective.			X
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawai‘i.			X
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(6) Provide for a balanced fiscal budget.			X
(7) Improve the fiscal budgeting and management system of the State.			X
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			X
Discussion: The objectives and policies specified in HRS §226-27 are not directly applicable to the Project.			
§226-101 Purpose. The purpose of this part is to establish overall priority guidelines to address areas of statewide concern.			
§226-102 Overall direction. The State shall strive to improve the quality of life for Hawai‘i's present and future population through the pursuit of desirable courses of action in seven major areas of statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation.			
Discussion: The Project supports the overall direction of the State of Hawai‘i with regards to population growth and land resource management. The primary purpose of the Project is construct/redevelop residences on underutilized and neglected parcels. The Project is needed to contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala.			
§226-103 Economic priority guidelines. (a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai‘i's people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises. (A) Encourage investments which:			
(i) Reflect long term commitments to the State;			X
(ii) Rely on economic linkages within the local economy;			X
(iii) Diversify the economy;			X
(iv) Reinvest in the local economy;			X
(v) Are sensitive to community needs and priorities; and			X
(vi) Demonstrate a commitment to provide management opportunities to Hawai‘i residents.			X
(B) Encourage investments in innovative activities that have a nexus to the State, such as:			X
(i) Present or former residents acting as entrepreneurs or principals;			X
(ii) Academic support from an institution of higher education in Hawai‘i;			X
(iii) Investment interest from Hawai‘i residents;			X
(iv) Resources unique to Hawai‘i that are required for innovative activity; and			X
(v) Complementary or supportive industries or government programs or projects.			X
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			X
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			X
(5) Streamline the processes for building and development permit and review and telecommunication infrastructure installation approval and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where scientific evidence indicates that public health, safety, and welfare would not be adversely affected.			X
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai‘i's small-scale producers, manufacturers, and distributors.			X
(7) Continue to seek legislation to protect Hawai‘i from transportation interruptions between Hawai‘i and the continental United States.			X
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics:			X
(A) An industry that can take advantage of Hawai‘i's unique location and available physical and human resources.			X
(B) A clean industry that would have minimal adverse effects on Hawai‘i's environment.			X
(C) An industry that is willing to hire and train Hawai‘i's people to meet the industry's labor needs at all levels of employment.			X
(D) An industry that would provide reasonable income and steady employment.			X
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai‘i business.			X
(10) Enhance the quality of Hawai‘i's labor force and develop and maintain career opportunities for Hawai‘i's people through the following actions:			X
(A) Expand vocational training in diversified agriculture, aquaculture, information industry, and other areas where growth is desired and feasible.			X
(B) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities.			X
(C) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired.			X
(D) Promote career opportunities in all industries for Hawai‘i's people by encouraging firms doing business in the State to hire residents.			X
(E) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on- the-job training opportunities.			X
(F) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.			X
(b) Priority guidelines to promote the economic health and quality of the visitor industry:			
(1) Promote visitor satisfaction by fostering an environment which enhances the aloha spirit and minimizes inconveniences to Hawai‘i's residents and visitors.			X
(2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provide for adequate shoreline setbacks and beach access.			X
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai‘i's significant natural, scenic, historic, and cultural resources.			X
(5) Develop and maintain career opportunities in the visitor industry for Hawai‘i's people, with emphasis on managerial positions.			X
(6) Support and coordinate tourism promotion abroad to enhance Hawai‘i's share of existing and potential visitor markets.			X
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			X
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			X
(9) Coordinate visitor industry activities and promotions to business visitors through the state network of advanced data communication techniques.			X
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			X
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai‘i.			X
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			X
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:			
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			X
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			X
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			X
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			X
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai‘i's agricultural community.			X
(6) Seek favorable freight rates for Hawai‘i's agricultural products from interisland and overseas transportation operators.			X
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.			X
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			X
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			X
(10) Support the continuation of land currently in use for diversified agriculture.			X
(11) Encourage residents and visitors to support Hawai‘i's farmers by purchasing locally grown food and food products.			X
(e) Priority guidelines for water use and development:			
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.	X		

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(2) Encourage the improvement of irrigation technology and promote the use of nonpotable water for agricultural and landscaping purposes.	X		
(3) Increase the support for research and development of economically feasible alternative water sources.			X
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.			X
(f) Priority guidelines for energy use and development:			
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.	X		
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			X
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.	X		
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.			X
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network that will serve as the catalyst for establishing a viable information industry in Hawai‘i.			X
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			X
(3) Encourage the development of small businesses in the information field such as software development, the development of new information systems and peripherals, data conversion and data entry services, and home or cottage services such as computer programming, secretarial, and accounting services.			X
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			X
(5) Encourage research activities, including legal research in the information and telecommunications fields.			X
(6) Support promotional activities to market Hawai‘i's information industry services.			X
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health, safety, and welfare would not be adversely affected.			X
Discussion: The Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. The Project will deliver significant environmental benefits, including energy conservation, green energy production, and water conservation. The Project will also promote the use of non-potable water for landscaping. For further discussion, see Sections 3.2, Climate, Climate Change, and Sea Level Rise and 3.8.1, Potable Water.			
§226-104 Population growth and land resources priority guidelines.			
(a) Priority guidelines to effect desired statewide growth and distribution:			
(1) Encourage planning and resource management to insure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai‘i's people.			X
(2) Manage a growth rate for Hawai‘i's economy that will parallel future employment needs for Hawai‘i's people.			X
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			X
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			X
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			X
(7) Support the development of high technology parks on the neighbor islands.			X
(b) Priority guidelines for regional growth distribution and land resource utilization:			
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures, and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.	X		
(2) Make available marginal or nonessential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.			X
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			X
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X
(5) In order to preserve green belts, give priority to state capital-improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a noncontiguous new urban core.			X
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			X
(7) Pursue rehabilitation of appropriate urban areas.	X		
(8) Support the redevelopment of Kaka‘ako into a viable residential, industrial, and commercial community.			X
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.			X
(10) Identify critical environmental areas in Hawai‘i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.	X		
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			X
(12) Utilize Hawai‘i's limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.			X
(13) Protect and enhance Hawai‘i's shoreline, open spaces, and scenic resources.	X		
Discussion: The primary purpose of the Project is construct/redevelop residences on underutilized and neglected parcels, where adequate public facilities are available. Proper mitigation measures will be implemented to ensure that threatened or endangered flora and fauna species that traverse the Site are protected. The Project will not obstruct public access to inland or shoreline areas used for public recreational purposes. For further discussion see **Sections 3.5, Flora and Fauna** and **3.13, Visual and Scenic Resources.**			
§226-105 Crime and criminal justice. Priority guidelines in the area of crime and criminal justice:			

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			X
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			X
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			X
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			X
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			X
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			X
Discussion: The priority guidelines specified in HRS §226-105 are not directly applicable to the Project.			
§226-106 Affordable housing. Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or nonessential agricultural land, urban land, and public land to meet housing needs of extremely low-, very low-, lower-, moderate-, and above moderate-income households.			X
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			X
(3) Improve information and analysis relative to land availability and suitability for housing.			X
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawai‘i's extremely low-, very low-, lower-, and moderate-income households and residents with special needs.			X
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai‘i's people for the purchase of initial owner-occupied housing.			X
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.			X
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			X
(8) Give higher priority to the provision of quality housing that is affordable for Hawai‘i's residents and less priority to development of housing intended primarily for individuals outside of Hawai‘i.	X		
Discussion: The Project will contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala, designed to be affordable for moderate-, and above moderate-income households.			
§226-107 Quality education. Priority guidelines to promote quality education:			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement;			X
(2) Continue emphasis on general education "core" requirements to provide common background to students and essential support to other university programs;			X
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education workforce;			X
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities;			X
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for:			
(A) The electronic exchange of information;			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(B) Statewide electronic mail; and			X
(C) Access to the Internet.			X
Encourage programs that increase the public's awareness and understanding of the impact of information technologies on our lives;			X
(6) Pursue the establishment of Hawai‘i's public and private universities and colleges as research and training centers of the Pacific;			X
(7) Develop resources and programs for early childhood education;			X
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education; and			X
(9) Strengthen and expand educational programs and services for students with special needs.			X
Discussion: The priority guidelines specified in HRS §226-107 are not directly applicable to the Project.			
§226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:			
(1) Encouraging balanced economic, social, community, and environmental priorities;	X		
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State;	X		
(3) Promoting a diversified and dynamic economy;			X
(4) Encouraging respect for the host culture;			X
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations;	X		
(6) Considering the principles of the ahupua‘a system; and			X
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai‘i.	X		
Discussion: The Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. The Project will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, use of sustainable materials, and landscaping. For further discussion, see **Sections 2.2, Description of the Proposed Action** and **3.2, Climate, Climate Change, and Sea Level Rise.**			
§226-109 Climate change adaptation priority guidelines. Priority guidelines to prepare the State to address the impacts of climate change, including impacts to the areas of agriculture; conservation lands; coastal and nearshore marine areas; natural and cultural resources; education; energy; higher education; health; historic preservation; water resources; the built environment, such as housing, recreation, transportation; and the economy shall:			
(1) Ensure that Hawai‘i's people are educated, informed, and aware of the impacts climate change may have on their communities;			X
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies;			X
(3) Invest in continued monitoring and research of Hawai‘i’s climate and the impacts of climate change on the State;			X
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change;			X
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands, that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change;			X

Table 5-1: Hawai‘i State Plan Part 1. Overall Theme, Goals, Objectives, and Policies S = Supportive, N/S = Not Supportive, N/A = Not Applicable	S	N/S	N/A
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments;			X
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options;			X
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities;			X
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans; and			X
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.			X
Discussion: The priority guidelines specified in HRS §226-109 are not directly applicable to the Project. However, the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. The Project will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, use of sustainable materials, and landscaping. For further discussion, see **Sections 2.2, Description of the Proposed Action** and **3.2, Climate, Climate Change, and Sea Level Rise.**			

5.2 Hawai‘i 2050 Sustainability Plan

The long-term strategy of the *Hawai‘i 2050 Sustainability Plan* (2050 Plan) is supported by its main goals and objectives of respect for culture, character, beauty, and history of the State's island communities; balance among economic, community, and environmental priorities; and an effort to meet the needs of the present without compromising the ability of future generations to meet their own needs. The 2050 Plan delineates five goals toward a sustainable Hawai‘i accompanied by strategic actions for implementation and indicators to measure success or failure. The goals and strategic actions that are pertinent to the Project are as follows:

Goal One: *Living sustainably is part of our daily practice in Hawai‘i.*
Strategic Action: *Develop a sustainability ethic.*

Goal Two: *Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawai‘i.*
Strategic Action: *Develop a more diverse and resilient economy; support the building blocks for economic stability and sustainability.*

Goal Three: *Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations.*
Strategic Action: *Provide greater protection for air, and land-, fresh water- and ocean-based habitats; conserve agricultural, open space and conservation lands and resources.*

Goal Four: *Our community is strong, healthy, vibrant and nurturing, providing safety nets for those in need.*
Strategic Action: *Provide access to diverse recreational facilities and opportunities.*

Goal Five: *Our Kanaka Maoli and island cultures and values are thriving and perpetuated.*
Strategic Action: *Honor Kanaka Maoli culture and heritage; Celebrate our cultural diversity and island way of life.*

Discussion: The Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. The Project will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, use of sustainable materials, and landscaping. LEED components include installation of energy efficient lighting and appliances, energy sub-metering, photovoltaic panels, LID designs such as use of concrete permeable pavers and detention/infiltration chambers beneath the privately-owned driveway and courtyard. The Project will contribute to a resilient economy by creating short- and long-term jobs and increasing State and City tax revenues. The Project is not anticipated to have a significant impact on to soils, climate, water quality, flora/fauna or air quality. For further discussion see **Section 3.1, Geology, Topography, and Soils**, **Section 3.2, Climate, Climate Change, and Sea Level Rise, Section 3.4, Water Resources, Section 3.5, Flora and Fauna,** and **Section 3.6, Air Quality**. The Project will not obstruct public access to inland or shoreline areas or recreational facilities in the vicinity. The Project will respect the Kanaka Maoli culture and heritage by adhering to the State historic preservation laws and processes. For further discussion see **Section 3.11, Historic, Archaeological, and Cultural Resources.**

5.3 Hawai‘i State Land Use District Boundaries

Hawai‘i's land use law, HRS Chapter 205, *Land Use Commission,* was adopted in 1961. Under HRS Chapter 205, all lands of the State are classified in one of four categories: Conservation, Agricultural, Urban, and Rural. The State Land Use Commission is responsible for determining the boundaries of each district and district standards. The law is meant to preserve and protect the State's lands and encourage uses which are best suited for each district.

The Urban District generally includes lands characterized by "city-like" concentrations of people, structures, and services. The Urban District also includes vacant areas for future development. The jurisdiction of this district lies primarily with the respective counties. Generally, lot sizes and uses permitted in the Urban district are established by the respective counties through ordinances or rules.

Discussion: The Site is situated within the State's Urban District. The Project involves the construction/redevelopment of residences. The Project is consistent with permitted uses for the Urban District. See *Figure 5-1, State Land Use District*.

5.4 Coastal Zone Management

The Coastal Zone Management Act of 1972 (16 USC §1451), as amended through Public Law 104-150, created the coastal management program and the National Estuarine Research Reserve system. Coastal states are authorized to develop and implement a state coastal zone management (CZM) program. The objectives of the Hawai‘i CZM Program, HRS §205A-2, are to protect valuable and vulnerable coastal resources such as coastal ecosystems, special scenic and cultural values and recreational opportunities. The objectives of the program are also to reduce coastal hazards and to improve the review process for activities proposed within the coastal zone. HRS §205A-2 requires each County to designate and administer the SMA within the State's coastal areas that extends inland from the shoreline. Development within this SMA is subject to County approval to ensure the proposal is consistent with the policies and objectives of the Hawai‘i CZM Program. The following is a discussion of the Project's consistency with the Hawai‘i CZM Program objectives and policies.

Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

(A) Improve coordination and funding of coastal recreation planning and management; and

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

- *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
- *Requiring restoration of coastal resources that have significant recreational and ecosystem value, including, but not limited to coral reefs, surfing sites, fishponds, sand beaches, and coastal dunes, when these resources will be unavoidably damaged by development; or requiring monetary compensation to the State for recreation when restoration is not feasible or desirable;*
- *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
- *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
- *Ensuring public recreational uses 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;*
- *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect and where feasible, restore the recreational value of coastal waters;*
- *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, artificial reefs for surfing and fishing; and*
- *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 that dedication against the requirements of section 46-6.*

Discussion: The Project will not obstruct public access to and along coastal or shoreline areas and recreational resources. The Contractor will comply with HAR Chapters 11-54 and 11-55 and will implement BMPs to regulate point and non-point sources of pollution and protect coastal waters. A NPDES General Permit for stormwater runoff discharges will be obtained from the DOH, CWB prior to construction. NPDES General Permits for dewatering and hydrotesting water discharges may also be obtained from the DOH, CWB. For further discussion see **Section 3.4, Water Resources** and **Section 3.8.3, Drainage.**

Historic Resources

Objective: Protect, preserve and, where desirable, restore those natural and man-made historic and pre-historic resources in the coastal zone management area that are significant in Hawai'i and American history and culture.

(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: An AIS has been prepared to identify significant archeological resources that may exist on the Site. For further discussion see **Section 3.11, Historic, Archaeological, and Cultural Resources**.

Scenic and Open Space Resources

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

(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 those 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 result in a significant impact to valued scenic resources, such as panoramic views, vantage points or view corridors recognized or identified in the PUC DP. The architectural design of the residences will blend in with the unique and eclectic architectural character of the Kāhala community. Additionally, lush landscaping will be interspersed throughout the Site, which will conceal the residences from public viewpoints towards and from the shoreline. The Project also involves the removal of overgrown and non-native vegetation in the shoreline area fronting Parcel 009, and management of shoreline vegetation going forward, which will increase the useable public beach area, improve, and restore open space and scenic resources, and eliminate overgrown shrub hiding areas and associated illicit activities. For further discussion see **Section 3.13, Visual and Scenic Resources.**

Coastal Ecosystems

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

(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 of significant biological or economic importance, including reefs, beaches, and dunes;

(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 which reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: The Project will incorporate landscaping and installation of LID features to mitigate potential impacts to water quality. The Contractor will comply with HAR Chapters 11-54 and 11-55 and will implement BMPs to regulate point and non-point sources of pollution and protect coastal waters. A NPDES General Permit for stormwater runoff discharges will be obtained from the DOH, CWB prior to construction. NPDES General Permits for dewatering and hydrotesting water discharges may also be obtained from the DOH, CWB. For further discussion see **Section 3.4, Water Resources** and **Section 3.8.3, Drainage.**

Economic Uses
Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.
(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent development and coastal related development are located, designed, and constructed to minimize exposure to coastal hazards and adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal development to areas designated and used for that development and permit reasonable long-term growth at those areas, and permit coastal development outside of designated areas when:
(i) Use of designated locations is not feasible;
(ii) Adverse environmental effects and risks from coastal hazards are minimized; and
(iii) The development is important to the State's economy.

Discussion: The Project involves the construction/redevelopment of residences on an underutilized property within the within the State's Urban District and the City's R-5 (Residential) zoning district. Proposed residences and structural improvements will be outside of the 40-FT shoreline setback area.

Coastal Hazards
Objective: Reduce hazard to life and property from coastal hazards.
(A) Develop and communicate adequate information about the risks of coastal hazards;
(B) Control development, including planning and zoning control, in areas subject to coastal hazards;
(C) Ensure that developments comply with requirements of the National Flood Insurance Program; and
(D) Prevent coastal flooding from inland projects.

Discussion: The Project is not anticipated to exacerbate natural hazard threats on life or property. The Site is located within the "Tsunami Evacuation Zone," which requires evacuation during any tsunami warning. However, the Site is no more vulnerable to tsunamis than the surrounding area, and in some cases the rest of O'ahu. The Site is in Flood Zone AE with a BFE of 7-8 FT; as a result, the Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE. For further discussion see **Section 3.3, Natural Hazards.** The Contractor will comply with HAR Chapters 11-54 and 11-55 and will implement BMPs to regulate non-point sources of pollution, such as soil erosion, from entering coastal waters. A NPDES General Permit for stormwater runoff discharges will be obtained from the DOH, CWB prior to construction. NPDES General Permits for dewatering and hydrotesting water discharges may also be obtained from the DOH, CWB. For further discussion see **Section 3.4, Water Resources** and **Section 3.8.3, Drainage.**

Managing Development
Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
(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 Project involves the construction/redevelopment of residences on an underutilized property within the within the State's Urban District and the City's R-5 (Residential) zoning district. All Project improvements will be conducted in compliance with Federal, State, and County laws, rules, and regulations. This Draft EA identifies potential short and long-term impacts and proposes mitigation measures for the construction and operation of the Project. During the early consultation period, Federal, State, and County agencies, elected officials, organizations, and individuals were consulted and will continue to be consulted throughout the EA planning and review process.

Public Participation

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

(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: An early consultation letter and information handout for the Project was mailed out on October 06, 2021, to stakeholders to initiate the environmental review process, and to inform and gather input from the community. A presentation was made at the Waiʻalae-Kāhala NB No. 3 meeting on October 21, 2021, in support of the Draft EA and future SMA Use Permit application, and to inform and gather input from the community. Stakeholders will be notified of the Draft EA publication for the Project. For further discussion see Chapter 7.

Beach and Coastal Dune Protection

Objective: (1) Protect beaches and coastal dunes for: public use and recreation; the benefit of coastal ecosystems; and use as natural buffers against coastal hazards; and (2) Coordinate and fund beach management and protection.

(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 shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities;

(C) Minimize the construction of public shoreline hardening structures, including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities;

(D) Minimize grading of and damage to coastal dunes;

(E) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and

(F) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.

Discussion: The Project does not involve the construction of private erosion-protection structures seaward of the shoreline. Proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the non-native vegetation, waste, and debris has allowed for the

natural beach grass to re-establish, removed an encroaching condition on lateral shoreline access, increased the useable public beach area, and restored potential ground-nesting seabird habitat areas.

Marine and Coastal Resources

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

(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 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 and coastal processes, impacts of climate change and sea level rise, marine life, and other ocean resources to acquire and inventory information necessary to understand how coastal development activities relate to and impact 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 Project is not anticipated to have a significant impact on marine or coastal resources. The Project will not impede on the research of marine life and ocean resources, especially those in the U.S. economic zone.

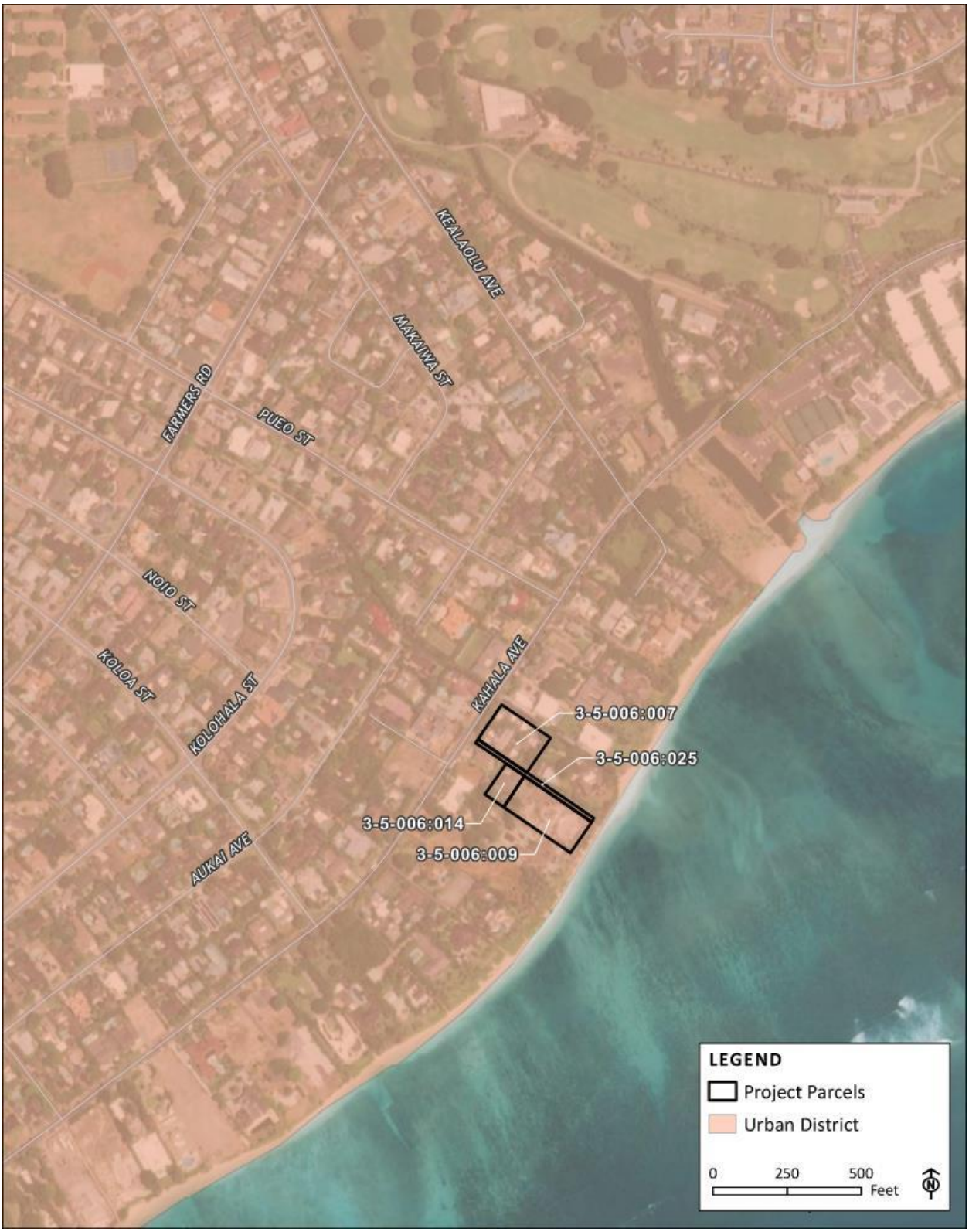

Figure 5-1 **State Land Use District**

5.5 City and County of Honolulu General Plan

The City's *General Plan* was adopted in 1977 and has been subsequently amended (most recently in 2002). The General Plan sets forth the long-range objectives for the general welfare and prosperity of the people of O'ahu and broad policies to attain those objectives.

The proposed revised *O'ahu General Plan* (Revised General Plan), dated December 2017, was transmitted from the Planning Commission to the City Council on April 20, 2018 for adoption. An adopted Revised General Plan is still pending as of October 2021. The Revised General Plan "is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of O'ahu's residents and the strategies to achieve them." The Revised General Plan is mean to guide land use and development decisions for all levels of government, private enterprises, neighborhood and citizen groups, organizations and individuals, to influence 11 areas of concern: population; the economy; natural environment and resource stewardship; housing and communities; transportation and utilities; energy; physical development and urban design; public safety and community resilience; health and education; culture and recreation; and government operations and fiscal management.

The following is a discussion of the Project's consistency with *applicable* objectives and policies of the adopted 2002 General Plan.

Natural Environment
Objective A: To protect and preserve the natural environment.

- *Policy 1. Protect O'ahu's natural environment, especially the shoreline, valleys, and ridges, from incompatible development.*
- *Policy 6. Design surface drainage and flood-control systems in a manner which will help preserve their natural settings.*
- *Policy 7. Protect the natural environment from damaging levels of air, water, and noise pollution.*
- *Policy 8. Protect plants, birds, and other animals that are unique to the State of Hawai'i and the Island of O'ahu.*

Discussion: The Project will not obstruct public access to inland or shoreline areas used for public recreational purposes. The Project also involves the removal of overgrown and non-native vegetation in the shoreline area fronting Parcel 009, and management of shoreline vegetation going forward, which will increase the useable public beach area, improve, and restore open space and scenic resources, and eliminate overgrown shrub hiding areas and associated illicit activities. The Project will incorporate landscaping and installation of LID features to mitigate potential impacts to water quality. The Contractor will comply with HAR Chapters 11-54 and 11-55 and will implement BMPs to regulate non-point sources of pollution, such as soil erosion, from entering coastal waters. For further discussion see **Section 3.8.3, Drainage.** The Project is not anticipated to have a significant impact on existing air quality, water quality or noise conditions. For further discussion see **Section 3.4, Water Resources, Section 3.6, Air Quality,** and **Section 3.7, Noise Conditions**. The Project is not anticipated to have a significant impact on rare, threatened, or endangered species or its habitat. For further discussion see **Section 3.5, Flora and Fauna**.

Housing

Objective A: To provide decent housing for all the people of Oahu at prices they can afford.

- *Policy 3. Encourage innovative residential development which will result in lower costs, added convenience and privacy, and the more efficient use of streets and utilities.*

Objective C: To provide the people of Oahu with a choice of living environments which are reasonably close to employment, recreation, and commercial centers and which are adequately served by public utilities.

- *Policy 1. Encourage residential developments that offer a variety of homes to people of different income levels and to families of various sizes.*
- *Policy 4: Encourage residential development in areas where existing roads, utilities, and other community facilities are not being used to capacity.*

Discussion: The Project involves the construction and redevelopment of residences on previously developed, underutilized, and neglected parcels that are within the State Land Use Urban District and the City's R-5 (Residential) zoning district. The Project will contribute to an increased stock of housing in Honolulu and diversity of housing types in Kāhala. The Site is located close to employment, recreation, and commercial centers and which are adequately served by public utilities.

Public Safety

Objective B: To protect residents and visitors and their property against natural disasters and other emergencies, traffic and fire hazards, and unsafe conditions.

- *Policy 2: Require all developments in areas subject to floods and tsunamis to be located and constructed in a manner that will not create any health or safety hazard.*
- *Policy 7: Provide adequate fire protection and effective fire prevention programs.*

Discussion: The Project is not anticipated to exacerbate natural hazard threats on life or property. The Site is located within the "Tsunami Evacuation Zone," which requires evacuation during any tsunami warning. However, the Site is no more vulnerable to tsunamis than the surrounding area, and in some cases the rest of Oʻahu. The Site is in Flood Zone AE with a BFE of 7-8 FT; as a result, the Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE. For further discussion see **Section 3.3, Natural Hazards.** The Project includes upgrades to the water system to ensure adequate fire flow and fire access is provided to the residences. For further discussion see **Section 3.10.4, Fire.**

Culture and Recreation

Objective B: To protect Oʻahu's cultural, historic, architectural, and archaeological resources.

- *Policy 2. Identify, and to the extent possible, preserve and restore buildings, sites, and areas of social, cultural, historic, architectural, and archaeological significance.*
- *Policy 3. Cooperate with the State and Federal governments in developing and implementing a comprehensive preservation program for social, cultural, historic, architectural, and archaeological sites, buildings, and artifacts.*

Discussion: The Project is not anticipated to have a significant impact on cultural, historic, architectural, and archaeological resources. For further discussion see **Section 3.11, Historic, Archaeological, and Cultural Resources.**

5.6 Primary Urban Center Development Plan

The island of O‘ahu is divided into eight Development Plan areas. Two areas are identified as “development plans,” which provide guidance for future growth and development, while the other six areas are identified as “sustainable communities plans,” which aim to maintain the region’s character and ensure modest development. Each regional plan implements the objectives and policies of the General Plan for the City and provides direction on public policy, investment, and decision-making within each respective region. Together with the General Plan, they guide population and land use growth over a 20- to 25-year time span.

The Site is located within the region encompassed by the PUC DP. The PUC DP was last revised in June 2004 by Ordinance No. 04-14 and is currently being updated. The 2004 PUC DP’s vision for the PUC focuses on:

- Protecting and enhancing Honolulu's natural, cultural, and scenic resources;
- Creating livable neighborhoods with business centers, parks, plazas, and walkable streets;
- Providing in-town housing choices for people of all ages and incomes;
- Making Honolulu the Pacific's leading city and travel destination; and
- Creating a balanced transportation system that provides excellent mobility for residents and visitors.

As of October 2021, the updated PUC DP was not released. The updated PUC DP will expand on topics including housing affordability and types; mobility improvements including rail; infrastructure improvement priorities; creating livable age-friendly communities; location and types of new development; planning for climate change and SLR; creating a diverse and prosperous economy; and preserving and enhancing parks, open spaces, and natural features.

Discussion: The PUC DP serves to guide development on a neighborhood and regional scale, and the policies are not applicable to small-scale residential development. The Site is designated “Lower Density Residential” on the PUC DP Land Use Map. The Project improvements are consistent with the PUC DP land use designations. *See Figure 5-2, Primary Urban Center Development Plan*.

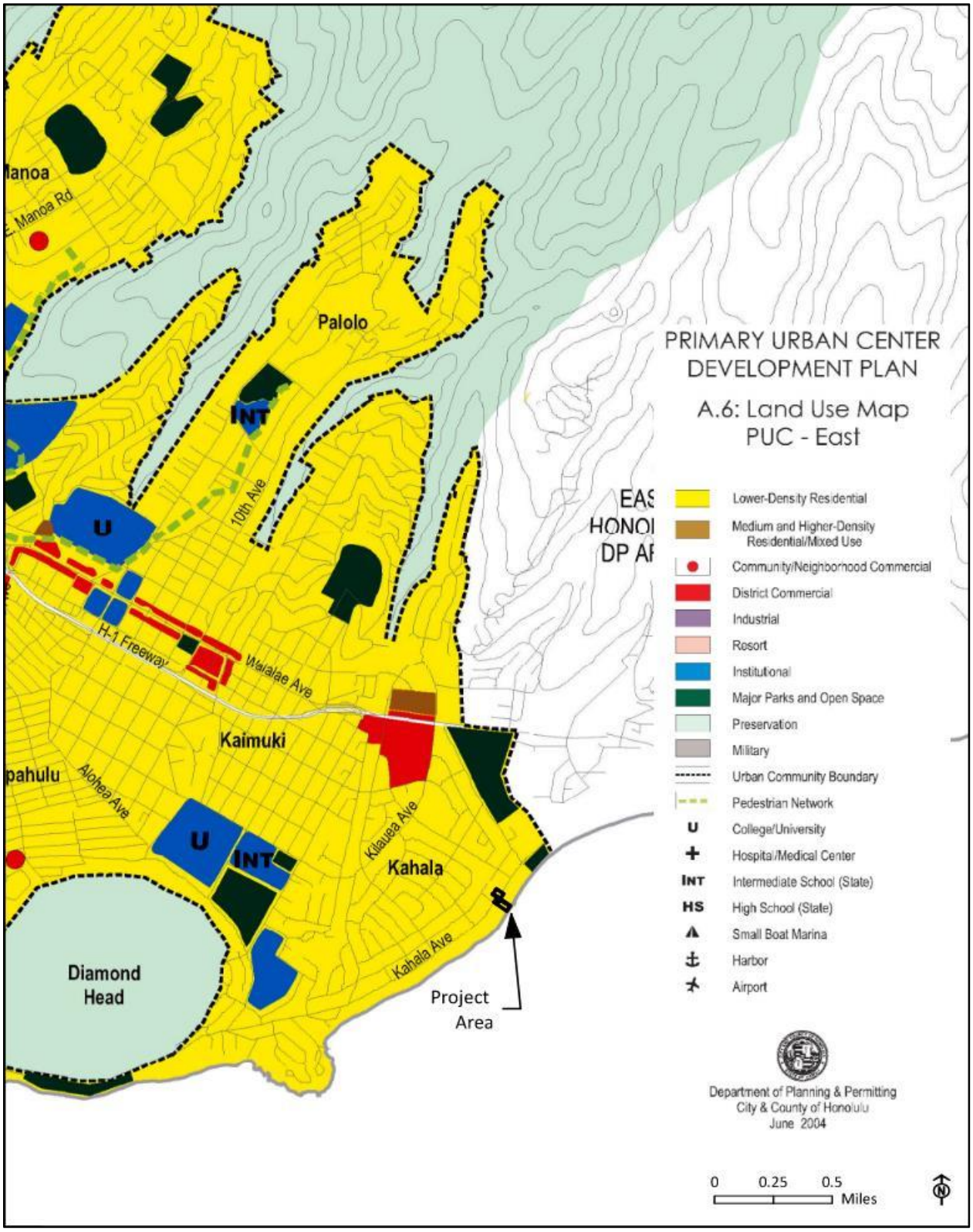

Figure 5-2 **Primary Urban Center Development Plan**

5.7 City and County of Honolulu Zoning

Land use and development standards within the City's jurisdiction are regulated under ROH, Chapter 21, *Land Use Ordinance*. As stated in ROH §21-1.20(a), the purpose of the Land Use Ordinance (LUO) is "…to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the city's general plan, and development and sustainable communities plans, and, as may be appropriate, adopted neighborhood plans, and to promote and protect the public health, safety and welfare…"

Discussion: The Site is in the City's R-5 (Residential) zoning district. See *Figure 5-3, City and County of Honolulu Zoning.* The LUO establishes development standards for each zoning district. Development standards for Residential zoning districts are listed in Table 21-3.2, Residential Districts Development Standards in the LUO. The Project will adhere to the development standards of the R-5 zoning district, as presented in the below *Table 5-2, R-5 Zoning District Development Standards*.

Table 5-2 R-5 Zoning District Development Standards		
Minimum lot area (SF)	One-family dwelling, detatched, and other uses	5,000 SF
Minimum lot width and depth (FT)	50 FT	
Yards (FT):	Front	10 FT for dwellings 30 FT for other uses
	Side and rear	5 FT for dwellings 15 FT for other uses
Maximum building area	50 percent of the zoning lot	
Maximum height (FT)[1]	25-30 FT	
Height setbacks	Per Sec. 21-3.70-1(c)	

Note: [1] Heights above the minima of the given range may require height setbacks or may be subject to other requirements.

Figure 5-3 **City and County of Honolulu Zoning**

5.8 Special Management Area

The SMA was established to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawai‘i. Special controls on development within the SMA are necessary to avoid permanent loss of valuable resources and foreclosure of management options. The review guidelines of ROH §25-3.2 are used by the DPP and the City Council to review developments proposed in the SMA. These guidelines are derived from HRS §205A-26.

The Project is located within the SMA and a SMA Use Permit approval by the City will be required. See *Figure 5-4, Special Management Area*. Project improvements within the SMA are subject to the review guidelines in ROH §25-3.2. The following is a discussion of the Project's consistency with *applicable* review guidelines of ROH §25-3.2.

(A) All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that:

(1) Adequate access, by dedication or other means, to publicly owned or used beaches, recreation areas and natural reserves is provided to the extent consistent with sound conservation principles;
(2) Adequate and properly located public recreation areas and wildlife preserves are reserved;
(3) Provisions are made for solid and liquid waste treatment, disposition and management which will minimize adverse effects upon special management area resources; and
(4) Alterations to existing land forms and vegetation; except crops, and construction of structures shall cause minimum adverse effect to water resources and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation or failure in the event of earthquake.

Discussion: The Project improves public access to and along coastal or shoreline areas, beaches, recreation areas or natural reserves. In April 2021, the Proponent and landowner worked closely with the Kāhala community and DLNR to remove overgrown and non-native vegetation encroaching in the shoreline area fronting Parcel 009. Clearing of the non-native vegetation, waste, and debris has allowed for the natural beach grass to re-establish, removed an encroaching condition on lateral shoreline access, increased the useable public beach area, and restored potential ground-nesting seabird habitat areas. The Project is not anticipated to have a significant impact on rare, threatened, or endangered species, habitats, or wildlife preserves. Conversely, the Project involves restoration of potential ground-nesting seabird habitat areas. For further discussion see **Section 3.5, Flora and Fauna.** Solid and liquid waste will be disposed and managed to minimize adverse effects on SMA resources. For further discussion on the proposed improvements to the existing wastewater system, see **Section 3.8.2, Wastewater**. For further discussion on the handline of green and solid waste during and after construction, see **Section 3.8.4, Solid and Hazardous Waste.** The Project is not anticipated to adversely affect water resources and scenic and recreational amenities. For further discussion see **Section 3.4, Water Resources, Section 3.10.1, Recreational Facilities** and **Section 3.13, Visual and Scenic Resources.** The Project is not anticipated to exacerbate natural hazard threats (such as floods or earthquakes) on life or property. The Site is in Flood Zone AE with a BFE of 7-8 FT; as a result, the Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE. Project improvements will meet the current IBC and City seismic design standards. For further discussion see **Section 3.3, Natural Hazards.**

(B) No development shall be approved unless the council has first found that:

(1) The development will not have any substantial, adverse environmental or ecological effect except as such adverse effect is minimized to the extent practicable and clearly outweighed by public health and safety, or compelling public interest. Such adverse effect shall include, but not be limited to, the potential cumulative impact of individual developments, each one of which taken in itself might not have a substantial adverse effect and the elimination of planning options;

(2) The development is consistent with the objectives and policies set forth in Section 25 3.1 and area guidelines contained in HRS Section 205A 26;

(3) The development is consistent with the county general plan, development plans and zoning. Such a finding of consistency does not preclude concurrent processing where a development plan amendment or zone change may also be required.

Discussion: The Project is not anticipated to have a significant or substantial adverse environmental or ecological effect or significant cumulative effects. For further discussion see **Section 3.14, Potential Cumulative, Indirect, and Secondary Impacts** and **Section 6.1, Determination**. The Project is consistent with the objectives and policies set forth in ROH §25-3.1 and area guidelines contained in HRS §205A-26. The Project is consistent with the General Plan, PUC DP and City's zoning. For further discussion see **Section 5.5, City and County of Honolulu General Plan, Section 5.6, Primary Urban Center Development Plan**, and **Section 5.7, City and County of Honolulu Zoning**.

(C) The council shall seek to minimize, where reasonable:

(1) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;

(2) Any development which would reduce the size of any beach or other area usable for public recreation;

(3) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the special management area and the mean high tide line where there is no beach;

(4) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast; and

(5) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

Discussion: The Project will not alter any bay, estuary, salt marsh, river mouth, slough or lagoon. The Project will not reduce the size of any beach or other area usable for public recreation. Conversely, the Project also involves the removal of overgrown and non-native vegetation in the shoreline area fronting Parcel 009, and management of shoreline vegetation going forward, which will increase the useable public beach area, improve and restore open space and scenic resources, and eliminate overgrown shrub hiding areas and associated illicit activities. The Project will not reduce or impose restrictions upon public access to tidal and submerged lands, beaches, portions of rivers and streams within the SMA. The Project will not interfere with or detract from the line of sight toward the sea from the state highway nearest the coast. The Project will not adversely affect water quality, existing areas of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, or potential or existing agricultural uses of land.

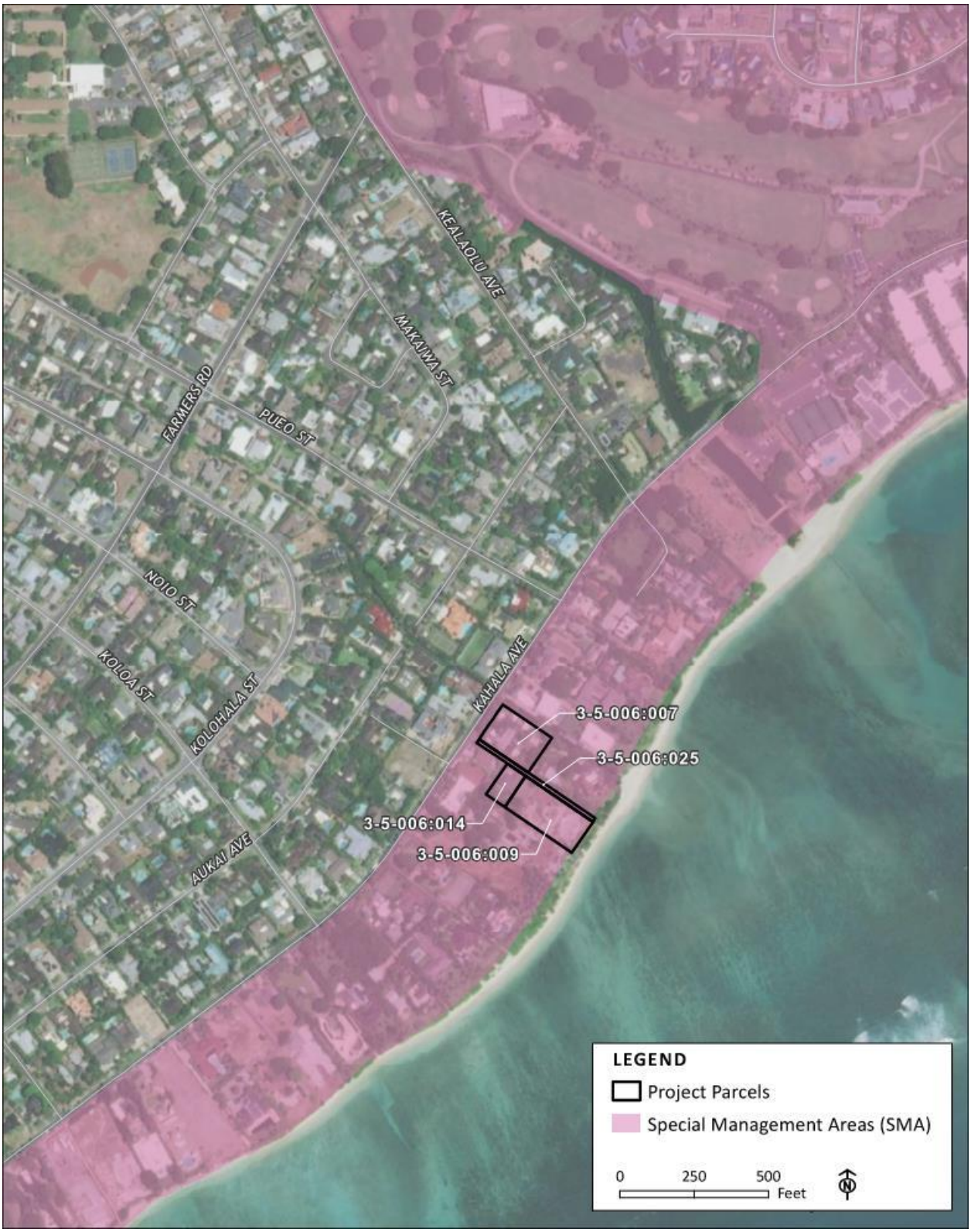

Figure 5-4 **Special Management Area**

5.9 Shoreline Setbacks

Shoreline Setbacks rules and regulations are in ROH Chapter 23, *Shoreline Setbacks*, pursuant to HRS Chapter 205A. The policy was established to "protect and preserve the natural shoreline, especially sandy beaches; to protect and preserve public pedestrian access laterally along the shoreline and to the sea; and to protect and preserve open space along the shoreline. Secondarily, the policy also seeks reduce hazards to property from coastal floods. The specific purpose of ROH Chapter 23 establishes standards that generally prohibit construction or activities within the shoreline area, which may adversely affect beach processes, public access along the shoreline, or shoreline open space.

Discussion: A shoreline survey was conducted by a licensed land surveyor in November 2020, to delineate the shoreline fronting Parcel 009. The shoreline survey map was certified by DLNR on June 17, 2021. Proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. See *Appendix E, Certified Shoreline Survey*.

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Chapter 6

Findings Supporting the Determination

Chapter 6

Findings Supporting the Determination

6.1 Determination

Based on a review of the significance criteria outlined in HRS Chapter 343 and HAR 11-200.1, the Project has been determined to not result in significant impacts on the natural or human environment. A determination of a Finding of No Significant Impact (FONSI) is anticipated. This determination is based on the assessments as presented below for criterion (1) to (13).

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

The Project will not irrevocably commit a natural, cultural, or historic resource. For further discussion see **Section 3.11, Historic, Archaeological, and Cultural Resources**.

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

The Project will not curtail the range of beneficial uses of the environment. The Project involves the construction and redevelopment of residences on previously developed, underutilized, and neglected parcels that are within the State Land Use Urban District and the City's R-5 (Residential) zoning district. Moreover, the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala.

(3) Conflict with the State's environmental policies or long-term environmental goals established by law.

The Project does not conflict with the State's long-term environmental policies or goals and guidelines as expressed in HRS Chapter 344, and any revisions, amendments, court decisions, or executive orders. The Project involves the construction and redevelopment of residences on previously developed, underutilized, and neglected parcels that are within the State Land Use Urban District and the City's R-5 (Residential) zoning district. Moreover, the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala.

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

The Project will result in beneficial cumulative, indirect, and secondary impacts on economic and social welfare, in the form of short- and long-term job creation and increased State and City tax revenues. Additional beneficial social impacts are discussed in **Section 3.14, Potential Cumulative, Indirect, and Secondary Impacts.** The Project is not anticipated to have a substantial adverse effect on cultural practices of the community and State. For further discussion on proposed mitigation measures see **Section 3.11, Historic, Archaeological, and Cultural Resources.**

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

The Project is not anticipated to have a substantial adverse effect public health. During construction, there is the potential for temporary, short-term impacts on existing air quality, noise conditions and surrounding traffic network in the immediate Project vicinity. The Project will comply with State and City regulations during construction and will implement BMPs to mitigate impacts. For further discussion on proposed mitigation measures see **Section 3.6, Air Quality, Section 3.7, Noise Conditions** and **Section 3.9 Transportation System.**

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

The Project is not anticipated to have adverse secondary impacts, such as population changes or effects on public facilities. For further discussion see **Section 3.10, Public Facilities and Services** and **3.12, Socio-Economic Characteristics.**

(7) Involve a substantial degradation of environmental quality.

The Project is not anticipated to involve a substantial degradation of environmental quality. Long-term impacts to soils, climate, water quality, flora/fauna, air quality, and natural resources are not anticipated. For further discussion on proposed mitigation measures see **Section 3.1, Geology, Topography, and Soils**, **Section 3.2, Climate, Climate Change, and Sea Level Rise, Section 3.4, Water Resources, Section 3.5, Flora and Fauna,** and **Section 3.6, Air Quality**.

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

The Project is not anticipated to cumulatively have a substantial adverse effect upon the environment or involve a commitment for larger actions. Cumulative beneficial impacts are discussed in **Section 3.14, Potential Cumulative, Indirect, and Secondary Impacts.**

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

The Project is not anticipated to have a substantial adverse effect on rare, threatened, or endangered species or its habitat. During construction, mitigation measures will be implemented to minimize potential impacts to threatened and endangered fauna that may traverse the Site. For further discussion on proposed mitigation measures see **Section 3.5, Flora and Fauna**.

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

The Project is not anticipated to have a substantial adverse effect on air or water quality or ambient noise levels. During construction, there is the potential for temporary, short-term impacts on existing air quality, noise conditions in the immediate Project vicinity. The Project will comply with State and City regulations during construction and will implement BMPs to mitigate temporary impacts. For further discussion on proposed mitigation measures see **Section 3.4, Water Resources, Section 3.6, Air Quality,** and **Section 3.7, Noise Conditions.**

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

The Project is not anticipated to have a substantial adverse effect on or is likely to suffer damage by being located in an environmentally sensitive area such as flood plain, tsunami zone, SLR exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters. The Site will be graded and finished floor elevations will be 8.6 FT above msl, to comply with the underlying Flood Zone AE and associated BFE of 7-8 FT above msl, or the elevation at which water is anticipated to rise during the 1-percent annual chance flood or 100-year flood. A small portion of the Site on Parcel 009 will be slightly impacted by 3.2 FT in SLR; however, the impact will be within the 40-FT shoreline setback area and will not impact any structures or improvements on the Site. For further discussion on proposed mitigation measures see **Section 3.2, Climate, Climate Change, and Sea Level Rise** and **Section 3.3, Natural Hazards**.

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

The Project is not anticipated to have a substantial adverse effect on scenic vistas and viewplanes, during day or night. For further discussion on proposed mitigation measures see **Section 3.13, Visual and Scenic Resources**.

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

The Project is not anticipated to require substantial energy consumption or emit substantial GHGs. the Project will attain LEED certification, which will set a precedence for future environmentally conscious and sustainable residential development in Kāhala. For further discussion on proposed mitigation measures see, **Section 3.2, Climate, Climate Change, and Sea Level Rise.**

6.2 Summary

Based on the information and findings in this Draft EA and coordination with Federal, State, and City agencies, elected officials, organizations, and the public, it is determined that (with the implementation of proposed mitigation measures) the Project will not have a significant impact on the natural, socio-cultural, or built environment. A FONSI is anticipated for this Project.

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Chapter 7

Agencies, Organizations, and Individuals Consulted in the EA Process

Chapter 7

Agencies, Organizations, and Individuals Consulted in the EA Process

An early consultation letter and information handout for the Project was mailed out on October 06, 2021, to stakeholders (e.g., Federal, State and City agencies and institutions, elected officials, organizations, individuals, and neighbors) to initiate the environmental review process, and to inform and gather input from the community. A copy of the early consultation letter and information handout are in *Appendix F, Early Consultation Package*. *Table 7-1* lists the stakeholders who were contacted during the early consultation period; stakeholders who provided early consultation written (via mail and email) comments; and stakeholders who will receive notification of the publication of the Draft EA.

A presentation was made at the Waiʻalae-Kāhala NB No. 3 meeting on October 21, 2021, to inform and gather input from the community, in support of the Draft EA and future SMA Use Permit application. The meeting was held virtually via Webex. A meeting invitation and information handout was mailed out on October 15, 2021, to property owners that adjoin the Site, notifying them of the NB meeting. See *Appendix G, Public Meeting Notice.* Community concerns included the density of the proposed residences and the public's ability to access the beach via the shared, privately-owned driveway.

Table 7-1 Consultation with Agencies, Organizations, and Individuals

Respondents and Distribution	Early Consultation	Early Consultation Comments Received	Draft EA Notification
Federal Agencies			
National Oceanic and Atmospheric Administration			X
U. S. Coast Guard, Civil Engineering Unit Honolulu			X
U. S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office	X	X	X
State of Hawai'i Agencies / Institutions			
Department of Business, Economic Development and Tourism, Office of Planning and Sustainable Development	X	X	X
Department of Health (DOH), Environmental Management Division (EMD)	X		
DOH, EMD, Clean Water Branch		X	X
DOH, EMD, Wastewater Branch			X

Table 7-1 Consultation with Agencies, Organizations, and Individuals			
Respondents and Distribution	**Early Consultation**	**Early Consultation Comments Received**	**Draft EA Notification**
Department of Land and Natural Resources (DLNR)	X		X
DLNR, Division of Forestry and Wildlife	X	X	X
DLNR, Engineering Division		X	X
DLNR, State Historic Preservation Division	X		X
Department of Transportation	X	X	X
Hawai‘i State Library			X
Kaimukī Public Library			X
University of Hawai'i at Mānoa, School of Ocean and Earth Science and Technology			X
University of Hawai'i at Mānoa, Environmental Center			X
City and County of Honolulu Agencies / Institutions			
Department of Budget and Fiscal Services			X
Department of Corporation Counsel			X
Department of Customer Services			X
Department of Design and Construction	X	X	X
Department of Emergency Management	X	X	X
Department of Environmental Services	X		X
Department of Facility Maintenance	X	X	X
Department of Parks and Recreation	X	X	X
Department of Planning and Permitting	X	X	X
Department of Transportation Services	X	X	X
Honolulu Authority for Rapid Transportation			X
Honolulu Board of Water Supply	X	X	X
Honolulu Fire Department	X	X	X
Honolulu Police Department	X	X	X
Office of Climate Change, Sustainability and Resiliency	X		X
Office of Council Services			X
Office of the City Clerk			X

Table 7-1 Consultation with Agencies, Organizations, and Individuals

Respondents and Distribution	Early Consultation	Early Consultation Comments Received	Draft EA Notification
Managing Director's Office			X
Municipal Reference and Records Center			X
Elected Officials			
House District 19, Representative Bertrand Kobayashi	X		X
Senate District 9, Senator Stanley Chang	X		X
Office of the Mayor, Rick Blangiardi	X		X
Honolulu City Council District 4, Councilmember Tommy Waters	X		X
Waiʻalae-Kāhala Neighborhood Board (NB) No. 03, Chair Richard Turbin	X		X
Utility Companies			
Hawaiian Electric Company	X	X	X
Hawaiian Telcom	X		X
Organizations, Individuals, and Neighbors			
AIA Honolulu			X
Construction Industry Legislative Organization			X
Douglas Meller			X
Goodsill Anderson Quinn & Stifel			X
Hawaii Construction Alliance			X
Hawaii Farm Bureau Federation			X
Historic Hawaii Foundation			X
Hawaii's Thousand Friends			X
Honolulu Star-Advertiser			X
Kahala Beach Apartments	X		X
Kahala Community Association	X		X
KGMB-TV			X
KHON TV 2			X
KITV 4			X
Land Use Research Foundation of Hawaii			X

Table 7-1 Consultation with Agencies, Organizations, and Individuals

Respondents and Distribution	Early Consultation	Early Consultation Comments Received	Draft EA Notification
League of Women Voters of Hawaii			X
Lucinda and John Pyles (Lucinda Pyles, Waiʻalae-Kāhala NB No. 03, Secretary)	X		X
Midweek Printing			X
Pacific Business News			X
Oahu Metropolitan Planning Organization			X
Office of Hawaiian Affairs			X
Pacific Resource Partnership			X
Pang Communications			X
Sierra Club of Hawaiʻi			X
The Kahala Hotel & Resort	X		X
The Outdoor Circle			X
Trustees of The Estate of Bernice Pauahi Bishop			X
Waiʻalae Country Club	X		X
4757 Kāhala Avenue	X		X
4771 Kāhala Avenue	X		X
4747 Kāhala Avenue	X		X
4801 Kāhala Avenue	X		X
4801E Kāhala Avenue	X		X
4767 Kāhala Avenue	X		X

Table 7-2 lists a *summary* of the early consultation written comments received and associated responses. Early consultation comments are addressed in this Draft EA. Copies of the written comments received (via mail and email) are included in *Appendix H, Early Consultation Comments*.

Table 7-2 Summary of Early Consultation Comments and Responses

Commenter (Date of Comment Letter)	Summary of Comments Received	Responses to Comments
Federal Agencies		
U. S. Fish and Wildlife Service, Pacific Islands Fish and Wildlife Office (10/27/21)	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 (https://www.fws.gov/pacificislands//articles.cfm?id=149489720#HawaiianMammals), 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.	The Proponent will implement the recommended conservation measures intended to avoid or minimize adverse effects to federally protected species that may occur within the vicinity of the Project site, and BMPs to minimize and avoid sedimentation and erosion impacts to water quality. See **Section 3.5, Flora and Fauna** for further discussion.
State of Hawai'i Agencies		
Department of Business, Economic Development and Tourism, Office of Planning and Sustainable Development (11/02/21)	• The EA should provide a regional location map of the subject property on the Island of Oahu, with the project site in relation to the county designated special management area (SMA) under the Hawaii Coastal Zone Management (CZM) law, Hawaii Revised Statutes (HRS) Chapter 205A. The EA should discuss the trigger(s) of preparation of an EA under HRS Chapter 343 and/or county SMA Ordinance if a SMA use permit is required for the proposed project. • The Hawaii CZM Law, HRS Chapter 205A, requires all state and county agencies to enforce the CZM objectives and policies. The subject EA should include an assessment with mitigation measures if needed, as to how the proposed project conforms to each of the CZM objectives and supporting policies set forth in HRS § 205A-2, as amended. • If the subject EA will serve as a supporting document for the SMA use permit application, the OPSD recommends that the EA specifically discuss the compliance with the requirements of SMA use under Revised Ordinances of Honolulu (ROH) Chapter 25, and shoreline setbacks under ROH Chapter 23, for the proposed residence project by consulting with the Department of Planning and Permitting, City and County of Honolulu. Please note that shoreline hardening structures, including	• An EA is required for the Project pursuant to ROH Chapter 25, in support of a SMA Use Permit Application. For further discussion see **Section 1.3, Basis for Environmental Review.** The Project site is within the SMA; see *Figure 5-4, Special Management Area.* • A discussion on the Project's compliance with the objectives and policies of the Hawaii CZM Law, HRS Chapter 205A, is included in **Section 5.4, Coastal Zone Management.** • A discussion on the Project's compliance with the requirements under ROH Chapter 25, and ROH Chapter 23 are included in **Section 5.8, Special Management Area** and **Section 5.9, Shoreline Setbacks.**

Table 7-2 Summary of Early Consultation Comments and Responses

Commenter (Date of Comment Letter)	Summary of Comments Received	Responses to Comments
	seawalls and revetments, are prohibited at sites with beaches pursuant to HRS §205A-2(c)(9)(B) and HRS § 205A-46(a)(9), as amended, enacted by Act 16, Session Laws of Hawaii 2020. • Sea level rise increases the risk of waves, storm surges, high tide, and shoreline erosion to coastal development. To assess any potential impacts of sea level rise on the proposed development area, the OPSD suggests the EA refer to the findings of the Hawaii Sea Level Rise Vulnerability and Adaptation Report 2017, accepted by the Hawaii Climate Change Mitigation and Adaptation Commission. The Report, and Hawaii Sea Level Rise Viewer at https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/ particularly identifies a 3.2-foot sea level rise exposure area across the main Hawaiian Islands, including Oahu, which may occur in the mid to latter half of the 21st century. The EA should provide a map of 3.2-foot sea level rise exposure area in relation to the property area, and consider site-specific mitigation measures, including design elevation and setbacks from the shoreline (e.g., erosion red line under 3.2-foot sea level rise) during the life of the proposed structures, to respond to the potential impacts of 3.2-foot sea level rise on the proposed development. • Given the potential disturbance of total land area, the applicant should consult with the Department of Health, Clean Water Branch to confirm whether a National Pollution Discharge Elimination System General Permit will be required for the proposed residence project. • The OPSD has developed guidance on stormwater runoff strategies, which offer techniques to prevent land-based pollutants and sediment from potentially affecting water resources. The OPSD recommends that the subject EA consider the mitigation measures from the following stormwater assessment guidance to mitigate stormwater runoff impacts: Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area. https://files.hawaii.gov/dbedt/op/czm/initiative/stomwater impact/final stormwater impact assessments guidance.pdf	• The Site's relation to a SLR of 3.2-foot, based on the findings of the Hawaii Sea Level Rise Vulnerability and Adaptation Report 2017 and Hawaii Sea Level Rise Viewer, is shown in *Figure 3-2, Sea Level Rise 3.2 FT.* For further discussion on proposed mitigation measures, see **Section 3.2, Climate, Climate Change, and Sea Level Rise.** • The Project involves the disturbance of more than one acre of land; therefore, a NPDES General Permit for discharges of storm water associated with construction activities will be required from the DOH, CWB. Separate NPDES General Permits for discharges of construction dewatering and hydrotesting waters may also be obtained from the from the DOH, CWB. • The OPSD's stormwater assessment guidance to mitigate stormwater runoff impacts will be considered in the Project design. For further discussion see **Section 3.8.3, Drainage.**
Department of Health, Environmental Management Division, Clean Water Branch (10/21/21)	Please download the CWB Standard Comments Memo located at our website: https://health.hawaii.gov/cwb/files/2018/05/Memo-CWB-Standard-Comments.pdf as our standard comments regarding your project's responsibilities to maintain water quality and any necessary permitting.	The Project will comply with HAR Chapters 11-54 and 11-55. The Project involves the disturbance of more than one acre of land; therefore, a NPDES General Permit for discharges of storm water

Table 7-2 Summary of Early Consultation Comments and Responses		
Commenter (Date of Comment Letter)	**Summary of Comments Received**	**Responses to Comments**
		associated with construction activities will be required from the DOH, CWB. Separate NPDES General Permits for discharges of construction dewatering and hydrotesting waters may also be obtained from the from the DOH, CWB.
Department of Land and Natural Resources (DLNR), Division of Forestry and Wildlife (11/9/21)	• The State listed Hawaiian Hoary Bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of your project area and may roost in nearby trees. If any trees must be removed for the project during the bat breeding season there is a risk of injury or mortality to juvenile bats. 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. • The state endangered Hawaiian Monk Seal (*Monachus schauinslandi*) and threatened Green Sea Turtle (*Chelonia mydas*) have the potential to occur or haul out on shore within the vicinity of the proposed project site. We understand that the mitigation taken if either species is detected within 100 meters of the project area will be to cease construction operations and not continue until the focal animal has departed the area on its own accord. DOFAW concurs with and supports this approach. • We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawaiʻi please visit: https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf. • 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, vertebrate and invertebrate pests (e.g. Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts that could harm our native species and	• The Proponent will implement the recommended mitigation measures to avoid or minimize adverse effects to the State listed Hawaiian Hoary Bat, state endangered Hawaiian Monk Seal, and threatened Green Sea Turtle. • Nighttime construction will be avoided during the seabird fledging period (September 15 through December 15) to prevent injury to seabirds. Outdoor lights will be fully shielded, so the bulb can only be seen from below and as much as possible the lowest wattage bulbs will be used. • The movement of plant or soil material will be minimized to avoid the spread of invasive fungal pathogens, vertebrate and invertebrate pests, or invasive plant parts. All equipment, materials, personnel and visitors will be cleaned of excess soil and debris to minimize the risk of spreading invasive species. • Native plant species will be incorporated in the proposed landscaping. The Hawaiʻi-Pacific Weed Risk Assessment and Plant Pono websites will be consulted for guidance on the selection of landscaping plants. See **Section 3.5, Flora and Fauna** for further discussion.

Table 7-2 Summary of Early Consultation Comments and Responses		
Commenter (Date of Comment Letter)	**Summary of Comments Received**	**Responses to Comments**
	ecosystems. We recommend consulting the O'ahu Invasive Species Committee at (808) 266-7994 in planning, design, construction and operation of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel and visitors should be cleaned of excess soil and debris to minimize the risk of spreading invasive species. • DOFAW recommends using native plant species for landscaping that are appropriate for the area (i.e. climate conditions are suitable for the plants to thrive, historically occurred there, etc.). Please do not plant invasive species. DOFAW recommends consulting the Hawai'i-Pacific Weed Risk Assessment website to determine the potential invasiveness of plants proposed for use in the project (https://sites.google.com/site/weedriskassessment/home). We recommend that you refer to www.plantpono.org for guidance on selection and evaluation for landscaping plants.	
DLNR, Engineering Division (11/8/21)	• The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44 CFR), are in effect when development falls within a Special Flood Hazard Area (high-risk areas). Be advised that 44 CFR, Chapter 1, Subchapter B, Part 60 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 zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT) could also be used to research flood hazard information.	Based on the FEMA-FIRM panel 15003C0369H (dated November 5, 2014), the Site is in Flood Zone AE with a BFE of 7-8 FT. Flood Zone AE is subject to inundation by the 1% annual chance flood (100-year). See *Figure 3-7, Flood Zones*. See **Section 3.3.2, Flooding** for further discussion.
Department of Transportation (10/22/21)	The project site is approximately 1 mile from the eastbound connection to H-1/Kalanianaole Highway. Due to the project's small scale and relatively far distance to/front H-1/Kalanianaole Highway, it is not expected to have any significant impact to State highways.	The Proponent acknowledges that the State Department of Transportation does not anticipate the Project to have a significant impact to State highways.
City and County of Honolulu Agencies		

Table 7-2 Summary of Early Consultation Comments and Responses

Commenter (Date of Comment Letter)	Summary of Comments Received	Responses to Comments
Department of Design and Construction (10/14/21)	The Department of Design and Construction has no comments to offer at this time.	The Proponent acknowledges that the City Department of Design and Construction has no comments at this time.
Department of Emergency Management (10/11/21)	Director Toiya has reviewed the Early Consultation Handout for the A'Yia Kahala Residences project and has no comments.	The Proponent acknowledges that the City DEM has no comments at this time.
Department of Facility Maintenance (10/18/21)	• During construction and upon completion of the project, any damages/deficiencies along the sidewalks, catch basins, and/or roadways, shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu. • Please note, the Aukai Ditch that is located behind TMK: 3-5-06:007 is maintained by the Department of Facility Maintenance, any damages shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu. • A portion of TMK: 3-5-006:025 between TMK's: 3-5-006:014 and 007 is a portion of a sewer easement that is under the jurisdiction of the Department of Environmental Services. • On parcel TMK: 3-5-006:007, there is an inlet and outlet that is under the jurisdiction of the Department of Facility Maintenance, if there are any damages/deficiencies, it shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu.	• The Proponent acknowledges that any damages/deficiencies along the sidewalks, catch basins, and/or roadways, inlet and outlet on Parcel 007, or the Aukai Ditch behind Parcel 007, shall be repaired to City standards and accepted by the City at no cost to the City. In contrast, the Proponent will maintain vegetation on the Project parcels to prevent debris from entering the Aukai Ditch on TMK parcel: (1) 3-5-006:033. • The Proponent acknowledges that a portion of Parcel 025 between Parcels 14 and 007 contains a sewer easement that is under the jurisdiction of the City ENV.
Department of Parks and Recreation (10/25/21)	The project sites are not abutting any City park and the proposed project will not impact any facility or program of the department. We have no comments other than to note that the net increase of four single family residences will require the developer to comply with the requirements of the Park Dedication Ordinance.	• The Proponent acknowledges that the City DPR does not anticipate the Project to impact City park facilities or programs. In contrast, the Project will support modest improvements at the City's Wai'alae Beach Park, such as a new bicycle rack and/or trash bins, as a community benefit. • The Project will comply with the requirements of the Park Dedication Ordinance. Per ROH §22-7.2, *Definitions*, the term "Subdivision" also includes a building or group of buildings,

Table 7-2 Summary of Early Consultation Comments and Responses		
Commenter (Date of Comment Letter)	**Summary of Comments Received**	**Responses to Comments**
		other than a hotel, which is placed on a zoning lot, containing or divided into three or more dwelling or lodging units; therefore, the Project will be subject to ROH Article 7, *Parks and Playgrounds*.
Department of Planning and Permitting (11/5/21)	• The draft EA should provide a description of the existing and proposed development on the subject properties, including a description of development permit history and the existing and proposed land uses. • There are existing structures on each of the four parcels. The draft EA should describe all existing structures on the site, including shoreline hardening structures, dwellings, garages, tennis courts, pools, stairways, fences and gates, etc. The draft EA should specify existing structures that will remain and whether they were lawfully established. • The draft EA should address the Project's consistency with the relevant policies of the General Plan and the Primary Urban Center Development Plan. This section should specifically address policies related to shoreline development. • Include a discussion of the Project's consistency with the applicable development standards of the zoning district under the Land Use Ordinance, Chapter 21, Revised Ordinances of Honolulu (ROH). • Parcel 9 is a shoreline lot, which is subject to shoreline erosion. The Project site is susceptible to Sea Level Rise (SLR), tsunami, and storm surge. Mayor's Directive 18-2, issued on July 16, 2018, requires all City departments and agencies to use the Hawaii SLR Vulnerability and Adaptation Report, the SLR Guidance and the Climate Change Brief in planning decisions. As a result, proposed development activities within the SMA must be evaluated not only for potential impacts to sensitive SMA resources, but also for current and future susceptibility to coastal hazards such as flooding, SLR, wave action, tsunami, storm surge, and erosion. The draft EA should explore ways to reduce potential impacts to the development including siting the dwellings and structures as far from the shoreline as possible and outside areas that will be impacted by SLR and erosion during the life of the structure. • The subject properties are in a Tsunami Evacuation Zone. The National Hurricane Storm Surge Hazard Maps indicate coastal areas along the Project site may be subject to flooding inundation of less than three feet above ground level during a	• A description of the existing and proposed development/land uses/structures on the Site is included in **Section 2.1, Description of Existing Facilities and Uses** and **Section 2.3, Description of the Proposed Action.** A description of recent development permit history is included in **Section 2.2, Permit History.** • Discussions of the Project's consistency with the relevant policies of the General Plan and the PUC DP are included in **Section 5.5, City and County of Honolulu General Plan** and **Section 5.6, Primary Urban Center Development Plan.** • A discussion of the Project's consistency with the applicable development standards of the zoning district under the LUO is included in **Section 5.7, City and County of Honolulu Zoning.** • All proposed residences and structural improvements will be outside of the 40-FT shoreline setback area. A discussion on potential SLR and erosion impacts and associated proposed mitigation measures are included in **Section 3.2, Climate, Climate Change, and Sea Level Rise.** • Discussions on potential natural hazard impacts (tsunami, hurricane and flooding) and associated proposed mitigation measures are

Table 7-2 Summary of Early Consultation Comments and Responses

Commenter (Date of Comment Letter)	Summary of Comments Received	Responses to Comments
	Category 1 hurricane event. The draft EA should discuss any impacts by storm surge on the property and identify mitigation strategies that would need to be employed. • The subject properties are within Flood Zone AE (an area subject to inundation by a one percent annual chance flood) with a determined base flood elevation of eight feet. Development on the site is subject to the provisions of the Flood Hazard Areas Ordinance, Chapter 21A, ROH. • All development must be located outside of the shoreline setback area, which currently extends 40 feet mauka of the Certified Shoreline for most residential properties. This setback distance from the shoreline must be confirmed on a shoreline survey certified by the State of Hawaii, and must also be reflected in the plans submitted for the SMA Use Permit to confirm compliance with the Shoreline Setback Ordinance (Chapter 23, ROH). A draft shoreline survey should be included and evaluated in the draft EA. A certified shoreline survey should be included in the final EA. Alternatively, if the Applicant seeks to waive the requirement for a certified shoreline survey and locate all development more than 55 feet from an uncertified (presumed) shoreline, the draft EA should include a shoreline survey and plans that identify and label the proposed distance from the presumed shoreline. Under this approach, the Applicant must provide evidence documenting the location of the presumed shoreline. Such information may include, but is not limited to, a previously certified shoreline survey, erosion and/or accretion information, historic versus current photographs, and physical or geographic markers such as survey pins or trees that document the level of change in the shoreline since the most recent certified shoreline survey. Please note that a waiver of the requirement for a certified survey is subject to the discretion of the Director of the Department of Planning and Permitting. • The draft EA should include a discussion of any other land use permits anticipated to be required prior to Project implementation.	included in **Section 3.3.1, Hurricanes, Section 3.3.2, Flooding,** and **Section 3.3.4, Tsunami.** The Project will comply with the provisions of the ROH Chapter 21A. • An approved shoreline survey certified by the State is included in *Appendix E, Certified Shoreline Survey* of this Draft EA, and will also be included in the SMA Use Permit application to comply with ROH Chapter 23. • A list of anticipated required State and City permits and approvals for the Project is included in **Section 2.8, Required Permits and Approvals**.
Department of Transportation Services (11/5/21)	• **Street Usage Permit**. A street usage permit from the Department of Transportation Services (DTS) should be obtained for any construction-related work that may require the temporary closure of any traffic lane or pedestrian mall on a City street. • **Neighborhood Impacts**. The area representatives, neighborhood board, as well as the area residents, businesses, emergency personnel (fire, ambulance, and police), Oahu Transit Services, Inc. (TheBus and TheHandi- Van), etc., should be kept apprised of	• A street usage permit will be obtained from the DTS for construction-related work that may require the temporary closure of a City street. • Area representatives, the Waiʻalae-Kāhala NB No. 03, area residents, businesses, emergency personnel (fire, ambulance, and police), and

Table 7-2 Summary of Early Consultation Comments and Responses		
Commenter (Date of Comment Letter)	**Summary of Comments Received**	**Responses to Comments**
	the details and status throughout the project and the impacts that the project may have on the adjoining local street area network. • **Bus Stops**. The project site is in the immediate vicinity of bus stops. Please coordinate roadway impacts with DTS — Transportation Mobility Division (TMD). Contact DTS-TMD at TheBusStop@honolulu.gov. • **Disability and Communication Access Board (DCAB**). Project plans (vehicular and pedestrian circulation, sidewalks, parking and pedestrian pathways, vehicular ingress/egress, etc.) should be reviewed and approved by DCAB to ensure full compliance with Americans with Disabilities Act requirements.	Oahu Transit Services, Inc. (TheBus and TheHandi- Van) will be updated of temporary construction-related disruptions on the local street network, as necessary. • The Proponent will coordinate with the City DTS — Transportation Mobility Division re: potential temporary construction-related disturbances. The Proponent will also coordinate with the City DTS on potential upgrades of the nearest TheBus stop on the makai side of Kāhala Avenue, approximately 100 FT from the Site, as a community benefit.
Honolulu Board of Water Supply (10/20/21)	• The existing water system cannot provide adequate off-site fire protection to the proposed development. The Board of Water Supply (BWS) Water System Standards (WSS) require a fire hydrant spacing of 350 feet in the vicinity of single-family developments and provide a flow of 1,000 gallons per minute (gpm). The nearest fire hydrant, Fire Hydrant No. MO1486, is approximately 360 linear feet away from the parcel with Tax Map Key: 3-5-006 009. Therefore, the developer will be required to coordinate the on-site fire protection requirements with the Fire Prevention Bureau of the Honolulu Fire Department. The fire hydrant spacing along Kahala Avenue is approximately 375 feet. • The construction drawings shall be submitted for our review and approval, and the construction schedule shall be coordinated with BWS to minimize impact on our water system. • When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and daily storage. • Water conservation measures are required for all proposed developments. These measures include utilization of nonpotable water for irrigation using rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of Water Sense labeled ultra-low flow water fixtures and toilets.	• The Project involves the construction and provision of adequate off-site fire protection to serve the residences. The Proponent will coordinate with the City BWS and HFD, Fire Prevention Bureau to ensure off-site fire protection is adequate. For further discussion, see **Section 3.8.1, Potable Water** and **Section 3.10.4, Fire.** • Construction drawings and schedule will be submitted to BWS for review and approval. • The Proponent will pay the BWS Water System Facilities Charges. • The Project will incorporate water conservation measures.

Table 7-2 Summary of Early Consultation Comments and Responses

Commenter (Date of Comment Letter)	Summary of Comments Received	Responses to Comments
Honolulu Fire Department (10/25/21)	• Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet (46 meters) from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; 2018 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1, as amended). A fire department access road shall extend to within 50 feet (15 meters) of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; 2018 Edition, Section 18.2.3.2.1). • An approved water supply capable of supply the required fire flow for fire protection shall be provided to all premises upon which facilities, buildings, or portions of buildings are hereafter constructed or moved into the jurisdiction. The approved water supply shall be in accordance with Section 18.4. (NFPA 1; 2018 Edition, Section 18.3.1.). • The fire department access roads shall be in accordance with Section 18.2.3. (NFPA 1; 2018 Edition, Section 18.2.3.) • Submit civil drawings to the HFD for review and approval.	• Adequate fire department access roads that meet the distance requirements will be provided. • Adequate water supply for fire protection of the residences that meet the distance requirements will be provided. • Fire apparatus access roads with unobstructed width and vertical clearance that meet county requirements will be provided. • Drawings will be submitted to the HFD for review and approval.
Honolulu Police Department (10/21/21)	The Honolulu Police Department (HPD) recommends that all necessary signs, lights, barricades, and other safety equipment be installed and maintained by the contractor during the construction phase of the project, as Kahala Avenue is a two-way road traversed by vehicles and pedestrians. The HPD also recommends that adequate notification be made to residents in the area prior to deliveries or possible road closures, as any impacts to pedestrian and/or vehicular traffic may cause issues and disruptions to residents which could lead to complaints.	• During construction, the Contractor will install and maintain all necessary signs, lights, barricades, and other safety equipment to alert vehicles and pedestrians traversing along Kāhala Avenue. • During construction, residents in the area will be notified prior to temporary construction-related disruptions on the local street network, as necessary.
Utility Companies		
Hawaiian Electric Company (10/20/21)	Hawaiian Electric Company has no objection to the project. Should Hawaiian Electric have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.	• The Proponent acknowledges that HECO has no objection to the Project. • The Proponent will coordinate with HECO regarding any existing/proposed easements and facilities on the Site, to ensure continued access for facility maintenance.

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Chapter 8

References

Chapter 8

References

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Appendices

Appendix A

Conceptual Plans

Conceptual Site Plan

0' 30' 60' 120'

P:\2019\22061-01 Ayia_LLC Kahala\Graphics\Site_Plan

Street View

Beach View

Appendix B

Preliminary Engineering Report

A'Yia Kāhala
4775, 4767-B and 4767-D Kāhala Avenue

TMK (1) 3-5-006: 007, 009, 014, 025
Kāhala, Oahu, Hawai'i

Preliminary Engineering Report

Prepared for:
A'Yia LLC
4614 Kilauea Avenue, Suite 205
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DRAFT
November 29, 2021
G70 Project 220061-01

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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The "The Kāhala Beach Villas" ("Project") site is a proposed residential development located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue in Honolulu, on the island of Oʻahu, Hawaiʻi , see attached Figure 1: Project Location. The Project site is part of the Waiʻalae-Kāhala neighborhood, makai of Kāhala Avenue and between the intersections of Kāhala Avenue with Koloa Street and and Pueo Street.

The project extends across TMK parcels TMK (1) 3-5-006:007 (4775 Kāhala Avenue, 0.64 acres), :009 (4767D Kāhala Avenue, 0.82 acres) and :014 (4767B Kāhala Avenue, 0.22 acres) and includes a jointly owned accessway designated as parcel :025 (4769 Kāhala Avenue, 0.16 acres). TMK :007 extends approximately 200 feet makai from Kāhala Avenue; parcel :014 consists of a rectangular lot midway between Kāhala Avenue and the ocean, and parcel :009 is an approximately rectangular parcel fronting the shoreline (see Figure 2, Tax Map).

The site is within the State Land Use Urban District, Special Management Area, and the County R-5 (Residential) zoning District. The shoreline frontage consists of coral sand beach.

The immediate neighbors consist predominantly of single-family residences; further northeast lie the Waiʻalae Beach Park, Waiʻalae Country Club, Kāhala Beach Apartments, and The Kāhala Hotel & Resort.

Existing utilities in Kāhala Avenue include sewer, water, drainage, telephone and telecom lines. The Kāhala Avenue speed limit fronting the property is 25 mph.

The purpose of this report is to investigate existing infrastructure including roadway, water, wastewater and drainage systems and provide a conceptual plan for site development. The conceptual site layout is presented in Figure 3.

1.2 EXISTING USES

The current uses of parcels :007 and :014 are residential; a residential structure on parcel :009 has been demolished to ground level. Parcel :025 is a jointly owned access driveway leading makai from Kāhala Avenue. Six residential structures totaling 9,961 square feet (City and County of Honolulu real property database) are present throughout the four TMK parcels.

1.3 PROPOSED USE

The project proposes to develop the following:

- One existing single-family residence on Parcel :014 (4767-B Kāhala Avenue) will be replaced with one new single-family residence and a structure with ground-level and common amenities on the second level.
- Six existing single-family residences on Parcel :007 (4775 Kāhala Avenue) will be replaced with five new single-family residences and a structure with ground-level and common amenities on the second level.
- Six single-family residences will be developed on Parcel :009 (4767-D Kāhala Avenue) which is presently vacant.

- The existing shared driveway on Parcel :025 (4769 Kāhala Avenue) will be improved and extended to provide access.

2 SITE ACCESS

2.1 EXISTING CONDITION

All parcels are accessed via a single jointly-owned driveway from Kāhala Avenue.

2.2 PROPOSED CONDITION

The existing at-grade joint driveway on parcel :025 which connects to Kāhala Avenue will be demolished and a standard concrete driveway apron constructed within the Kahala Avenue right-of-way; the driveway is proposed to be widened to a paved width of 20 feet, and a City standard hammerhead turnaround provided at the entry to parcel :007 for fire vehicle access.

3 GRADING AND EROSION CONTROL

3.1 EXISTING CONDITIONS

3.1.1 CLIMATE

The project site is located on the leeward shoreline of Oahu with the predominant trade winds from the northeast. The site is sunny and relatively dry with slightly higher rainfall in the winter months. Average monthly rainfall ranges from approximately 1 to 2.7 inches and the yearly average is approximately 27 inches.

3.1.2 TOPOGRAPHY AND GEOLOGY

The project site is located on the coastline of Oahu, on sandy soils overlying coral reef from a previous higher stand of the sea.

Onsite grades rise from about 3.6 feet mean sea level (msl) at the makai edge of Kāhala Avenue to almost six feet then slope to sea level at the beach, over an approximate distance of 500 feet.

A city drainage canal borders the site on the northeast.

Given the permeable sandy soils, low typical rainfall, relatively flat slopes throughout the project site and enclosing walls around each parcel, no drainage paths have developed and rainfall infiltrates directly into the sandy ground.

The site overlies the Waialae System of the Honolulu Aquifer Sector, comprising the leeward area from Diamond Head to Makapuu Point. Water resources at the site are evaluated as Basal, Unconfined in Sedimentary geology and the groundwater status code assigned to the sedimentary caprock layer (overlying the primary, basal aquifer) indicates high salinity and vulnerability to contamination (Mink and Lau, 1990).

3.1.3 SOILS

Soils on approximately the mauka two-thirds of the site are type JaC, Jaucas Sand, described by the NRCS as consisting of very deep, excessively drained, very rapidly permeable soils on vegetated beach areas along the sea coast, formed in calcareous sand deposits.

The remainder of soils are type BS, Beach Sand, composed of calcareous sand and extending to the shoreline. See Figure 4, Soils Map.

A geotechnical study ("Report, Geotechnical Investigation, Proposed Residential Development, 4767B, 4767D & 4775 Kahala Avenue" Shinsato and Associates, May 2021) included percolation testing of in situ soils on each parcel. Results are summarized below;

Percolation Test No	TMK Parcel	Percolation Rate (min./in.)	Infiltration Rate (in/hr.)	Soil Description
P-1	TMK :009	5.0	8.47	silty SAND
P-2	TMK :007	2.4	18.13	SAND
P-3	TMK :025	1.1	33.23	SAND
P-4	TMK :025	0.7	72.00	SAND

3.1.4 PROPOSED GRADING

Proposed grades are controlled by the regulatory flood hazard elevation of 8 feet msl over much of the site, and building finish floor elevations throughout the site are set at 8.6 feet. See Figure 5 for the Conceptual Grading and Drainage Plan, Figure 6 for the Flood Map and Figure 8 for the Tsunami Evacuation Zone Map. Courtyard and common areas will be sloped away from buildings. The accessway from parcel 007 leading into the shared accessway will be graded with an inverted crown swale, to lead excess runoff to City MS4 on Kāhala Avenue. Common access areas will be provided with permeable surfacing to enhance infiltration of storm runoff to the maximum extent possible. Areas other than buildings or accessways will be landscaped.

3.1.5 EROSION CONTROL

During construction, soil erosion and sediment control construction BMPs will be implemented to minimize and control erosion of soils and dust creation. BMPs are pollution control measures, applied to nonpoint sources, on-site or off-site, to control erosion and the transport of sediments and other pollutants which have an adverse impact on waters of the State. Construction BMPs are temporary measures installed before construction commences and removed after construction completion. Potential construction BMPs include but are not limited to gravel entrance, water trucks, dust screen, silt fence, retention basins, diversion berm/ditches, and grading procedures in accordance with County and County of Honolulu Title 20, Chapter 3, "Rules Relating to Water Quality".

Category 5 projects are required to implement an approved Erosion and Sediment Control Plan (ESCP) prepared by a certified person, identifying the site and its hydrologic characteristics, and listing minimum Best Management Practices (BMPs) which will be implemented during construction. BMPs shall include practices in three widely defined areas: Erosion Control, Sediment Control, and Good Housekeeping.

4 DRAINAGE

4.1 EXISTING CONDITIONS

4.1.1 MARINE WATER QUALITY

Nearshore waters fronting the site are identified as "Class A" by the State Department of Health (DOH) and are not listed in the Clean Water Act §303(d) list (impaired waters bodies that do not meet State Water Quality Standards). According to DOH Water Quality Standards, "It is the objective of class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class." (HAR §11-54-03(c)(2)).

The Class A designation of shoreline marine waters has implications for discharge of storm runoff. Best Management Practices (discussed above) will be implemented to the maximum extent possible and as a result, the proposed project will not create an adverse impact to the nearshore waters.

4.1.2 CITY AND COUNTY OF HONOLULU DRAINAGE STANDARDS

The project hydrology is evaluated in accordance with City and County "Storm Drainage Standards" (using NOAA Atlas 14 Volume 4 Version 2.1 in lieu of Plates 1 and 2 "Intensity of 1-hr Rainfall for 10- and 50-year Return Periods"). Plates 1 and 2 of the County Drainage Standards are based on the U.S. Department of Commence Technical Paper 43, Rainfall Frequency Atlas of the Hawaiian Islands (TP-43) published in 1962. Rainfall intensity maps in NOAA Atlas 14 Volume 4 Version 2.1 are the result of interpolation of frequency estimates of a larger sample of rain stations with longer years of record than TP-43 thus the NOAA Atlas maps portray a more accurate representation of the rainfall intensity.

For drainage areas of 100 acres or less, the "Storm Drainage Standards" stipulate that the drainage system be designed for a 10-year recurrence interval, except that sump conditions assumed to occur in all residential TMK parcels will be analyzed and designed for 50-year recurrence. The rational method is based on the drainage area, runoff coefficient (ground cover conditions) and the rainfall intensity for duration equal to the time of concentration.

4.1.3 EXISTING DRAINAGE INFRASTRUCTURE AND HYDROLOGY

The City maintains the only drainage infrastructure in the project vicinity; a catch basin and culvert along the makai curb of Kāhala Avenue which discharges to a drainage canal at the northeast border of the site.

The existing site is fully developed and due to lack of substantial rainfall, flat topography, high permeability of the natural sandy soils and walls enclosing each property there are no natural drainageways or drainage structures within the residential parcels. As a result, rainfall is disposed within each residential parcel (sump conditions) and runoff from the shared accessway flows mauka into the City MS4 catch basin on the makai side of Kāhala Avenue and thence to the drainage canal.

Table 1: Existing Condition Peak Runoff Flow Estimate

TMK parcel	Description	Weighted "C" Value	Corrected Intensity, in/hr	Lot Area (acres)	Runoff Q = C*I*A cfs
:007	Lot fronting Kahala Ave.	0.32	9	0.64	1.84
:009	Vacant lot makai	0.48	9	0.82	3.54
:014	Middle lot	0.10	9	0.22	0.20
:025	Common driveway	0.30	6	0.16	0.29
Lot	**Disposition of runoff**				
:007, :009, :014	Sump condition, runoff disposed (infiltrates into ground) within TMK lot				
:025	Sheet flows to Kahala Avenue catch basin, flows via culvert to drainage canal along northeast boundary of :007				

4.2 DEVELOPED CONDITIONS

4.2.1 HYDROLOGY AND PROPOSED DRAINAGE INFRASTRUCTURE

Developed condition hydrology is assessed via the Rational Method as for the existing condition, above. Weighted "C" values accommodate pervious pavement in vehicle accessible areas, roofed areas of proposed structures, and landscaping over remaining area.

Site grading will direct runoff to underground infiltration chambers located in the common access areas. In the event collected runoff exceeds the infiltration system capacity, an inverted crown in the courtyard of parcel :007 will direct excess runoff as surface flow to the shared accessway in parcel :025 and to a City catch basin immediately at the Kāhala Avenue common access driveway.

Excess rainfall on parcels :009 and :014 will overflow the subsurface infiltration system at the drain inlet furthest makai and sheet flow into the landscaped area makai of Unit 1 where it may spread and infiltrate further without direct discharge to shoreline waters.

The conceptual drainage system and grading are shown in Figure 5.

Table 2: Developed Condition Peak Runoff Flow Estimate

TMK parcel	Description	Weighted "C" Value	Intensity, in/hr	Lot Area (acres)	Runoff Q = C*I*A cfs
:007	Lot fronting Kahala Ave.	0.51	9	0.64	2.94
:009	Makai lot	0.62	9	0.82	4.58
:014	Middle lot	0.61	9	0.22	1.21
:025	Common driveway	0.30	6	0.16	0.29
Lot	**Disposition of runoff**				
:007	Retained (infiltrates) into subsurface infiltration chamber, any excess routed via :025 to Kahala Avenue catch basin				
:009	Retained (infiltrates) into subsurface infiltration chamber, any excess routed makai to dissipate in back beach (shoreline setback) area				
:014	Retained (infiltrates) into subsurface infiltration chamber, any excess routed via :025 to Kahala Avenue catch basin				
:025	Retained (infiltrates) into subsurface infiltration chamber, any excess routed to Kahala Avenue catch basin				

4.2.2 STORM WATER QUALITY REQUIREMENTS

The City's "*Rules Relating to Water Quality*" classify the project as "Category 5" on the basis of greater than one acre of disturbed area. Category 5 projects require an Erosion and Sediment Control Plan (ESCP) describing flood plain encroachment, existing drainage conditions, proposed improvements and grading, temporary and permanent Best Management Practices (BMPS) plan and design. The ESCP must address measures to achieve erosion control, sediment control and good housekeeping to prevent and minimize pollutant discharge to receiving waters.

The City's "*Rules"* also require preparation and submission of a Storm Water Quality Strategic Plan, addressing the proposed improvements, expected activities and pollutants that may be generated at the site, the LID Site Design Strategies that will be used to comply with the *Rules*, and a development schedule.

Priority A" projects (those disturbing one acre or more) must submit a Storm Water Quality Report prepared using the template in the City's "*Rules"*.

The City's "*Rules"* require Low Impact Development (LID) Site Design and Source Control BMPs to the maximum extent possible, including retaining onsite as much of the Water Quality Volume (WQV) as feasible, with LID retention and post-construction treatment control BMPs.

City standards for storm water quality treatment of developed condition runoff will be accomplished by detaining and infiltrating runoff into the ground through pervious paving in common access areas and landscaping of surfaces not hardened or roofed. Worksheets calculating the minimum required infiltration area for each TMK lot are presented in Table 3 below and schematic infiltration structures are shown underlying common access areas in Figure 3.

Table 3: Minimum Infiltration Area Required Per TMK Lot

TMK Parcel	Description	Minimum Infiltration Area, sf
:007	Lot fronting Kahala Ave.	885
:009	Makai lot	1,274
:014	Middle lot	270
:025	Common driveway	507

Permanent post-construction BMPs are those which remain part of the project features after development is completed. They are intended to reduce potential transport of storm water pollution (typically turbidity, heavy metals, organics) from the site and mitigate runoff resulting from increased impermeable surfaces. Permanent BMPs will consist of permeable paving on driveways, landscaping in other than structure areas, and storm runoff detention/infiltration chambers beneath the common accessway and courtyard.

The project will require a National Pollutant Discharge Elimination System (NPDES) permit for discharge of construction stormwater.

5 WATER

5.1 EXISTING CONDITIONS

Existing residences are supplied with potable water from an 8-inch Board of Water Supply main in the makai lane of Kahala Avenue. A 2-inch waterline in the common accessway provides water to domestic water maters for TMK parcels :007, :009 and :014. Two additional meters in the Kahala Avenue right-of-way serve parcel :007. Typical static pressure is reported at 76 psi by the BWS.

5.1.1 WATER DEMAND

Potable water demand (including irrigation) was estimated using domestic and irrigation usage rates specified in the BWS "Water System Standards" and summarized below.

Average Daily Demand = 500 gal/unit x 12 units = 6,000 gpd

Maximum Daily Demand = 1.5 x 6,000 gpd = 9,000 gpd

Peak Hour flow = 3 x 6,000 gpd = 18,000 gpd

Fire flow = 1,000 gpm for 1 hour,
with maximum 450-foot hose lay requirement for sprinklered buildings

5.1.2 PROPOSED WATER SUPPLY SYSTEM

The existing 2-inch water line will be extended to near the makai end of the common driveway. Existing water meters on Kahala Avenue and along the common driveway will be reassigned to serve new residences and several meters added such that each residence will be served by its own meter.

The conceptual domestic and fire water system is shown in Figure 3.

5.1.3 FIRE PROTECTION

Two fire hydrants are located on the mauka side of Kāhala Avenue: Hydrant M01485 approximately 60 feet east of the northeast corner of the site and Hydrant M01486 approximately opposite the west boundary of the site. Based on site dimensions and locations of the two existing hydrants, neither provides sufficient coverage to satisfy the 150-foot hose lay requirements of the Hawaii State Fire Code (NFPA 1 with City and County of Honolulu amendments), nor the 450-foot coverage radius afforded to structures equipped with automatic fire sprinklers. The Honolulu Board of Water Supply confirmed in a letter dated October 21, 2021 that adequate fire protection from existing fire hydrants is not available.

A new 6-inch DC meter in the Kahala Avenue right-of-way and 8-inch fire main are proposed along the common driveway, to the makai edge of parcel :007 and feeding a new fire hydrant at the edge of a new fire apparatus turnaround. Each building will be provided with an automatic fire sprinkler system serviced by the new fire main.

Fire apparatus access will be provided along the joint accessway to a new turnaround at the makai end of TMK Parcel :007 on the existing driveway.

6 WASTEWATER

6.1 EXISTING CONDITIONS

City and County public wastewater collection facilities serve the Kāhala area via an 8-inch sewer line runs approximately 180 feet down the shared accessway to a manhole. Several separate sewer laterals serve the project parcels and off-project adjoining parcels.

Estimated average daily wastewater discharge for the project parcels is 1,680 gallons/day based on 70 gpcd, 4 persons per unit in six existing residences.

6.1.1 WASTEWATER FLOW PROJECTIONS

Wastewater flow is estimated using rates from the City and County of Honolulu "Design Standards of the Department of Wastewater Management, Volume 1" in which Chapter 2 specifies the calculation procedure.

Base Sanitary Flow = 12 dwelling units x 4 persons/unit x 70 gpcd = 3,360 gpd
Peak Base Sanitary Flow = 2.5 x 3,360 gpd = 8,400 gpd
Ground Water Infiltration = 35 gpcd x 48 persons = 1,680 gpd
Peak Dry Weather Flow = 8,400 + 1,680 = 10,080 gpd
Wet Weather Infiltration = 3,000 gpad x 1.68 ac = 5,045 gpd
Design Flow = 10,080 + 5,045 = 15,125 gpd

Sewer Connection Application 2021/SCA-0421 for 12 residential units was approved March 2021 by the City and requires approval of the project plans within two years, with construction starting within one year of the plan approval date. An updated Sewer Connection Application will need to be submitted for the project.

6.1.2 PROPOSED WASTEWATER SYSTEM

The existing 8-inch sewer line in the shared accessway will extended makai along the common driveway and new laterals constructed to serve new structures. Adjoining non-project residences will continue to be served by existing laterals from the main in the common accessway. The conceptual sewer system is shown in Figure 3.

7 GAS

7.1 EXISTING CONDITIONS

Existing residences on TMK parcels :007, :009 and :014 are provided with pressurized gas service via a ¾-inch gas line in the shared accessway, connected to a 2-inch line running in the makai shoulder of Kahala Avenue.

7.2 PROPOSED GAS SERVICE

Proposed development will continue to be served via the gas main in Kahala Avenue. Each residence will be provided with an individual gas service through meters installed in the common access driveway.

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U.S. National Oceanic and Atmospheric Administration, National Weather Service
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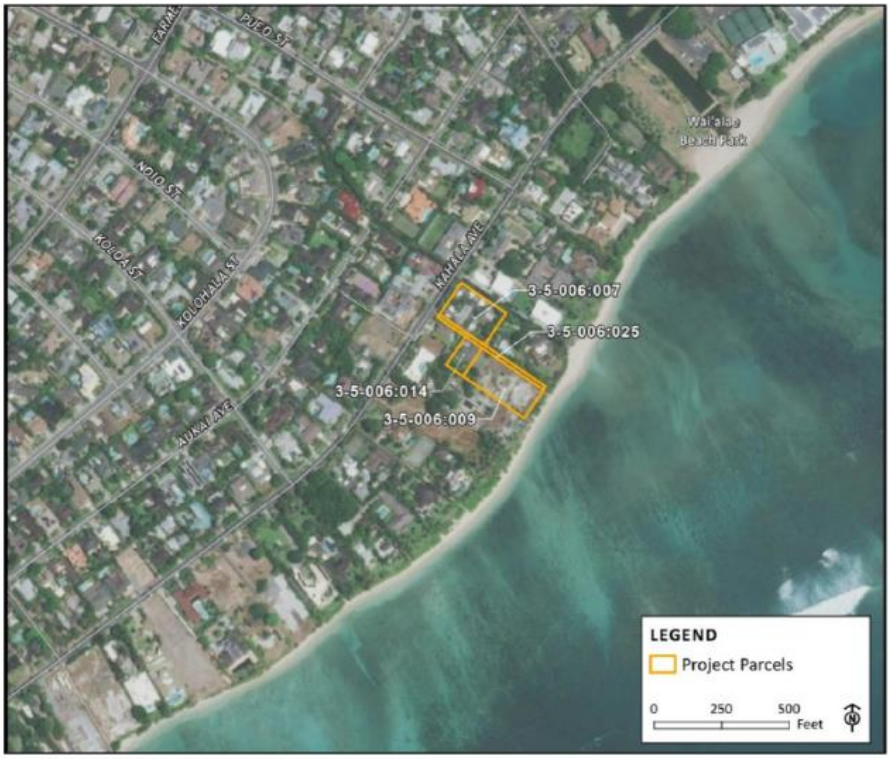


VICINITY MAP

LOCATION MAP

VICINITY & LOCATION MAPS

A'YIA KAHALA

G70
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5866
WWW.G70.DESIGN
10-09-2021

FIGURE
1

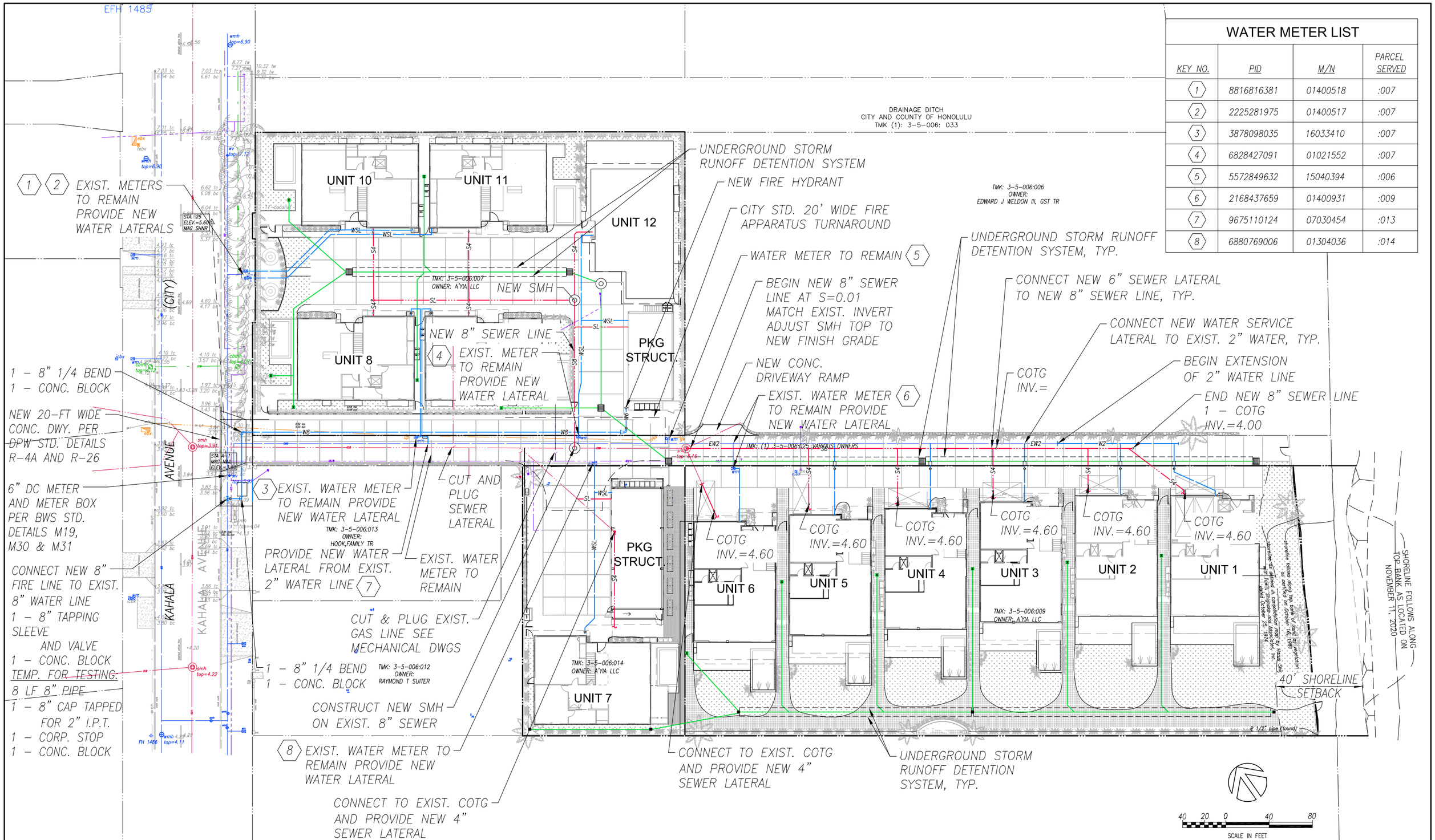
TAX MAP

A'YIA KAHALA

G70 111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5866 WWW.G70.DESIGN

10-09-2021

FIGURE 2



WATER METER LIST

KEY NO.	PID	M/N	PARCEL SERVED
1	8816816381	01400518	:007
2	2225281975	01400517	:007
3	3878098035	16033410	:007
4	6828427091	01021552	:007
5	5572849632	15040394	:006
6	2168437659	01400931	:009
7	9675110124	07030454	:013
8	6880769006	01304036	:014

A'YIA KAHALA

CONCEPTUAL SITE LAYOUT & UTILITIES PLAN

G70
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
808.523.5866
WWW.G70.DESIGN

10-09-2021

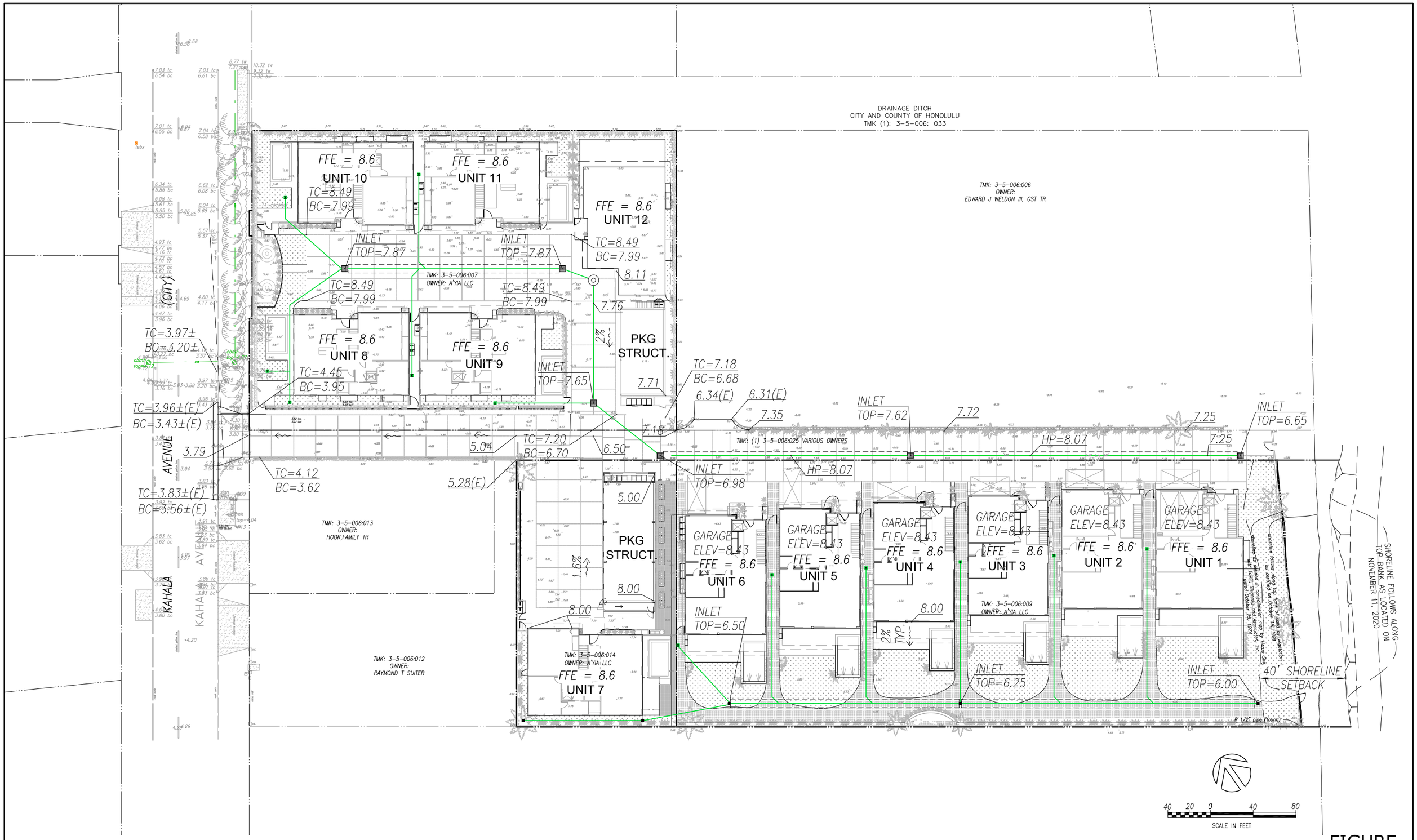
FIGURE 3

SOILS MAP

A'YIA KAHALA

G70 111 S. KING STREET, SUITE 170 HONOLULU, HAWAII 96813 808.523.5866 WWW.G70.DESIGN 10-09-2021

FIGURE 4



A'YIA KAHALA

CONCEPTUAL GRADING & DRAINAGE PLAN

G70
111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
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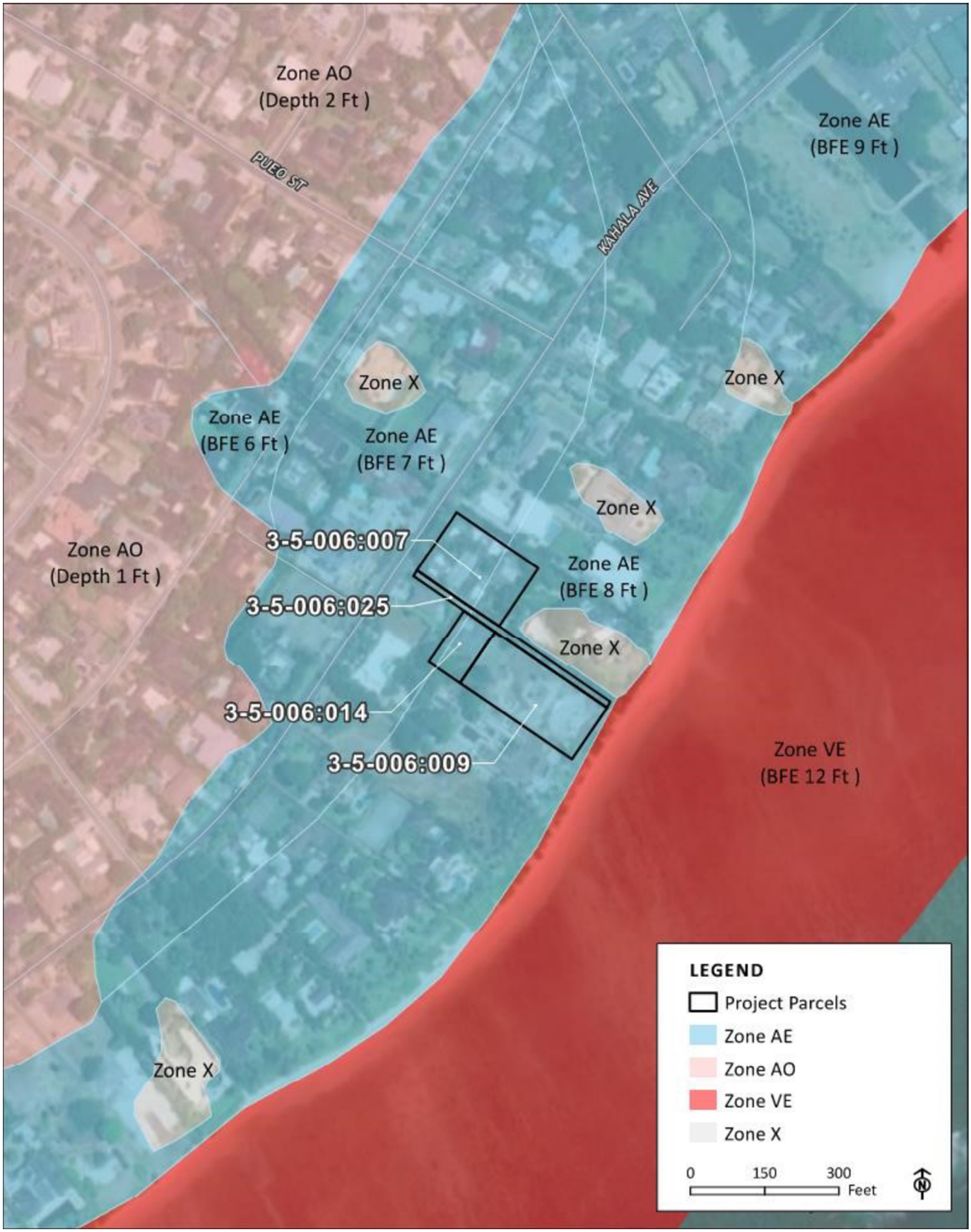
10-09-2021

FIGURE
5



FLOOD MAP

A'YIA KAHALA

G70

111 S. KING STREET, SUITE 170
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808.523.5866
WWW.G70.DESIGN
10-09-2021

FIGURE
6

TSUNAMI ZONE EVACUATION MAP

A'YIA KAHALA

G70

111 S. KING STREET, SUITE 170
HONOLULU, HAWAII 96813
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10-09-2021

FIGURE
7

Appendix C

Archaeological Inventory Survey

DRAFT—Archaeological Inventory Survey for 4767B, 4767D, 4769, and 4775 Kāhala Ave. in Waikīkī Ahupuaʻa, Honolulu District, Island of Oʻahu, Hawaiʻi

TMK: (1) 3-5-006:007, :009, :014, and :025

Prepared For:

G70
111 S. King St., Suite 170
Honolulu, HI 96813

December 2021

Keala Pono Archaeological Consulting, LLC ● PO Box 1645, Kāneʻohe, HI 96744 ● Phone 808.381.2361

DRAFT—Archaeological Inventory Survey for 4767B, 4767D, 4769and 4775 Kāhala Ave. in Waikīkī Ahupuaʻa, Honolulu District, Island of Oʻahu, Hawaiʻi

TMK: (1) 3-5-006:007, :009, :014, and :025

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Prepared By:

Max Pinsonneault, MA
Kālenalani McElroy, MA
and
Windy Keala McElroy, PhD

December 2021

Keala Pono Archaeological Consulting, LLC ● PO Box 1645, Kāneʻohe, HI 96744 ● Phone 808.381.2361

MANAGEMENT SUMMARY

An archaeological inventory survey (AIS) was conducted for proposed residential construction at 4767B, 4767D, 4769, and 4775 Kāhala Ave. in Waikīkī Ahupuaʻa, Honolulu District, on the island of Oʻahu on TMK: (1) 3-5-006:007, :009, :014, and :025. The AIS consisted of a pedestrian survey that covered 100% of the .81 ha (2 ac.) project area, as well as test excavations of 19 mechanical trenches.

No surface archaeological remains were found during pedestrian survey of the parcels. Subsurface testing identified one subsurface archaeological deposit, two features, and a multitude of cultural material. The deposit is a cultural layer that is part of Site 50-80-14-6632, which was previously identified on the neighboring property. The two features documented during the AIS are a subsurface firepit within Site 6632 and a subsurface historic trash pit that is not associated with the site. Aside from the cultural deposit and features, general stratigraphy of the project area consisted of fill and natural sand, in some instances beneath concrete pavement and basecourse.

Collected material consists of marine shell and other invertebrates, faunal remains, traditional artifacts, post-contact material, unburned kukui nutshell, and charcoal. Traditional artifacts are represented by a bone fishhook, a coral abrader, two coral rubbing stone fragments, and basalt debitage. These were all found within Site 6632. A total of 124 post-contact artifacts were encountered across the project area. These are comprised of 80 glass bottles, 10 other glass objects, eight fragments of ceramic tableware, five aluminum cans, 16 other metal objects, three plastic objects, a wooden button, and a stone tile. The items that could be dated were predominantly made during the early to mid-20th century Radiocarbon dates from Site 6632 suggest that the site was used in the late pre-contact to early historic periods (calAD 1722–1814). Due to the presence of subsurface archaeological resources on the property, archaeological monitoring is recommended for future ground disturbance.

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FIGURES

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INTRODUCTION

At the request of G70 on behalf of A'yia, LLC, Keala Pono Archaeological Consulting conducted an archaeological inventory survey (AIS) for proposed residential construction at 4767B, 4767D, 4769, and 4775 Kāhala Avenue in Waikīkī Ahupuaʻa, Honolulu District, on the island of Oʻahu on TMK: (1) 3-5-006:007, :009, :014, and :025. This work was designed to identify, document, assess significance, and provide mitigation recommendations for any historic properties that may be located in the project area in anticipation of the proposed construction.

This report is drafted to meet the requirements and standards of state historic preservation law, as set out in Chapter 6e of the Hawaiʻi Revised Statutes and Hawaii Administrative Rules (HAR) §13–276. The report begins with a description of the project area and a historical overview of land use, Hawaiian traditions, and archaeology in the area. The next section presents methods used in the fieldwork, followed by results of the survey. Project results are summarized and recommendations are made in the final section. Hawaiian words and technical terms are defined in a glossary at the end of the document.

Project Location and Natural Environment

The project area is located in the residential neighborhood of Kāhala at TMK: (1) 3-5-006:007, :009, :014, and :025 (Figures 1 and 2). TMK: (1) 3-5-006:009, and :014 form a large lot, while TMK: (1) 3-5-006:025 is a narrow private road between this and TMK: (1) 3-5-006:007. The project area is a total of .81 ha (2 ac.) and is privately owned by A'yia, LLC. The project area is bounded by Kāhala Avenue to the northwest, the coastline to the southeast, and residential parcels on the other sides. The properties have previously been developed as private dwellings with single family homes, paved driveways, landscaped lawns, and swimming pools.

Topography is flat and vegetation consists of grass and landscaped plants. The project area lies at roughly 1.8 m (6 ft.) above mean sea level (amsl), and rainfall averages approximately 68 cm (27 in.) per year (Giambelluca et al. 2013). The closest fresh water source is a small stream adjacent to the project area to the northeast, which empties into the ocean. The larger Kāhala Stream, a non-perennial watercourse, lies approximately 374 m (.2 mi.) up the coast to the northeast.

The leeward coastal plain of Honolulu is comprised of a series of former reef and soils, along with sediment deposits. These features include a late-Pleistocene coral reef substrate that is overlaid along the coast with calcareous marine beach sand, often with intermixed terrigenous sediments deposited from streams and nearby slope erosion. Adjacent to streams there are alluvial soils most of which have originated from weathered volcanic bedrock and then subsequently deposited during flood events. Former reef sediments (i.e., sands) are found along the coastal margin sometimes extending out onto the coastal plain (Armstrong 1983:36). Coastal terrigenous sediments originate on land, later deposited along the coastal plain and these deposits may contain materials mixed with marine sediments that include sands and larger components of the near-shore environment. The current Hawaiian shoreline configuration is the product of late and post-Pleistocene rising sea levels (Stearns 1978; Macdonald et al. 1983) followed by a mid- Holocene rise in sea level of roughly 1.5–2.0 m (4.9–6.6 ft.); and human landscape modification, much of which occurred within the past 200 years since the arrival of Europeans and Americans to Hawaiʻi.

The project area lies on Jaucas sand, 0–15% slopes (JaC) and Beaches (BS), the former occurring on the mauka half of the property and the latter on the makai half (Figure 3). The United States Department of Agriculture Soil Conservation Service Soil Survey of the State of Hawaiʻi describes these soils as follows (Foote et al. 1972:28, 48):

Jaucas Series

This series consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean. They developed in wind- and water-deposited sand from coral and seashells. They are nearly level to strongly sloping. Jaucas soils are geographically associated with Pulehu, Mokuleia, Kaloko, and Lualualei soils. These soils are used for pasture, sugarcane, truck crops, alfalfa, recreational areas, wildlife habitat, and urban development. The natural vegetation consists of kiawe, koa haole, bristly foxtail, bermudagrass, fingergrass, and Australian saltbush.

Beaches (BS)

Beaches (BS) occur as sandy, gravelly, or cobbly areas on all the islands in the survey area. They are washed and rewashed by the ocean waves. The beaches consist mainly of light-colored sands derived from corals and seashells. A few of the beaches, however, are dark colored because their sands are from basalt and andesite. Beaches have no value for farming. Where accessible and free of cobblestones and sones, they are highly suitable for recreational uses and resort development.

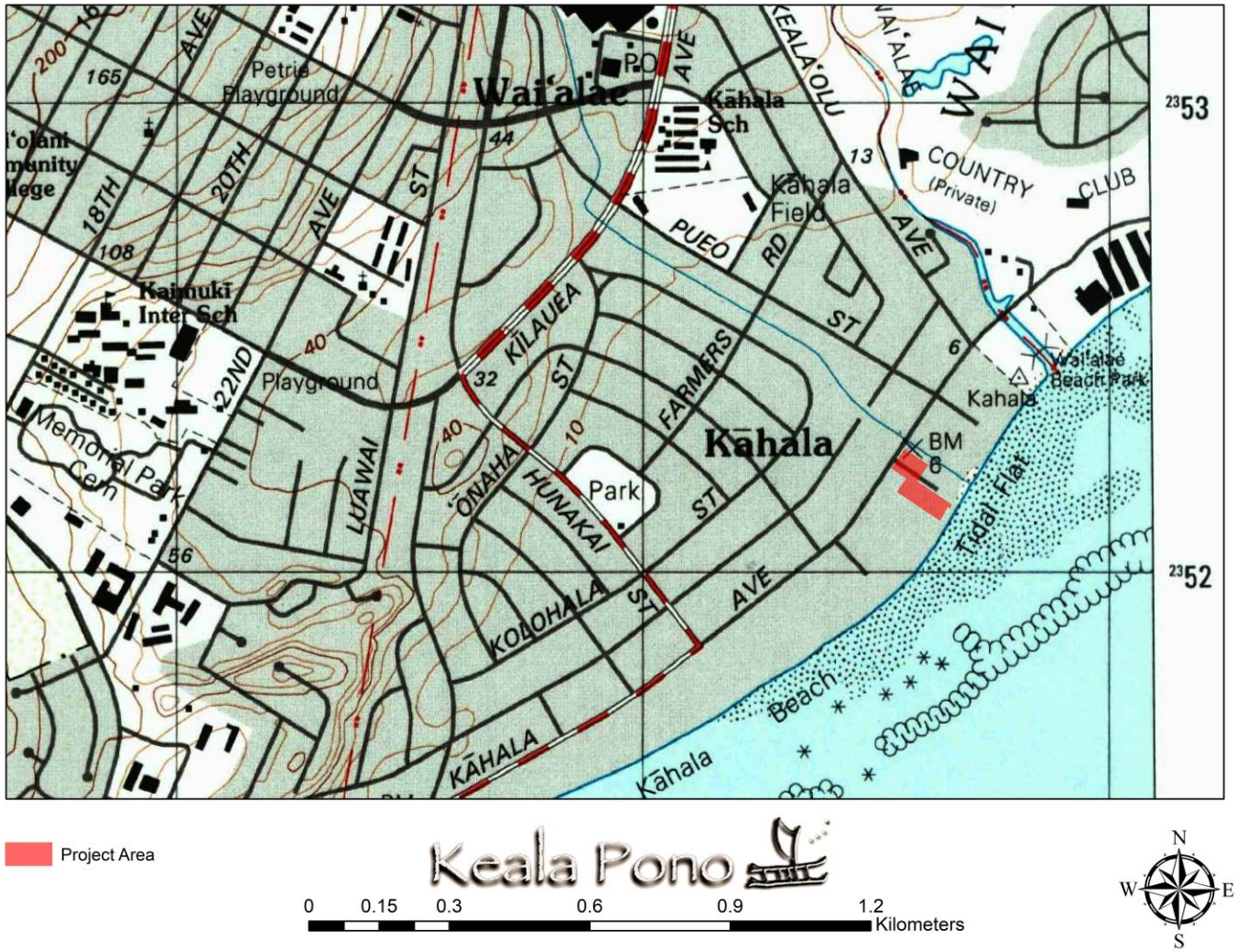
Also in the project vicinity are Ewa silty clay loam, 0–2% slopes (EmA); Coral outcrop (CR); Lualualei clay, 0–2% slopes (LuA); Keaau clay, 0–2% slopes (KmA); Mamala stony silty clay loam, 0–12% slopes (MnC); Molokai silty clay loam, 3–7% slopes (MuB); Molokai silty clay loam, 7–15% slopes (MuC); water (W), and Waialua silty clay, 0–3% slopes (WkA) (Foote et al. 1972).

Project Description

A'yia LLC proposes to redevelop single-family residences, which will include the following:

- One existing single-family residence on Parcel 014 (4767-B Kāhala Avenue) will be replaced with one new single-family residence.
- Six existing single-family residences on Parcel 007 (4775 Kāhala Avenue) will be replaced with five new single-family residences.
- Six single-family residences will be redeveloped on Parcel 009 (4767-D Kāhala Avenue) to replace a previously existing large ocean-front estate.
- The existing shared driveway on Parcel 025 (4769 Kāhala Avenue) will be improved to provide continued access to the residences.

A'yia LLC is committed to develop and build sustainable, energy-efficient residences that will help to advance the residential quality and character of this Kāhala neighborhood. A'yia LLC plans to attain LEED Certification for all homes from the U.S. Green Building Council's Leadership in Energy and Environmental Design Program. This residential redevelopment will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, rainwater management, use of sustainable building materials, shaded streetscapes, and landscaping.



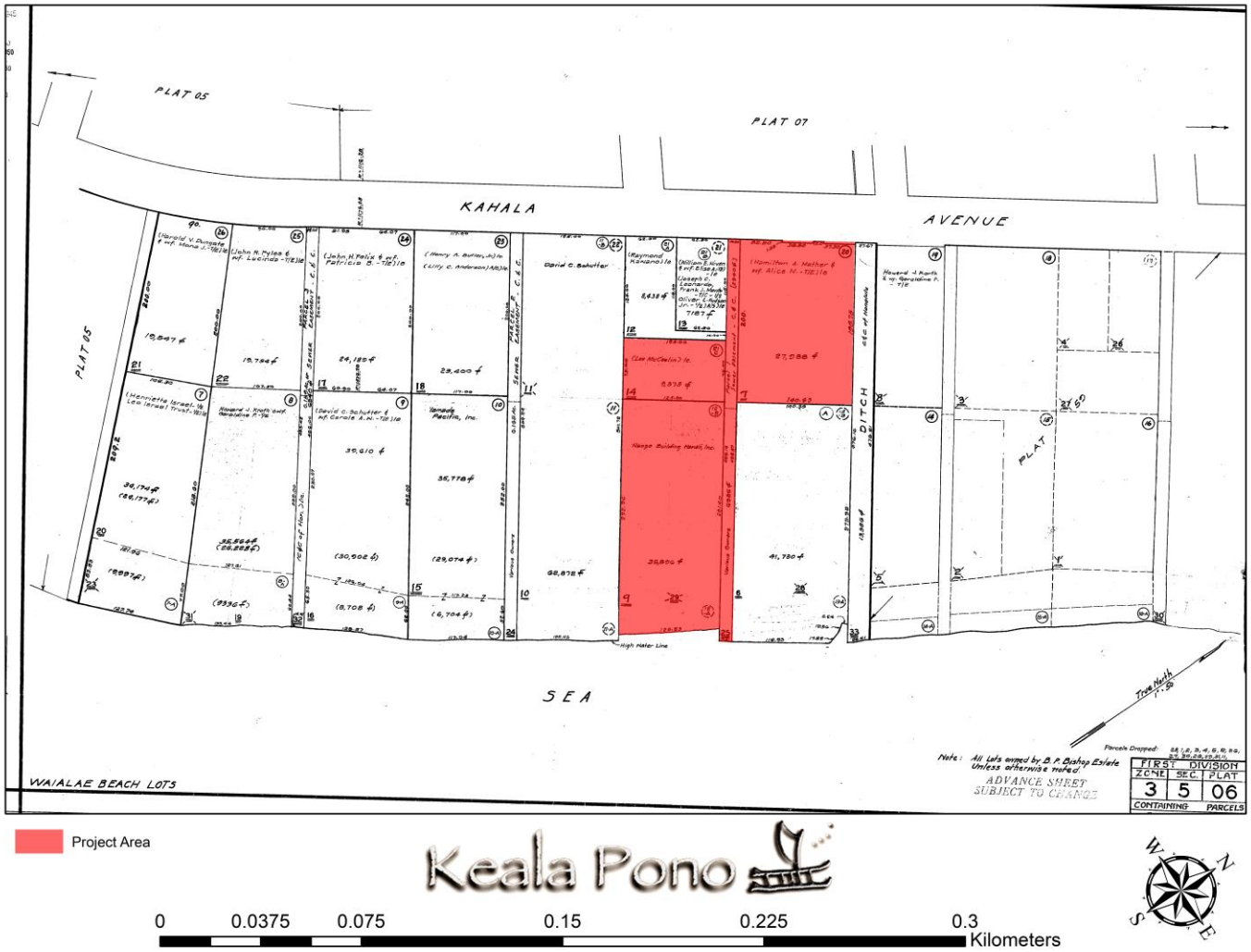
Project Area

Keala Pono

0 0.15 0.3 0.6 0.9 1.2 Kilometers

N W E S

Figure 1. Project area on 7.5 minute Honolulu and Koko Head quadrangle maps (USGS 1997a, 1997b).



Project Area

Keala Pono

0 0.0375 0.075 0.15 0.225 0.3 Kilometers

Figure 2. Project area on a TMK plat map (State of Hawai‘i 1932).

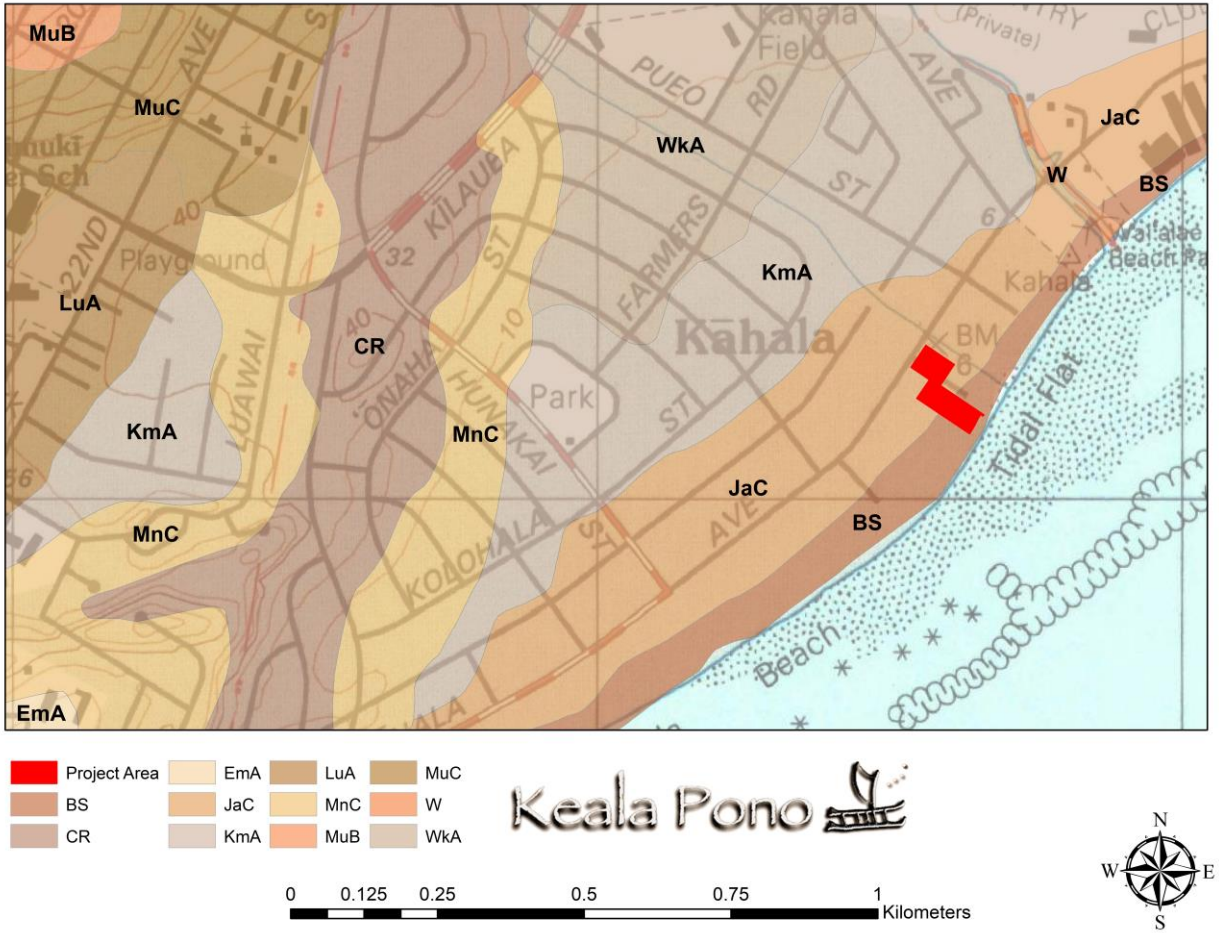


Figure 3. Soils in the vicinity of the project area (data from Foote et al. 1972).

TRADITIONAL CULTURAL AND HISTORIC BACKGROUND

This section of the report presents background information that provides context through which one can examine the cultural and historical significance of the project lands. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., moʻolelo, ʻōlelo noʻeau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaiʻi State Library, the University of Hawaiʻi at Mānoa libraries, the SHPD library, and online on the Waihona ʻAina database and the State of Hawaiʻi Department of Accounting and General Services (DAGS) and Ulukau websites. Historical maps, archaeological reports, Māhele data, and historical reference books were among the materials examined.

Waiʻalae in Traditional Times

Place names often shed light on traditional views of an area and can provide important contextual information. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated...The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii).

The project area is within the ahupuaʻa of Waikīkī and the ʻili of Waiʻalae Nui. Waikīkī translates to "spouting water" (Pukui et al. 1974:223) and was named for the swamps that made up the surrounding environment which were later drained to form the Ala Wai Canal. Waiʻalae translates to "mudhen water" while Waiʻalae Nui means "large Waiʻalae" (Pukui et al. 1974:220). The project's neighborhood is Kāhala, which means "amberjack fish" (Pukui et al. 1974:62). Other place names in the project vicinity are listed in the *Place Names of Hawaii* (Pukui et al. 1974), along with the meanings of the names and/or comments about the specific locales:

> Kapakahi...Gulch, Waiʻalae, Honolulu. *Lit*., crooked. (Pukui et al. 1974:87)
>
> Kaunuakahekili…heiau near Waiʻalae, Oʻahu. *Lit*., the altar of Kahekili. (Pukui et al. 1974:95)
>
> Kūpikipikiʻō. Old name for Black Point, Oʻahu. *Lit*., rough [sea]. (Pukui et al. 1974:125)
>
> Lēʻahi…Honolulu. The highest peak in Diamond Head; a variant name for Lae-ʻahi. (Pukui et al. 1974:130)
>
> Waiʻalae Iki…land division and gulch, Honolulu. *Lit*., small Waiʻalae. (Pukui et al. 1974:220)

Subsistence and Traditional Land Use

Waiʻalae had an established settlement, which was observed by the American missionary Levi Chamberlain in the early historic period. Chamberlain reported on the landscape of 1828 as he traveled along the southern coast of Oʻahu, and it can be assumed that land use was similar in the pre-contact period:

> At a quarter before 9 o'clock we arrived at the pleasant settlement of Waialae, distant on a straight line from Waikiki in a N.E. direction, about 4 miles, but much farther following the circuitous path along the seashore. This place is rendered agreeable by a grove of cocoanut [sic] trees and a number of branching kou trees, among which stand the grass huts of the natives, having a cool appearance, overshadowed by the waving tops of the cocoanuts, among which the trade winds sweep unobstructed. (Chamberlain 1957[1828]:28–29)

Although some of Waiʻalae's aquatic resources came from streams and ponds, the majority were found in the bountiful coastal waters. The pelagic waters off Waiʻalae and Waikīkī were rich with deep-sea marine life. Most of the shoreline of Waikīkī was devoid of reef due to the flow of fresh water and its sediments into the sea which stifled coral growth. However, there was a healthy reef system growing at the eastern end of Waikīkī fronting Kapiʻolani Park and Lēʻahi, extending around the point to Waiʻalae. These provided a good

variety of reef fishes. In addition, the entire coast offered many other types of edible marine resources such as crabs, shellfish and limu (Kanahele 1995).

To supplement their marine diet, the Hawaiians made use of inland ponds. Some ponds were near the shore, separated from the sea by sand dunes, but connected to the sea through an ʻauwai; these were called loko puʻuone. Other ponds were further inland and only fed by freshwater streams or springs; these were called loko wai. These ponds were modified, stocked and maintained through the ingenuity of the people. They added to their waters such things as mākāhā, or sluice gates, paniwai, or dams, kahe, or fish traps, and umu, or man-made fish shelters. Koʻa were also erected near these water resources and dedicated to the god Kūʻula to ensure an abundant harvest of fish (Kanahele 1995).

Multiple sources indicate that springs in the area gave Waiʻalae its name, and these were located near what is now Kalanianaʻole Highway. These springs were clearly prized among the local inhabitants, who took great care in protecting and maintaining the water resources.

> Waialae Springs. From which Waialae derived its name. It supplied water for the chiefs from olden times. The location had been lost for many years. During a tour of the island by Kamehameha III, the King became thirsty and inquired of an old couple who were living at Waialae where he could get some water to drink. It happened that the ancestors of these old people were the keepers of this water hole, and the duty descended to them. They said that the only reason they stayed there was so that when the King stopped there they might carry out their duty and reveal the location to him. This hole was covered with pohuehue [morning glory] and under the pohuehue was a large slab of stone covering the water. (Sterling and Summers 1978:275)

Handy discusses the importance of the water resources for cultivation in the upper reaches of Waiʻalae:

> The ahupuaʻa takes its name from the stone-incased spring, which may be seen today just above the highway. From the spring runs a stream which watered terraces that are now largely covered with grass raised for dairying and by the golf links. Three moderate sized gulches having streams of constant flow are included in this ahupuaʻa. In the lower portion of one of these gulches which was examined no terraces were seen. According to Mr. A.F. Judd, some seaward holdings in Waialae had inland plots (lele) located in Palolo." (Handy 1940 in Sterling and Summers 1978:275)

A local Waiʻalae resident, J.K. Mokumaia, related a story in 1920 of the importance surrounding the Waiʻalae Iki spring:

> Many people lived along the shores and they worked at farming and fishing. Plants grew. There were taro patches, tobacco, sweet potatoes, bananas and sugar cane. Paki was Waialae-nui's konohiki of fishing; Kamamalu was Waialae-iki's konohiki of fishing. There were ever so many people on the shore when these chiefs came to spend a while with the common people. Here your scout looked at everything that he was told of. There was the pool that Kamamalu used to bathe in. I went to see its beauty for myself. There are two springs, one is on the summit of Waialae-nui and the other is on Waialae-iki. These appear to be good sites, there is much water, but its beauty at the time of the konohikis is gone. Now the kapu is freed and the kapu places are trodden underfoot. (*Ka Nupepa Kuokoa* 1920 in Sterling and Summers 1978:275)

Another aquacultural innovation was the loko iʻa kalo, or taro fishponds. These were ponds in which fish were raised, but they also served the purpose of growing kalo. The latter purpose probably took the forefront since kalo was culturally and spiritually significant in Hawaiian cosmology, and kalo was the main starch in the Hawaiian diet. The marshy environment of Waikīkī was perfectly suited for the conditions essential to the cultivation of wetland kalo, and an estimated 20 acres of Waikīkī's marshlands were planted in kalo. Some of these wetland kalo fields continued their operation well into the 19th century (Kanahele 1995).

Besides kalo, the original inhabitants of Waikīkī cultivated ʻuala, grew ipu for containers, and cultivated wauke for clothing. In addition, the ahupuaʻa of Waikīkī provided various ferns and berries for food; pili grass for house thatching; hau for cordage, clothing, canoe making, and for igniting fires; mamaki for cloth; naio for timber; kukui for food, medicine, and lamp oil; lama, ʻōhiʻa ʻai and uhiuhi for timber; ʻolonā for cordage; ʻieʻie for weaving; and ʻōhiʻa lehua for house building and weapon making (Kanahele 1995). Clearly, the natural environment of Waikīkī was a place that easily furnished a large community with all the necessities for survival. Kāhala in particular was noted for its groves of hala trees (Handy et al. 1991:200).

The notable historian John Papa ʻĪʻī reminds us that there was a well-known, well-traveled network of trails that crisscrossed Oʻahu connecting east to west and north to south (Figure 4). The project area is located close to a major junction of three main trails that meet at Waiʻalae Stream. These are the coastal trail that skirts the makai side of Diamond Head, a trail the goes from Waikīkī around the back of Diamond Head, and the inland trail that passes the valley mouths of the Kona District. From this junction, the three trails merge into a single trail that continues east along the south shore. Of the famous trail which traversed Waikīkī, ʻĪʻī elucidates:

> The trail from Kawaiahao which led to lower Waikiki went along Kaananiau, into the coconut grove at Pawaa, the coconut grove of Kuakuaka, then down to Piinaio; along the upper side of Kahanaumaikai's coconut grove, along the border of Kaihikapu pond, into Kawehewehe; then through the center of sandy beach of Ulukou to Kapuni, where the surfs roll in; thence to the stream of Kuekaunahi; to Waiaula and to Paliiki, Kamanawa's house site. The latter was named for the Paliiki in Punahoa, Hilo. Perhaps that was where Kamanawa lived when the king resided in Hilo during the battle called Puana, prior to the building of the great peleleu fleet. From Palikki the trail ran up to Kalahu, above Leahi, and on to the place where the Waialae stream reached the sand. (ʻĪʻī 1959:92)

Moʻolelo

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as "moʻolelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Moʻolelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life…Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language" (Nogelmeier 2006:429–430). Still, many traditional stories managed to be recorded as Hawaiian society transitioned from an oral culture to a written one, and among those chronicled were several versions of stories connected to Waikīkī Ahupuaʻa.

The Supernatural Owls of Kupalaha Heiau

The heiau called Kupalaha at today's Cunha Beach, is intimately connected to a supernatural battle against owls in the days of old. As a result of this battle, the Oʻahu chief Kakuhihewa pardoned the life of the man named Kapoi who built Kupalaha. The noted ethnographer Martha Beckwith shared this story concerning Kupalaha Heiau in her documentation of Hawaiian mythology.

> A famous Oahu owl story is that of the owl war carried on in behalf of a man named Kapoi who, having robbed an owl's nest, took pity on the lamenting parent and returned the eggs. He then took the owl as his god and built a heiau [Kupalaha Heiau] for its worship. The ruling chief Kakuhihewa, considering this an act of rebellion, ordered his execution but at the moment of carrying out the order the air was darkened by flying owls who had come to his protection. The places on Oahu where the owls made rendezvous for this battle are known today by the word pueo (owl) in their names, such as Kala-pueo east of Diamond Head, Kanoni-a-ka-pueo in Nuʻuanu valley, Pueo-hulu-nui near Moanalua. The scene of the battle at Waikiki is called Kukaeunahio-ke-pueo (Confused sound of owls rising in masses). (Beckwith 1970:124–125)

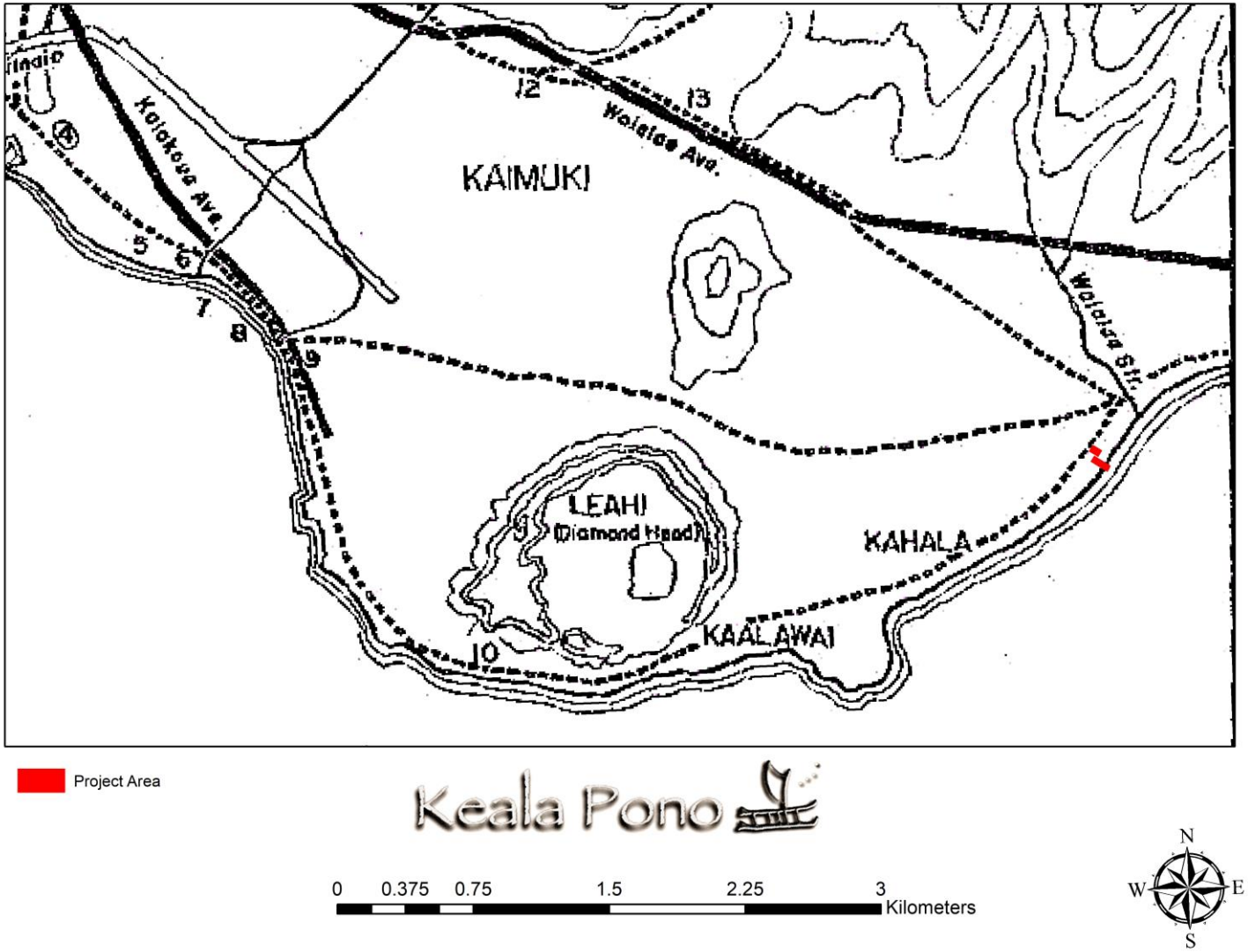


Figure 4. Trails in the vicinity of the project area (ʻĪʻī 1959:93).

Chief Kakuhihewa was just one of many aliʻi connected to Waikīkī through moʻolelo. One of the first aliʻi mentioned as being connected to Waikīkī was Kalamakua-a-Kaipuholua. He was the chief who built the grand taro fields of Keʻokea, Kualulua, and Kalamanamana and others in Waikīkī. Kalamakua-a-Kaipuhola married the skilled surfing chiefess Kelea-nui-noho-ʻana-ʻapiʻapi. Their daughter Laʻie-lohelohe was born in Waikīkī at Helumoa and raised there at Kaluaokau. Laʻie-lohelohe later married the famed Maui chief Piʻilani, and this marriage solidified the ties between Waikīkī and Maui. The son of Laʻie-lohelohe and Piʻilani was Kiha-a-Piʻilani, an heir to the Maui chiefdom. He was raised in Waikīkī by a kahuna at Mauʻoki Heiau (Kamakau 1991).

ʻŌlelo Noʻeau

In 1983, Mary Kawena Pukui published a volume of close to 3,000 ʻōlelo noʻeau that she collected throughout the islands. The introductory chapter reminds us that if we know these proverbs and wise sayings well, then we will know Hawaiʻi well (Pukui 1983). Although no ʻōlelo noʻeau were found specifically for Kāhala or Waiʻalae, several are known for Waikīkī. Here are the traditional sayings from Pukuʻi's book which mention Waikīkī:

(27) Aia aku la paha i Waikīkī i ka ʻimi ʻahuʻawa.

Perhaps gone to Waikīkī to seek the ʻahuʻawa sedge.

Gone where disappointment is met. A play on *ahu* (heap) and *ʻawa* (sour).

(110) Alia e ʻoki ka ʻāina o Kahewahewa, he ua.

Wait to cut the land of Kahewahewa, for it is raining.

Let us not rush. Said by Kaweloleimakua as he wrestled with an opponent at Waikīkī.

(285) E hoʻi i ka uʻi o Mānoa, ua ahiahi.

Let the youth of Mānoa go home, for it is evening.

Refers to the youth of Mānoa who used to ride the surf at Kalehuawehe in Waikīkī. The surfboards were shared among several people who would take turns using them. Those who finished first often suggested going home early, even though it might not be evening, to avoid carrying the boards to the *hālau* where they were stored. Later the expression was used for anyone who went off to avoid work.

(1493) Ka nalu haʻi o Kalehuawehe.

The rolling surf of Kalehuawehe.

Ka-lehua-wehe (Take-off-the-*lehua*) was Waikīkī's most famous surf. It was so named when a legendary hero took off his *lei* of *lehua* blossoms and gave it to the wife of the ruling chief, with whom he was surfing.

(1772) Ke one ʻai aliʻi o Kakuhihewa.

The chief-destroying sands of Kakuhihewa.

The island of Oʻahu. When the priest Kaʻopulupulu was put to death by chief Kahāhana for warning him against cruelty to his subjects, he uttered a prophecy. He predicted that where his own corpse would lie in a *heiau* in Waikīkī, there would lie the chief's corpse as well. Furthermore, he said, the land would someday go across the sea. This was felt to be a curse. When Kamehameha III was persuaded by a missionary friend to move the capital from Lahaina to Oʻahu, a *kahuna*, remembering the curse, warned him not to, lest the monarchy

perish. The warning was ignored, and before the century had passed, the Kingdom of Hawai‘i was no more.

(1776) Ke one kuilima laula o ‘Ewa.

The sand on which there was a linking of arms on the breadth of ‘Ewa.

‘Ewa, O‘ahu. The chiefs of Waikīkī and Waikele were brothers. The former wished to destroy the latter and laid his plot. He went fishing and caught a large *niuhi*, whose skin he stretched over a framework. Then he sent a messenger to ask his brother if he would keep a fish for him. Having gained his consent, the chief left Waikīkī, hidden with his best warriors in the “fish.” Other warriors joined them along the way until there was a large army. They surrounded the residence of the chief of Waikele and linked arms to form a wall, while the Waikīkī warriors poured out of the “fish” and destroyed those of Waikele.

Oli, Mele, Winds, and Rains

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

A well-known person in Hawaiian oral traditions is the demigod Kamapua‘a. He was a legendary figure from O‘ahu who could assume the shapes of various plants and animals. In the story of Kamapua‘a published in 1891 in the Hawaiian language newspaper *Ka Leo o ka Lahui*, Kamapua‘a utters a chant which mentions the wind and rain of Waikīkī by name. He tells us that the wind belonging to Kapua, an ancient well-known surf spot near present-day Kapi‘olani Park, is called Haualialia. Kamapua‘a then indicates that the rain belonging to Waikīkī is called Wa‘ahila:

Oli aku la o Kamapuaa:	Kamapua‘a chanted:
… He Haualialia ko Kapua	… Kapua has the Hauālialia [breeze]
He ua Waahila ko Waikiki	Waikīkī has the Wa‘ahila rain
He ua Kukalahale ko Honolulu…	Honolulu has the Kūkalahale rain…(Akana 2004:13, 16–17)

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

A wind recorded for Kāhala is ‘Ōlau-niu. This translates to “coconut-leaf piercing” (Nakuina 2005).

Although no rain names were found specifically for Kāhala or Wai‘alae, two are associated with Waikīkī. These are Makahuna and Wa‘ahila (Akana and Gonzales 2015). Both rains were recorded in mele:

Ku‘u kane i ka makani Hauālia	My husband of the Hauālia wind
‘O ka Makahuna i Hāwāwā ē	The Makahuna rain at Hāwāwā
Wā ihola , ke wā wale maila nō	Boisterous, making an uproar
Ka ua hilahila moe awakea	The shy rain that settles down at midday

From a mele by Hiʻiakaikapoliopele on hearing the clamor of people in the house she has just left in Waikīkī. (Akana and Gonzales 2015:170)

Kuʻu kane i ka ua noe	My husband of the misty rains
Noe hāliʻi a ka Waʻahila	Blanketing fall of the Waʻahila showers
Hoʻohila ka manaʻi, wehi i ka lau	Abashed, yet adorned by the outpour
Lau a ke aloha e piʻi ana i ka liko	An outpouring of love, rising to brightness
Wā ihola, ke wā wale maila nō	Boisterous, an uproar

From a mele by Hiʻiakaikapoliopele as she was leaving a house with noisy people playing the game of kilu in Waikīkī. (Akana and Gonzales 2015:280)

Power and Warfare in Waikīkī

There are many Oʻahu chiefs connected to Waikīkī. Some of the most noted are Māʻilikūkahi, Kaʻihikapuamanuia, Kakuhihewa, Kaʻihikapuakakuhikewa, and Kahahana. Sometime around the start of the 15th century, Māʻilikūkahi was born at the sacred birthing place in Wahiawā known as Kukaniloko. When Māʻilikūkahi was 29 years old, he was chosen by the aliʻi, kahuna, and makaʻāinana to become Oʻahu's king. He consented and moved to Waikīkī, making it his administrative center. Māʻilikūkahi was well-loved because he ruled with compassion and wisdom as heard in his decree:

> Cultivate the land, raise pigs and dogs and fowl, and take the produce for food. And you, chiefs of the lands, do not steal from others or death will be the penalty. The chiefs are not to take from the makaʻāinana. To plunder is to rebel; death will be the penalty. This is my command to the chiefs, the lesser chiefs, the warrior chiefs, the warriors, and the people: all the first-born sons, the keiki makahiapo, are to be mine to raise; they will be my sons, kaʻu keiki, and mine to take care of. (Kamakau 1991:55)

Many generations after Māʻilikūkahi, Kaʻihikapuamanuia became the ruler of Waikīkī, and like Māʻilikūkahi, Kaʻihikapuamanuia was well-liked by the people. Kaʻihikapuamanuia built the heiau in Waikīkī called Hale Kumukaʻaha, and shortly thereafter laid plans to kill his brother Haʻo who was the chief at Waikele in ʻEwa. After Kaʻihikapuamanuia carried out his plans of murdering his brother, there was a dividing of Oʻahu into two chiefdoms. Out of Waikīkī, Kaʻihikapuamanuia continued ruling the districts of Kona, Koʻolaupoko and his brother's former stronghold of ʻEwa. Haʻo's son Napulanahumahiki, who escaped to Waiʻanae after his father's murder, became Oʻahu's other chief, ruling the districts of Waiʻanae, Waialua, and Koʻolauloa (Kamakau 1991).

Upon the death of Kaʻihikapuamanuia, his warrior son Kakuhihewa assumed power. Kakuhihewa's daughter Kaeaakalona married the rival chief Napulanahumahiki of Waiʻanae, and once again, Oʻahu became one united kingdom under Kakuhihewa. The reign of peace and prosperity that Kakuhihewa brought to the kingdom of Oʻahu marked him as the greatest of Māʻilikūkahi's descendants and gave Oʻahu the nickname of "The Sands of Kakuhihewa." This period is described as follows:

> Conditions in the kingdom in the mid-1500s were excellent. Agricultural and fishing industries were thriving. Food was abundant and the people were healthy. The prosperous economy attracted chiefs from Maui, Hawaiʻi and Molokaʻi who came to Oʻahu to live or to enjoy the excitement and brilliance of the court. Chiefs from the island of Hawaiʻi also came to escape their own interminable wars. (Kanahele 1995:73)

When Kakuhihewa died, his oldest son Kanekapuakakuhihewa became the ruler, and this new king shared the monarchy over Oʻahu with his three brothers. One of the four brothers, Kaʻihikapuakakuhihewa, ensured that

the kingdom of O‘ahu continued to be administered from Waikīkī as well as ‘Ewa. Unlike previous generations, the four brothers did not succumb to intrafamily conflict, and as a result they brought five generations of continued peace to O‘ahu. Their only challenge came from the outside when the Maui chief Kauhiakama invaded O‘ahu at Waikīkī. The invading Maui ruler was routed, and he was offered up at the heiau ‘Āpuakēhau in Waikīkī (Kanahele 1995).

A little over a century later, the last of O‘ahu’s sovereign chiefs was Kahahana. Although Kahahana was born on O‘ahu, he was raised by his uncle, the chief of Maui, Kahekili. Since the people of O‘ahu had been mistreated by their ruler Kumuhana, the O‘ahu chiefs deposed Kumuhana and summoned Kahahana from Maui to be their new ruler. Kahahana accepted and sailed for O‘ahu where he was greeted with rejoicing when he landed on the Waikīkī shores of Kahaloa, an area between today’s Halekulani and Royal Hawaiian Hotels. Kahahana had his residence at Helumoa in Waikīkī as did the future rulers Kahekili and Kamehameha I (Feeser 2006). For a while, Kahahana was a well-loved chief, and much of his good leadership was attributed to the guidance of his high priest Ka‘opulupulu. However, Kahahana’s uncle Kahekili had coveted the O‘ahu kingdom, and he wrongfully convinced Kahahana that Ka‘opulupulu was a traitor. As a result, Kahahana killed his high priest and presented him on the sacrificial altar of the heiau at Helumoa (Pukui 1983:44). As soon as Kahekili learned that the wise priest was dead, he set out to invade and conquer O‘ahu. Kahekili and his army from Maui landed their war canoes on the shores of Waikīkī, covering the entire coast from Ka‘alawai near today’s Diamond Head to Kawehewehe near the present Halekulani Hotel. After three years of fighting, Kahekili finally subdued the forces of Kahahana, and the sovereignty of the O‘ahu kingdom was no more. The year was 1783, and by that time, the Western explorers had also already arrived on O‘ahu’s shores (Kanahele 1995). Thus ended one chapter of O‘ahu’s history and started a new one toward the modern era.

Waikīkī and Wai‘alae in the Historic Era

Since the arrival of Westerners to Hawai‘i in the late 1700s, perhaps no other village in the islands epitomizes the transformation of Hawai‘i as well as Waikīkī does. At the time of contact, Waikīkī was the center of rule for the independent O‘ahu kingdom under Kahahana. Waikīkī remained a seat of political administration even under Kahekili, the chief from Maui who wrested control from Kahahana, and it continued to be the seat of rule for the completely unified Hawaiian Kingdom under Kamehameha, who conquered Kahekili. After little more than a decade of ruling from Waikīkī, Kamehameha moved the seat of government to Honolulu, but Waikīkī continued to be a place of royal residences, surf spots, and temples.

Māhele Land Tenure

The change in the traditional land tenure system in Hawai‘i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konohiki Awards amounted to about a million and a half acres, however title was not awarded until the konohiki presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for parcels that they were cultivating within the Crown, Government, or Konohiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. Ultimately between 9,000 and 11,000 kuleana land claims were awarded to kama‘āina totaling only about 30,000 acres and recorded in ten large volumes.

Abner Pākī was awarded the ‘ili of Wai‘alae Iki and after his death, John ‘Ī‘ī inherited the lands. Victoria Kamāmalu was awarded the ‘ili of Wai‘alae Nui, where the project area is located, in 1848 under LCA 7713 (Royal Patent 4475). LCA 7713 is extensive with various parcels awarded to Kamāmalu on Maui, Hawai‘i

Island, Lanaʻi, Kauaʻi, Molokaʻi, and Oʻahu. After her death, Bernice Pauahi Bishop inherited the ʻili of Waiʻalae Nui. Many of the parcels within this ʻili are still owned by the Bernice Pauahi Bishop Estate. There are no other LCA awards in the immediate vicinity of the project area, although LCA 228:2, a large parcel awarded to Kaleiheana, is situated to the west of the project area (see Figure 10).

Economic Pursuits of the Late Historic Era

The 1800s brought whalers, sandalwood traders, and Protestant missionaries to Waikīkī's doorstep. The foreigners brought with them new diseases for which Hawaiians had no immunity, and as a result, there was a rapid depopulation of Waikīkī and throughout Hawaiʻi. Waikīkī's once-thriving loʻi kalo and loko iʻa would decline severely.

Agricultural endeavors across Oʻahu were prevalent through the 1800s, with some more profitable than others, and dependent largely on the regional environment and surrounding resources. By the late 19th century, the sugar industry in Hawaiʻi had reached its economic high. There was only one sugar plantation recorded in the Waiʻalae area, Niu Sugar Plantation, and according to Thomas Thrum's 1881 edition of *The Hawaiian Almanac and Annual*, J.C. White was Niu Plantation's operations manager (Thrum 1881:57). There was no other mention of Niu Plantation in Thrum's subsequent annuals, which may indicate that the endeavor did not last. By the 20th century, the former taro lands in and around Waiʻalae were converted into farming communities of immigrant Chinese farmers with fruits, vegetables, and rice among the crops that were cultivated.

Ranching was brought to Waiʻalae by Daniel Paul Rice Isenberg, the son of German-born businessman Paul Isenberg, who was a co-founder of H. Hackfeld & Co. and a manager of the Līhuʻe Sugar Plantation. For a time, Daniel Isenberg managed the Līhuʻe Plantation before moving to Oʻahu and leasing land in Waiʻalae from the Bishop Estate. There, he established a dairy ranch where he also promoted horse racing and bred horses. In his years on Oʻahu he was highly active in local business enterprises and politics. He was also known as "Paulo Liilii" and was close to King Kalākaua, who would often be present at lūaus hosted by Isenberg at his Waiʻalae ranch. Isenberg also founded the first dairyman's association, the first baseball team, and baseball association. After the annexation of Hawaiʻi, Isenberg became highly involved in politics and he was elected to the house of Representatives eight consecutive times (Takasaki 1976).

Historic Maps

Historic maps help to paint a picture of Waiʻalae in years past and illustrate the many changes that have taken place in the region. This section presents a selection of five maps from 1878 to 1927 that provide insight to the project area.

The earliest historic map for this area is from 1878 (Figure 5). Major landforms include telegraph Hill in Kaimukī as well as Lēʻahi (Diamond Head) with a pond in the center. Kupikipikio Point and a fishpond are also visible. A single road or large trail passes through the region from west to east, crossing the Waiʻalae Stream. Off the coast of the project area, the ocean depths are shown and a label reads "mud and sand over coral. Dry at L.W. [Low Water]." No structures are visible near the study area.

An 1881 map of Oʻahu lists the major landowners and ahupuaʻa boundaries (Figure 6). Lēʻahi has a height of 761 feet amsl, while Telegraph Hill is 292 feet high. The land between Lēʻahi and Kāhala is called Kaalawai. Both the Waiʻalae Stream and the smaller Kapakahi Stream bordering the project area are depicted.

An 1883 map depicts the entire southeast coastline of Oʻahu from Diamond Head to Koko Head. In the vicinity of the project area, a large coconut tree grove is shown where the current Waiʻalae Beach Park and Waiʻalae Country club are now (Figure 7). The shoreline appears much as it does today, although there are no

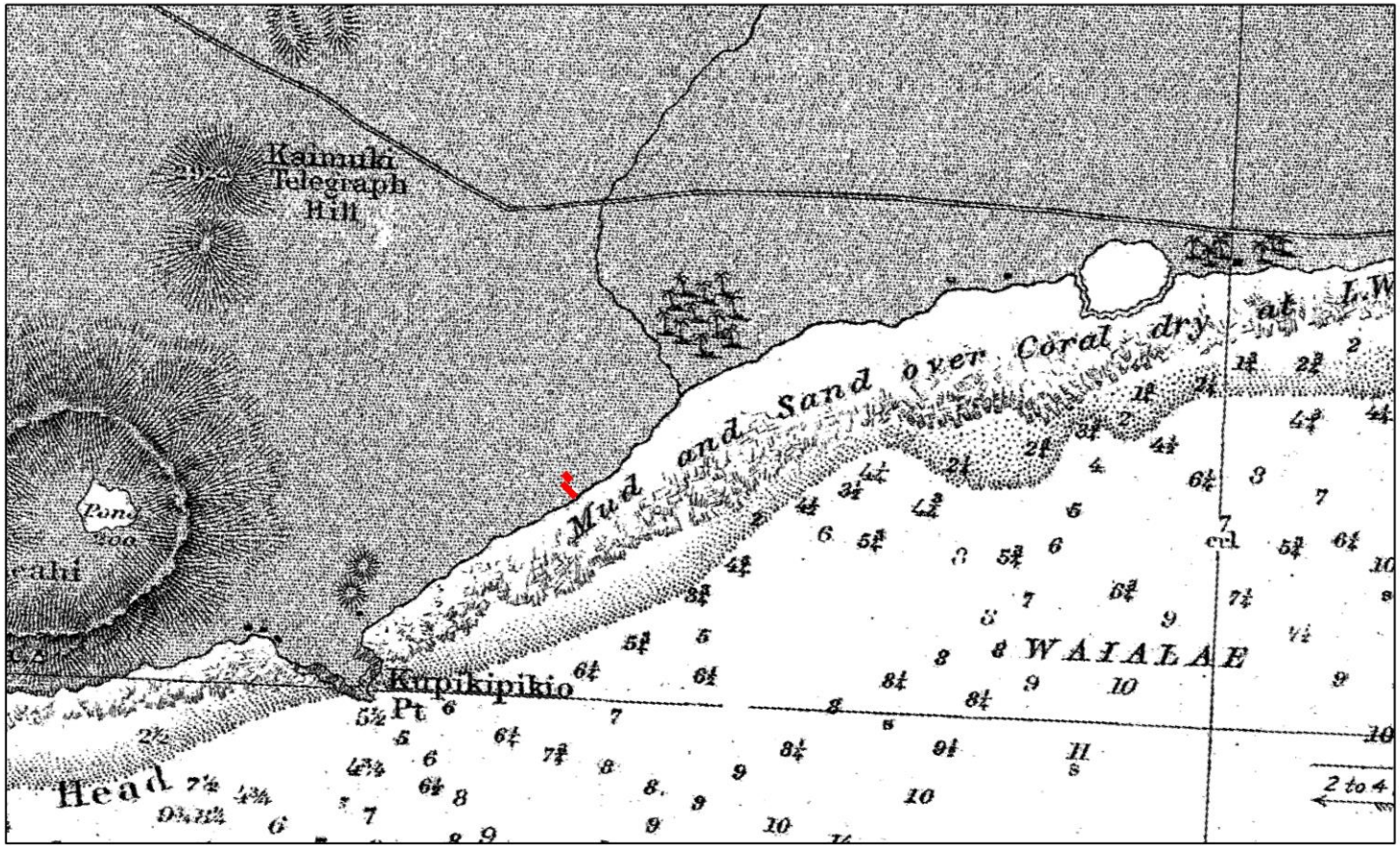


Figure 5. Portion of an early map of Southeast O‘ahu (U.S. Navy 1878).

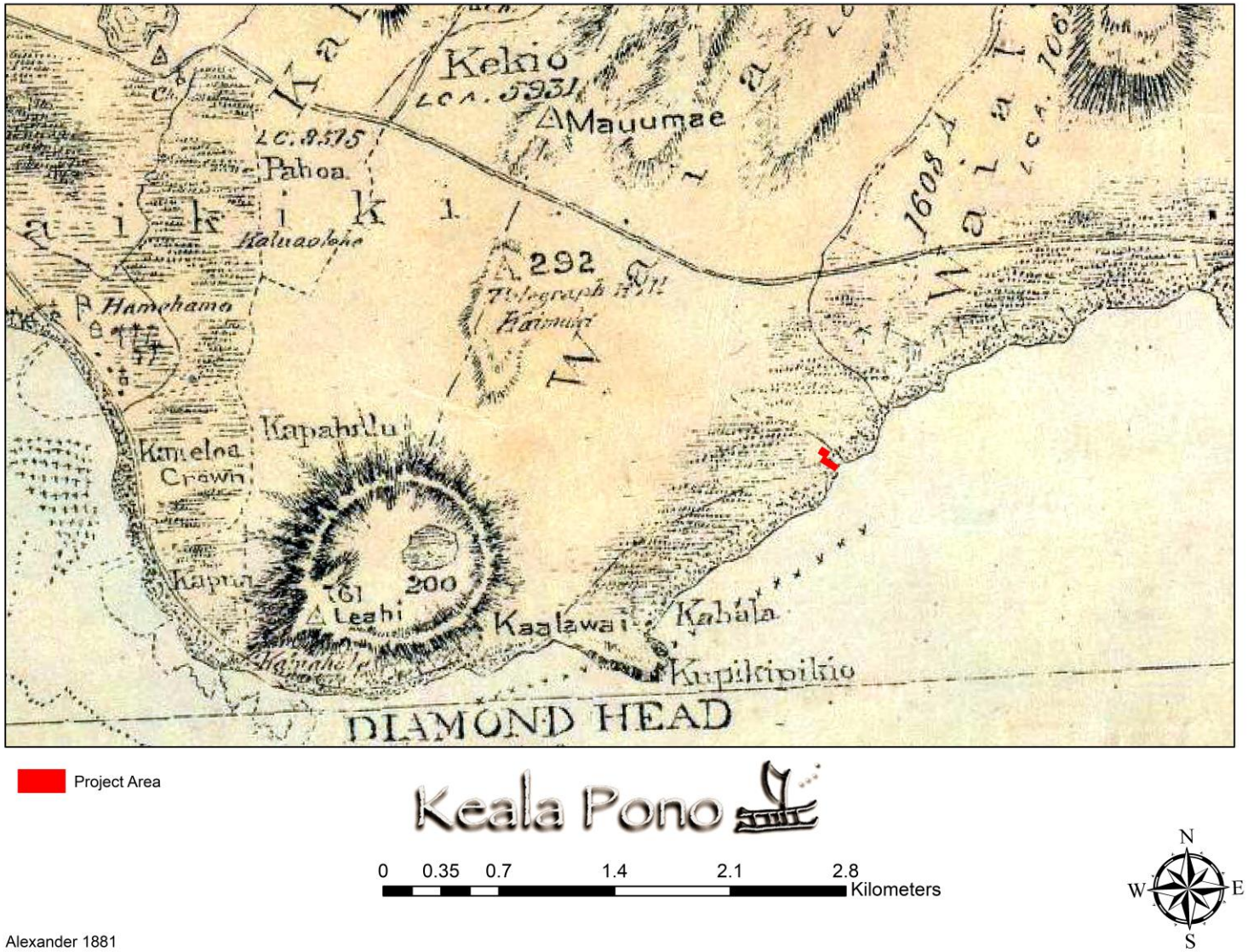


Figure 6. Portion of an early map of O‘ahu (Alexander 1881).

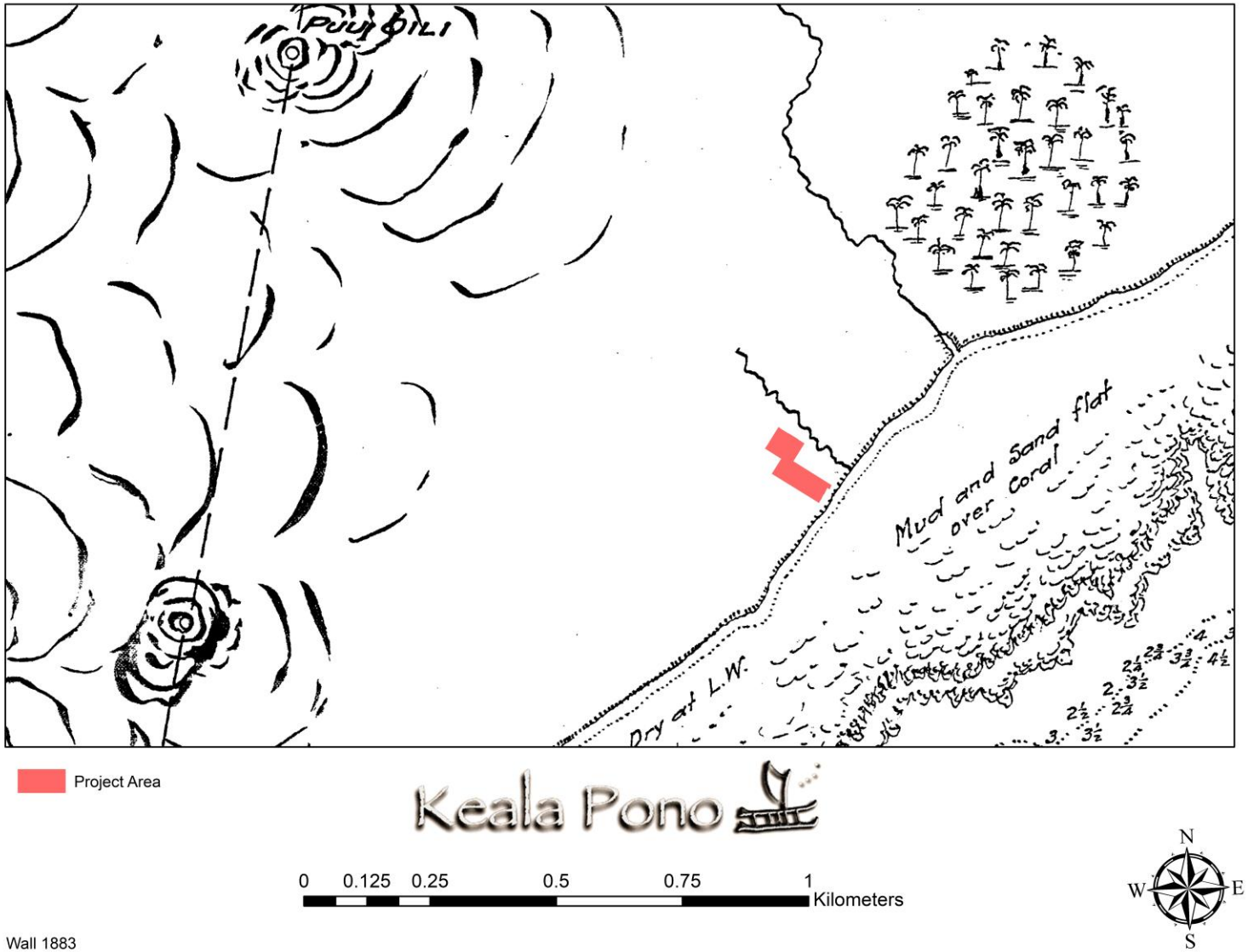


Figure 7. Portion of a map of the southeast coast of O‘ahu (Wall 1883).

houses visible. A small stream is located just off the northeast edge of the project area and the larger Waiʻalae Stream is also shown. Text off the coastline from the project area reads "dry at L.W." and "mud and sand flat over coral." A hill to the northwest of the project area is called Pʻuu Oili.

A Hawaii Territory Survey Map from 1902 shows land use on O'ahu (Figure 8). The project area is located within a region bordered in yellow, representing grazing land. This large area of grazing land spans the majority of the south shore from Waiʻalae Nui until Hawaiʻi Kai. Lēʻahi (Diamond Head) and Kupikipikio Point are designated as a federal reservation (pink shading) and labeled as "govt." The coconut grove and Waiʻalae Stream can still be seen to the east.

A 1913 map illustrates fisheries along the southern coast of Oʻahu, from Diamond Head to Koko Head (Figure 9). The map shows the project area fronting the Waiʻalae Nui Fishery, which is labeled as "Bishop Est." This likely indicates that the fishery was owned or managed by the Bishop Estate. The entry of Waiʻalae Iki Stream to the ocean seems to make up the boarder of the Waiʻalae Nui and Waiʻalae Iki Fisheries. Though larger than Kapakahi Stream, Waiʻalae Stream is not visible. A single roadway passes through this region, which is simply labeled as "Waialae Road." To the southwest of the project area is Waokana; this may be a place name.

A 1927 map shows LCA awards in Kāhala and its environs (Figure 10). A large LCA is illustrated to the west of the project area. This is LCA 228:2, which was awarded to Kaleiheana and labeled as "Kanewai Kahala." Kahala Avenue and Isenberg Road are depicted on this map, with only one unnamed street crossing Isenberg. Kapakahi Stream is labeled, and Waialae Municipal Park has already been established at the mouth of the stream.

Contemporary History

The 19th century closed with the overthrow of the Hawaiian monarchy by foreigners backed by the United States and the annexation of Hawaiʻi into an American territory. As the 1900s started, the U.S. military began construction of a base in Waikīkī at Fort DeRussy and later dredged the Ala Wai Canal, permanently changing the nature of Waikīkī's landscape. This spurred a host of construction projects by developers wanting to capitalize on the filled-in former marshlands. Development came to a standstill during the Second World War when martial law strictly regulated non-military presence in Waikīkī. But after the war, many construction projects in Waikīkī were started. The latter half of the 1900s witnessed hyper-development of Waikīkī, turning it into one of the most famous tourist destinations in the world, although the Kāhala area remains largely residential today.

Previous Archaeology

Many archaeological studies have been conducted in Waiʻalae. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, Hawaiʻi (Figure 11 and Table 1). Previous archaeological sites in the region with known locations are listed in Table 2. SIHP (State Inventory of Historic Places) numbers are prefaced by 50-80-14 (Figure 12).

The earliest archaeological survey on Oʻahu was completed by J.G. McAllister in his published work, *Archaeology of Oahu* (1933). This study documented many important Hawaiian cultural sites, including heiau, at a time before many were destroyed. There are no McAllister sites in the vicinity of the current project area, although two were recorded in the Waiʻalae/Wailupe region. Kaunua Kahekili Heiau (Site 55) was located on a ridge top that divides the land areas of Waiʻalae and Wailupe. It was said to be a very large heiau, and the site was later planted with pineapples. McAllister noted that the site was overgrown, and all that remained was "many large rocks embedded in the earth" (McAllister 1933:71). Wailupe Fishpond (Site 56) was situated at the shoreline of Wailupe Ahupuaʻa. McAllister described the fishpond as 41 acres in area, with a wall that was

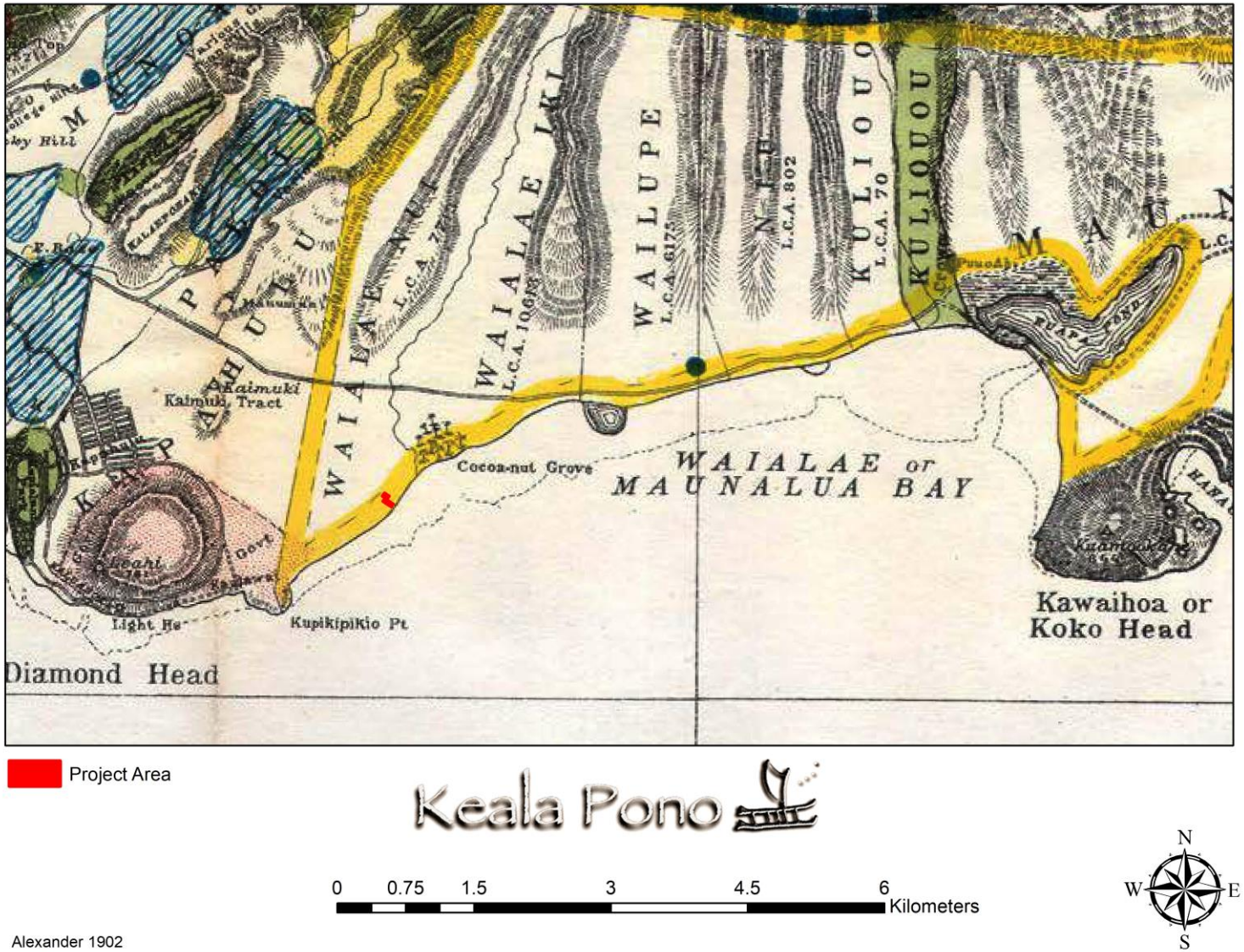


Figure 8. Portion of an O‘ahu land usage map (Wall 1902).

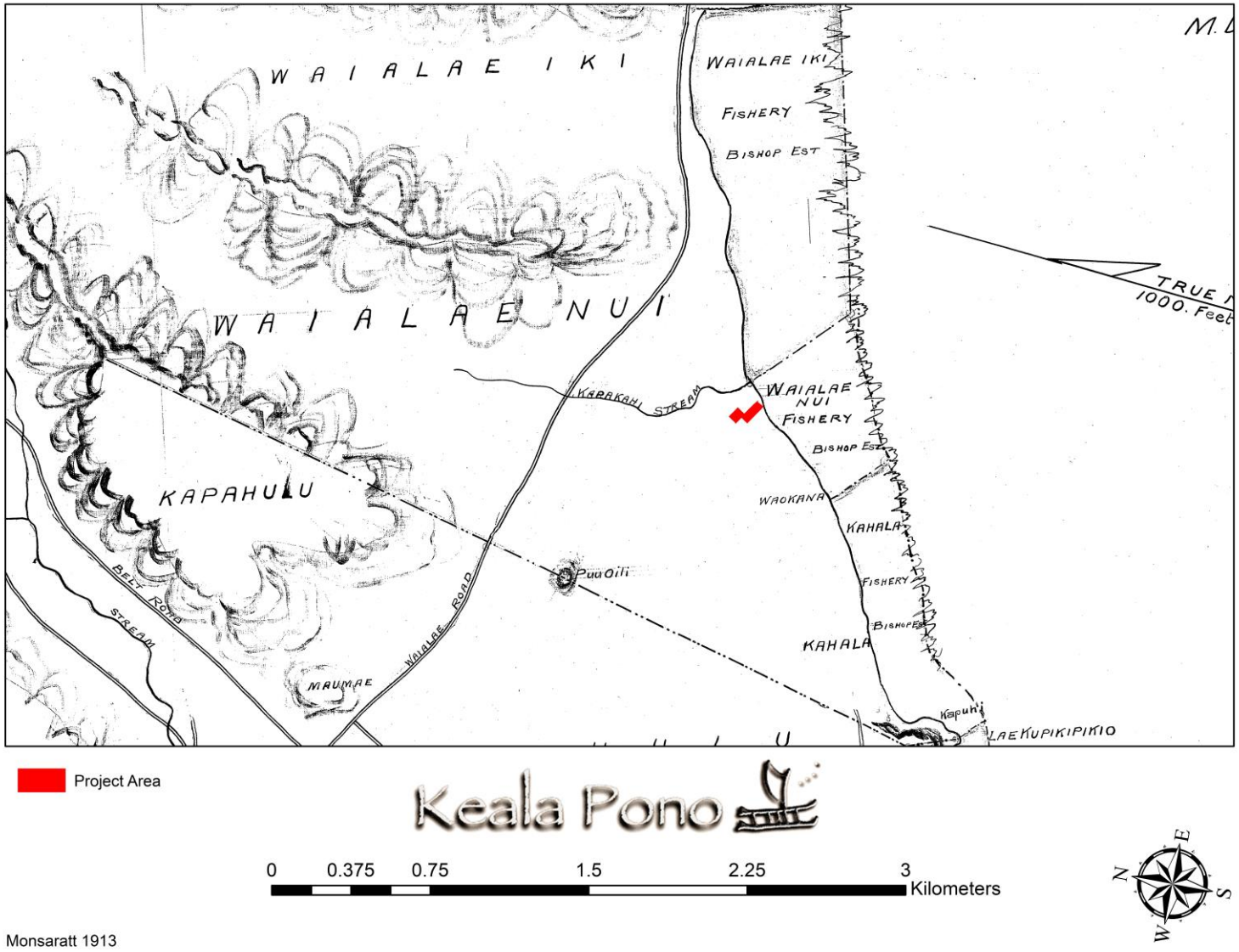
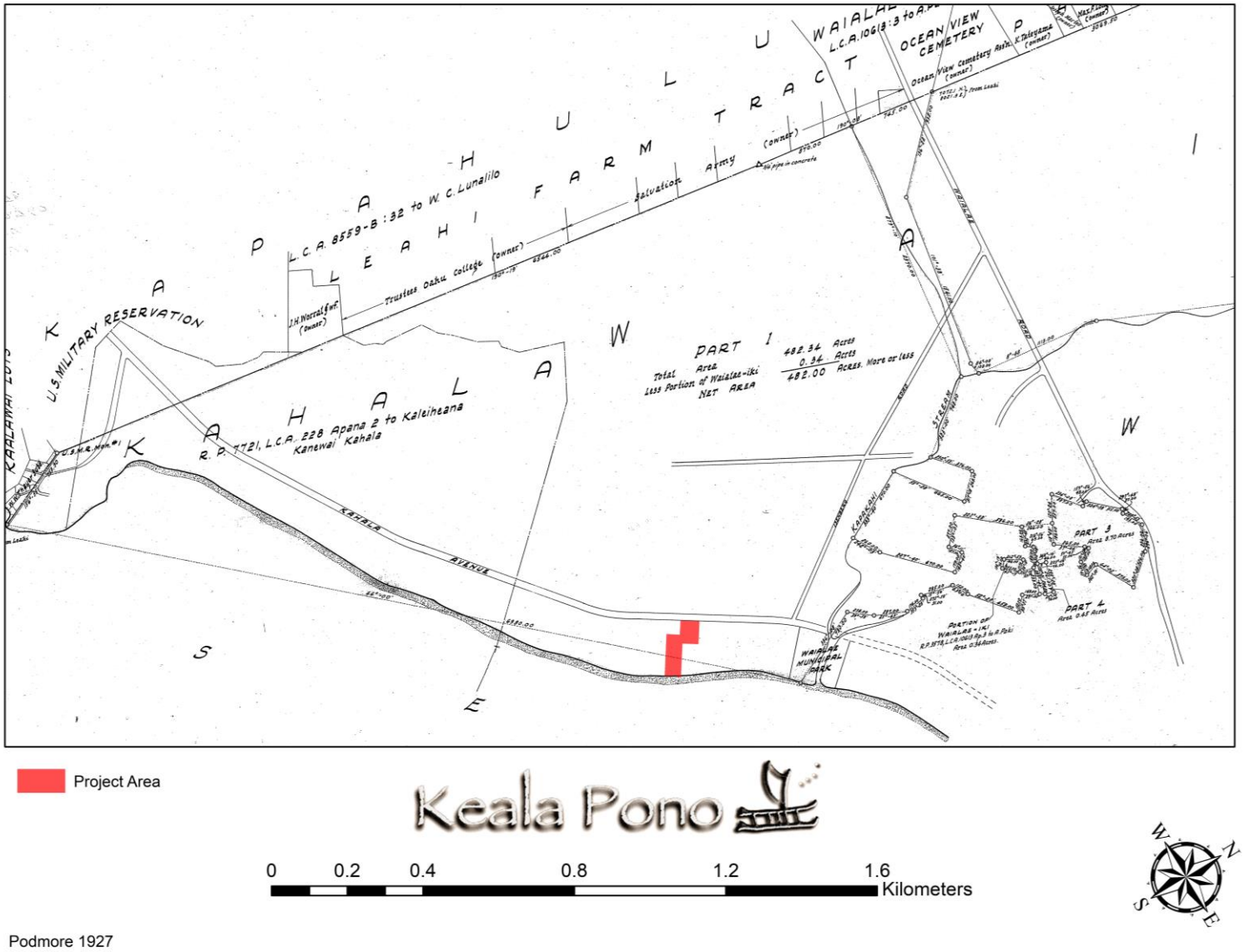


Figure 9. Portion of a fisheries map (Monsarrat 1913).



Podmore 1927

Figure 10. Portion of a map showing LCA boundaries (Podmore 1927).

Project Area

Keala Pono

0 0.1 0.2 0.4 0.6 0.8 Kilometers

N W E S

Figure 11. Previous archaeological studies in the vicinity of the project area.

Figure 12. Known archaeological sites in the project vicinity.

Table 1. Previous Archaeological Studies in the Project Vicinity

Author/Year	Location	Study Type	Results
McAllister 1933	Island Wide	Survey	Noted one site in the region- Site 55-Kaunua Kahekili Heiau and Site 56-Wailupe Fishpond; neither are near the current project area.
Bath and Griffin 1988	1013 Waiholo St.	Burial Report	Inadvertently discovered a human burial of a 35 year-old female, SIHP 3760.
Bath 1989	4745 Aukai Ave.	Burial Report	Identified and disinterred SIHP 4126, a human burial.
Putzi and Dye 2003	4773 Kāhala Ave.	Burial Report	Recorded SIHP 6632, a cultural layer containing five burials and traditional Hawaiian artifacts.
O'Hare et al. 2008	Waiʻalae Country Club	Literature Review and Field Check	No findings during field check.
Wilson and Spear 2009	Waiʻalae Country Club	Archaeological Monitoring	No findings.
Dagher et al. 2013; Dagher and Spear 2011	Waiʻalae Country Club	Archaeological Monitoring; Burial Site Component of a Data Recovery Plan	Identified two burial sites. SIHP 7206 is a human burial and burial pit, while SIHP 7207 is an in situ human burial with a pit feature of unknown function. Traditional artifacts include a coffee bean sinker and a volcanic glass flake.
Pestana and Spear 2015	4607 Kāhala Avenue	Archaeological Inventory Survey	No findings.
Fechner et al. 2016	Kāhala Hotel and Resort	Archaeological Inventory Survey	No findings.
Pestana and Spear 2017	Waiʻalae Country Club	Archaeological Monitoring	Recorded SIHP 7925, five human burials and grave goods. Cultural layers date to the pre-contact and/or early post-contact era and the 1800s.
Pestana and Spear 2018	4607 Kāhala Ave.	Archaeological Inventory Survey	Documented historic structural remains of a residential complex (SIHP 7943)

2,500 feet long. He noted a sandy expanse at the west end of the fishpond, at least 50 feet wide where four mākāhā allowed water to pass through. The rock wall of the pond was a massive 12 feet wide (McAllister 1933). The fishpond has since been filled in and a residential development was built in its place, now referred to as Wailupe Peninsula.

During construction of a swimming pool at 1013 Waiholo Street, human remains were encountered and the medical examiner's office informed SHPD of the discovery (Bath and Griffin 1988). The remains were in a flexed position and were listed as SIHP 3760. Osteological analysis of the remains determined that the individual was a 35-year-old female. A burial area on the property was established and the remains were reinterred on site.

Iwi kūpuna were again inadvertently identified at a construction site, this time at 4745 Aukai Avenue (Bath 1989). SHPD was notified and it was determined that the burial was partially intact. It was disinterred and further examination determined that the remains were of an approximately 40–45 year-old adult male. The burial was re-interred at the property and designated SIHP 4126.

Table 2. Known Archaeological Sites in the Project Vicinity

SIHP # 50-80-14	Name	Description	Authors
3760	Human burial	A human burial located at 1013 Waiholo Street. Remains were of a 35-year-old female and were reinterred on site.	Bath and Griffin 1988
4126	Human burial	A human burial located at 4745 Aukai Ave.	Bath 1989
6632	Human burials and cultural layer	A cultural layer containing five burials and traditional Hawaiian artifacts at 4773 Kāhala Ave.	Putzi and Dye 2003
7206	Human burial	A burial pit with partial human remains. Traditional artifacts associated with the burial include a basalt coffee bean sinker and a volcanic glass flake.	Dagher et al. 2013
7207	Human burial	Two features, an in situ human burial and a pit feature of unknown function.	Dagher et al. 2013
7925	Human burials	Five human burials, with coffins and in traditional flexed position. Associated cultural layers contained hearth features, animal burials, and pit features that date to the pre-contact and/or early post-contact era and the 1800s.	Pestana and Spear 2017
7943	Structural remains	Historic structural remains of a residential complex dating from approximately 1939 to recent.	Pestana and Spear 2018

Iwi kūpuna were inadvertently identified during the excavation of a utility line at 4773 Kāhala Avenue, adjacent to the project area (Putzi and Dye 2003). Further investigation revealed a cultural layer containing five burials and several pre-contact Hawaiian artifacts. SIHP The cultural layer and burials were designated as SIHP 6632. It was determined that the burials were most likely individuals of Hawaiian ancestry due to the presence of traditional artifacts.

Many archaeological investigations were carried out over the years for construction and improvements to the Waiʻalae Country Club. In 2008, a literature review and field check were completed as part of the Waiʻalae Country Club Master Plan, which included work on the parking lot, tennis court, dining areas, a new lobby area, administration offices, conference rooms, and associated infrastructure (O'Hare et al. 2008). The surface field check produced no findings, however on site monitoring for all ground disturbing activities was recommended due to the high potential for human burials and the possibility of encountering features related to the Māhele, Waiʻalae Ranch, and the Waiʻalae Country Club itself, which was built in 1930. Subsequent archaeological monitoring was conducted at the country club for air conditioning and sprinkler electrical line installation (Wilson and Spear 2009). No cultural properties were encountered during monitoring.

During upgrades to the Waiʻalae Country Club Clubhouse in 2013, human remains were inadvertently encountered during archaeological monitoring (Dagher et al. 2013). SIHP 7206 is an incomplete set of human remains with an associated burial pit feature. An in situ human burial and a pit feature of unknown function were also discovered and listed as SIHP 7207. Traditional Hawaiian artifacts including a basalt coffee bean sinker and volcanic glass flakes were found in the backdirt and thought to be associated with the two sites. The SIHP 7206 burial was reinterred with SIHP 7207 and a barrier was built to protect the remains during future ground disturbance in the area (Dagher and Spear 2011). Also at the Waiʻalae Country Club, archaeological monitoring was completed for the Annex Building Project (Pestana and Spear 2017). An in situ burial cluster of

five individuals and two cultural layers were encountered and designated as SIHP 7925. The cultural layers contained multiple features consisting of hearths, animal burials, and pit features of undetermined function. The human burials were in coffins and in traditional Hawaiian flexed position. Grave goods and artifacts associated with the burial cluster dated to the pre-contact and/or early post-contact periods as well as the early 1800s. The SIHP 7925 burials were preserved in place.

In 2015, ten test trenches were excavated during an archaeological inventory survey at 4607 Kāhala Avenue (Pestana and Spear 2015). A former land surface A-horizon and remnant modern building foundation were documented, however the A-horizon contained no cultural material so the authors reported that no historic properties were identified during the study. Archaeological monitoring was still recommended for any future subsurface work.

An archaeological inventory survey was completed on 3.9 acres for a beachfront improvements project at the Kāhala Hotel and Resort (Fechner et al. 2016). No cultural properties were documented and it was determined that the entire area was previously disturbed by prior construction.

Lastly, in 2018 an archaeological inventory survey was conducted at 4607 Kāhala Avenue in preparation for the construction of three residential buildings (Pestana and Spear 2018). Historic structural remains were documented during the survey and designated as SIHP 7943. The site is thought to have been built around 1939 to recent times. SIHP 7943 consists of surface foundation remnants from a residence and additional structures, possibly a garage or guest house.

Summary and Anticipated Finds

Based on the review of land use and previous archaeological investigations, there is high potential for human remains and other cultural properties to occur in the project area. The project location is along the native coastline and underling soils consist of Beach sand (BS) and Jaucas sand (JaC) (Foote et al. 1972; see Figure 3), an environment traditionally favored for human burial. Previous archaeological studies have identified iwi kūpuna, as well as traditional Hawaiian artifacts at an adjacent parcel along with other nearby human burials. It is likely that these kinds of remains will be found during the current AIS.

Research questions will broadly address the identification of archaeological resources and may become more narrowly focused based on the kinds of resources that are found. Initial research questions are as follows:

1. Have any archaeological remains survived the disturbance to the parcels from repeated modern development? If so, what is the nature of these remains and where are they located?
2. Are there any indications of pre-contact and/or historic land use? Are human burials, cultural layers, features, and artifacts present within the project area? If so, what do those resources indicate about habitation and/or subsistence patterns?
3. Does the cultural layer previously identified on the parcel next door (Putzi and Dye 2003) extend into the project area? If so, can more information be gathered on the age of the cultural layer and past activities associated with the layer?

Once these basic questions are answered, additional research questions can be developed in consultation with SHPD, tailored to the specific kinds of archaeological resources that occur in the study area.

METHODS

Pedestrian survey and subsurface testing were carried out on November 1–6, 2021, with two to four archaeologists present per day. Archaeologists that participated in fieldwork are Tiffany Brown, BA; Robin Kapoi, BA; Jeffrey Lapinad; Windy McElroy, PhD; Max Pinsonneault, MA; and Renee Whitehouse, MA. McElroy served as Principal Investigator, overseeing all aspects of the project. Osteologist Elena Hughes, MA conducted a site visit to determine if iwi encountered were human or animal; all were non-human.

For the pedestrian survey, the ground surface was visually inspected for surface archaeological remains, with transects walked for the entire area. Archaeologists were spaced approximately 4 m apart. Of the .81 ha (2 ac.) survey area, 100% was covered on foot. Most of the study area is open and flat with excellent visibility, and the entire project area has been disturbed by modern development. Nevertheless, there are scattered pockets of landscaping or invasive plants within the open areas and these were carefully inspected.

Test trenches (TR) were excavated in 19 locations throughout the project area. The excavation strategy was approved by SHPD beforehand via videoconference. Excavation was accomplished with a mini-excavator (Figure 13). Vertical provenience was measured from the surface, and trenches were excavated to the water table. Profiles were drawn and photographed, and soils were described using the USDA *Soil Survey Manual* (Soil Science Division Staff 2017), Munsell soil color charts (Munsell 2010), and a sediment texture flowchart (Thien 1979). Trench locations were recorded with a sub-meter accurate Trimble Geo7, and all trenches were backfilled after excavation.

The scale in all field photographs is marked in 10 cm increments. The north arrow on all maps points to magnetic north. Throughout this report rock sizes follow the conventions outlined in *Field Book for Describing and Sampling Soils*: Gravel <7 cm; Cobble 7–25 cm; Stone 25–60 cm; Boulder >60 cm (Schoeneberger et al. 2002:2–35). All cultural material thought to be 50 years or older was collected. Collected materials are temporarily being curated at the Keala Pono storage facility in Honolulu until they can be returned to the landowner.

Figure 13. Excavation of TR 4. Orientation is to the northwest.

RESULTS

Pedestrian survey and subsurface testing were conducted in the .81 ha (2 ac.) project area. No archaeological resources were found on the surface, and excavation of 19 trenches yielded one subsurface archaeological deposit, two features, and a multitude of cultural material. The deposit consists of a cultural layer that is part of the previously identified Site 50-80-14-6632. It was found only within TR 7 and contained a variety of cultural material and one subsurface firepit feature. One historic subsurface feature was found in another part of the project area. This is a subsurface historic trash pit that was identified within TR 10. Aside from the cultural deposit and features, general stratigraphy of the project area consisted of fill and natural sand, in some instances beneath concrete pavement and basecourse.

Pedestrian Survey

The surface survey included 100% of the .81 ha (2 ac.) project area. No surface archaeological remains were observed within any part of the project area; any archaeological features that may have once been present are no longer there because of the extensive modern use of these lands, including house construction and paving. Nevertheless, there are scattered pockets of landscaping or invasive plants within the open areas and these were carefully inspected (see cover photo). Nothing of archaeological interest was found within these vegetated areas or elsewhere in the project area.

Subsurface Testing

A total of 19 trenches were placed within the project area to determine the presence or absence of subsurface archaeological deposits or material (Figures 14 and 15, Table 3). Part of the previously identified cultural layer Site 50-80-14-6632 was found within TR 7, along with a firepit (Feature 7-1). Unrelated to Site 6632, a historic trash deposit was identified in TR 10 (Feature 10-1). A variety of cultural material was collected from these two areas, as well as from TR 11, 12, 14, 17, and elsewhere in TR 10 (see Laboratory Analysis section).

Area Stratigraphy

In total, 11 distinct stratigraphic layers were encountered in the project area, consisting of two pavements, three basecourses, and six sand deposits (see Table 3). These layers were organized into a Harris Matrix to demonstrate their relationships to each other (c.f. Renfrew and Bahn 2016) (Figure 16). Layers P-1, P-2, B-1, B-2, and B-3 are classified outside of the standard stratigraphic sequence (A, B, C, etc.) because of their clear modern construction and use. The Harris Matrix is read from top to bottom, with the youngest layers being found at the top and the oldest layers being found at the bottom. Lines connecting layers demonstrate boundaries that have been identified. Any layer that is found below another has been identified as older, either through stratigraphic inference or through the identification of objects found within the layer. Layers on the same level as each other are not necessarily identified to be from the same period. Instead, there is no evidence demonstrating their relative age one way or the other. Note that the two features are included in the Harris Matrix within the layers they derive from. The features, as well as trench-specific variations within the Harris Matrix, are fully described later in this chapter, where individual trench stratigraphy is discussed.

The first tier of the Harris Matrix represents the modern surface layer of the project area. This includes two pavements (P-1 and P-2), their basecourses (B-1 through B-3), and two layers of fill (Layers A and B). The second tier of the Harris Matrix consists of two possibly historic deposits of

Figure 14. Location of trenches on an aerial image.

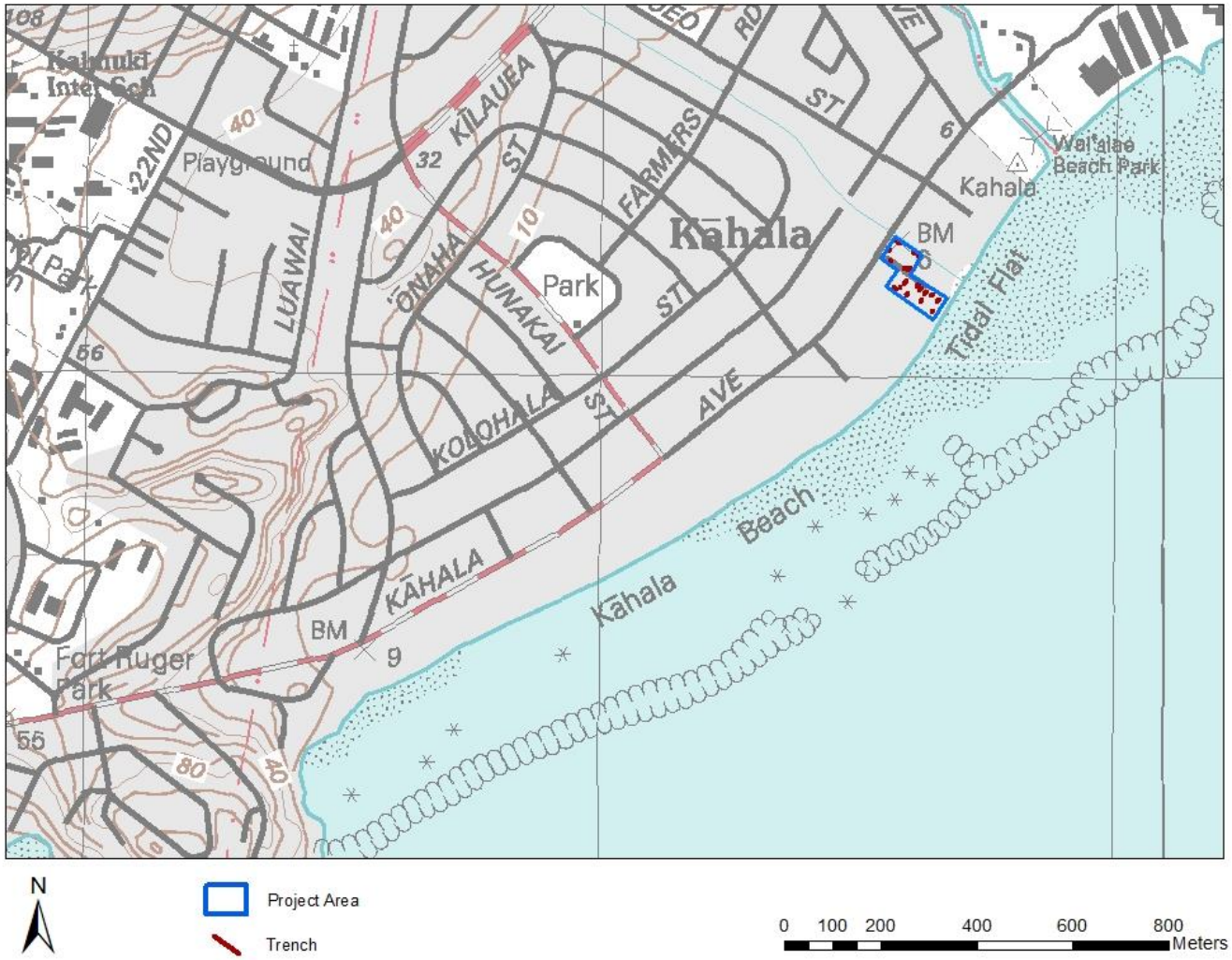


Figure 15. Wider view of trench locations on 7.5 minute Honolulu and Koko Head quadrangle maps (USGS 1997a, 1997b).

Table 3. Area Stratigraphy Derived from Profiles within the Project Area

Layer	Observed Depths (cmbs)	Munsell Color	Description	Interpretation
P-1	0–20	-	Concrete pavement	Modern pavement
P-2	0–10	-	Asphalt pavement	Modern pavement
BC-1	5-30	-	Compact basecourse	Modern basecourse
BC-2	5-30	-	Compact basecourse	Modern basecourse
BC-3	0-50	-	Compact basecourse	Modern basecourse
A	0-30	10YR3/4 Dark yellow brown	Sandy loam; dry; slightly sticky; slightly plastic; 5–20% fine to medium roots; 1–10% gravel and cobbles; irrigation and sewer piping; boundary with E and F below	Primary Fill
B	0-75	10YR3/3 Dark brown	Sandy loam; dry; slightly sticky; non-plastic; 30–50% very fine to course roots; 0–5% gravel; asphalt and brick debris; Irrigation piping; TR 12 historic artifact (Acc. 92); boundary with C and F below	Secondary Fill
C	20-150	10YR7/2 - 10YR7/3 Light gray – Pale brown	Sand; wet; slightly to moderately sticky; non-plastic; 1–5% very fine to medium roots; 0–1% gravel; marine shell; sewer and water pipes; Feature 10-1; TR 10 historic artifacts (Acc. 1–7, 9–43, 49–86, 117, and 118), faunal remains (Acc. 133–136), marine shell (Acc. 149), and charcoal (Acc. 132); TR 11 historic artifacts (Acc. 8; 47–48) and marine shell (Acc. 150); TR 12 historic artifacts (Acc. 87–91); TR 14 historic artifacts (Acc. 93–112) and faunal remains (Acc. 137); boundary with D, E, and F below.	Disturbed Beach Sand
D	50-170	10YR3/2 - 10YR5/2 Dark brown – Grayish brown	Sandy clay to sandy loam; dry and wet; moderately sticky; non-plastic; 1–5% very fine to medium roots; 15% gravel; TR 17 historic artifacts (Acc. 113–116); boundary with F below.	Disturbed Beach Sand
E	20-100	10YR3/2 Very dark gray brown	Loamy sand; wet; slightly sticky; slightly plastic; 15% gravel; Feature 7-1; TR 7 traditional artifacts (Acc. 151–156), secondarily-deposited historic or modern material (Acc. 44–46 and 119–124), botanical remains and charcoal (Acc. 126–131, 147) faunal material (Acc. 138–146), and marine shell (Acc. 125, 148, 157–160).	Cultural Layer
F	20-180+	10YR7/2 - 10YR7/4 Light gray – Very pale gray	Sand; wet; slightly to moderately sticky; non-plastic; 0–20% fine to coarse roots; marine shell; base of excavation	Natural Beach Sand

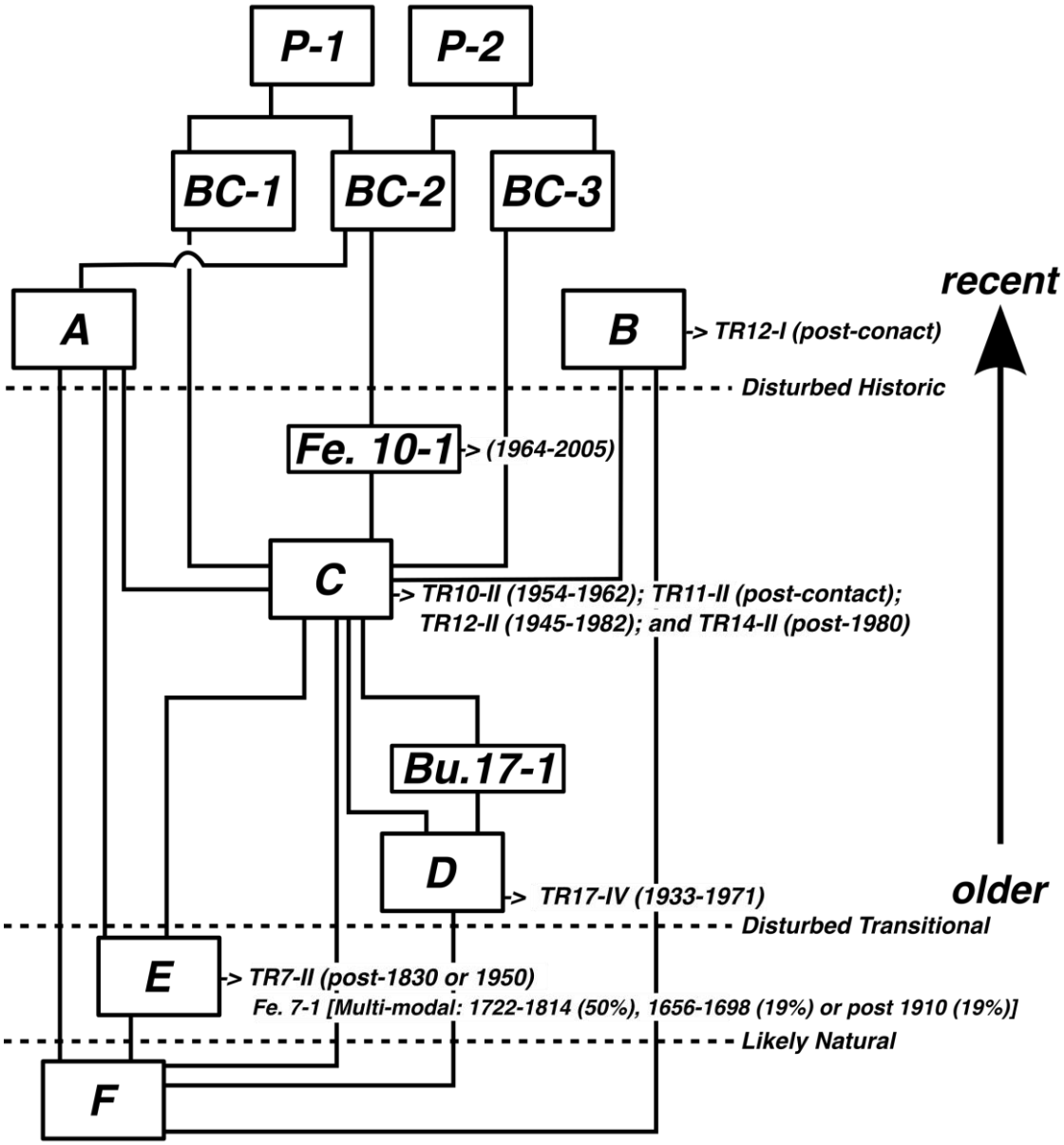


Figure 16. Harris Matrix for the project area, demonstrating the relationship between individual layers, with the youngest layers at the top and the oldest layers at the bottom. Earliest possible dates derived from historic artifacts are in parentheses, and radiocarbon dates are in brackets.

disturbed natural beach sand (Layers C and D). Below these is a cultural layer (Layer E), likely dating from the late pre-contact to the historic period. And finally, undisturbed natural beach sand (Layer F) lies at the bottom of the stratigraphy.

Layers P-1 and P-2, and BC-1 through BC-3 are found over various parts of the project area and form the modern pavements and basecourses for the parcel. Layer P-1 extends from the surface to a typical depth of roughly 20 cm below surface (cmbs), bordering Layers BC-1 and BC-2 below. Layer P-2 extends from the surface to a typical depth of 5–10 cmbs, bordering Layers BC-2 and BC-3 below. Layer BC-1 typically extends from 20–70 cmbs, bordering Layer P-1 above, and Layer C below. Layer BC-2 typically ranges from 20–50 cmbs, bordering Layers P-1 and P-2 above and Layers A and C below. Layer BC-3 typically ranges from 5–30 cmbs, bordering Layer P-2 above and Layer C below. All of these layers are modern pavements and their corresponding basecourses.

Layer A is a slightly sticky, dark yellow brown, dry sandy loam found throughout the southern parcel either on the surface or below a basecourse. The layer typically extends from the surface or beneath a basecourse at 30 cmbs to a maximum depth of 30–70 cmbs with a typical thickness of 30–40 cm. Layer A typically contains 5–20% fine to medium roots, 1–10% basalt gravel and cobbles, abandoned irrigation piping and sewer lines and occasional concrete rubble. The soil has a smooth and abrupt boundary with Layer BC-2 above, and smooth boundaries with Layers C, E, and F below ranging from clear to abrupt in distinctness. Layer A is likely a primary fill, a local sediment that has been excavated and reapplied as a fill in the same area. This is evidenced by the presence of modern utilities within the strata, and similar natural beach sands in the vicinity.

Layer B is a slightly sticky, slightly plastic, dark brown, dry sandy loam found along the surface of the northern parcels in the project area. The layer extends from the surface to a typical depth of 20–75 cmbs, with a thickness of 20–75 cm. Layer B typically contains 30–50% fine roots and 0–5% gravel in addition to asphalt and brick debris and irrigation piping. A single historic artifact was found in Layer B, a decorated porcelain rim sherd (Acc. 92). The soil has a smooth and clear boundary with Layers C and F below. Layer B is likely a secondary fill, a soil imported into the area to act as fill for landscaping or stabilizing an area. This is evidenced by it being a much darker soil than the surrounding vicinity with a variety of construction debris found within.

Layer C is a slightly to moderately sticky, mostly dry, light gray to pale brown sand found throughout the project area. The layer typically ranges from 20–150 cmbs, with a thickness of 50–150 cm. Layer C typically contains 1–30% very fine to medium roots and 0–1% gravel, in addition to sewer and water pipes, Feature 10-1, historic to modern artifacts (Acc. 1–43, 47–91, 93–112, 117–118), faunal remains (Acc. 133–137), charcoal (Acc. 132), and marine shell (Acc. 149, 150). Layer C shares a smooth, abrupt boundary with Layers D and E below, and a smooth, diffuse boundary with Layer F below. Layer C appears to be a disturbed natural beach sand, occasionally used as a primary fill throughout the project area. This is evidenced by the utilities, modern debris, and wide array of historic artifacts found in the strata.

Layer D is a moderately sticky, dark brown to grayish brown, wet sandy clay to sandy loam found sparingly along the northern and western edges of the project area. The layer extends from a typical minimum depth of 50–70 cmbs, and runs to a maximum depth of 80–170 cmbs, with a typical thickness of 30–100 cm. Layer D contains 1–5% very fine to medium roots, in addition to several historic artifacts (Acc. 113–116), and a burnt lens (Bu. 17-1). This soil has a smooth, abrupt boundary with Layer F below. Layer D appears to be another disturbed deposit of natural beach sand. The artifacts in this layer would indicate that the disturbance is slightly older than Layer C.

Layer E is a slightly sticky, slightly plastic very dark gray brown, dry loamy sand found along the northeastern edge of the southern parcel. Extending from a minimum depth of 20 cmbs and running to a maximum depth of 100 cmbs, this soil has a thickness of 100 cm. Layer E contains 15% basalt gravel, in addition to traditional artifacts (Acc. 151–156), historic or modern material (Acc. 44–46 and 119–124), botanical remains and charcoal (Acc. 126–131, 147) faunal material (Acc. 138–146), marine shell (Acc. 125, 148, 157–160), and a firepit (Feature 7-1). Layer E shares a smooth and clear border with Layer F below. The presence of traditional and historic artifacts and radiocarbon dates suggest that Layer E is a late pre-contact to post-contact cultural deposit. The layer has been disturbed by modern activity, as evidenced by plastic scrap found within the Layer E and buried sewer lines intruding into the layer.

Layer F is a slightly to medium sticky, light gray to pale gray sand found throughout the project area. The base of Layer F was not encountered during this survey, as it formed the base of our excavations, which were terminated at the water table. The layer typically extends from 20–70 cmbs to as deep as 180 cmbs. Layer F contains 0–20% fine to coarse roots and 0–10% basalt gravel. Layer F appears to be undisturbed natural beach sand in the project area.

This stratigraphy shows a traditional and historically utilized area that has been significantly disturbed by modern activity. Artifact bearing layers consist of Layers B, C, D, and E, although only one ceramic sherd was found in Layer B. Layers C and D appear to be natural layers of beach sand that have been continuously disturbed since the mid-20th century as evidenced by the findings in TR 7, 10, 11, 12, 14, and 17. Layer E is interpreted as a late pre-contact to post-contact cultural layer that has been disturbed by historic or modern activity above; it was only found within TR 7. There is direct evidence of utilities being laid throughout the area, and historic artifacts that could be as old as 1933 (Acc. 73 in Layer C).

Representative Profiles

The area stratigraphy above was constructed by analyzing 19 trenches excavated throughout the project area. Profile locations are shown in Figures 14 and 15. Table 4 lists individual trench stratigraphy. Of the 19 trenches, six contained cultural material or deposits and will be described further below.

TR 7 is located along the northeast edge of the south parcel. This trench reached a depth of 125 cmbs and includes Layers A, C, E, and F (Figures 17 and 18). Layer I is part of Harris Layer A, containing 1% basalt gravel, 5% fine roots, and irrigation piping running just under the surface. Layer I extended from the surface to 20–60 cmbs, sharing a smooth very abrupt boundary with Layers II (E) and III (C), and a concrete jacket below. Layer II (Harris Layer E) runs from 20–100 cmbs on the northeastern portion of the trench, sharing a smooth, clear boundary with Layers III (C) and IV (E) below. Layer II is the Site 6632 cultural layer that yielded traditional and historic artifacts, modern material, unburned kukui nutshell, charcoal, faunal material, marine, and a subsurface firepit (Feature 7-1). Layer III extends from 40–100 cmbs on the southwestern side of the trench, sharing a smooth, diffuse boundary with Layer IV (F) below. Layer III is part of Harris Layer C, containing 10% basalt gravel, and sewer piping at 80 cmbs in the center and southwestern portions of the trench. Layer IV (Harris Layer F) runs from 60–125 cmbs, and is composed of 10% basalt gravel. Layer IV extends into the water table. The stratigraphy encountered in TR 7 is unique in the project area, as it contains a portion of Site 6632, originally located in the neighboring parcel to the northeast. The stratigraphy in TR 7 appears largely disturbed with historic artifacts and pipes located below the cultural layer, indicating that the layer was excavated through, and then refilled in place. The historic artifacts are both post-1830 and post-1950. Radiocarbon dating produced dates of 180±30 BP and 200±30 BP, from the cultural layer and Feature 7-1, respectively.

Table 4. Individual Trench Stratigraphy

Profile	Layer / (Harris Layer)	Min Depth (cmbs)	Max Depth (cmbs)	Boundary	Contents
TR 1	I (A)	0	30	Smooth / Abrupt	Irrigation piping, 20% fine roots, 5% basalt gravel.
	II (F)	30	150	Base of Excavation	Marine shell, 15% fine–medium roots.
TR 2	BC (BC-2)	0	20	Smooth / Abrupt	Irrigation piping, 75% basalt gravel.
	I (A)	20	30	Smooth / Abrupt	5% fine roots, 1% basalt gravel.
	II (F)	30	150	Base of Excavation	Marine shell, 10% fine–medium roots, 10% basalt gravel.
TR 3	I (A)	0	40	Smooth / Clear	Irrigation piping, 10% fine roots, 5% basalt gravel.
	II (C)	40	140	Base of Excavation	Sewer piping, 1% fine roots, 1% basalt gravel.
TR 4	P (P-1)	0	20	Smooth / Very Abrupt	None.
	BC (BC-2)	20	50	Smooth / Gradual	Irrigation piping, 1% fine roots, 75% basalt gravel.
	I (A)	30	70	Smooth / Clear	Sewer piping, 40% fine–medium roots, 10% basalt gravel.
	II (F)	50	170	Base of Excavation	Marine shell, 1% fine roots, 3% basalt gravel.
TR 5	P (P-1)	0	20	Smooth / Very Abrupt	None.
	BC (BC-1)	20	70	Smooth / Clear	Irrigation piping, 10% fine–medium roots, 75% basalt gravel.
	I (C)	60	150	Base of Excavation	Water line, 5% fine roots, 5% basalt gravel.
TR 6	I (A)	0	45	Smooth / Clear	1% fine roots, and 1% basalt gravel.
	II (F)	45	125	Base of Excavation	None

Table 4. (continued)

Profile	Layer / (Harris Layer)	Min Depth (cmbs)	Max Depth (cmbs)	Boundary	Contents
TR 7	I (A)	0	60	Smooth / Very Abrupt	Irrigation piping, 5% fine roots, 1% basalt gravel.
	II (E)	20	100	Smooth / Clear	Traditional artifacts (Acc. 151–156), secondarily-deposited historic or modern material (Acc. 44–46 and 119–124), botanical remains and charcoal (Acc. 126–131, 147) faunal material (Acc. 138–146), marine shell (Acc. 125, 148, 157–160), and 15% basalt gravel.
	Fe. 7-1	60	70	Smooth / Clear	Historic artifacts (Acc. 119–123), faunal bone (Acc. 138, 141–146), marine shell (Acc. 160), and charcoal (Acc. 131).
	III (C)	40	100	Smooth / Diffuse	Sewer piping, 10% basalt gravel.
	IV (F)	60	125	Base of Excavation	10% basalt gravel.
TR 8	I (A)	0	60	Smooth / Abrupt	Irrigation piping, 5% fine roots, 20% basalt gravel and cobbles.
	II (F)	30	150	Base of Excavation	1% fine roots, 1% basalt gravel.
TR 9	P (P-2)	0	5	Smooth / Very Abrupt	None.
	BC (BC-3)	5	30	Smooth / Abrupt	75% basalt gravel.
	I (C)	30	170	Base of Excavation	Sorted sand, 1% fine roots.
TR 10	P (P-2)	0	10	Smooth / Very Abrupt	None.
	BC (BC-2)	10	30	Smooth / Gradual	75% basalt gravel.
	Fe. 10-1	20	70	Smooth / Abrupt	Historic artifacts (Acc. 1–7; 9–43), charcoal (Acc. 132), faunal remains (Acc. 133–136), marine shell (Acc. 149), 1% very fine roots, and 5% basalt gravel.
	I (C)	30	150	Base of Excavation	Historic artifacts (Acc. 49–86; 117; and 118), 5% medium roots, and 1% basalt gravel.

Table 4. (continued)

Profile	Layer / (Harris Layer)	Min Depth (cmbs)	Max Depth (cmbs)	Boundary	Contents
TR 11	I (A)	0	10	Smooth / Abrupt	5% very fine roots.
	II (C)	10	50	Smooth / Abrupt	Historic artifacts (Acc. 8, 47, 48), faunal bone (Acc. 150), 5% fine–medium roots.
	III (D)	50	80	Smooth / Abrupt	5% fine–medium roots.
	IV (F)	80	180	Base of Excavation	5%, very fine–very course roots.
TR 12	I (B)	0	20	Smooth / Clear	Historic artifacts (Acc. 92), 60% fine–medium roots.
	II (C)	20	150	Base of Excavation	Historic artifacts (Acc. 87–91), 10% fine–medium roots.
TR 13	I (B)	0	20	Smooth / Clear	60% fine–medium roots.
	II (F)	20	140	Base of Excavation	20% medium roots.
TR 14	I (B)	0	45	Smooth / Clear	Irrigation piping, 40% medium roots.
	II (C)	45	130	Base of Excavation	Historic artifacts (Acc. 93–112), faunal bone (Acc. 137), 3% medium roots.
TR 15	I (B)	0	20	Smooth / Clear	Irrigation piping, 60% fine–medium roots.
	II (F)	20	140	Base of Excavation	10% fine–medium roots.
TR 16	I (B)	0	75	Smooth / Clear	Irrigation piping, 30% very fine–medium roots, 2% basalt gravel.
	II (F)	70	125	Base of Excavation	Marine shell, 10% very fine–fine roots, <1% basalt gravel.
TR 17	I (B)	0	50	Smooth / Clear	Asphalt and brick debris, 10% very fine–medium roots, 5% basalt gravel.
	II (C)	50	70	Smooth / Gradual	3% medium roots.
	Bu. 17-1	60	70	Smooth / Clear	Charcoal flecking, <1% very fine roots.
	III (D)	70	135	Base of Excavation	Historic artifacts (Acc. 113–116), 1% medium roots.

Table 4. (continued)

Profile	Layer (Harris Layer)	Min Depth (cmbs)	Max Depth (cmbs)	Boundary	Contents
TR 18	I (B)	0	20	Smooth / Clear	50% medium roots.
	II (F)	20	170	Base of Excavation	20%, medium roots.
TR 19	I (B)	0	20	Smooth / Clear	70% medium–coarse roots.
	II (F)	20	170	Base of Excavation	50% medium roots.

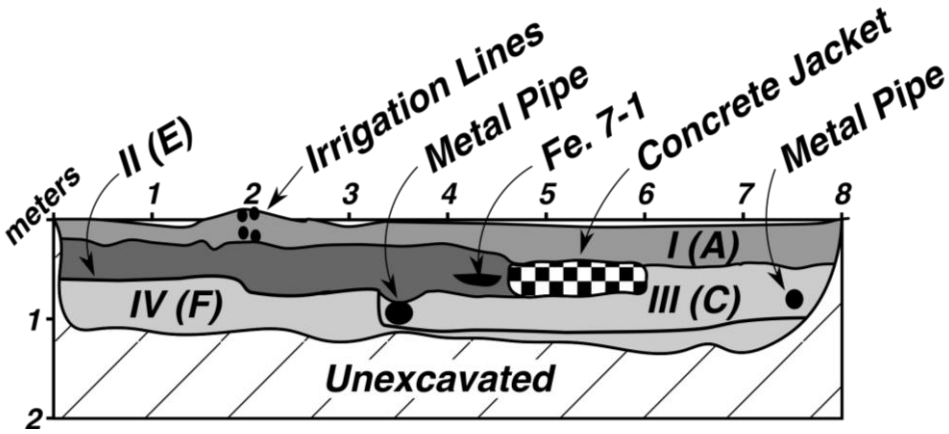


Figure 17. Profile drawing of TR 7, facing southeast.

Figure 18. Profile photo of TR 7, facing southeast.

TR 10 is located near the western corner of the southern parcel. TR 10 reached a depth of 160 cmbs and is composed of Layers P-2, BC-2, A, and C (Figures 19 and 20). The top two layers of TR 10 are an asphalt pavement (P-2) and a compact basecourse (BC-2). Below the basecourse is a single layer of sand (Layer I) and a distinct historic trash pit (Feature 10-1). Feature 10-1 consists of sandy loam intermixed with large chunks of charcoal, historic artifacts, and faunal remains. The feature extends from 20–70 cmbs in the southwest corner of the trench, where it shares a smooth, abrupt boundary with Layer I (C) below. Layer I (Harris Layer C) runs from 30–150 cmbs where the excavation encountered the water table. Layer II contained a large number of historic artifacts, including a cache of 36 Regal Pale Beer bottles with their adhesive labels still intact. The artifacts found in Feature 10-1 are post-1964 in origin, and the those found in Layer II are post-1954.

TR 11 is located in the west corner of the south parcel. This trench reached a depth of 180 cmbs and includes Harris Layers A, C, D, and F (Figures 21 and 22). Layer I (Harris Layer A), runs from the surface to 10 cmbs and contains 5% very fine roots. Layer I shares a smooth, abrupt boundary with Layer II (C) below. Layer II (Harris Layer C), extends from 10–50 cmbs, contains 5% fine to medium roots, historic artifacts, and a faunal bone. Layer II shares a smooth, abrupt boundary with Layer III (D) below. Layer III (Harris Layer D), runs from 50–80 cmbs, contains 5% fine to medium roots, and shares a smooth, abrupt boundary with Layer IV (F) below. Layer IV (Harris Layer F), extends from 80–180 cmbs, where the water table was encountered. The cultural material found in Layer II was historic, demonstrating that the layer is likely post-contact in age.

TR 12 is located in the south corner of the north parcel, and reached a depth of 150 cmbs. This trench includes Harris Layers B and C (Figures 23 and 24). Layer I (Harris Layer B), runs from the surface to 20 cmbs and contains 60% fine to coarse roots and a single historic artifact. Layer I exhibits a smooth, clear boundary with Layer II below. Layer II extends from 20–150 cmbs where the excavation encountered the water table. Layer II contained 10% fine roots and five Budweiser cans produced between 1945 and 1982.

TR 14 is located near the west corner of the north parcel, reached a depth of 130 cmbs, and includes Harris Layers B and C (Figures 25 and 26). Layer I (Harris Layer B), runs from the surface to 45 cmbs and contains 40% medium roots and irrigation piping. Layer I shares a smooth, clear boundary with Layer II (C) below. Layer II (Harris Layer C), extends from 45–130 cmbs where the water table was encountered. Layer II contains 30% medium roots, historic and modern material, and a faunal bone. One of the artifacts from Layer II was produced in 1980, making this portion of Harris Layer C modern or disturbed.

TR 17 is located in the north corner of the north parcel. This trench reached a depth of 135 cmbs and includes Harris Layers B, C, D, and a burn lens (Bu. 17-1) (Figures 27 and 28). Layer I (Harris Layer B) runs from the surface to 50 cmbs and contains 10% very fine to coarse roots, 5% basalt gravel, and asphalt and brick debris. Layer I shares a smooth, clear boundary with Layer II (C) below. Layer II (Harris Layer C), extends from 50–70 cmbs, contains 3% medium roots, and shares a smooth, gradual boundary with Bu. 17-1 and Layer III (D) below. Bu. 17-1 is a sandy loam lens, in roughly the center of the trench, extending from 60–70 cmbs. The lens contains charcoal and less than 1% very fine roots, and shares a smooth and clear boundary with Layer III (D) below. Layer III (Harris Layer D), runs from 70–135 cmbs, where the water table was encountered. Layer III contained 1% medium roots, as well as historic artifacts that were produced as early as 1937.

The remaining trenches on the site all follow similar stratigraphic patterns that largely consist of beach sand and fill (see Table 4). While cultural features, an archaeological site, and an abundance of artifacts were found, most areas of the property were disturbed by modern utilities.

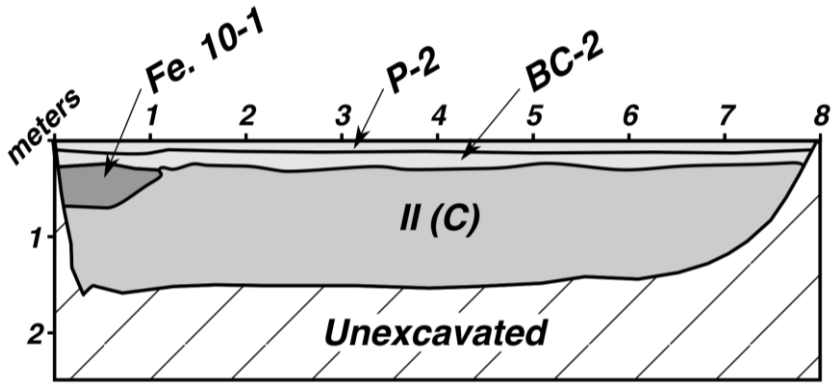


Figure 19. Profile drawing of TR 10, facing northwest.

Figure 20. Profile photo of TR 10, facing northwest.

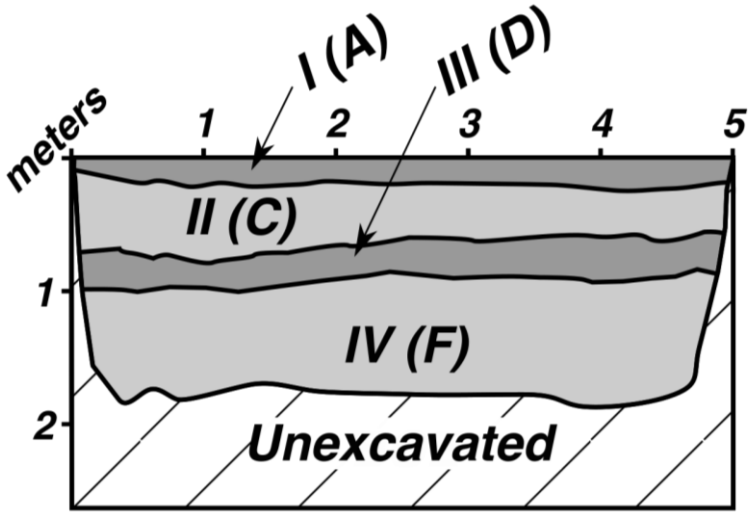


Figure 21. Profile drawing of TR 11, facing northeast.

Figure 22. Profile photo of TR 11, facing northeast.

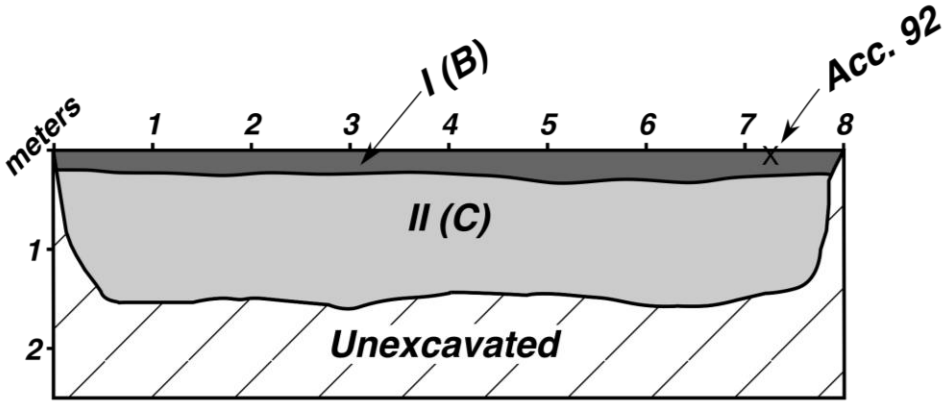


Figure 23. Profile drawing of TR 12, facing southeast.

Figure 24. Profile photo of TR 12, facing southeast.

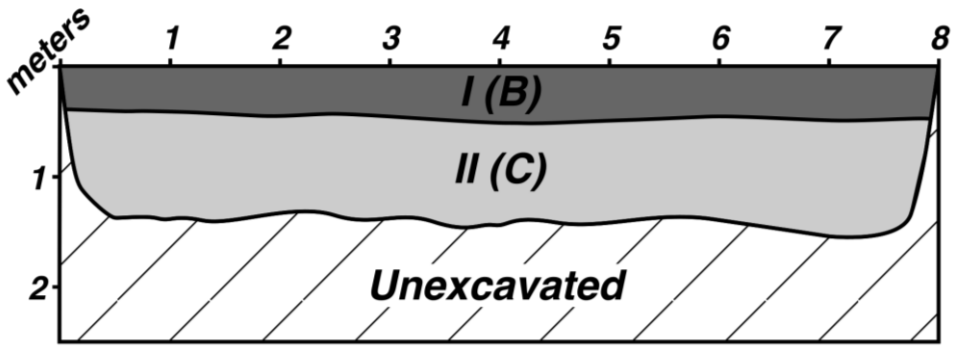


Figure 25. Profile drawing of TR 14, facing northeast.

Figure 26. Profile photo of TR 14, facing northeast.

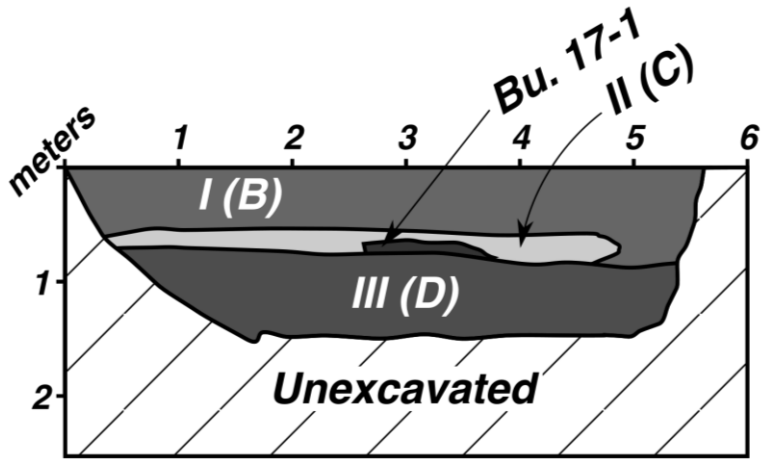


Figure 27. Profile drawing of TR 17, facing northeast.

Figure 28. Profile photo of TR 17, facing northeast.

Laboratory Analysis

Cultural material was collected from Site 6632 and also from other parts of the project area. Collected material consisted of marine shell and other invertebrates, faunal remains, traditional artifacts, post-contact material, unburned kukui nutshell, and charcoal. Marine shell was the most abundant material, with 526.83 g collected. Other invertebrates included 6.46 g of crustacean and 7.39 g of sea urchin. Traditional artifacts include a bone fishhook, coral abrader and rubbing stone fragments, and basalt debitage. Faunal remains consisted of a variety of mammal remains, as well as fish, bird, frog, and unidentified non-human bone. Post-contact material included glass, metal, ceramics, a stone tile, and plastic fragments. Collected charcoal weighed 275.72 g, and two samples from Site 6632 were submitted for radiocarbon dating.

Marine Invertebrates

Marine invertebrates were collected from Site 6632 Feature 1 as well as Layers I and II of TR 7, Feature 10-1, and TR 11. They are listed in Appendix A.

For Site 6632 (identified in TR 7) Feature 7-1 contained only one Isognomon shell and one crab claw fragment (Acc. 160), while Layers I and II contained an abundance of marine shell, as well as crab and sea urchin (Acc. 125, 148, 157, 158) (Table 5). The items designated as collected from Layer I/II were found during screening of wall collapse. Layer I is a recent fill deposit and was not screened otherwise.

Four Turbo shell fragments were collected that were not associated with Site 6632. One was from Feature 10-1 and weighed 6.17 g (Acc. 149). The other three were from Layer II of TR 11 and weighed 12.05 g (Acc. 150).

Faunal Material

Faunal material was analyzed by Keala Pono osteologist Elena Hughes, MA (Appendix B). This consisted of 55 pieces of bone (236.42 g) and one tooth (0.7 g). The minimum number of individuals (MNI) was calculated where possible. Most commonly found were triggerfish (MNI=12). Also identified were canine (MNI=1), pig (MNI=1), rodent (MNI=1), bird (MNI=1), unidentified fish (MNI=1), frog (MNI=1), and cow (MNI=1). The tooth is a molar that probably belonged to a pig. The prevalence of triggerfish may be a consequence of triggerfish spikes preserving well and being easily identifiable.

All of the triggerfish came from the cultural layer of Site 6632 (TR 7) and none was found in other parts of the project area. The cultural layer and Feature 1 of Site 6632 also yielded pig, canine, unidentified fish, rodent, and unidentified animal bone. This is consistent with a traditional deposit, as all of these taxa would have been present before the arrival of Westerners in 1778. Feature 10-1 yielded unidentified fish, cow, canine, bird, pig, frog, and unidentified animal bone. Several of the pieces exhibited butchery marks. TR 14 produced only two cow bones, both of which displayed butchery marks. The faunal remains from Feature 10-1 and TR 14 are consistent with a post-contact assemblage.

Traditional Artifacts

Traditional artifacts were collected from TR 7 Layer II, from 40–80 cmbs, within the Site 6632 cultural layer (Table 6). They consist of one fishhook (Figure 29), a coral abrader fragment, and two coral rubbing stone fragments (Figure 30). In addition, 88 pieces of basalt debitage were collected.

Table 5. Weight (g) of Marine Invertebrates from Site 6632

Taxon	L I/II	L II	Fe. 1
Cellana	0	0.46	0
Conus	19.15	35.17	0
Crustacean	0.15	6.08	0.23
Cymatium	0	10.75	0
Cypraea	0	5.01	0
Echinoderm	2.54	4.85	0
Hipponix	9.77	36.13	0
Isognomon	7.13	12.35	1.39
Lucinid	0.94	7.96	0
Modiolus	0.13	1.37	0
Nerita	11.19	33.19	0
Pinctada	1.09	0	0
Strombus	0	16.27	0
Tellina	19.13	28.45	0
Terebra	1.04	2.27	0
Turbo	74.02	112.6	0
Unidentified	10.21	51.44	0
Total Weight (g)	**156.49**	**364.35**	**1.62**

Table 6. Data for Traditional Artifacts

Acc.	Trench	Layer	Additional Provenience	Material	Artifact	Length x Width (cm)	Weight (g)	Notes
151	7	L II	80 cmbs, 4.5 m from NE End of Trench	Coral	Rubbing Stone Fragment	2.6 x 1.9	3.31	
152	7	L II	55 cmbs, 2.4 m from NE End of Trench	Coral	Rubbing Stone Fragment	3.1 x 2.3	5.3	
153	7	L II	55 cmbs, 3 m from NE End of Trench	Coral	Abrader Fragment	2.5 x 1.0	1.12	
154	7	L II	~40 cmbs, at NW End of Trench, From Screen	Bone	Fishhook	1.8 x 1.2	0.1	One-Piece Rotating Hook
155	7	L II	From Screen	Basalt	Debitage	Not Measured	118.94	65 Pieces
156	7	L II	From Screen	Basalt	Debitage	Not Measured	30.25	23 Pieces

Figure 29. Acc. 154 bone fishhook.

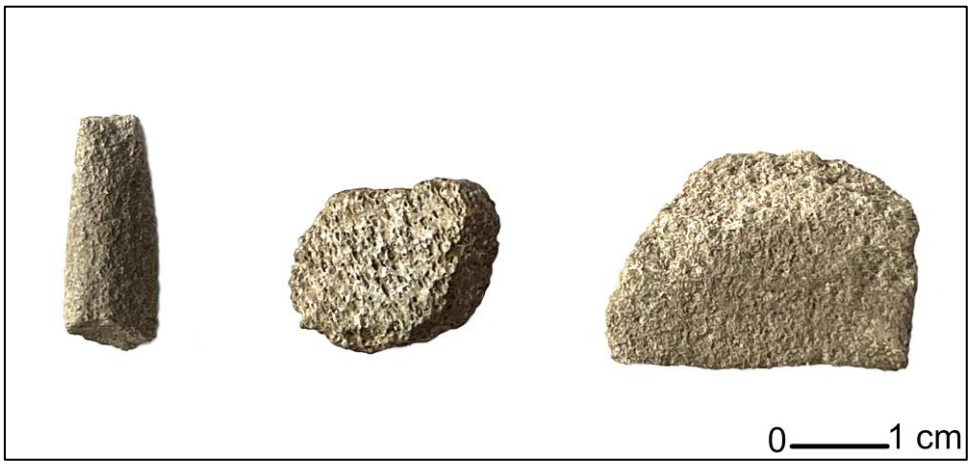


Figure 30. Left to right: Acc. 153 coral abrader, and Acc. 151 and 152, coral rubbing stones.

The fishhook is made of bone and is a one-piece rotating hook with an incurved non-barbed point (cf. Sinoto 1991). Rotating hooks were used on fish that would swallow the hook, rather than nibble the bait. These hooks would embed deeper into the fish's mouth as it struggles. A Hawaiian fisherman interviewed in 1902 noted that rotating hooks were called "mahina" and were the best hooks to use (Kahaulelio in Maly and Maly 2003:121). Bait was tied to these hooks with a thread (Kahaulelio in Maly and Maly 2003:121). The head type for this hook can be classified as HT4, pointed with a distinctive protruding knob (cf. Sinoto 1959), or 2216, which has an upper limb that is angled in, a concave proximal end, flat inner edge, and notched and stepped outer edge (cf. Graves and McElroy 2005). Sinoto's analysis of the stratigraphic distribution of fishhook head types at three Hawai'i Island sites and at Nu'alolo Kai on Kaua'i indicates that HT4 hooks were

more popular in later time periods (1959:60–61). A pattern of stepped head shanks increasing over time was also evident in Graves and McElroy's study of the Nu'alolo Kai fishhooks (2005:204).

One coral abrader fragment and two coral rubbing stones were collected. Coral abraders were relatively common in coastal sites and were used for filing work during fishhook manufacture (Emory et al. 1959; Kirch 1985; Calugay and McElroy 2005). Two coral rubbing stone fragments were recovered. These are distinguished from coral abraders by their bulkier morphology and single planes of wear on each surface. Coral abraders are more slender in appearance than rubbing stones and exhibit multiple facets of wear. The abrader that was collected is broken on both ends and exhibits abrasion wear on all surfaces.

Rubbing stones, also referred to as polishing stones, or pōhaku 'anai, were used to smooth the surface of wood during the fabrication of canoes and the manufacture of wooden bowls (Hiroa 1957:257–258; Summers 1999:61). Hiroa (1957:257–258) identifies six functional categories of rubbing stones, presented in the order of rough to fine polishing: 1) puna, or fine coral; 2) pōhaku 'eleku, or vesicular basalt; 3) 'ana, or pumice; 4) 'oahi, or dense coral reef rock; 5) ola'i, for which no additional information is given; and 6)'o'io, or fine grained basalt. The pieces found here were probably part of puna rubbing stones, used in the first stages of smoothing. Hiroa states that "They were probably large pieces of suitable coral used in the initial rubbing down process to remove the edges between the adz marks and must have been thrown away after they were worn down" (1957:257). The larger of the two collected rubbing stone fragments is broken on two ends. It has one very flat, worn surface, and possible abrasion of the opposite surface. The smaller rubbing stone fragment exhibits one worn surface, with the other surfaces either natural or broken.

Basalt debitage was identified as non-flake, fine-grained basalt and included 88 pieces, totaling 149.19 g. These pieces may have resulted from stone tool manufacture, indicating that stone tool-making may have taken place in the area.

Non-Traditional Items

During the survey, archaeologists encountered a total of 124 non-traditional (historic or modern) items (Appendix C). These artifacts were found in six trenches and consist of 80 glass bottles, 10 other glass objects, eight fragments of ceramic tableware, five aluminum cans, 16 other metal objects, three plastic objects, a wooden button, and a stone tile. While many of the glass bottles and some of the ceramic and metal artifacts were diagnostic, a majority of the artifacts were largely nondiagnostic, and primarily showed that the deposits in which they were found were post-contact or 20th century in origin. The artifacts that could be dated indicated that many items were manufactured in the mid-20th century. As would be expected in a historic site in Hawai'i, all of the identified bottles were imported from the U.S., primarily from the Rust Belt and California.

Trench 7

Seven historic artifacts (consisting of 13 pieces) were found within TR 7, including two ceramic, sherds in Feature 7-1, as well as metal, glass, and plastic in the upper portions (20–60 cmbs) of Layer II (Harris Layer E), which is the Site 6632 cultural layer. Separated by their materials, these artifacts consist of glass (2 fragments), ceramics (1 porcelain and 1 whiteware sherd), metal (2 wire nails, 1 beer tab, and 4 pieces of unidentifiable metal debris), and plastic tape (2 fragments) (Figure 31). The glass and metal artifacts are largely nondiagnostic, consisting of two wire nails (Acc. 44 and 122), metal trash (Acc. 122), a bottle glass fragment (Acc. 45), and a flat glass fragment (Acc. 121). These artifacts tells us at the very least, that Site 6632 is either post-contact in age or that the deposit is disturbed. The ceramic sherds are more informative, as porcelain (Acc.

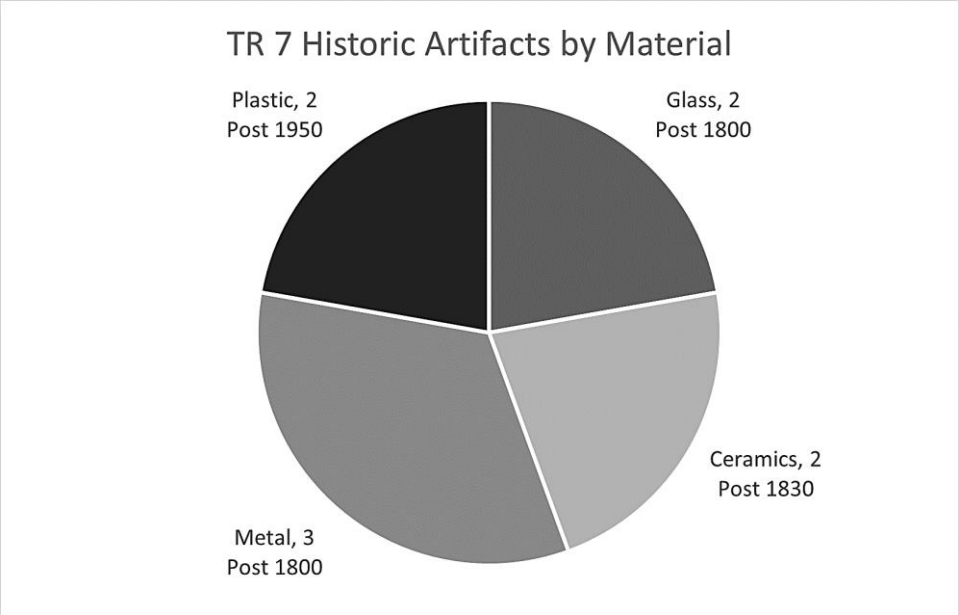


Figure 31. Historic artifacts from TR 7 categorized by material.

119) was first exported in the mid-18th century, and whiteware (Acc. 120) began production in the 1830s (Bower 2009). These two pieces were the only artifacts found within Feature 7-1 of Site 6632, suggesting a post-1830 age for that feature. The scraps of plastic tape found in the upper levels of the cultural layer (20 and 40 cmbs) are likely indicative of disturbance, as plastic did not enter common use until after World War II (SHI 2021). The multiple utilities placed in the immediate area are further evidence of disturbance.

Trench 10

A total of 42 historic artifacts were found within Feature 10-1 on the southwest end of TR 10, between 20 and 70 cmbs. The 42 artifacts can be divided into five materials: glass (23 bottles and 3 miscellaneous), ceramics (3 tableware), metal (4 fasteners and 6 miscellaneous), stone (1 tile), and wood (1 button) (Figure 32). Of these artifacts, the glass bottles are a clear indicator that the feature is at the earliest a mid-20th century event, with one of the bottles being post-1964 in production (Acc. 1).

Several of the bottles in Feature 10-1 have maker's marks embossed on their bases. Maker's marks were designed by bottle companies to record the company that produced the bottle, the factory that the bottle was produced in, and the year the bottle was produced. Correspondingly, they are very helpful in identifying historic consumption and trading patterns as well as the age of historic deposits.

A total of 26 glass objects were recovered from Feature 10-1. Of these glass objects, 16 were non-diagnostic and fragmentary, only showing that the deposit is post-contact (Acc. 7, 9, 10, 12, 13, 15, 16, 19–26, 31), an additional five fragmentary bottles are clearly machine-made, demonstrating that they were produced after 1910 (Acc. 3, 4, 14, 17, 18) (Lindsey 2021), and the remaining five bottles exhibit diagnostic features that allow closer analysis (Acc. 1, 2, 5, 6, 11). Of these five bottles, three are fragmentary bottle bases made by either Owens Illinois (Acc. 5 and 6) or the

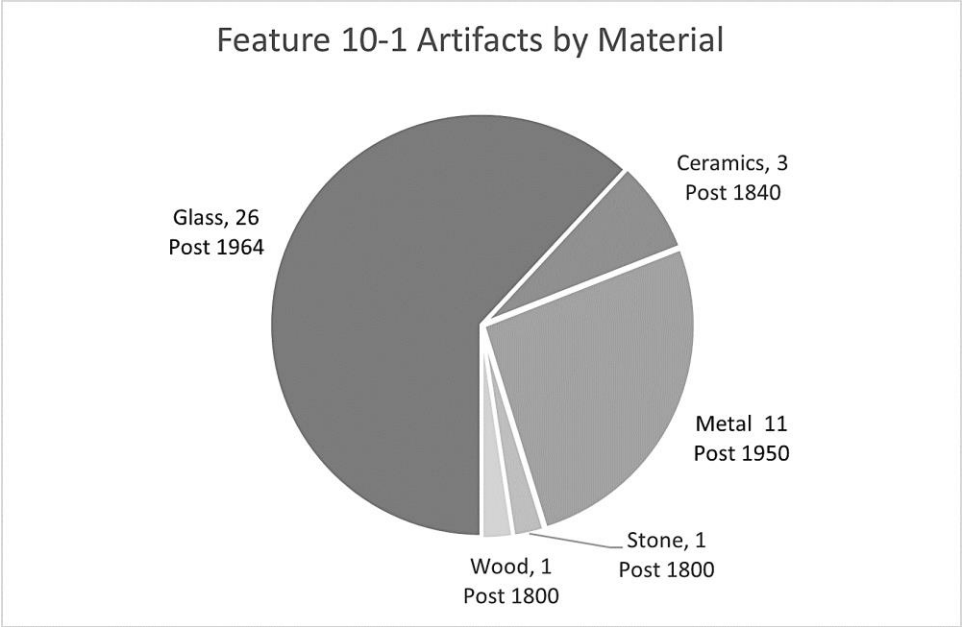


Figure 32. Material composition of artifacts from Feature 10-1.

Pennsylvania Bottle Company (Acc. 11) in 1944 (Lockhart et al. 2017, Lockhart and Hoenig 2018), one is a colorless druggist bottle also made by Owens Illinois in 1945 (Acc. 2) (Lockhart and Hoenig 2018), and one is a Burnett's Vodka bottle produced by Anchor Hocking between 1964 and 2005 (Acc. 1) (Figure 33) (Lockhart et al. 2021). These bottles were made in Oakland, CA (Acc. 2, 5–6), Connellsville, PA (Acc. 1) and Wilcox, PA (Acc. 11). The Burnett's Vodka bottle (Acc. 1) was likely bottled in Kentucky.

The remaining 16 artifacts are comprised of stone (Acc. 27), ceramic (Acc. 28–30), wood (Acc. 32), and metal (Acc. 33–43). The stone tile (Acc. 27), wooden button (Acc. 32), and most of the metal objects (Acc. 33–41 and 43) are largely nondiagnostic only indicating that the feature is post-contact. The three ceramic tableware fragments and one metal artifact exhibit more diagnostic features. The three fragmentary ceramic objects consist of a decorated whiteware rim (Acc. 29) and handle (Acc. 28) and an ironstone body fragment (Acc. 30). The whiteware sherds were likely produced after 1830, and the ironstone sherd was likely made after 1840 (Bower 2009). The fragments were too small to identify maker's marks from these vessels. And finally, one of the metal artifacts is a wire attached to small piece of plastic. The inclusion of plastic in the construction places the production of this artifact after 1950.

From the historic material found in Feature 10-1 we can surmise that this trash deposit is post-1964 in age. Furthermore we can see that the bottles in the deposit were produced in Pennsylvania and California, with one Kentucky bottler being identified.

In addition to the artifacts found in TR 10, 40 additional bottles were encountered in the approximate center of TR 10, between 60 and 100 cmbs, scattered throughout Layer II and not within a distinct feature. Layer II is part of Harris Layer C, a deposit of beach sand that has been disturbed by historic and modern activity above. Of these bottles, 36 retained their adhesive labels, identifying them as Regal Pale Beer bottles (Acc. 49–83, and 117) (e.g., Figure 34). The Regal

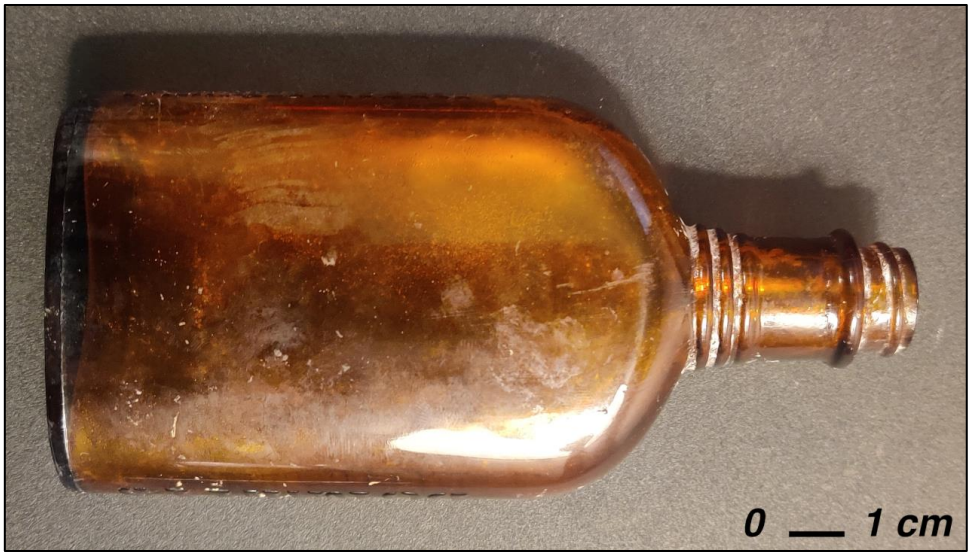


Figure 33. Acc. 1 a Burnett's Vodka bottle.

Figure 34. Acc. 117 a Regal Pale beer bottle.

Pale Beer company is a California-based brewery that operated out of San Francisco between 1954 and 1962. The four remaining bottles consisted of three colorless condiment bottles (Acc. 84–86) and a small green druggist bottle (Acc. 83).

All 40 of the bottles had maker's marks embossed on their bases. In this case, we were able to identify the maker of all 40 bottles, the origin of 38 of the bottles, the precise age of 27 of the bottles, and the approximate age of the remaining 13. Despite largely being bottled by one company, five separate companies produced the bottles in TR 10 Layer II. These companies consist of Anchor Hocking (3 bottles), the Foster-Forbes Glass Company (7 bottles), the Glass

Containers Corporation (4 bottles), the Obear-Nester Glass Company (11 bottles), and the Owens Illinois Glass Company (15 bottles). Of the three Anchor Hocking bottles, one factory of origin remains unidentified and the other bottles were produced in Connellsville, Pennsylvania and Winchester, Indiana, respectively. All of the Foster-Forbes' bottles were produced in Marion, Indiana (Lockhart et al. 2015b). All of the Glass Containers Corporation bottles were produced in California (Lockhart et al. 2015). All of the Obear-Nester bottles were produced in East St. Louis, Illinois (Lockhart et al. 2018). And finally, the Owens Illinois bottles were produced in Oakland, California (3 bottles), Los Angeles, California (2 bottles), Streator, Illinois (5 bottles), Gas City, Indiana (2 bottles), Fairmont, West Virginia (1 bottle), and Waco, Texas (1 bottle) (Figure 35). A single Owens Illinois bottle did not have a factory marker on its base. Altogether, just under a quarter of the bottles were produced in California (9 bottles) and almost three quarters were produced in the Rust Belt region of the U.S. (28 bottles), with the remainder consisting of the two unidentified bottles and the Texas outlier (Figure 36).

Contents of all of the bottles from TR 10 Layer II were identified. They consist of 36 beer bottles (Acc. 49–89 and 117), three condiment bottles (Acc. 84–86), two of which the lids were present (Acc. 85, 86); and one druggist bottle (Acc. 118, Figure 37).

Of the two bottles from TR 10 Layer II with unidentified manufacturer locations, one of them (Acc. 73) is an Owens Illinois bottle produced in 1933, and the other is an Anchor Hocking colorless condiment bottle produced after 1937 (Acc. 85). While neither bottle's maker's mark included a factory designation, the Owens Illinois bottle is part of the Regal Pale Beer assemblage. This relocates the bottle's last known use as being filled by Regal Pale Beer in San Francisco, California with the other bottles.

Date codes were identified on 27 of the 40 bottles from TR 10 Layer II. All of the bottles with identified dates were produced between 1933 and 1950, with clusters in 1933, 1945, and 1946 (Figure 38). The bottles with unidentified years of production were made by the Foster-Forbes Glass Company (operational from 1942–1983), three were produced by the Glass Container Corporation (operational from 1934–1968), one was produced by Obear-Nester (operational from 1913–1978), and two were produced by Anchor Hocking (operational from 1937–present).

It is notable that bottles produced between 1933 and 1950 were used by a brewery that operated between 1954 and 1962. This shows the chronology of a bottle in the mid-20th century, indicating that at least some of these bottles were refilled/filled at least 21 years after they were first produced. Additionally, we can see that one bottler used bottles from five different producers. These two facts mean one or more of the following: the brewer could have batch purchased bottles from a wholesaler who collected bottles from multiple companies into large batches before reselling to a buyer; the brewer could have been operating a buy-back program that accepted any crown type beer bottle for refill; or the brewer may have purchased bottles from a wide variety of manufacturers for some unknown reason, perhaps a shortage. In any event, this small assemblage demonstrates how bottles can have lifespans of use that continue decades after their production date.

Trench 11

Three artifacts were encountered in Layer II of TR 11 between 20 and 50 cmbs. Layer II is part of Harris Layer C, a deposit of beach sand that has been disturbed by historic and modern activity. The three artifacts consist of two fragmentary glass windows (Acc. 8 and 47), and a metal plug (Acc. 48). Unfortunately all three of these artifacts are largely nondiagnostic, only demonstrating a post-contact age.

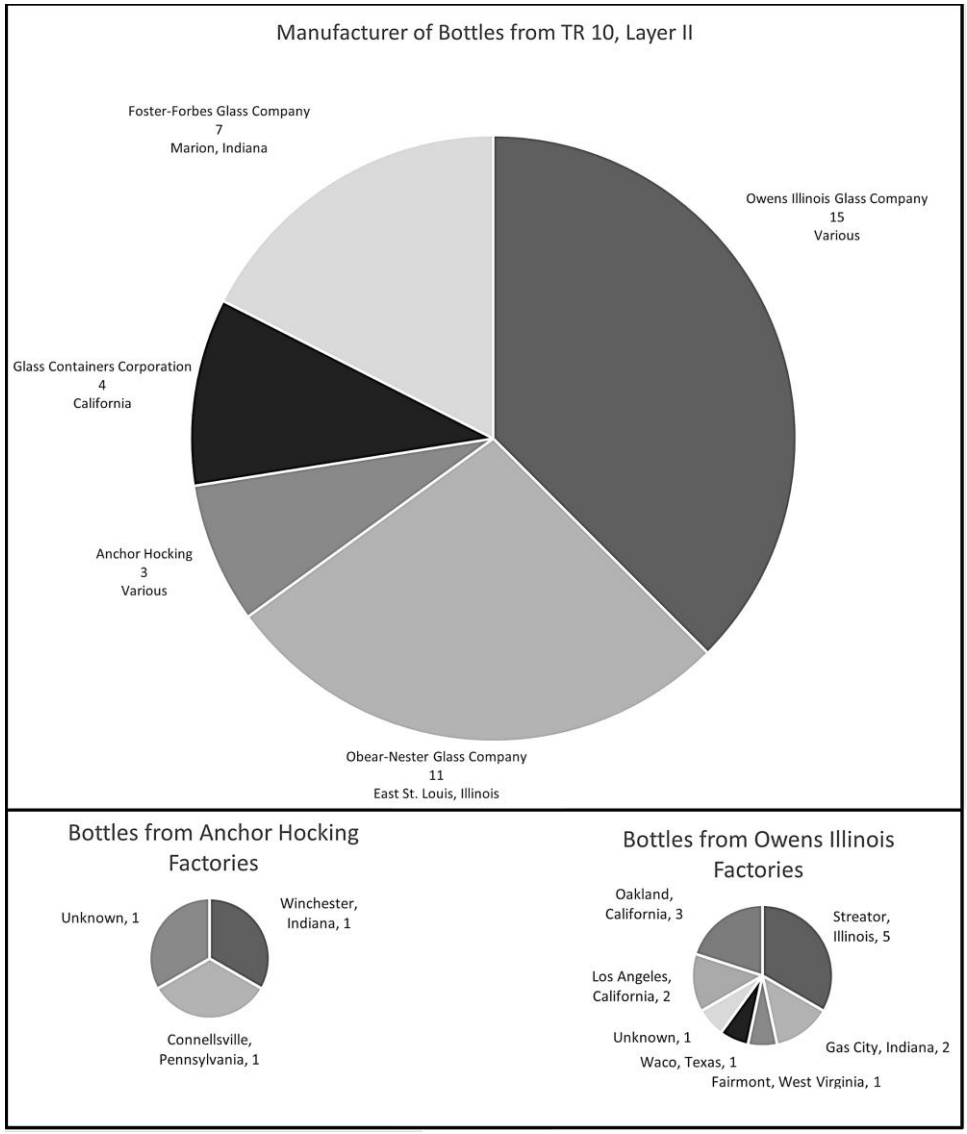


Figure 35. Bottle manufacturers from TR 10, Layer II.

Trench 12

A total of six artifacts were encountered in TR 12: a single porcelain sherd (Acc. 92) in Layer I found at 7 cmbs, and five aluminum Budweiser cans (Acc. 87–91) in Layer II, found between 40 and 100 cmbs. Layer I is part of Harris Layer A, secondary fill that has been imported into the area. Layer II is part of Harris Layer C, beach sand that has been disturbed by historic and modern activity. Porcelain, as discussed above, was first exported in the mid-18th century, showing at minimum that Layer I is post-contact in age. The five cans found in Layer II are all aluminum Budweiser beer cans with logos used commonly between 1945 and 1987 (e.g., Figure 39). Additionally all of the cans were manufactured in the straight-edge, 2-part alumnimum style used between 1945 and 1982 (Wijen 2021). Looking at TR 12 as a whole, the data indicates that Layer II is a post-1945 deposit, and Layer I is, by the law of superposition, earlier than Layer II.

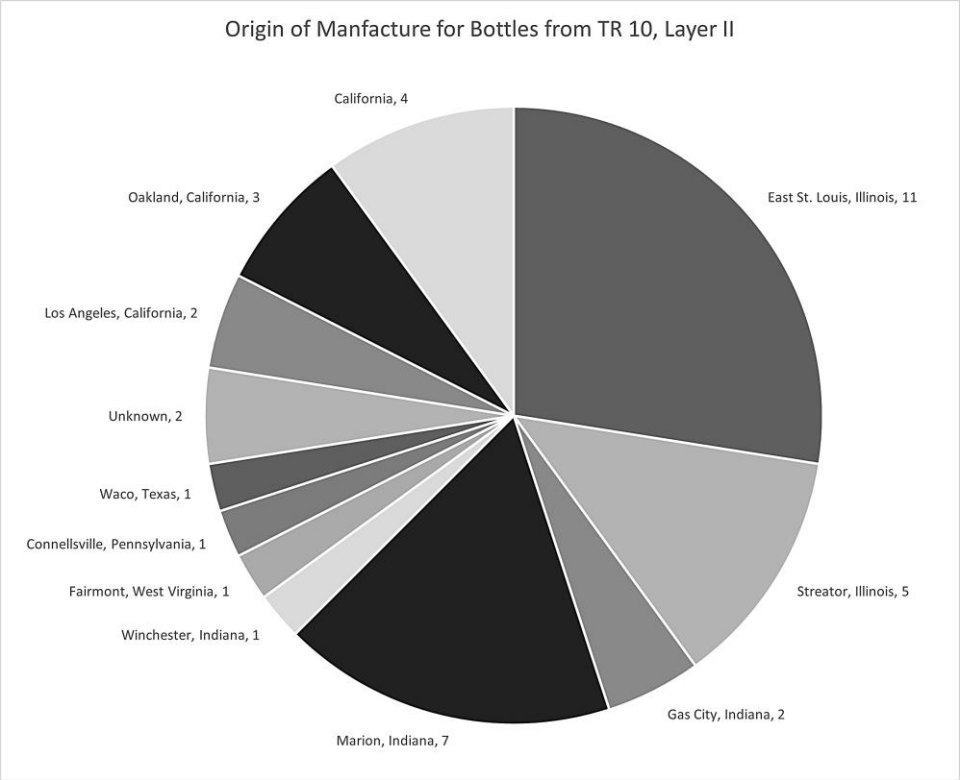


Figure 36. Origin of manufacture for bottles from TR 10, Layer II.

Figure 37. Acc. 118 a druggist bottle.

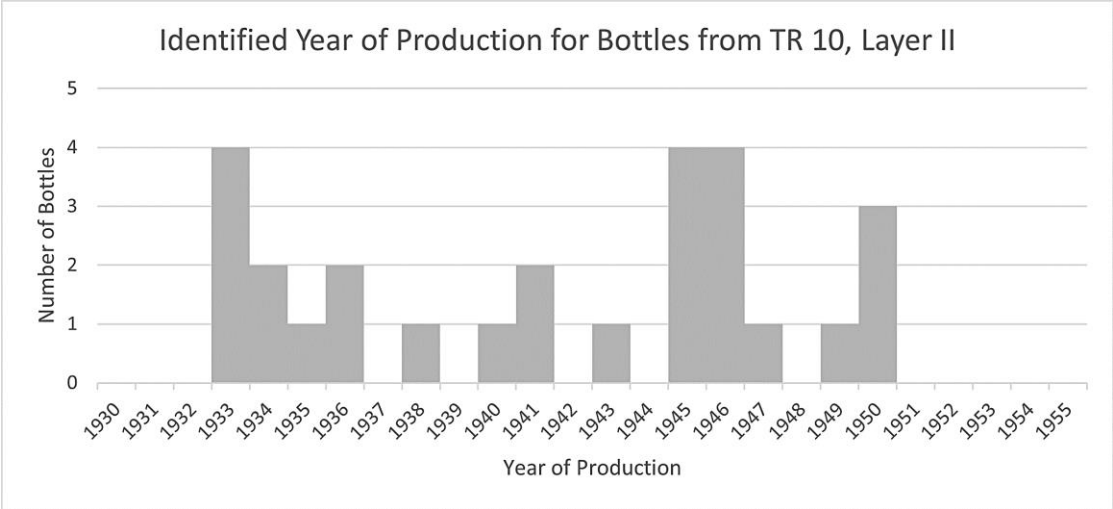


Figure 38. Identified year of production for bottles from TR 10, Layer II.

Figure 39. Acc. 91, a Budweiser can.

Trench 14

A total of 20 artifacts were encountered in Layer II of TR 14 between 80 and 110 cmbs. Layer II of TR of 14 is part of Harris Layer C, a deposit of beach sand that has been disturbed by historic and modern activity. The artifacts consist of 17 glass items (14 glass bottles, a glass screwcap, an embossed glass fragment, and an unidentified glass fragment), two porcelain sherds, and a metal cylinder. The metal cylinder (Acc. 95), and eight of the glass artifacts are largely nondiagnostic regarding age and manufacturer (Acc. 97, 99–101, 108–111), only demonstrating that the layer is post-contact in age or has been disturbed. This is also true for the two porcelain sherds (Acc. 93 and 94), as porcelain was first exported in the mid-18th century. A further eight of the glass artifacts (Acc. 96, 98, 102–104, 106, 107, 111) show evidence of being machine-made, a process widely adopted in 1911 (Lindsey 2021). And finally, a single glass bottle (Acc. 105) exhibited a

maker's mark, showing that the bottle was made by Brockway Glass Company in Oakland, California in 1980 (Lockhart et al. 2013). This bottle is less than 50 years old and indicates that the deposit is likely modern or has been disturbed in recent times. The contents of several artifacts were identifiable. Three items are druggist bottles (Acc. 100–102) (e.g., Figure 40), one is a jar that possibly contained food (Acc. 103), and two are milk bottles (Acc. 104).

Trench 17

Four artifacts were recovered from the center of TR 17, in Layer III between 70 and 135 cmbs. Layer III of TR 17 is part of Harris Layer D, a second layer of beach sand that has been disturbed by historic and modern activity. The artifacts consist of two glass bottles (Acc. 114, 115), a windowpane fragment (Acc. 113), and a fragmentary plastic pipe in three pieces (Acc. 116). The windowpane is largely nondiagnostic, only showing that the layer is post-contact in age or has been disturbed. This is similarly true for one of the two bottles, a fragment of a bottle's finish and neck. The bottle was clearly machine made, but exhibits few other diagnostic features, showing that the bottle was produced sometime after 1911. The second bottle has a maker's mark (Acc. 114), which in this case shows that it was made between 1933 and 1971 at a plant in Indianapolis, Indiana operated by Fairmont Glass Company (Lockhart et al. 2015a). And finally, the plastic pipe was almost certainly produced after 1950, when plastic became an everyday material. From this we can see that Layer III of TR 17 is at minimum, a post-1950 deposit or was disturbed after that time.

Botanical Remains, Charcoal, and Radiocarbon Dating Results

One unburned kukui nutshell (2.8 g) and 275.75 g of charcoal were collected during the excavations (Table 7). Two pieces of kukui nutshell charcoal were submitted to Beta Analytic, Inc. for accelerator mass spectrometer (AMS) radiocarbon dating (Appendix D).

Acc. 130 was collected from screening the north end of the TR 7 cultural layer (Layer II). The sample consists of a fragment of kukui nutshell charcoal that was scattered within the cultural layer. It returned a conventional radiocarbon age of 180±30 BP. This calibrates to AD 1722–1814 (49.4%), AD 1656–1698 (19.2%), AD 1910–post-1950 (19%), and AD 1836–1880 (7.3%).

Acc. 131 was collected from screening of the firepit at TR 7 (Feature 7-1). The sample consists of a fragment of kukui nutshell charcoal that was found within the firepit feature. It returned a conventional radiocarbon age of 200±30 BP. This calibrates to AD 1726–1811 (53.2%), AD 1644–1694 (25.5%), and AD 1917–post-1950 (16.7%).

There are multiple calibrated age ranges for the radiocarbon date presented above because the calibration curve for this period is flat as a result of the industrial revolution. The use of coal and oil released old carbon into the atmosphere, changing the proportion of C^{14} to C^{12}. Given that radiocarbon dating relies on this proportion, the method is not as effective during that era, resulting in multiple calibrated age ranges. Therefore it is unclear whether the samples date to the pre-contact period or more recent times.

The highest probability of dates for the two samples are calAD 1722–1814 and calAD 1726–1811, respectively. These dates form a tight range and likely place the two samples in the late pre-contact to early historic period. This makes sense given the mix of traditional and historic cultural material found at Site 6632.

Discussion and Summary of Findings

In summary, a portion of the previously identified Site 6632 was found within TR 7. It consists of a cultural layer and a firepit feature. A historic trash pit was identified within TR 10, not associated

Figure 40. Acc. 100, a druggist bottle.

Table 7. Botanical Remains and Charcoal Data

Acc.	Trench	Layer	Additional Provenience	Material	Identification	Weight (g)	Notes
147	7	L II	From Screen	Botanical Remains	Kukui Nutshell	2.8	Unburned
131	7	Fe 1	From Screen	Charcoal	Kukui Nutshell	0.24	Submitted for Dating
131	7	Fe 1	From Screen	Charcoal	Unidentified	5.63	
126	7	L II	From Screen	Charcoal	Unidentified	37.57	
127	7	L II	From Screen	Charcoal	Unidentified	204.52	
128	7	L II	From Screen, Mid-Trench	Charcoal	Unidentified	12.82	
129	7	L II	From Screen	Charcoal	Unidentified	5.16	
130	7	L II	51 cmbs, N End of Trench	Charcoal	Kukui Nutshell	0.24	Submitted for Dating
130	7	L II	51 cmbs, N End of Trench	Charcoal	Kukui Nutshell	0.41	
132	10	Fe 1	From Screen	Charcoal	Unidentified	9.13	

with Site 6632. Other trenches that yielded cultural material are TR 11, 12, 14, and 17. Surprisingly, nothing archaeological was found within any of the trenches on the far makai end (southeast) of the project area (TR 1–6). General stratigraphy of the project area consisted of pavement above fill and marine sand. No surface archaeological remains were identified, likely due to the extensive use of the property in the recent past.

An abundance of cultural material was collected during the survey. This consists of marine shell and other invertebrates, faunal remains, traditional artifacts, post-contact material, unburned kukui nutshell, charcoal. Marine invertebrates were by far the most common material, with 526.83 g collected and 16 different taxa identified. These mostly consist of marine shell, with sea urchin and crab also present. Faunal remains consist of 55 pieces of bone (236.42 g) and one pig tooth (0.7 g). Most commonly found were triggerfish, represented by 12 spikes. Also identified were dog, pig, rodent, bird, unidentified fish, frog, and cow. The invertebrate and faunal assemblage is indicative of both a marine and terrestrial diet, as many of the identified taxa are likely representative of food remains.

Traditional artifacts are represented by a bone fishhook, a coral abrader, two coral rubbing stone fragments, and basalt debitage. The fishhook and coral artifacts are expected at a pre-contact coastal site, where fishing played a large part in food procurement. The basalt debitage indicates that tool making occurred in the area as well. This makes sense, as stone adzes are used in canoe making and activities that would have been essential in a coastal community.

A total of 124 historic or modern artifacts were encountered across six trenches. These are comprised of 80 glass bottles, 10 other glass objects, eight fragments of ceramic tableware, five aluminum cans, 16 other metal objects, three plastic objects, a wooden button, and a stone tile. The closely dated artifacts were predominantly made during the early to mid-20th century, although as demonstrated in Feature 10-2, these objects can have lifetimes spanning decades of use. Glass bottles were the most informative, with all of the identified bottles imported from the mainland U.S., primarily from the Rust Belt and California. The bottles in the collection had a variety of contents, most commonly beer or other liquor, although milk, condiment, food, and medicine bottles were also represented. These kinds of historic remains are typical of a household assemblage in the historic era.

Radiocarbon dates from Site 6632 suggest that the site was used in the late pre-contact to early historic periods (calAD 1722–1814). The mix of pre- and post-contact cultural material from the site is in line with the dates. Pre-contact cultural material from Site 6632 includes a bone fishhook, coral abrading tools, basalt flakes, marine midden, and faunal remains, while post-contact items consist of two wire nails, a few glass and ceramic fragments, unidentified metal debris, and two scraps of plastic. While the plastic scraps are a likely indication of disturbance, the two ceramic sherds were found within a firepit feature at the site and clearly date that feature to post-1800. Therefore it is very likely that Site 6632 was utilized in the early historic period. This was a dynamic time, when pre-contact tools were still used as foreign items were being introduced. For example, Bayman (2003, 2009, 2014) documented the use of stone adzes for a century after Western contact, and noted that stone adzes were preferred for their performance. In addition to stone adzes, kapa, shell fishhooks, and thatched hale also persisted well into the historic period (Bayman 2009, 2014). Regarding adzes and fishhooks, Bayman (2014:98) states that:

> A complex set of factors accounts for this phenomenon. Political and economic factors constrained access to shell (for making hooks), and iron (for making adzes), but cultural imperatives also limited the initial desire for iron tools. These patterns underscore the importance of research on technology for understanding cultural consequences of world capitalism in Oceania's indigenous societies.

The evidence from Site 6632 shows that traditional fishhooks and fishhook manufacturing tools were being utilized in the early 1800s, and that traditional foods were being consumed at the same time that glass, nails, and ceramics were in use.

SUMMARY AND RECOMMENDATIONS

An archaeological inventory survey was conducted for TMK: (1) 3-5-006:007, :009, :014, and :025 in Waikīkī Ahupuaʻa, Honolulu District, on the island of Oʻahu, for a proposed residential construction. The archaeological work included pedestrian survey that covered 100% of the .81 ha (2 ac.) project area, as well as test excavations consisting of 19 trenches.

No surface archaeological remains were found during pedestrian survey of the parcels. The entire area has been disturbed by residential activity throughout the years. Subsurface testing identified one subsurface archaeological deposit, two features, and a multitude of cultural material. The deposit consists of a cultural layer that is part of Site 50-80-14-6632, which was previously identified on the neighboring property (Putzi and Dye 2003). While human remains were found in the earlier study of Site 6632, none were found during the current survey, and Site 6632 was only identified in one trench. The two features documented during the current survey are a subsurface firepit within Site 6632 and a subsurface historic trash pit that is not associated with the site. Aside from the cultural deposit and features, general stratigraphy of the project area consisted of fill and natural sand, in some instances beneath concrete pavement and basecourse.

Cultural material was collected from Site 6632 and also from other parts of the project area. Collected material consists of marine shell and other invertebrates, faunal remains, traditional artifacts, post-contact material, unburned kukui nutshell, and charcoal. Marine shell was the most abundant material, and other invertebrates included crab and sea urchin. Faunal remains consisted of a variety of mammal remains, as well as fish, bird, frog, and unidentified non-human bone. Traditional artifacts include a bone fishhook, coral abrader and rubbing stone fragments, and basalt debitage. These were all found within the Site 6632 cultural layer. Post-contact material included glass, metal, ceramics, a stone tile, and plastic fragments. The plastic fragments indicate disturbance of the cultural layer in addition to disturbance by buried utilities.

Two samples of kukui nutshell were submitted for radiocarbon dating. One sample derived from the firepit feature of Site 6632, and the other from scattered, isolated charcoal within the Site 6632 cultural layer. The age ranges were very similar, with the highest probability of dates for the two samples at calAD 1722–1814. This likely places the two samples in the late pre-contact to early historic period, which makes sense given the mix of traditional and historic cultural material found at the site.

The research questions for the survey can be answered as follows:

1. Have any archaeological remains survived the disturbance to the parcels from repeated modern development? If so, what is the nature of these remains and where are they located?

One archaeological site including a firepit feature (Site 6632), a historic trash pit, and a multitude of cultural material have survived beneath the surface of the parcels. Site 6632 is a late pre-contact to early historic cultural layer that was likely used for habitation, resource procurement, and tool making. The lack of structural features or post holes suggests temporary habitation; the coastal location and artifact and midden finds indicate marine resource procurement; and tool making may have taken place to support these activities (e.g., the manufacture of basalt adzes for canoe making). While there are no known sources of high quality basalt in the immediate area, material was likely brought to the site to produce stone tools. Site 6632 was identified only within TR 7, which is set back from the current shoreline by approximately 90 m. The historic trash pit was identified in TR 10, located near the west corner of the southern parcel. Historic cultural material

was identified throughout the mauka portions of the project area, and no archaeological remains were found in the trenches closest to the coast (TR 1–6, 30–80 m from the current shoreline).

2. Are there any indications of pre-contact and/or historic land use? Are human burials, cultural layers, features, and artifacts present within the project area? If so, what do those resources indicate about habitation and/or subsistence patterns?

Pre-contact and historic land use is evident in a historic trash pit, scattered isolated historic artifacts, and Site 6632, which dates to the late pre-contact to early historic periods. No human burials were identified within the project area. All bone that was found was identified as non-human. Data from Site 6632 suggests temporary coastal habitation, where marine resources were procured.

3. Does the cultural layer previously identified on the parcel next door (Putzi and Dye 2003) extend into the project area? If so, can more information be gathered on the age of the cultural layer and past activities associated with the layer?

The cultural layer of Site 6632 was found in only one of 19 trenches. This is the trench closest to the north property boundary, which the property shares with the parcel where the site was previously documented. Two radiocarbon dates were obtained from kukui nutshell charcoal. Acc. 130 was collected from screening the north end of the cultural layer and is therefore representative of charcoal that was scattered within the cultural layer. It returned a conventional radiocarbon age of 180±30 BP. This calibrates to AD 1722–1814 (49.4%), AD 1656–1698 (19.2%), AD 1910–post 1950 (19%), and AD 1836–1880 (7.3%). Acc. 131 was collected from screening of the firepit feature within the cultural layer. It returned a conventional radiocarbon age of 200±30 BP. This calibrates to AD 1726–1811 (53.2%), AD 1644–1694 (25.5%), and AD 1917–post-1950 (16.7%). Based on material collected from the cultural layer, past activities include habitation, resource procurement, and stone tool making.

Site Integrity and Significance

To determine if a historic property is significant under Hawaii Administrative Rules (HAR) for historic preservation it must be assessed for significance according to HAR §13-284-6(b):

> (b) To be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criterion:
>
> > (1) Criterion “a”. Be associated with events that have made an important contribution to the broad patterns of our history;
> >
> > (2) Criterion “b”. Be associated with the lives of persons important in our past;
> >
> > (3) Criterion “c”. Embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value;
> >
> > (4) Criterion “d”. Have yielded, or is likely to yield, information important for research on prehistory or history; or
> >
> > (5) Criterion “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.

A cultural resource must possess historic integrity to be considered significant. Integrity is defined as the authenticity of a property's historic identity, as evidenced by the survival of physical characteristics it possessed in the past, and its capacity to convey information about a culture or people, historic patterns, or architectural or engineering design or technology. The aspects of integrity are location, design, setting, materials, workmanship, feeling, and association. Location refers to the place where an event occurred or a property was constructed. Design considers elements such as plan, form, and style of a property. Setting is the physical environment of the property. Materials refer to the physical elements used to construct the property. Workmanship refers to the craftsmanship of the creators of a property. Feeling is the property's ability to convey its historic time and place. Association refers to the link between the property and a historic event or person.

Site 50-80-14-6632 retains integrity of location, design, setting, materials, and workmanship. It lacks integrity of feeling and association because the site is now situated within a modern, built environment. Site 6632 is significant under Criterion d of HAR §13-284-6(b) (Table 8). It may provide further information on habitation, marine resource procurement, and tool making at a coastal site that dates to the late pre-contact to early post-contact period. The AIS results support a project-effect determination of "Effect, with agreed upon mitigation commitments." The mitigation commitment will include preparation of an archaeological monitoring plan and implementation of archaeological monitoring.

Table 8. Significance Determination

Site 50-80-14-	Description	Function	Criterion	Integrity	Justification	Recommendation
6632	Buried Cultural Layer, Firepit Feature	Habitation, Resource Procurement, Tool Making	d	Location, Design, Setting, Materials, Workmanship	May yield further information on habitation, marine resource procurement, and tool making at a coastal site that dates to the late pre-contact to early post-contact period.	Archaeological Monitoring

GLOSSARY

ahupuaʻa Traditional Hawaiian land division usually extending from the uplands to the sea.

aliʻi Chief, chiefess, monarch.

ʻauwai Ditch, often for irrigated agriculture.

hālau Meeting house for hula instruction or long house for canoes.

hale House.

hau The indigenous tree *Hibiscus tiliaceous*, which had many uses in traditional Hawaiʻi. Sandals were fashioned from the bark and cordage was made from fibers. Wood was shaped into net floats, canoe booms, and various sports equipment and flowers were used medicinally.

heiau Place of worship and ritual in traditional Hawaiʻi.

iʻa Fish or other marine animal.

ʻieʻie The vine *Freycinetia arborea*, an endemic, woody branching climber hat grows at altitudes of 300–600 m. In ancient Hawaiʻi, vines were considered sacred and used in basketry and for ceremonial purposes.

ʻili Traditional land division, usually a subdivision of an ahupuaʻa.

ipu General name for a vessel or container. Also the bottle gourd *Lagenaria siceraria* or *L. vulgaris*, which was used traditionally for containers, hula instruments, and for medicine.

iwi Bone.

kahe To flow, trickle, melt, drop, or menstruate; in heat; a school of fish.

kahu Honored attendant, guardian, nurse, keeper, administrator, pastor.

kahuna An expert in any profession, often referring to a priest, sorcerer, or magician.

kalo The Polynesian-introduced *Colocasia esculenta*, or taro, the staple of the traditional Hawaiian diet.

kamaʻāina Native-born.

kapa Tapa cloth.

kapu Taboo, prohibited, forbidden.

koʻa Fishing shrine.

konohiki The overseer of an ahupuaʻa ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.

kou The flowering tree, *Cordia subcordata*, either native to Hawaiʻi or introduced by Polynesians.

kuleana Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.

kukui The candlenut tree, or *Aleurites moluccana*, the nuts of which were eaten as a relish and used for lamp fuel in traditional times.

kupuna Grandparent, ancestor; kūpuna is the plural form.

kūʻula A stone god used to attract fish, an altar near the sea, or a hut where fishing gear was kept with kūʻula images to invoke their power.

lauhala	Leaf of the hala, or pandanus tree (*Pandanus odoratissimus*), used for matting and basketry.
lele	A detached part or lot of land belonging to one ‘ili, but located in another ‘ili.
limu	Refers to all sea plants, such as algae and edible seaweed.
lo‘i, lo‘i kalo	An irrigated terrace or set of terraces for the cultivation of taro.
loko	Inside, interior. Pond, lake, pool.
loko i‘a kalo	Pond for both fish and taro cultivation.
loko wai	Freshwater lake or pond.
lū‘au	Hawaiian feast, named for the taro tops always served at one; this is not an ancient name, but goes back to at least 1856.
makai	Toward the sea.
Māhele	The 1848 division of land.
maka‘āinana	Common people, or populace; translates to “people that attend the land.”
mākāhā	A fishpond sluice gate.
māmaki	*Piptarus* spp., a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
mauka	Toward the mountains.
mele	Song, chant, or poem.
mo‘olelo	A story, myth, history, tradition, legend, or record.
naio	*Myoporum sandwicense,* the bastard sandalwood native to Hawai‘i.
niuhi	Man-eating shark; any shark more than 3.5 m long is probably a niuhi. Catching the niuhi was a sport of chiefs.
‘ōhi‘a ‘ai	The mountain apple tree, *Eugenia malaccensis*, a forest tree that grows to 50 ft high.
‘ōhi‘a lehua	The native tree *Metrosideros polymorpha*, the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
‘ōlelo no‘eau	Proverb, wise saying, traditional saying.
oli	Chant.
olonā	The native plant *Touchardia latifolia*, traditionally used for making cordage.
paniwai	Levee, dam, sluice, dike.
pili	A native grass, *Heteropogon contortus*.
pōhuehue	The beach morning glory, *Ipomoea pes-caprae* subsp. *brasiliensis*, used medicinally. Vines are also used to drive fish into nets.
post-contact	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pre-contact	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pueo	The Hawaiian short-eared owl, *Asio flammeus sandwichensis*, a common ‘aumakua.
pu‘u	Hill, mound, peak.

pu‘uone Pond near the seashore, as at the end of a stream; divination.

ti (kī) The plant *Cordyline terminalis*, whose leaves were traditionally used in house thatching, raincoats, sandals, whistles, and as a wrapping for food.

‘uala The sweet potato, or *Ipomoea batatas*, a Polynesian introduction.

uhiuhi The endemic tree *Mezoneuron kauaiense*, a legume with pink or red flowers and winged pods. It produces a hard, heavy wood that was used for hōlua sleds, spears, digging sticks, and house posts in ancient times.

umu Furnace or oven; a pile of rocks placed in the ocean to attract small fish. More commonly called imu.

wauke The paper mulberry, or *Broussonetia papyrifera*, which was made into tapa cloth in traditional Hawai‘i.

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APPENDIX A: INVENTORY OF MARINE INVERTEBRATES

Acc.	Trench	Layer	Additional Provenience	Material	ID	Count	Weight (g)
125	7	L II		Crustacean	Crab Claw	19	5.16
125	7	L II		Echinoderm	Sea Urchin- Echinothrix	16	2.06
125	7	L II		Marine Shell	Cellana	5	0.46
125	7	L II		Marine Shell	Conus	7	26.9
125	7	L II		Marine Shell	Cypraea	5	5.01
125	7	L II		Marine Shell	Hipponix	168	30.42
125	7	L II		Marine Shell	Isognomon	47	10.14
125	7	L II		Marine Shell	Lucinid	30	6.16
125	7	L II		Marine Shell	Modiolus	6	1.01
125	7	L II		Marine Shell	Nerita	114	26.84
125	7	L II		Marine Shell	Strombus	2	8.74
125	7	L II		Marine Shell	Tellina	19	22.18
125	7	L II		Marine Shell	Terebra	2	1
125	7	L II		Marine Shell	Turbo	65	92.24
125	7	L II		Marine Shell	Unidentified	91	47.86
148	7	L II	50 cmbs, 3 m from datum	Echinoderm	Sea Urchin- Heterocentrotus (broken spine, unmodified)	1	1.48
149	10	L II		Marine Shell	Turbo	1	6.17
150	11	L II		Marine Shell	Turbo	3	12.05
157	7	L II	mid-trench	Crustacean	Crab Claw	1	0.25
157	7	L II	mid-trench	Echinoderm	Sea Urchin- Echinothrix	10	1.31
157	7	L II	mid-trench	Marine Shell	Conus	2	8.27
157	7	L II	mid-trench	Marine Shell	Cymatium	1	10.75
157	7	L II	mid-trench	Marine Shell	Hipponix	8	1.92
157	7	L II	mid-trench	Marine Shell	Isognomon	11	1.03
157	7	L II	mid-trench	Marine Shell	Lucinid	2	1.47
157	7	L II	mid-trench	Marine Shell	Nerita	15	3.93
157	7	L II	mid-trench	Marine Shell	Strombus	1	2.82
157	7	L II	mid-trench	Marine Shell	Tellina	2	5.67
157	7	L II	mid-trench	Marine Shell	Terebra	1	1.27
157	7	L II	mid-trench	Marine Shell	Turbo	10	13
157	7	L II	mid-trench	Marine Shell	Unidentified	3	1.58
158	7	L I / II	0-55 cmbs	Crustacean	Crab Claw	3	0.15
158	7	L I / II	0-55 cmbs	Echinoderm	Sea Urchin- Echinothrix	16	2.54

Acc.	Trench	Layer	Additional Provenience	Material	ID	Count	Weight (g)
158	7	L I / II	0-55 cmbs	Marine Shell	Conus	7	19.15
158	7	L I / II	0-55 cmbs	Marine Shell	Hipponix	58	9.77
158	7	L I / II	0-55 cmbs	Marine Shell	Isognomon	23	7.13
158	7	L I / II	0-55 cmbs	Marine Shell	Lucinid	4	0.94
158	7	L I / II	0-55 cmbs	Marine Shell	Modiolus	1	0.13
158	7	L I / II	0-55 cmbs	Marine Shell	Nerita	45	11.19
158	7	L I / II	0-55 cmbs	Marine Shell	Pinctada	3	1.09
158	7	L I / II	0-55 cmbs	Marine Shell	Tellina	18	19.13
158	7	L I / II	0-55 cmbs	Marine Shell	Terebra	2	1.04
158	7	L I / II	0-55 cmbs	Marine Shell	Turbo	43	74.02
158	7	L I / II	0-55 cmbs	Marine Shell	Unidentified	35	10.21
159	7	L II		Crustacean	Crab Claw	3	0.67
159	7	L II		Marine Shell	Hipponix	4	3.79
159	7	L II		Marine Shell	Isognomon	3	1.18
159	7	L II		Marine Shell	Lucinid	2	0.33
159	7	L II		Marine Shell	Modiolus	1	0.36
159	7	L II		Marine Shell	Nerita	7	2.42
159	7	L II		Marine Shell	Strombus	2	4.71
159	7	L II		Marine Shell	Tellina	1	0.6
159	7	L II		Marine Shell	Turbo	7	7.36
159	7	L II		Marine Shell	Unidentified	6	2
160	7	Fe 1		Crustacean	Crab Claw	1	0.23
160	7	Fe 1		Marine Shell	Isognomon	1	1.39

APPENDIX B: ANALYSIS OF FAUNAL REMAINS

By Elena Hughes, MA

Keala Pono Archeological Consulting, LLC
Project 165: (4767 Kahala)
Date: November 18th, 2021
Osteologist: Elena Hughes, MA, PhDc

Multiple skeletal remains were found by archaeologists during archaeological inventory survey excavations and collected for examination. Upon analysis of these bones it was concluded that they are non-human remains. The bones represent a variety of different species and while some elements were too generic in design or too damaged to get a conclusive species identification, they were clearly non-human due to their size and/or morphology. All skeletal remains analyzed are listed in the table below.

Minimum Number of Individuals (MNI):
Canine-1, Pig – 1, Rodent -1, Frog – 1, Bird – 1, Cow – 1, Triggerfish – 12; Unidentified Fish – 1

Visual confirmation of species identification was confirmed using the following resources:

Adams, B.J., Crabtree, P.J., 2008. Comparative Skeletal Anatomy: A Photographic Atlas for Medical Examiners, Coroners, Forensic Anthropologists, and Archaeologists. Humana Press. Totowa, NJ.

Adams, B.J., Crabtree, P.J., 2012. Comparative Osteology: A Laboratory and Field Guide of Common North American Animals. Academic Press. Boston, MA.

Cohen, A., Serjeantson, D., 1996. A Manual for the Identification of Bird Bones from Archaeological sites. Archetype Publications Ltd. London.

France, D.L., 2017. Comparative Bone Identification: Human subadult to Nonhuman. CRC Press. Boca Raton, FL.

Faunal Identifications

Acc.	Count	Description	Identification	Provenience
133	3	Caudal vertebrae	Fish	TR 10, Fe1
134	1	Cranial element	Fish	TR 10, Fe1
135	1	Epiphyseal fragment, with butchery marks	Unidentified	TR 10, Fe1
136a	1	Long bone shaft segment, with butchery marks	Cow [Probable]	TR 10, Fe1
136b	1	Rib, shaft fragment	Possible canine (or similar size)	TR 10, Fe1
136c	1	Rib shaft	Fish	TR 10, Fe1
136d	1	Femur, shaft	Canine [Probable]	TR 10, Fe1
136e	1	Radius, distal	Canine [Probable]	TR 10, Fe1
136f	1	Tibio-tarsus shaft	Bird	TR 10, Fe1
136g	2	Vertebrae, fragments	Unidentified	TR 10, Fe1

Acc.	Count	Description	Identification	Provenience
136h	2	Sacrum, fragments with butchery marks	Pig [Probable]	TR 10, Fe1
136i	1	Sacral fragment	Unidentified	TR 10, Fe1
136j	2	Calcaneus and Talus	Frog	TR 10, Fe1
136k	1	Femur	Frog	TR 10, Fe1
137a	1	Long bone shaft segment, with butchery marks	Cow [Probable]	TR 14, L III
137b	1	Pelvic segment, with butchery marks	Cow [Probable]	TR 14, L III
138	1	Tooth, molar	Pig [Probable]	TR 7, Fe1
139	1	Dorsal Spike	Trigger Fish [Probable]	TR 7, 0-55cmbs
140	2	Epiphyseal fragments	Unidentified	TR 7, 0-55cmbs
141a	1	Humerus, distal	Canine [Probable]	TR 7, Fe1
141b	1	Maxilla, right	Fish	TR 7, Fe1
141c	2	Tibia, distal epiphysis	Canine [Probable]	TR 7, Fe1
141d	1	Long bone shaft, probable femur	Rodent	TR 7, Fe1
141e	1	Metacarpal, proximal	Pig [Probable]	TR 7, Fe1
141f	2	Vertebrae, dorsal process fragments	Pig [Probable]	TR 7, Fe1
141g	1	Long bone shaft fragment, metacarpal [Probable]	Possible pig (or similar size)	TR 7, Fe1
141h	1	Sacrum, fragment	Possible canine (or similar size)	TR 7, Fe1
141i	2	Vertebrae, vertebral/sacral arch	Possible canine (or similar size)	TR 7, Fe1
141j	4	Fragments	Unidentified	TR 7, Fe1
142	1	Premaxilla	Fish	TR 7, L II
143	3	Dorsal Spike	Trigger Fish [Probable]	TR 7, L II
144	7	Dorsal Spike	Trigger Fish [Probable]	TR 7, L II
145	1	Dorsal Spike	Trigger Fish [Probable]	TR 7, 0-55cmbs
146a	2	Tibia, left and right	Rodent	TR 7, L II
146b	1	Rib, shaft fragment [probable]	Unidentified	TR 7, L II

APPENDIX C: INVENTORY OF HISTORIC ARTIFACTS

Inventory of Bottle Glass

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
1	Brown Glass "Burnett's" Glass Vodka Bottle	1	10	1	20-70	13.9 / 6.5	139	Liquor Flask	Kentucky	Unknown	"Burnett's" embossed up sides of body.	D-661 / 5 Maker's Mark (H over anchor) 2	Anchor Hocking	Connellsville, Pennsylvania	1964-2005	Anchor Hocking was founded in1937. The Anchor H Monogram: the, H over anchor, was registered in 1940, but evidence shows its use as early as 1938 Single digits tend to imply early dates, but the lack of a Federal warning signifies the bottle is Post-1964 in production. Factory Code of 5 references Connellsville, Pennsylvania, in operation between 1938 and 2005
2	Colorless Druggist Glass Bottle, Square Base	1	10	1	20-70	11.3 / 4.2	93	Druggist	Unknown	Unknown	None	7905-E / 20 Maker's Mark (O over diamond with dot) 5	Owens Illinois Glass Company	Oakland, California	1945	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland, California between 1937 and 2018. The single digit signifies that the bottle was produced in 1945.
3	Tiny Colorless Glass Bottle	1	10	1	20-70	4.5 / 1.2	5	Vial	Unknown	Unknown	None	None	Unknown	Unknown	Post-1910	A tiny vial with a small hole in the bottom. Clearly machine made, but no other distinguishable traits.
4	Tiny Colorless Glass Ampoule	1	10	1	20-70	5.2 / 1.1	4	Ampoule	Unknown	Unknown	None	None	Unknown	Unknown	Post-1910	An ampoule with liquid still inside it. Likely machine-made. Liquid is unknown.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
5	Fragmentary Colorless Glass Bottle (Base)	2	10	1	20-70	5.5 / 2.5	10*	Unknown	Unknown	Unknown	Unknown	4 Maker's Mark (O over diamond with dot) 7 / 20 / B-1595	Owens Illinois Glass Company	Oakland, California	1944 or 1947	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland, California between 1937 and 2018. There are two single digits printed on both sides of the maker's mark, a 4 and a 7, one of these is a date code and the other is probably a mold number, signifying that the bottle was produced either in 1944 or 1947. B-1595 is a factory code.
6	Fragmentary Colorless Glass Bottle (Base)	1	10	1	20-70	1.5 / 6.5 est.	15*	Unknown	Unknown	Unknown	Unknown	20 Maker's Mark (O over diamond with dot) 4 / 6A / 4045-	Owens Illinois Glass Company	Oakland, California	1944	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland California between 1937 and 2018. The single digit 4, is a date code and signified that the bottle was produced in 1944.
7	Fragmentary Colorless Glass Bottle (Base)	1	10	1	20-70	2.8 / 2 est.	10*	Unknown	Unknown	Unknown	Unknown		Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
9	Fragmentary Colorless Glass Bottle (Neck and Finish)	1	10	1	20-70	5.5 / 2.5	8*	Druggist	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
10	Fragmentary Colorless Glass Bottle (Base)	1	10	1	20-70	2.6 / 3.5	19*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
11	Fragmentary Colorless Glass Bottle (Base)	1	10	1	20-70	3.5 / 6.8	37*	Unknown	Unknown	Unknown	Unknown	193 / Maker's Mark (LP over Jar) / 4	Pennsylvania Bottle Company	Wilcox, Pennsylvania	1944	The Pennsylvania Bottle Company is part of the Knox Glass Bottle Company, with the latter operated from 1914 to 1965 when it was absorbed into Hunt Foods. The LP over jar maker’s mark signifies that the bottle was produced by the Pennsylvania Bottle Company in Wilcox, Pennsylvania between 1940 and 1952. The 4 notes the year of production, 1944. 123 is a plant code.
12	Fragmentary Colorless Glass Bottle (Square Base Fragment)	1	10	1	20-70	0.6 / 4.2	10*	Unknown	Unknown	Unknown	Unknown	Maker's Mark (Triangle with dot in center) / 6	Unknown	Unknown	Post-1800	An unknown maker's mark is embossed on the base, Triangle with dot in center. The bottle is either mold blown or machine made, as evidenced by the maker's mark. Precise form of manufacture cannot be determined, however. It is unclear what the 6 embossed on the base means.
13	Fragmentary Colorless Glass Bottle (Finish)	1	10	1	20-70	3.5 / 4.5	9*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
14	Fragmentary Deformed Colorless Glass Bottle (Finish)	1	10	1	20-70	6.5 / 7.5	17*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1911	The finish for this bottle is an interrupted wide mouth thread style, first produced in 1911 (machine made).

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
15	Fragmentary Colorless Glass Bottle (Shoulder)	1	10	1	20-70	2.5 / 6	6*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
16	Fragmentary Colorless Glass Bottle (Shoulder)	1	10	1	20-70	3.7 / 5.8	8*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
17	Fragmentary Deformed Colorless Glass (Finish)	1	10	1	20-70	2.2 / 6.7	16*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1911	The finish for this bottle is an interrupted wide mouth thread style, first produced in 1911 (machine made).
18	Fragmentary Deformed Colorless Glass Bottle (Finish)	1	10	1	20-70	4.5 / 4.5	16*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1911	The finish for this bottle is an interrupted wide mouth thread style, first produced in 1911 (machine made).
19	Fragmentary Colorless Glass Bottle (Shoulder)	1	10	1	20-70	5.8 / 3	8*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
21	Fragmentary Colorless Glass Bottle (Shoulder)	1	10	1	20-70	6 / 1.9	6*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
22	Fragmentary Colorless Glass Bottle (Neck)	1	10	1	20-70	0.9 / 3	6*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
23	Fragmentary Brown Glass Fragment (Body)	1	10	1	20-70	6.5 / 4.5	14*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
24	Fragmentary Colorless Glass Fragment (Body)	26	10	1	20-70	<6 / 6	61* bulk	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
25	Fragmentary Thin Colorless Glass Fragment (Body)	5	10	1	20-70	<3 / 3	5* bulk	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
45	Bottle Glass Fragment	1	10		60-100	2 / 1	<1*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	No clear datable aspects of the fragment, aside from post-contact.
49	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (G above C) / 4934 / 1	Glass Containers Corp.	California	1934-1968	Glass Containers Corporation was founded in 1933. This maker's mark has been used between 1934 and 1968. No obvious date codes on bottle.
50	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 13 / 43	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1943)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 43 below the maker's mark is likely the bottle's production date (1943).

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
51	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1712 / Maker's Mark (2 italicized Fs over each other) / 15	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. It appears that the numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.
52	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	15 Maker's Mark (O over diamond with I) 46 / 14 /GX-2430	Owens Illinois Glass Company	Waco, Texas	1946	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 15 means that the bottle was produced in Waco Texas post-1945. The 46 to the right of the maker's mark is a date code for 1946. FX-2430 is a factory code.
53	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	9 Maker's Mark (O over diamond with I) 7 / 4	Owens Illinois Glass Company	Streator, Illinois	1934	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 9 signifies that the bottle was produced in Streator, Illinois post-1930. The 7 to the right of the maker's mark is a date code, likely 1937. 4 is a factory code.
54	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1712 / Maker's Mark (2 italicized Fs over each other) / 6	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was founded in 1842 and continues through various iterations to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. The numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
55	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 22. / 41	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1941)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 41 below the maker's mark is likely the bottle's production date (1941).
56	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1711 / Maker's Mark (2 italicized Fs over each other) / 2	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations all the way up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. The numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.
57	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 15 / 46	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1946)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 46 below the maker's mark is likely the bottle's production date (1946).
58	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	20 Maker's Mark (O over Diamond with dot) 4 / 6A	Owens Illinois Glass Company	Oakland, California	1934	Owens Illinois Glass Company formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies production in Oakland, California from 1937–2018. The 4 to the right of the maker's mark is a date code, likely 1934. 6A is a factory code.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
59	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	20 Maker's Mark (O over diamond with I) 45 / Duraglas / 4649 GB / 3-A	Owens Illinois Glass Company	Oakland, California	1945	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland California between 1937 and 2018. The 45 to the right of the maker's mark is a date code, for 1945. Duraglas is a type of glass used by Owens Illinois bottle co between 1940 and the early 1970s. 4649 GB and 3-A are factory codes.
60	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	X / Maker's Mark (N in a box) 53 / 50	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1950)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 50 below the maker's mark is likely the bottle's production date (1950).
61	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1712 / Maker's Mark (2 italicized Fs over each other) / 11	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. The numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
62	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1 / Maker's Mark (N in a box) 13 / 49	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1949)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued until 1978 when the factory was closed. The 49 below the maker's mark is likely the bottle's production date (1949).
63	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	12 Maker's Mark (O over diamond with I) 50 / 6 / GX 2432	Owens Illinois Glass Company	Gas City, Indiana	1950	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 12 signifies that the bottle was produced in Gas City, Indiana between 1929 and 1982. The 50 to the right of the maker's mark is a date code for 1950.
64	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (G above C) / 4934 / 5	Glass Containers Corp.	California	1934-1968	Glass Containers Corporation was founded in 1933. This maker's mark has been used between 1934 and 1968. No obvious date codes are on the bottle.
65	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 12 / 47	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1947)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 47 below the maker's mark is likely the bottle's production date (1947).

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
66	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	12 Maker's Mark (O over diamond with I) 50 / 14 - / GX-2432	Owens Illinois Glass Company	Gas City, Indiana	1950	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 12 signifies that the bottle was produced in Gas City, Indiana between 1929 and 1982. The 50 to the right of the maker's mark is a date code for 1950.
67	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	G Maker's Mark (G above C) 8 / 4928 / 2	Glass Containers Corp.	California	1934-1968 (1938)	Glass Containers Corporation was founded in 1933. This maker's mark has been used between 1934 and 1968. The 8 to the right of the maker's mark is a possible date code (1938).
68	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	9 Maker's Mark (O over diamond with I) 6 / 13 / Duraglas	Owens Illinois Glass Company	Streator, Illinois	1936	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 9 signifies that the bottle was produced in Streator, Illinois post-1930. The 6 to the right of the maker's mark is a date code, for 1936.
69	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	9 Maker's Mark (O over diamond with I) 3. / 3 / Duraglas	Owens Illinois Glass Company	Streator, Illinois	1933	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 9 signifies that the bottle was produced in Streator, Illinois post-1930. The 3 to the right of the maker's mark is a date code for 1933.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
70	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	9 Maker's Mark (O over diamond with I) 6 / 10 / Duraglas	Owens Illinois Glass Company	Streator, Illinois	1936	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 9 signifies that the bottle was produced in Streator, Illinois post-1930. The 6 to the right of the maker's mark is a date code for 1936.
71	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 48 / 41	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1941)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 41 below the maker's mark is likely the bottle's production date (1941).
72	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	20 Maker's Mark (O over diamond with I) 0 / Duraglas / 10 / 4.49-GB	Owens Illinois Glass Company	Oakland, California	1940	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland California between 1937 and 2018. The 0 to the right of the maker's mark is a date code for 1940. Duraglas is a type of glass used by Owens Illinois between 1940 and the early 1970s.
73	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (O over diamond with I) 3	Owens Illinois Glass Company	Unknown	1933	Owens Illinois Glass Company formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The 3 to the right of the maker's mark is a date code for 1933.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
74	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 15 / 46	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1946)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 46 below the maker's mark is likely the bottle's production date (1946).
75	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (G above C) / 4	Glass Containers Corp.	California	1934-1968	Glass Containers Corporation was founded in 1933. This maker's mark has been used between 1934 and 1968.
76	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	1141 / Maker's Mark (2 italicized Fs over each other)	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. The numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.
77	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 9 / 45	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1945)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 45 below the maker's mark is likely the bottle's production date (1945).

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
78	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	8589 / 3 Maker's Mark (H over anchor) 45 / 22	Anchor Hocking	Winchester, Indiana	1945	Anchor Hocking was founded in 1937. The Anchor H Monogram was registered in 1940, but evidence shows its use as early as 1938. The 45 to the right of the maker's mark is a date code (1945). Factory Code of 3 references Winchester, Indiana, in operation between 1938 and 2011
79	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	9 Maker's Mark (O over diamond with I) 46 / 3 / Duraglas	Owens Illinois Glass Company	Streator, Illinois	1946	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 9 signifies that the bottle was produced in Streator, Illinois post-1930. The 46 to the right of the maker's mark is a date code for 1946.
80	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	26 / Maker's Mark (2 italicized Fs over each other) / 1711	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. The numbers on the bottle's base are not date codes. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000.
81	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	23 Maker's Mark (O over diamond with I) 3 / Duraglas / 4348-3B	Owens Illinois Glass Company	Los Angeles, California	1933	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 23 signifies that the bottle was produced in Los Angeles, California, post-1932. The 3 to the right of the maker's mark is a date code for 1933.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
82	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (2 italicized Fs over each other)	Foster-Forbes Glass Co.	Marion, Indiana	1942-1983	Foster-Forbes Glass Co. was first established in 1842, and continues through various iterations up to the present. The stylized ff in a circle was used exclusively between 1942 and 1983. Foster-Forbes was headquartered in Marion, Indiana from 1929-2000. The base is very worn down and hard to read.
83	Fragmented Colorless "Regal Pale Beer" Bottle	5	10		60-100	<9 / 6.8	330*	Beer	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 4 / 45	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1945)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 45 below the maker's mark is likely the bottle's production date (1945).
84	Colorless Glass Condiment Bottle, Octagonal Body	1	10		60-100	18.5 / 6.5	298	Condiment	Unknown	Unknown	None	5 / H-392 / . Maker's Mark (H over A) .	Anchor Hocking	Connellsville, Pennsylvania	1938-2005	Anchor Hocking was founded in 1937. The factory code of 5 references Connellsville, Pennsylvania, in operation between 1938 and 2005.
85	Colorless Glass Condiment Bottle with Lid, Octagonal Body	1	10		60-100	21 / 6	293	Condiment	Unknown	Unknown	None	7454 / Maker's Mark (H over A) 3 / 0 73	Anchor Hocking	Unknown	Post-1937	Anchor Hocking was founded in 1937.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
86	Colorless Glass Bottle with Lid	1	10		60-100	21.5 / 8	393	Condiment	Unknown	Unknown	Duraglas embossed on heel	20 Maker's Mark (O over diamond with I) 3 / 1606-B / 28	Owens Illinois Glass Company	Los Angeles, California	1933	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 20 signifies that the bottle was produced in Oakland, California, between 1937 and 2018. The 3 to the right of the maker's mark is a date code for 1933.
96	Fragmentary Colorless Glass Bottle (Base and Body)	1	14		80-120	5.8 / 6.7	85	Unknown	Unknown	Unknown	Unknown	B-559-01	Unknown	Unknown	Post-1911	Seam is sharp and even, likely machine-made.
99	Fragmentary Colorless Glass Bottle (Base and Body)	1	14		80-120	5.3 / 8	139*	Unknown	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	
100	Colorless Glass Druggist Bottle, Rectangular Base	1	14		80-120	14.5 / 4.8	125	Druggist	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1800	
101	Colorless Glass Druggist Bottle, Rectangular Base	1	14		80-120	10.4 / 4.2	76	Druggist	Unknown	Unknown	Unknown	5 Maker's Mark (Triangle with two dots in it)	Unknown	Unknown	Post-1800	Unknown maker's mark on base.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
102	Colorless Glass Druggist Bottle, Square Base	1	14		80-120	13 / 4.7	185	Druggist	Unknown	Unknown	Unknown	None	Unknown	Unknown	Post-1911	Bottle is machine made.
103	Colorless Glass Screwtop Jar	1	14		80-120	11 / 6.5	221	Food	Unknown	Unknown	Unknown	8-693-K	Unknown	Unknown	Post-1911	Bottle is machine made.
104	Fragmentary Colorless Glass Milk Bottle (Finish)	1	14		80-120	2.6 / 6.5	48	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1911	The finish for this bottle is machine made, making it a post-1911 object.
105	Fragmentary Brown Glass Bottle with Wire (Finish, Shoulder, Body, and Base)	6	14		80-120	<6 / 6.5	109*	Unknown	Unknown	Unknown	Unknown	Maker's Mark (B in circle) 15 80 12 / Reg US Pat 330	Brockway Glass Company	Oakland, California	1980	Brockway Glass Company operated from 1933 to 1988. The 15 is the factory code, and the 80 is the date code. This means that the bottle was produced in Oakland, California in 1980, and it is therefore less than 50 years old.
106	Fragmentary Brown Glass Bottle (Finish, Shoulder, Body, and Base)	4	14		80-120	<6 / 6.5 est.	80*	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1911	The finish for this bottle is machine made, making it a post-1911 object.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
107	Fragmentary Colorless Glass Bottle (Finish, Shoulder, Body, and Base), Oval Base	6	14		80-120	<7 / 6	103*	Unknown	Unknown	Unknown	"CONTENTS" visible just above heel	Unknown	Unknown	Unknown	Post-1911	The finish for this bottle is machine made, making it a post-1911 object.
109	Fragmentary Colorless Glass Bottle (Body)	1	14		80-120	7.5 / 5.5	22	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1800	
110	Fragmentary Green Glass Bottle (Body)	1	14		80-120	3.3 / 1.8	4	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1800	
111	Fragmentary Blue Glass Bottle (Body)	1	14		80-120	3.2 / 1.3	3	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1800	
112	Fragmentary Colorless Glass Milk Bottle (Finish)	1	14		80-120	9.4 / 5.5	119	Food-Milk	Unknown (Oahu)	Unknown	"PINT" embossed on shoulder	Unknown	Unknown	Unknown	Post-1911	The finish for this bottle is machine made, making it a post-1911 object.
114	Fragmentary Glass Bottle (Base)	1	17		70-135	5-Jan	24*	Household - Shoeshine	St. Louis, Missouri	Post-1919	Unknown	BARTON'S / Maker's Mark (P in a hexagon) / 2 / DYANSHINE	Fairmont Glass Company	Indianapolis, Indiana	1933-1971	The Fairmont Glass Company was founded in Indianapolis, Indiana in 1889. The p in a hexagon was used by Fairmont Glass Company between 1933 and 1971.

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height / Diam. (cm)	Weight (g)	Type	Bottling Location	Bottling Date	Decoration / Labeling	Base Markings	Glass Manufacturer	Place of Manufacture	Manufacture Date	Notes
115	Fragmentary Glass Bottle (Finish + Neck)	1	17		70-135	5.5 / 3	37*	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown	Post-1911	
117	Colorless "Regal Pale Beer" Bottle	1	10		60-100	24.2 / 6.8	350	Beer Bottle	San Francisco, California	1954-1962	"Regal Pale Beer" printed on adhesive label	Maker's Mark (N in a box) 6 / 43	Obear-Nester Glass Co.	East St. Louis, Illinois	1913-1978 (1916, 1926, 1936)	Obear-Nester was started as an agglomeration of several glassworks in 1894 in East St. Louis. This maker's mark was first used in 1913 and continued in use until 1978 when the factory was closed. The 6 to the right of the maker's mark is likely the bottle's production date. Typically a single digit date indicates an early date, no later than 1940. In this case, that would date the bottle to either 1916, 1926, or 1936. However, the earliest possible bottling date is 1954 when the brewery was opened. Therefore, the bottle is likely an example of re-use.
118	Small Green Druggist Bottle	1	10		60-100	9.4 / 3	66	Druggist	Unknown	Unknown	None	3 Maker's Mark (O over diamond with I) 5 / 3	Owens Illinois Glass Company	Fairmont, West Virginia	1935	Owens Illinois Glass Company first formed in 1929 from the merger of the Illinois Glass Company and the Owens Bottle Company. The factory code 3 signifies that the bottle was produced in Fairmont, West Virginia, between 1929 and 1982. The 5 to the right of the maker's mark is a date code for 1933.

Inventory of Miscellaneous Glass

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Length (cm)	Width / Diameter (cm)	Weight (g)	Type	Color	Vessel Shape	Manufacturing Process	Glass Manufacturer	Origin	Manufacture Date
20	Fragmentary Colorless Glass Rim	1	10	1	60-100	5.5	22 est.	40	Unknown	Colorless	Bowl (Possible)	Unknown	Unknown	Unknown	Post-1800
26	Fragmentary Jalousie Glass	5	10	1	20-70	<7	<2.3	30	Unknown	Colorless	Jalousie Fragments	Unknown	Unknown	Unknown	Post-1800
31	Fragmentary Glass Nodule	1	10	1	20-70	2.4	0.6	<1	Unknown	Colorless	Nail-Shaped Nodule	Unknown	Unknown	Unknown	Post-1800
47	Fragmentary Glass Jalousie	3	11		20-50	5	1.2	3	Unknown	Colorless	Unknown	Unknown	Unknown	Unknown	Post-1800
8	Fragmentary Painted Flat Glass	1	11		20-50	10.8	10.2	202 Bulk	Unknown	Colorless	Jalousie Fragments	Unknown	Unknown	Unknown	Post-1800
98	White Glass Screw-Cap	1	14		80-120	2	4.5	34	Screw-Cap	White	Whole Screw Cap	Machine	Unknown	Unknown	Post-1911
113	Fragmentary Flat Glass	1	17		70-135	5.1	3.2	5	Flat-Glass	Colorless	Window	Machine	Unknown	Unknown	Post-1800
108	Thick Fragmentary Colorless Glass with "...AIIAN / …RKS" printed across sherd	2	14		80-120	<6.5	<12	236 Bulk	Unknown	Colorless	Unknown	Unknown	Unknown	Unknown	Post-1800
97	Fragmentary Colorless Glass Cup (Base and Body)	1	14		80-120	12	5.5 (Base)	182	Unknown	Colorless	Unknown	Unknown	Unknown	Unknown	Post-1800
121	Fragmentary Colorless Flat Glass	1	7	1	60	1	2	<1	Flat-Glass	Colorless	Window	Machine	Unknown	Unknown	Post-1800

Inventory of Ceramic Tableware (Note: Manufacturer and Place of Manufacture Unknown for All Items)

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Length / Width (cm)	Thickness (cm)	Ceramic Type / Paste Color	Decoration Method / Type	Design Motif / Design Color	Manufacture Date
28	Fragmentary Decorated Whiteware Vessel (Handle)	1	10	1	20-70	4.5 / 1	0.6	Whiteware / Off-White	Hand-Painted (handle only)	Single Line / Brown	1830-Present (Likely 1830-1900)
29	Fragmentary Decorated Ceramic Plate (Rim)	1	10	1	20-70	4.4 est. 25	0.4	Whiteware / Off-White	Transfer-Print	Floral over two Parallel Stripes with perpendicular stripes / Blue, Green, Teal	1830-Present (Likely 1830-1900)
30	Fragmentary Ceramic Vessel (Body)	1	10	1	20-70	1.3 / 2.2	0.4	Ironstone / Gray	Plain	None / None	1840-Present (Likely 1840-1885)
92	Decorated Ceramic Sherd (Body Fragment)	1	12		7	2.6 / 3	0.4	Porcelain / White	Transfer-Print	Floral / Blue	Post-1750
93	Decorated Ceramic Sherd (Body Fragment)	1	14		80-120	3 / 2	0.2	Porcelain / White	Transfer-Print	Floral / Blue	Post-1750
94	Decorated Ceramic Sherd (Body Fragment)	1	14		80-120	3.3 / 2	0.3	Porcelain / White	Transfer-Print	Uniform / Green	Post-1750
119	Porcelain Sherd with Blue Floral Design (Body Fragment)	1	7	1	38	2.5 / 1	0.2	Porcelain / White	Transfer-Print	Floral / Blue	Post-1750
120	Earthernware sherd with floral embossing (Body Fragment)	1	7	1	48	2.5 / 1.4	4	Whiteware / Off-White	Embossed	Floral / White	1830-Present (Likely 1830-1900)

Inventory of Metal Cans

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Height (cm)	Diameter (cm)	Weight (g)	Bottling Location	Bottling Date	Labeling	Manufacturing Process / Closure Type	Bottle Manufacture Date
87	Aluminum Budweiser Beer Can without Tab	1	12		40-100	9 est.	6.5	31	Newark, St. Louis, Los Angeles, Tampa, Houston, Columbus, Jacksonville, or Merrimack	1945-1987	Printed Budweiser 1945 logo	Straight-edge, 2-part aluminum / T-Type Pull Tab	1945-1982
88	Aluminum Budweiser Beer Can with Tab	1	12		40-100	9 est.	6.5	39	Same as Acc. 87	1945-1987	Printed Budweiser 1945 logo	Straight-edge, 2-part aluminum / T-Type Pull Tab	1945-1982
89	Aluminum Budweiser Beer Can with Tab	1	12		40-100	9 est.	6.5	26	Same as Acc. 87	1945-1987	Printed Budweiser 1945 logo	Straight-edge, 2-part aluminum / T-Type Pull Tab	1945-1982
90	Aluminum Budweiser Beer Can with Tab	1	12		40-100	9 est.	6.5	25	Same as Acc. 87	1945-1987	Printed Budweiser 1945 logo	Straight-edge, 2-part aluminum / T-Type Pull Tab	1945-1982
91	Aluminum Budweiser Beer Can with Tab	1	12		40-100	9 est.	6.5	24	Same as Acc. 87	1945-1987	Printed Budweiser 1945 logo	Straight-edge, 2-part aluminum / T-Type Pull Tab	1945-1982

Inventory of Miscellaneous Metal

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Size (cm)	Weight (g)	Material	Function	Date
33	Wire Nail	1	10	1	20-70	2.6	3	Iron	Industrial - Fastener	Post-1800
34	Wire Nail	1	10	1	20-70	5.4	8	Iron	Industrial - Fastener	Post-1800
35	Wire Nail	1	10	1	20-70	7.8	12	Iron	Industrial - Fastener	Post-1800
36	Bolt	1	10	1	20-70	8.4	26	Steel	Industrial - Fastener	Post-1800
37	Metal Bottle Screw-Cap	1	10	1	20-70	3.4 Diam.	10	Unknown	Industrial - Fastener	Post-1910
38	Metal Bottle Screw-Cap	1	10	1	20-70	3.4 Diam.	10	Unknown	Industrial - Fastener	Post-1910
39	Small Metal Circular Object	1	10	1	20-70	1	2	Unknown	Unknown	Post-1800
40	Metal Cartridge	1	10	1	20-70	1	<1	Unknown	Unknown	Post-1800
41	Metal Hook (Industrial)	1	10	1	20-70	2.5	11	Iron/Steel?	Unknown	Post-1800
42	Plastic Metal Wire Object	1	10	1	20-70	6.5	9	Plastic/Metal	Possible Electric Lighting	Post-1950
43	Metal Flakes	7	10	1	20-70	<3	11	Iron	Unknown	Post-1800
44	Wire Nail	1	7		20-60	5.8	8	Iron	Unknown	Post-1800
48	Metal Plug	2	11		20-50	3	16	Unknown	Plug with ring	Post-1800
95	Metal Cylinder	1	14		80-120	5	5	Unknown	Small Cylinder	Post-1800
122	Metal Debris	5	7	1	50-60	<2	15 Bulk	Unknown	Metal debris	Post-1800
123	Wire Nail	1	7	1	60	2	2	Iron	Industrial - Fastener	Post-1800

Inventory of Other Items

Acc.	Description	Count	Trench	Feature	Depth (cmbs)	Size (cm)	Weight (g)	Material	Function
27	Stone Tile	1	10	1	20-70	10x4	39	Stone	Tile
32	Wooden Button	1	10	1	20-70	1.3 Diam.	<1	Wooden	Button
46	Plastic Scrap	1	7		20-60	NA	<1	Plastic	Possible Wrapper
116	Pipe Fragment	3	17		70-135	<7x4	24 Bulk	Plastic?	Pipe
124	Plastic Scrap	1	7		40	7.5x3.5	<1	Plastic	Possible Wrapper

APPENDIX D: RADIOCARBON DATING RESULTS

Beta Analytic, Inc.
4985 SW 74th Court
Miami, FL 33155 USA
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Fax: 305-663-0964
info@betalabservices.com

ISO/IEC 17025:2017-Accredited Testing Laboratory

December 13, 2021

Dr. Windy McElroy
Keala Pono Archaeological Consulting
PO Box 1645
Kaneohe, HI 96744
United States

RE: Radiocarbon Dating Results

Dear Dr. McElroy,

Enclosed are the radiocarbon dating results for two samples recently sent to us. As usual, the method of analysis is listed on the report with the results and calibration data is provided where applicable. The Conventional Radiocarbon Ages have all been corrected for total fractionation effects and where applicable, calibration was performed using 2020 calibration databases (cited on the graph pages).

The web directory containing the table of results and PDF download also contains pictures, a cvs spreadsheet download option and a quality assurance report containing expected vs. measured values for 3-5 working standards analyzed simultaneously with your samples.

Reported results are accredited to ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 standards and all chemistry was performed here in our laboratory and counted in our own accelerators here. Since Beta is not a teaching laboratory, only graduates trained to strict protocols of the ISO/IEC 17025:2017 Testing Accreditation PJLA #59423 program participated in the analyses.

As always Conventional Radiocarbon Ages and sigmas are rounded to the nearest 10 years per the conventions of the 1977 International Radiocarbon Conference. When counting statistics produce sigmas lower than +/- 30 years, a conservative +/- 30 BP is cited for the result unless otherwise requested. The reported d13C values were measured separately in an IRMS (isotope ratio mass spectrometer). They are NOT the AMS d13C which would include fractionation effects from natural, chemistry and AMS induced sources.

When interpreting the results, please consider any communications you may have had with us regarding the samples.

Thank you for prepaying the analyses. As always, if you have any questions or would like to discuss the results, don't hesitate to contact us.

Sincerely,

Chris Patrick

Digital signature on file

Chris Patrick
Vice President of Laboratory Operations

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ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Windy McElroy — Report Date: December 13, 2021

Keala Pono Archaeological Consulting — Material Received: November 29, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 610774	**165-130**	**180 +/- 30 BP**	IRMS δ13C: -22.4 o/oo

(49.9%)	**1722 - 1814 cal AD**	**(228 - 136 cal BP)**
(19.2%)	**1656 - 1698 cal AD**	**(294 - 252 cal BP)**
(19.0%)	**1910 - Post AD 1950**	**(40 - Post BP 0)**
(7.3%)	**1836 - 1880 cal AD**	**(114 - 70 cal BP)**

Submitter Material:	Charcoal
Pretreatment:	(charred material) acid/alkali/acid
Analyzed Material:	Charred material
Analysis Service:	AMS-Standard delivery
Percent Modern Carbon:	97.78 +/- 0.37 pMC
Fraction Modern Carbon:	0.9778 +/- 0.0037
D14C:	-22.16 +/- 3.65 o/oo
Δ14C:	-30.52 +/- 3.65 o/oo (1950:2021)
Measured Radiocarbon Age:	(without d13C correction): 140 +/- 30 BP
Calibration:	BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.

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ISO/IEC 17025:2017-Accredited Testing Laboratory

REPORT OF RADIOCARBON DATING ANALYSES

Windy McElroy — Report Date: December 13, 2021

Keala Pono Archaeological Consulting — Material Received: November 29, 2021

Laboratory Number	Sample Code Number	Conventional Radiocarbon Age (BP) or Percent Modern Carbon (pMC) & Stable Isotopes	
Beta - 610775	**165-131**	**200 +/- 30 BP**	IRMS δ13C: -22.2 o/oo

(53.2%)	**1726 - 1811 cal AD**	**(224 - 139 cal BP)**
(25.5%)	**1644 - 1694 cal AD**	**(306 - 256 cal BP)**
(16.7%)	**1917 - Post AD 1950**	**(33 - Post BP 0)**

Submitter Material:	Charcoal
Pretreatment:	(charred material) acid/alkali/acid
Analyzed Material:	Charred material
Analysis Service:	AMS-Standard delivery
Percent Modern Carbon:	97.54 +/- 0.36 pMC
Fraction Modern Carbon:	0.9754 +/- 0.0036
D14C:	-24.59 +/- 3.64 o/oo
Δ14C:	-32.93 +/- 3.64 o/oo (1950:2021)
Measured Radiocarbon Age:	(without d13C correction): 150 +/- 30 BP
Calibration:	BetaCal4.20: HPD method: INTCAL20

Results are ISO/IEC-17025:2017 accredited. No sub-contracting or student labor was used in the analyses. All work was done at Beta in 4 in-house NEC accelerator mass spectrometers and 4 Thermo IRMSs. The "Conventional Radiocarbon Age" was calculated using the Libby half-life (5568 years), is corrected for total isotopic fraction and was used for calendar calibration where applicable. The Age is rounded to the nearest 10 years and is reported as radiocarbon years before present (BP), "present" = AD 1950. Results greater than the modern reference are reported as percent modern carbon (pMC). The modern reference standard was 95% the 14C signature of NIST SRM-4990C (oxalic acid). Quoted errors are 1 sigma counting statistics. Calculated sigmas less than 30 BP on the Conventional Radiocarbon Age are conservatively rounded up to 30. d13C values are on the material itself (not the AMS d13C). d13C and d15N values are relative to VPDB. References for calendar calibrations are cited at the bottom of calibration graph pages.

BetaCal 4.20

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -22.4 o/oo)

Laboratory number **Beta-610774**

Conventional radiocarbon age **180 ± 30 BP**

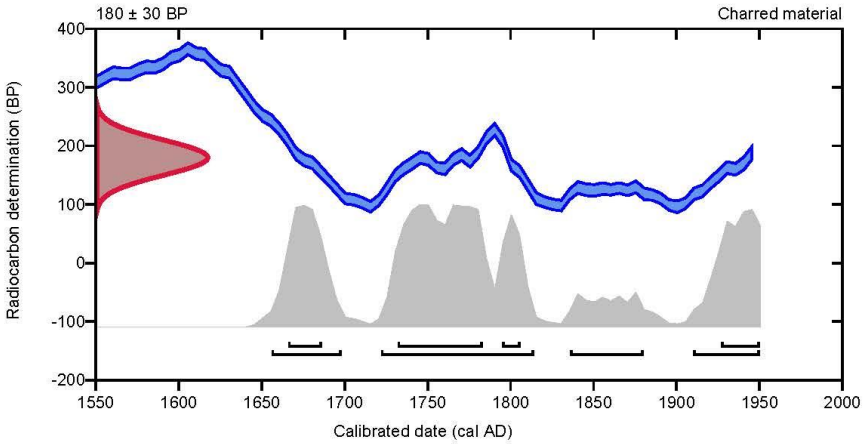
95.4% probability

(49.9%)	1722 - 1814 cal AD	(228 - 136 cal BP)
(19.2%)	1656 - 1698 cal AD	(294 - 252 cal BP)
(19%)	1910 - Post cal AD 1950	(40 - Post cal BP 0)
(7.3%)	1836 - 1880 cal AD	(114 - 70 cal BP)

68.2% probability

(34.3%)	1732 - 1783 cal AD	(218 - 167 cal BP)
(14.6%)	1927 - Post cal AD 1950	(23 - Post cal BP 0)
(13.1%)	1666 - 1686 cal AD	(284 - 264 cal BP)
(6.2%)	1795 - 1806 cal AD	(155 - 144 cal BP)

165-130



Database used

INTCAL20

References

References to Probability Method

Bronk Ramsey, C. (2009). Bayesian analysis of radiocarbon dates. Radiocarbon, 51(1), 337-360.

References to Database INTCAL20

Reimer, et al., 2020, Radiocarbon 62(4):725-757.

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BetaCal 4.20

Calibration of Radiocarbon Age to Calendar Years

(High Probability Density Range Method (HPD): INTCAL20)

(Variables: d13C = -22.2 o/oo)

Laboratory number **Beta-610775**

Conventional radiocarbon age **200 ± 30 BP**

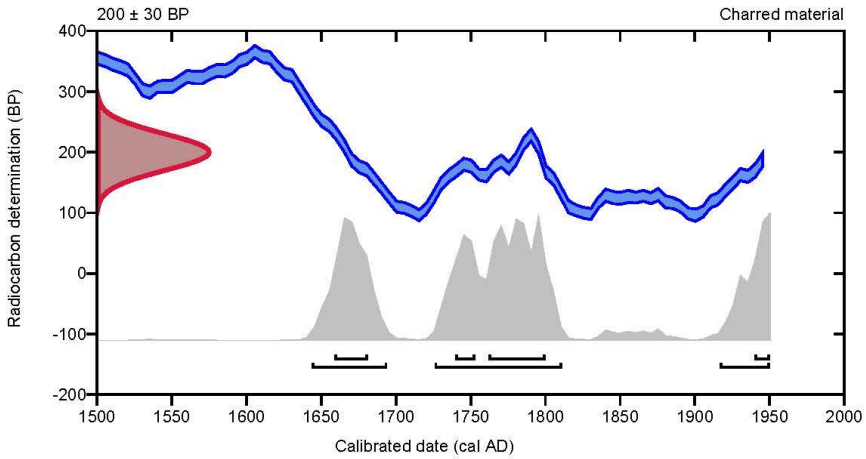
95.4% probability

(53.2%)	1726 - 1811 cal AD	(224 - 139 cal BP)
(25.5%)	1644 - 1694 cal AD	(306 - 256 cal BP)
(16.7%)	1917 - Post cal AD 1950	(33 - Post cal BP 0)

68.2% probability

(30.9%)	1762 - 1800 cal AD	(188 - 150 cal BP)
(18%)	1659 - 1681 cal AD	(291 - 269 cal BP)
(10.2%)	1740 - 1753 cal AD	(210 - 197 cal BP)
(9.2%)	1940 - Post cal AD 1950	(10 - Post cal BP 0)

165-131



Database used

INTCAL20

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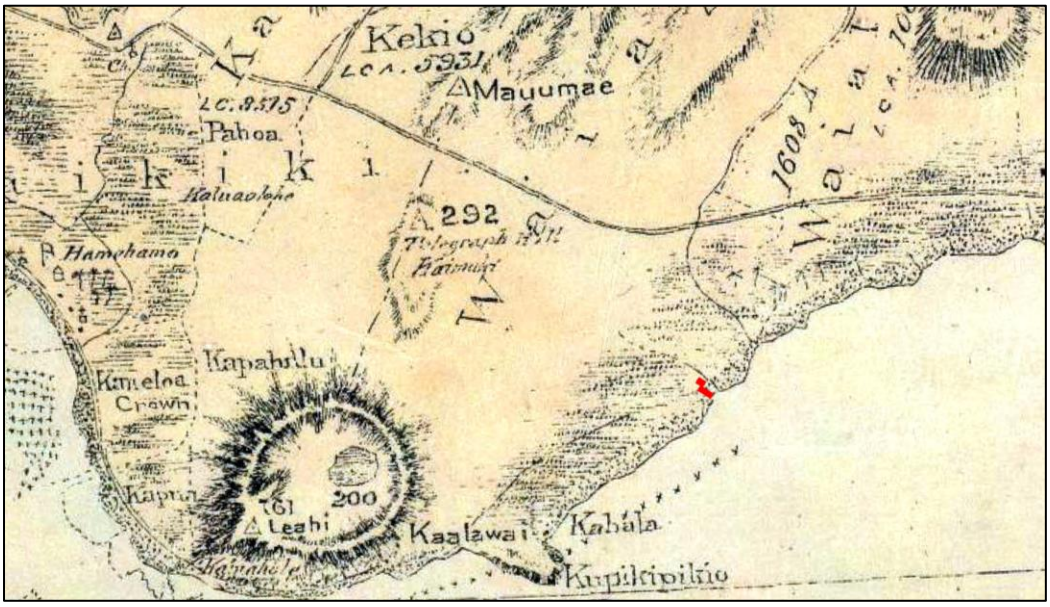
Appendix D

Cultural Impact Assessment

Preliminary Draft—Cultural Impact Assessment for 4767B, 4767D, 4769, and 4775 Kāhala Ave. in Waikīkī Ahupua‘a, Honolulu District, Island of O‘ahu, Hawai‘i

TMK: (1) 3-5-006:007, :009, :014, and :025



Prepared For:

G70
111 S. King St., Suite 170
Honolulu, HI 96813

January 2022

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

Preliminary Draft— Cultural Impact Assessment for 4767B, 4767D, 4769and 4775 Kāhala Ave. in Waikīkī Ahupuaʻa, Honolulu District, Island of Oʻahu, Hawaiʻi

TMK: (1) 3-5-006:007, :009, :014, and :025

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January 2021

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MANAGEMENT SUMMARY

A Cultural Impact Assessment was conducted for proposed residential construction at 4767B, 4767D, 4769, and 4775 Kāhala Ave. in Waikīkī Ahupuaʻa, Honolulu District, on the island of Oʻahu on TMK: (1) 3-5-006:007, :009, :014, and :025. This study took the form of background research and an ethnographic survey consisting of two interviews, with one interview pending.

The background research synthesizes traditional and historic accounts and land use history for the Kāhala area. Community consultations were performed to obtain information about the cultural significance of the subject properties and the surrounding area, as well as to address possible concerns of community members regarding the effects of the proposed project on places of cultural or traditional importance.

As a result of this work, the cultural significance of the project region has been made clear. In the past, Kāhala was known for having freshwater springs, inland terraces, and fishponds at the coast. The area has seen many changes over the years, including widespread development and coastal erosion. Previous archaeological studies have documented iwi kūpuna and a subsurface cultural layer at an adjacent parcel, as well as several human burials and other sites in Kāhala.

Interviews with individuals knowledgeable about the project lands produced information on its rich cultural history. Cultural practices that were mentioned during interviews include surfing, fishing and gathering of marine resources such as heʻe, honu, and limu. Human burials were also noted in the interviews, and concerns were raised regarding their protection. Other concerns focused on coastal erosion and overdevelopment. Recommendations for mitigation include ways to protect iwi kūpuna, and also to design the development to fit in better with the character of the Kāhala neighborhood.

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INTRODUCTION

At the request of G70 on behalf of A'yia, LLC, Keala Pono Archaeological Consulting conducted an Cultural Impact Assessment (CIA) for proposed residential construction at 4767B, 4767D, 4769, and 4775 Kāhala Avenue in Waikīkī Ahupuaʻa, Honolulu District, on the island of Oʻahu on TMK: (1) 3-5-006:007, :009, :014, and :025. This CIA was designed to identify any cultural resources or practices that may occur in the area and to gain an understanding of the community's perspectives on the proposed activity on the properties.

The report begins with a description of the study area and a historical overview of land use and archaeology in the ahupuaʻa. The next section presents methods and results of the ethnographic survey. Results of the CIA are summarized and recommendations are made in the final section. Hawaiian words, flora and fauna, and technical terms are defined in a glossary. Also included are appendices with documents relevant to the background research and ethnographic survey, including full transcripts of the interviews.

Project Location and Natural Environment

The project area is located in the residential neighborhood of Kāhala at TMK: (1) 3-5-006:007, :009, :014, and :025 (Figures 1 and 2). TMK: (1) 3-5-006:009, and :014 form a large lot, while TMK: (1) 3-5-006:025 is a narrow private road between this and TMK: (1) 3-5-006:007. The project area is a total of .81 ha (2 ac.) and is privately owned by A'yia, LLC. The project area is bounded by Kāhala Avenue to the northwest, the coastline to the southeast, and residential parcels on the other sides. The properties have previously been developed as private dwellings with single family homes, paved driveways, landscaped lawns, and swimming pools.

Topography is flat and vegetation consists of grass and landscaped plants. The project area lies at roughly 1.8 m (6 ft.) above mean sea level (amsl), and rainfall averages approximately 68 cm (27 in.) per year (Giambelluca et al. 2013). The closest fresh water source is a small stream adjacent to the project area to the northeast, which empties into the ocean. The larger Kāhala Stream, a non-perennial watercourse, lies approximately 374 m (.2 mi.) up the coast to the northeast.

The leeward coastal plain of Honolulu is comprised of a series of former reef and soils, along with sediment deposits. These features include a late-Pleistocene coral reef substrate that is overlaid along the coast with calcareous marine beach sand, often with intermixed terrigenous sediments deposited from streams and nearby slope erosion. Adjacent to streams there are alluvial soils most of which have originated from weathered volcanic bedrock and then subsequently deposited during flood events. Former reef sediments (i.e., sands) are found along the coastal margin sometimes extending out onto the coastal plain (Armstrong 1983:36). Coastal terrigenous sediments originate on land, later deposited along the coastal plain and these deposits may contain materials mixed with marine sediments that include sands and larger components of the near-shore environment. The current Hawaiian shoreline configuration is the product of late and post-Pleistocene rising sea levels (Stearns 1978; Macdonald et al. 1983) followed by a mid- Holocene rise in sea level of roughly 1.5–2.0 m (4.9–6.6 ft.); and human landscape modification, much of which occurred within the past 200 years since the arrival of Europeans and Americans to Hawaiʻi.

The project area lies on Jaucas sand, 0–15% slopes (JaC) and Beaches (BS), the former occurring on the mauka half of the property and the latter on the makai half (Figure 3). The United States Department of Agriculture Soil Conservation Service Soil Survey of the State of Hawaiʻi describes these soils as follows (Foote et al. 1972:28,48):

Jaucas Series

This series consists of excessively drained, calcareous soils that occur as narrow strips on coastal plains, adjacent to the ocean. They developed in wind- and water-deposited sand from coral and seashells. They are nearly level to strongly sloping. Jaucas soils are geographically associated with Pulehu, Mokuleia, Kaloko, and Lualualei soils. These soils are used for pasture, sugarcane, truck crops, alfalfa, recreational areas, wildlife habitat, and urban development. The natural vegetation consists of kiawe, koa haole, bristly foxtail, bermudagrass, fingergrass, and Australian saltbush.

Beaches (BS)

Beaches (BS) occur as sandy, gravelly, or cobbly areas on all the islands in the survey area. They are washed and rewashed by the ocean waves. The beaches consist mainly of light-colored sands derived from corals and seashells. A few of the beaches, however, are dark colored because their sands are from basalt and andesite. Beaches have no value for farming. Where accessible and free of cobblestones and sones, they are highly suitable for recreational uses and resort development.

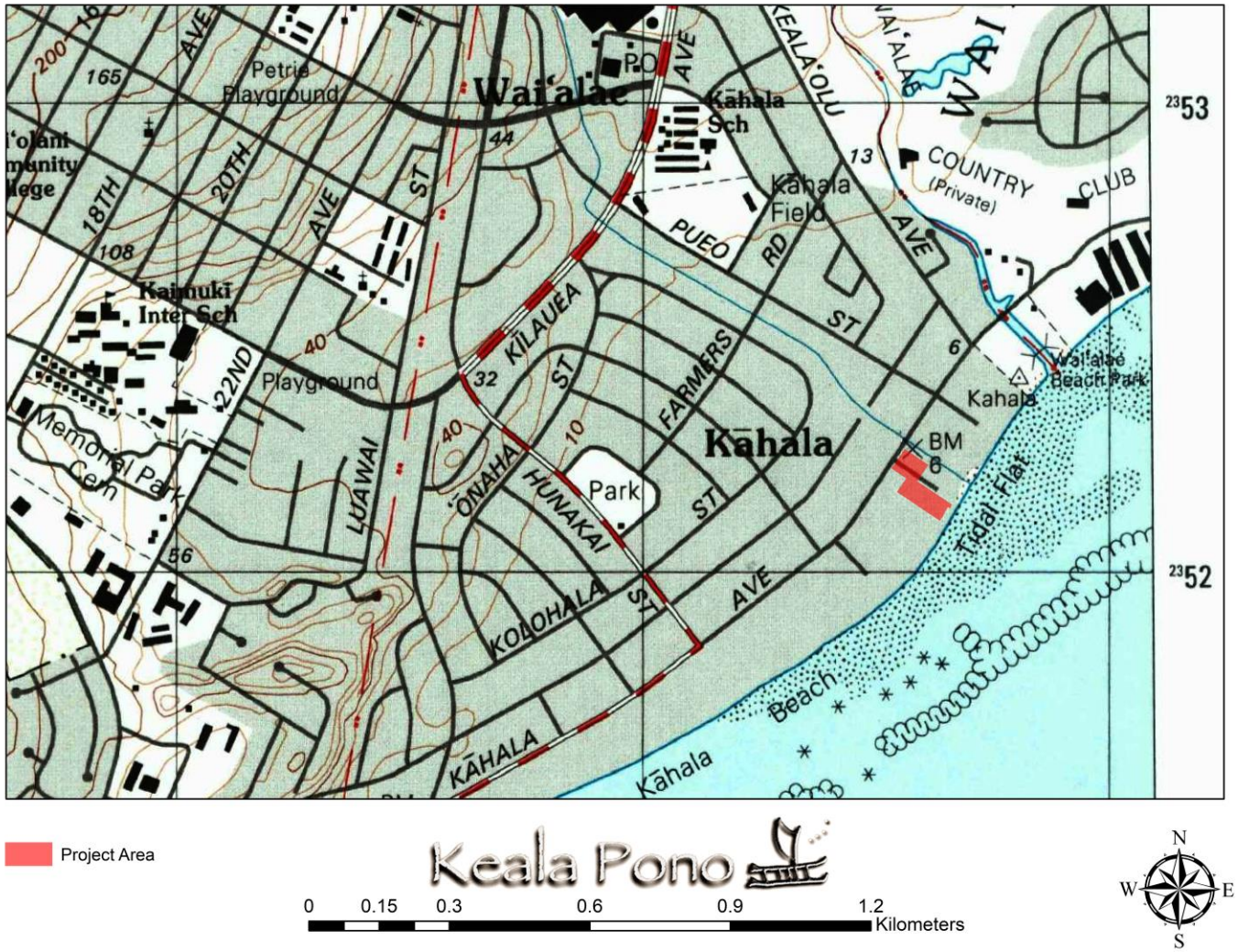
Also in the project vicinity are Ewa silty clay loam, 0–2% slopes (EmA); Coral outcrop (CR); Lualualei clay, 0–2% slopes (LuA); Keaau clay, 0–2% slopes (KmA); Mamala stony silty clay loam, 0–12% slopes (MnC); Molokai silty clay loam, 3–7% slopes (MuB); Molokai silty clay loam, 7–15% slopes (MuC); water (W), and Waialua silty clay, 0–3% slopes (WkA) (Foote et al. 1972).

Project Description

A'yia LLC proposes to redevelop single-family residences, which will include the following:

- One existing single-family residence on Parcel 014 (4767-B Kāhala Avenue) will be replaced with one new single-family residence.
- Six existing single-family residences on Parcel 007 (4775 Kāhala Avenue) will be replaced with five new single-family residences.
- Six single-family residences will be redeveloped on Parcel 009 (4767-D Kāhala Avenue) to replace a previously existing large ocean-front estate.
- The existing shared driveway on Parcel 025 (4769 Kāhala Avenue) will be improved to provide continued access to the residences.

A'yia LLC is committed to develop and build sustainable, energy-efficient residences that will help to advance the residential quality and character of this Kāhala neighborhood. A'yia LLC plans to attain LEED Certification for all homes from the U.S. Green Building Council's Leadership in Energy and Environmental Design Program. This residential redevelopment will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, rainwater management, use of sustainable building materials, shaded streetscapes, and landscaping.



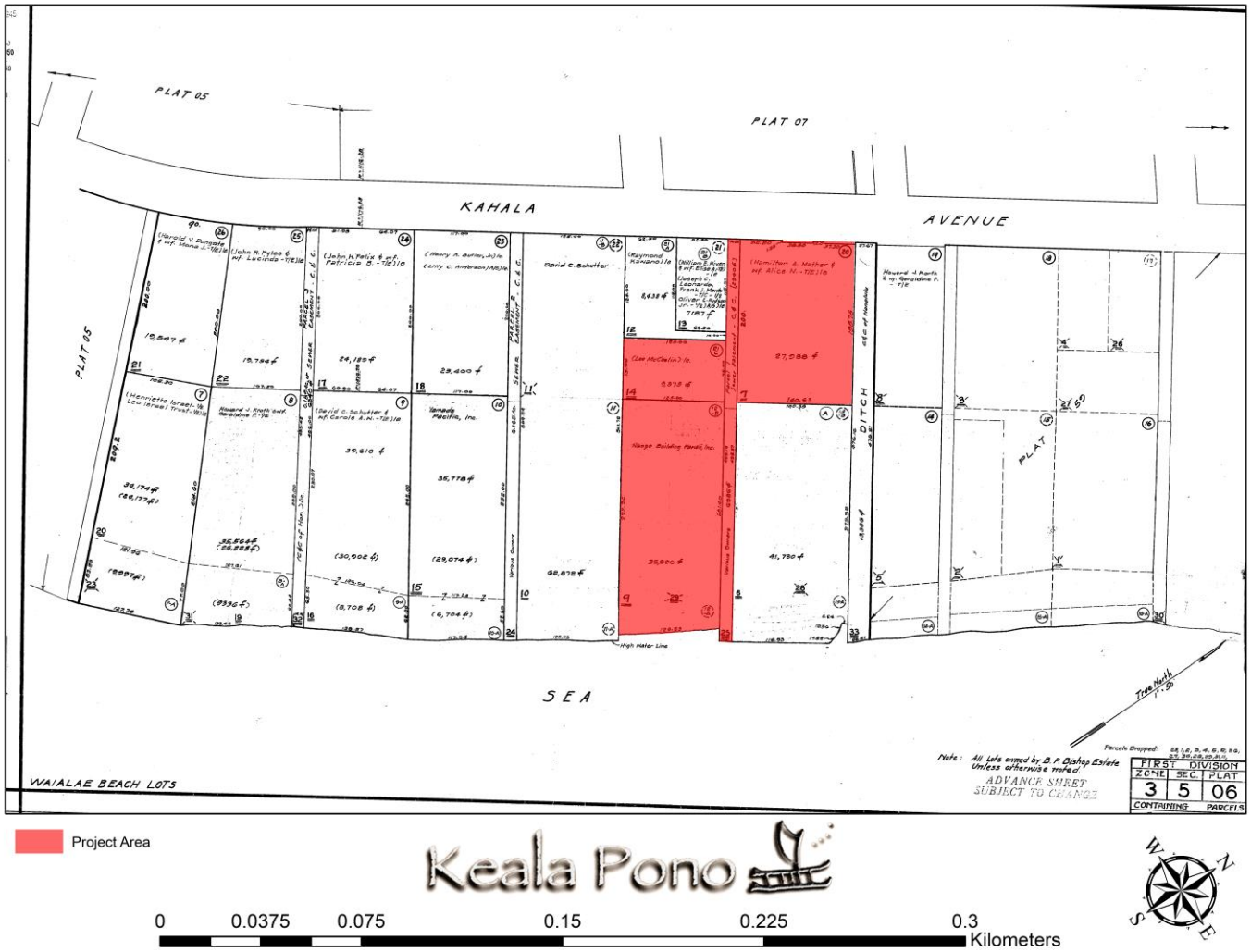
Project Area

Keala Pono

0 0.15 0.3 0.6 0.9 1.2 Kilometers

N W E S

Figure 1. Project area on 7.5 minute Honolulu and Koko Head quadrangle maps (USGS 1997a, 1997b).



Project Area

Keala Pono

0 0.0375 0.075 0.15 0.225 0.3 Kilometers

Figure 2. Project area on a TMK plat map (State of Hawai‘i 1932).

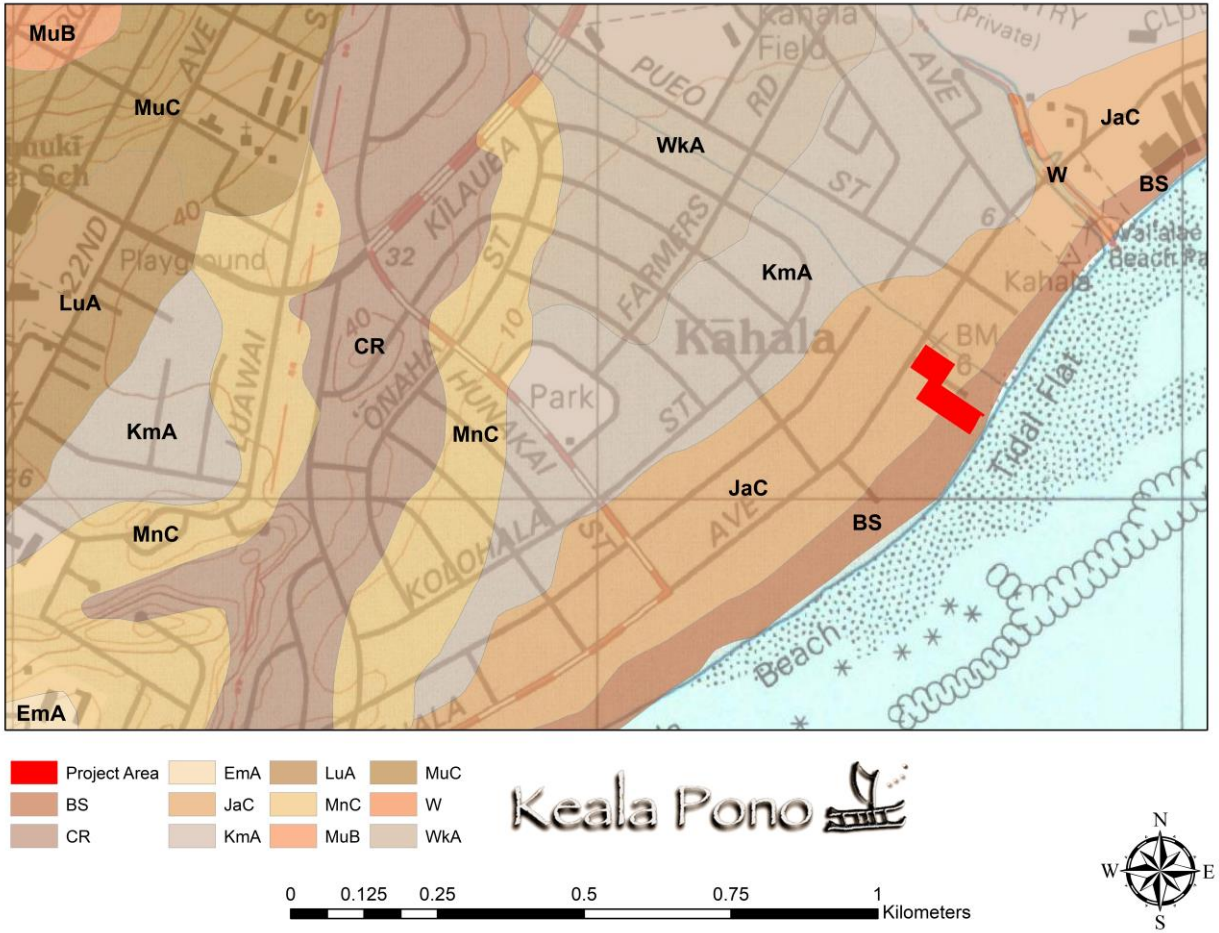


Figure 3. Soils in the vicinity of the project area (data from Foote et al. 1972).

TRADITIONAL CULTURAL AND HISTORIC BACKGROUND

This section of the report presents background information that provides context through which one can examine the cultural and historical significance of the project lands. In the attempt to record and preserve both the tangible (e.g., traditional and historic archaeological sites) and intangible (e.g., moʻolelo, ʻōlelo noʻeau) culture, this research assists in the discussion of anticipated finds. Research was conducted at the Hawaiʻi State Library, the University of Hawaiʻi at Mānoa libraries, the SHPD library, and online on the Waihona ʻAina database and the State of Hawaiʻi Department of Accounting and General Services (DAGS) and Ulukau websites. Historical maps, archaeological reports, Māhele data, and historical reference books were among the materials examined.

Waiʻalae in Traditional Times

Place names often shed light on traditional views of an area and can provide important contextual information. Hawaiian place names "usually have understandable meanings, and the stories illustrating many of the place names are well known and appreciated...The place names provide a living and largely intelligible history" (Pukui et al. 1974:xii).

The project area is within the ahupuaʻa of Waikīkī and the ʻili of Waiʻalae Nui. Waikīkī translates to "spouting water" (Pukui et al. 1974:223) and was named for the swamps that made up the surrounding environment which were later drained to form the Ala Wai Canal. Waiʻalae translates to "mudhen water" while Waiʻalae Nui means "large Waiʻalae" (Pukui et al. 1974:220). The project's neighborhood is Kāhala, which means "amberjack fish" (Pukui et al. 1974:62). Other place names in the project vicinity are listed in the *Place Names of Hawaii* (Pukui et al. 1974), along with the meanings of the names and/or comments about the specific locales:

> Kapakahi...Gulch, Waiʻalae, Honolulu. *Lit*., crooked. (Pukui et al. 1974:87)
>
> Kaunuakahekili…heiau near Waiʻalae, Oʻahu. *Lit*., the altar of Kahekili. (Pukui et al. 1974:95)
>
> Kūpikipikiʻō. Old name for Black Point, Oʻahu. *Lit*., rough [sea]. (Pukui et al. 1974:125)
>
> Lēʻahi…Honolulu. The highest peak in Diamond Head; a variant name for Lae-ʻahi. (Pukui et al. 1974:130)
>
> Waiʻalae Iki…land division and gulch, Honolulu. *Lit*., small Waiʻalae. (Pukui et al. 1974:220)

Subsistence and Traditional Land Use

Waiʻalae had an established settlement, which was observed by the American missionary Levi Chamberlain in the early historic period. Chamberlain reported on the landscape of 1828 as he traveled along the southern coast of Oʻahu, and it can be assumed that land use was similar in the pre-contact period:

> At a quarter before 9 o'clock we arrived at the pleasant settlement of Waialae, distant on a straight line from Waikiki in a N.E. direction, about 4 miles, but much farther following the circuitous path along the seashore. This place is rendered agreeable by a grove of cocoanut [sic] trees and a number of branching kou trees, among which stand the grass huts of the natives, having a cool appearance, overshadowed by the waving tops of the cocoanuts, among which the trade winds sweep unobstructed. (Chamberlain 1957[1828]:28–29)

Although some of Waiʻalae's aquatic resources came from streams and ponds, the majority were found in the bountiful coastal waters. The pelagic waters off Waiʻalae and Waikīkī were rich with deep-sea marine life. Most of the shoreline of Waikīkī was devoid of reef due to the flow of fresh water and its sediments into the sea which stifled coral growth. However, there was a healthy reef system growing at the eastern end of Waikīkī fronting Kapiʻolani Park and Lēʻahi, extending around the point to Waiʻalae. These provided a good

variety of reef fishes. In addition, the entire coast offered many other types of edible marine resources such as crabs, shellfish and limu (Kanahele 1995).

To supplement their marine diet, the Hawaiians made use of inland ponds. Some ponds were near the shore, separated from the sea by sand dunes, but connected to the sea through an ʻauwai; these were called loko puʻuone. Other ponds were further inland and only fed by freshwater streams or springs; these were called loko wai. These ponds were modified, stocked and maintained through the ingenuity of the people. They added to their waters such things as mākāhā, or sluice gates, paniwai, or dams, kahe, or fish traps, and umu, or man-made fish shelters. Koʻa were also erected near these water resources and dedicated to the god Kūʻula to ensure an abundant harvest of fish (Kanahele 1995).

Multiple sources indicate that springs in the area gave Waiʻalae its name, and these were located near what is now Kalanianaʻole Highway. These springs were clearly prized among the local inhabitants, who took great care in protecting and maintaining the water resources.

> Waialae Springs. From which Waialae derived its name. It supplied water for the chiefs from olden times. The location had been lost for many years. During a tour of the island by Kamehameha III, the King became thirsty and inquired of an old couple who were living at Waialae where he could get some water to drink. It happened that the ancestors of these old people were the keepers of this water hole, and the duty descended to them. They said that the only reason they stayed there was so that when the King stopped there they might carry out their duty and reveal the location to him. This hole was covered with pohuehue [morning glory] and under the pohuehue was a large slab of stone covering the water. (Sterling and Summers 1978:275)

Handy discusses the importance of the water resources for cultivation in the upper reaches of Waiʻalae:

> The ahupuaʻa takes its name from the stone-incased spring, which may be seen today just above the highway. From the spring runs a stream which watered terraces that are now largely covered with grass raised for dairying and by the golf links. Three moderate sized gulches having streams of constant flow are included in this ahupuaʻa. In the lower portion of one of these gulches which was examined no terraces were seen. According to Mr. A.F. Judd, some seaward holdings in Waialae had inland plots (lele) located in Palolo." (Handy 1940 in Sterling and Summers 1978:275)

A local Waiʻalae resident, J.K. Mokumaia, related a story in 1920 of the importance surrounding the Waiʻalae Iki spring:

> Many people lived along the shores and they worked at farming and fishing. Plants grew. There were taro patches, tobacco, sweet potatoes, bananas and sugar cane. Paki was Waialae-nui's konohiki of fishing; Kamamalu was Waialae-iki's konohiki of fishing. There were ever so many people on the shore when these chiefs came to spend a while with the common people. Here your scout looked at everything that he was told of. There was the pool that Kamamalu used to bathe in. I went to see its beauty for myself. There are two springs, one is on the summit of Waialae-nui and the other is on Waialae-iki. These appear to be good sites, there is much water, but its beauty at the time of the konohikis is gone. Now the kapu is freed and the kapu places are trodden underfoot. (*Ka Nupepa Kuokoa* 1920 in Sterling and Summers 1978:275)

Another aquacultural innovation was the loko iʻa kalo, or taro fishponds. These were ponds in which fish were raised, but they also served the purpose of growing kalo. The latter purpose probably took the forefront since kalo was culturally and spiritually significant in Hawaiian cosmology, and kalo was the main starch in the Hawaiian diet. The marshy environment of Waikīkī was perfectly suited for the conditions essential to the cultivation of wetland kalo, and an estimated 20 acres of Waikīkī's marshlands were planted in kalo. Some of these wetland kalo fields continued their operation well into the 19th century (Kanahele 1995).

Besides kalo, the original inhabitants of Waikīkī cultivated ʻuala, grew ipu for containers, and cultivated wauke for clothing. In addition, the ahupuaʻa of Waikīkī provided various ferns and berries for food; pili grass for house thatching; hau for cordage, clothing, canoe making, and for igniting fires; mamaki for cloth; naio for timber; kukui for food, medicine, and lamp oil; lama, ʻōhiʻa ʻai and uhiuhi for timber; ʻolonā for cordage; ʻieʻie for weaving; and ʻōhiʻa lehua for house building and weapon making (Kanahele 1995). Clearly, the natural environment of Waikīkī was a place that easily furnished a large community with all the necessities for survival. Kāhala in particular was noted for its groves of hala trees (Handy et al. 1991:200).

The notable historian John Papa ʻĪʻī reminds us that there was a well-known, well-traveled network of trails that crisscrossed Oʻahu connecting east to west and north to south (Figure 4). The project area is located close to a major junction of three main trails that meet at Waiʻalae Stream. These are the coastal trail that skirts the makai side of Diamond Head, a trail the goes from Waikīkī around the back of Diamond Head, and the inland trail that passes the valley mouths of the Kona District. From this junction, the three trails merge into a single trail that continues east along the south shore. Of the famous trail which traversed Waikīkī, ʻĪʻī elucidates:

> The trail from Kawaiahao which led to lower Waikiki went along Kaananiau, into the coconut grove at Pawaa, the coconut grove of Kuakuaka, then down to Piinaio; along the upper side of Kahanaumaikai's coconut grove, along the border of Kaihikapu pond, into Kawehewehe; then through the center of sandy beach of Ulukou to Kapuni, where the surfs roll in; thence to the stream of Kuekaunahi; to Waiaula and to Paliiki, Kamanawa's house site. The latter was named for the Paliiki in Punahoa, Hilo. Perhaps that was where Kamanawa lived when the king resided in Hilo during the battle called Puana, prior to the building of the great peleleu fleet. From Palikki the trail ran up to Kalahu, above Leahi, and on to the place where the Waialae stream reached the sand. (ʻĪʻī 1959:92)

Moʻolelo

As mentioned earlier, Hawaiian place names were connected to traditional stories through which the history of the places was preserved. These stories were referred to as "moʻolelo, a term embracing many kinds of recounted knowledge, including history, legend, and myth. It included stories of every kind, whether factual or fabulous, lyrical or prosaic. Moʻolelo were repositories of cultural insight and a foundation for understanding history and origins, often presented as allegories to interpret or illuminate contemporary life…Certainly many such [oral] accounts were lost in the sweep of time, especially with the decline of the Hawaiian population and native language" (Nogelmeier 2006:429–430). Still, many traditional stories managed to be recorded as Hawaiian society transitioned from an oral culture to a written one, and among those chronicled were several versions of stories connected to Waikīkī Ahupuaʻa.

The Supernatural Owls of Kupalaha Heiau

The heiau called Kupalaha at today's Cunha Beach, is intimately connected to a supernatural battle against owls in the days of old. As a result of this battle, the Oʻahu chief Kakuhihewa pardoned the life of the man named Kapoi who built Kupalaha. The noted ethnographer Martha Beckwith shared this story concerning Kupalaha Heiau in her documentation of Hawaiian mythology.

> A famous Oahu owl story is that of the owl war carried on in behalf of a man named Kapoi who, having robbed an owl's nest, took pity on the lamenting parent and returned the eggs. He then took the owl as his god and built a heiau [Kupalaha Heiau] for its worship. The ruling chief Kakuhihewa, considering this an act of rebellion, ordered his execution but at the moment of carrying out the order the air was darkened by flying owls who had come to his protection. The places on Oahu where the owls made rendezvous for this battle are known today by the word pueo (owl) in their names, such as Kala-pueo east of Diamond Head, Kanoni-a-ka-pueo in Nuʻuanu valley, Pueo-hulu-nui near Moanalua. The scene of the battle at Waikiki is called Kukaeunahio-ke-pueo (Confused sound of owls rising in masses). (Beckwith 1970:124–125)

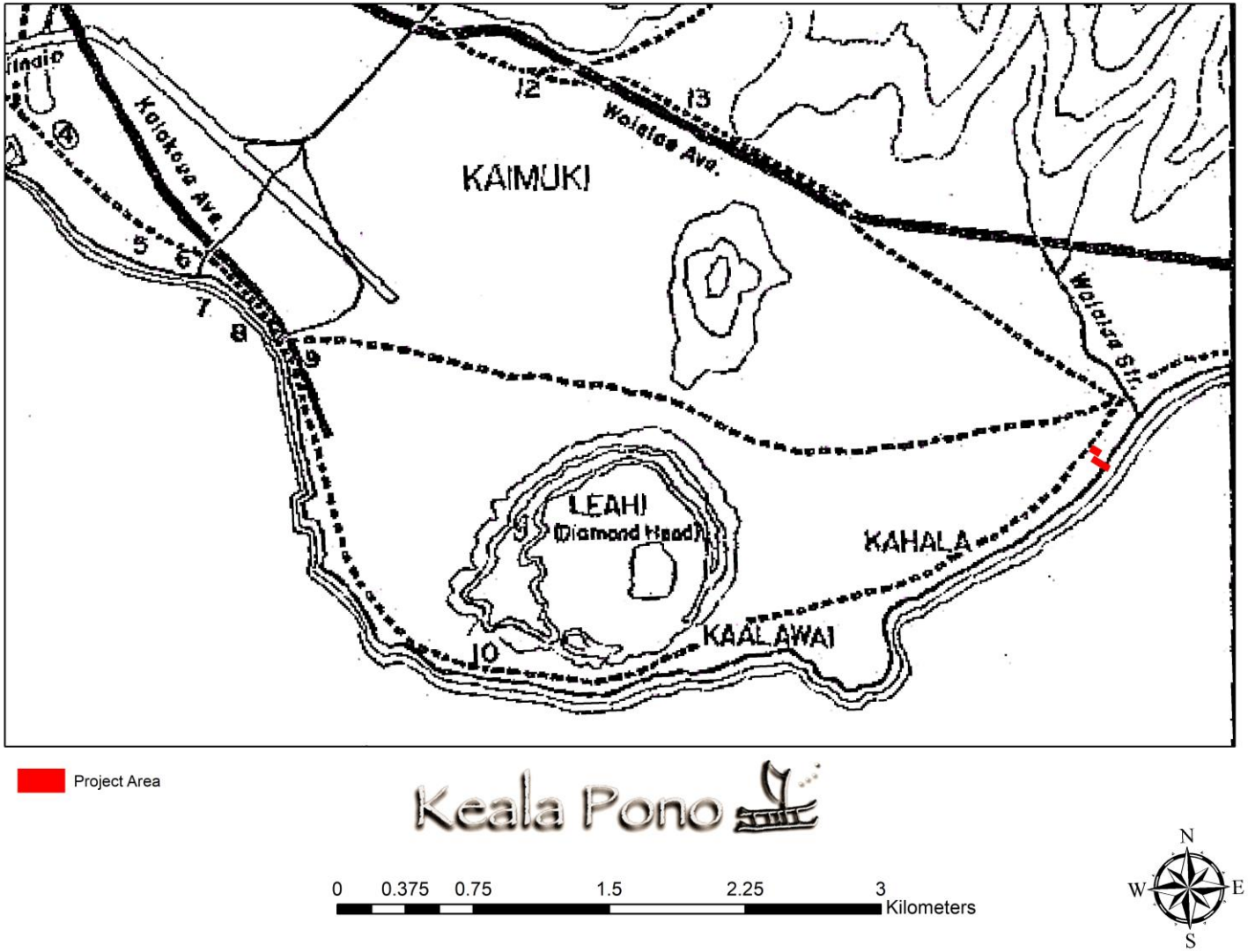


Figure 4. Trails in the vicinity of the project area (ʻĪʻī 1959:93).

Chief Kakuhihewa was just one of many aliʻi connected to Waikīkī through moʻolelo. One of the first aliʻi mentioned as being connected to Waikīkī was Kalamakua-a-Kaipuholua. He was the chief who built the grand taro fields of Keʻokea, Kualulua, and Kalamanamana and others in Waikīkī. Kalamakua-a-Kaipuhola married the skilled surfing chiefess Kelea-nui-noho-ʻana-ʻapiʻapi. Their daughter Laʻie-lohelohe was born in Waikīkī at Helumoa and raised there at Kaluaokau. Laʻie-lohelohe later married the famed Maui chief Piʻilani, and this marriage solidified the ties between Waikīkī and Maui. The son of Laʻie-lohelohe and Piʻilani was Kiha-a-Piʻilani, an heir to the Maui chiefdom. He was raised in Waikīkī by a kahuna at Mauʻoki Heiau (Kamakau 1991).

ʻŌlelo Noʻeau

In 1983, Mary Kawena Pukui published a volume of close to 3,000 ʻōlelo noʻeau that she collected throughout the islands. The introductory chapter reminds us that if we know these proverbs and wise sayings well, then we will know Hawaiʻi well (Pukui 1983). Although no ʻōlelo noʻeau were found specifically for Kāhala or Waiʻalae, several are known for Waikīkī. Here are the traditional sayings from Pukuʻi's book which mention Waikīkī:

(27) Aia aku la paha i Waikīkī i ka ʻimi ʻahuʻawa.

Perhaps gone to Waikīkī to seek the ʻahuʻawa sedge.

Gone where disappointment is met. A play on *ahu* (heap) and *ʻawa* (sour).

(110) Alia e ʻoki ka ʻāina o Kahewahewa, he ua.

Wait to cut the land of Kahewahewa, for it is raining.

Let us not rush. Said by Kaweloleimakua as he wrestled with an opponent at Waikīkī.

(285) E hoʻi i ka uʻi o Mānoa, ua ahiahi.

Let the youth of Mānoa go home, for it is evening.

Refers to the youth of Mānoa who used to ride the surf at Kalehuawehe in Waikīkī. The surfboards were shared among several people who would take turns using them. Those who finished first often suggested going home early, even though it might not be evening, to avoid carrying the boards to the *hālau* where they were stored. Later the expression was used for anyone who went off to avoid work.

(1493) Ka nalu haʻi o Kalehuawehe.

The rolling surf of Kalehuawehe.

Ka-lehua-wehe (Take-off-the-*lehua*) was Waikīkī's most famous surf. It was so named when a legendary hero took off his *lei* of *lehua* blossoms and gave it to the wife of the ruling chief, with whom he was surfing.

(1772) Ke one ʻai aliʻi o Kakuhihewa.

The chief-destroying sands of Kakuhihewa.

The island of Oʻahu. When the priest Kaʻopulupulu was put to death by chief Kahāhana for warning him against cruelty to his subjects, he uttered a prophecy. He predicted that where his own corpse would lie in a *heiau* in Waikīkī, there would lie the chief's corpse as well. Furthermore, he said, the land would someday go across the sea. This was felt to be a curse. When Kamehameha III was persuaded by a missionary friend to move the capital from Lahaina to Oʻahu, a *kahuna*, remembering the curse, warned him not to, lest the monarchy

perish. The warning was ignored, and before the century had passed, the Kingdom of Hawai‘i was no more.

(1776) Ke one kuilima laula o ‘Ewa.

The sand on which there was a linking of arms on the breadth of ‘Ewa.

‘Ewa, O‘ahu. The chiefs of Waikīkī and Waikele were brothers. The former wished to destroy the latter and laid his plot. He went fishing and caught a large *niuhi*, whose skin he stretched over a framework. Then he sent a messenger to ask his brother if he would keep a fish for him. Having gained his consent, the chief left Waikīkī, hidden with his best warriors in the “fish.” Other warriors joined them along the way until there was a large army. They surrounded the residence of the chief of Waikele and linked arms to form a wall, while the Waikīkī warriors poured out of the “fish” and destroyed those of Waikele.

Oli, Mele, Winds, and Rains

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

A well-known person in Hawaiian oral traditions is the demigod Kamapua‘a. He was a legendary figure from O‘ahu who could assume the shapes of various plants and animals. In the story of Kamapua‘a published in 1891 in the Hawaiian language newspaper *Ka Leo o ka Lahui*, Kamapua‘a utters a chant which mentions the wind and rain of Waikīkī by name. He tells us that the wind belonging to Kapua, an ancient well-known surf spot near present-day Kapi‘olani Park, is called Haualialia. Kamapua‘a then indicates that the rain belonging to Waikīkī is called Wa‘ahila:

Oli aku la o Kamapuaa:	Kamapua‘a chanted:
… He Haualialia ko Kapua	… Kapua has the Hauālialia [breeze]
He ua Waahila ko Waikiki	Waikīkī has the Wa‘ahila rain
He ua Kukalahale ko Honolulu…	Honolulu has the Kūkalahale rain…(Akana 2004:13, 16–17)

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

A wind recorded for Kāhala is ‘Ōlau-niu. This translates to “coconut-leaf piercing” (Nakuina 2005).

Although no rain names were found specifically for Kāhala or Wai‘alae, two are associated with Waikīkī. These are Makahuna and Wa‘ahila (Akana and Gonzales 2015). Both rains were recorded in mele:

Ku‘u kane i ka makani Hauālia	My husband of the Hauālia wind
‘O ka Makahuna i Hāwāwā ē	The Makahuna rain at Hāwāwā
Wā ihola , ke wā wale maila nō	Boisterous, making an uproar
Ka ua hilahila moe awakea	The shy rain that settles down at midday

From a mele by Hiʻiakaikapoliopele on hearing the clamor of people in the house she has just left in Waikīkī. (Akana and Gonzales 2015:170)

Kuʻu kane i ka ua noe	My husband of the misty rains
Noe hāliʻi a ka Waʻahila	Blanketing fall of the Waʻahila showers
Hoʻohila ka manaʻi, wehi i ka lau	Abashed, yet adorned by the outpour
Lau a ke aloha e piʻi ana i ka liko	An outpouring of love, rising to brightness
Wā ihola, ke wā wale maila nō	Boisterous, an uproar

From a mele by Hiʻiakaikapoliopele as she was leaving a house with noisy people playing the game of kilu in Waikīkī. (Akana and Gonzales 2015:280)

Power and Warfare in Waikīkī

There are many Oʻahu chiefs connected to Waikīkī. Some of the most noted are Māʻilikūkahi, Kaʻihikapuamanuia, Kakuhihewa, Kaʻihikapuakakuhikewa, and Kahahana. Sometime around the start of the 15th century, Māʻilikūkahi was born at the sacred birthing place in Wahiawā known as Kukaniloko. When Māʻilikūkahi was 29 years old, he was chosen by the aliʻi, kahuna, and makaʻāinana to become Oʻahu's king. He consented and moved to Waikīkī, making it his administrative center. Māʻilikūkahi was well-loved because he ruled with compassion and wisdom as heard in his decree:

> Cultivate the land, raise pigs and dogs and fowl, and take the produce for food. And you, chiefs of the lands, do not steal from others or death will be the penalty. The chiefs are not to take from the makaʻāinana. To plunder is to rebel; death will be the penalty. This is my command to the chiefs, the lesser chiefs, the warrior chiefs, the warriors, and the people: all the first-born sons, the keiki makahiapo, are to be mine to raise; they will be my sons, kaʻu keiki, and mine to take care of. (Kamakau 1991:55)

Many generations after Māʻilikūkahi, Kaʻihikapuamanuia became the ruler of Waikīkī, and like Māʻilikūkahi, Kaʻihikapuamanuia was well-liked by the people. Kaʻihikapuamanuia built the heiau in Waikīkī called Hale Kumukaʻaha, and shortly thereafter laid plans to kill his brother Haʻo who was the chief at Waikele in ʻEwa. After Kaʻihikapuamanuia carried out his plans of murdering his brother, there was a dividing of Oʻahu into two chiefdoms. Out of Waikīkī, Kaʻihikapuamanuia continued ruling the districts of Kona, Koʻolaupoko and his brother's former stronghold of ʻEwa. Haʻo's son Napulanahumahiki, who escaped to Waiʻanae after his father's murder, became Oʻahu's other chief, ruling the districts of Waiʻanae, Waialua, and Koʻolauloa (Kamakau 1991).

Upon the death of Kaʻihikapuamanuia, his warrior son Kakuhihewa assumed power. Kakuhihewa's daughter Kaeaakalona married the rival chief Napulanahumahiki of Waiʻanae, and once again, Oʻahu became one united kingdom under Kakuhihewa. The reign of peace and prosperity that Kakuhihewa brought to the kingdom of Oʻahu marked him as the greatest of Māʻilikūkahi's descendants and gave Oʻahu the nickname of "The Sands of Kakuhihewa." This period is described as follows:

> Conditions in the kingdom in the mid-1500s were excellent. Agricultural and fishing industries were thriving. Food was abundant and the people were healthy. The prosperous economy attracted chiefs from Maui, Hawaiʻi and Molokaʻi who came to Oʻahu to live or to enjoy the excitement and brilliance of the court. Chiefs from the island of Hawaiʻi also came to escape their own interminable wars. (Kanahele 1995:73)

When Kakuhihewa died, his oldest son Kanekapuakakuhihewa became the ruler, and this new king shared the monarchy over Oʻahu with his three brothers. One of the four brothers, Kaʻihikapuakakuhihewa, ensured that

the kingdom of O‘ahu continued to be administered from Waikīkī as well as ‘Ewa. Unlike previous generations, the four brothers did not succumb to intrafamily conflict, and as a result they brought five generations of continued peace to O‘ahu. Their only challenge came from the outside when the Maui chief Kauhiakama invaded O‘ahu at Waikīkī. The invading Maui ruler was routed, and he was offered up at the heiau ‘Āpuakēhau in Waikīkī (Kanahele 1995).

A little over a century later, the last of O‘ahu’s sovereign chiefs was Kahahana. Although Kahahana was born on O‘ahu, he was raised by his uncle, the chief of Maui, Kahekili. Since the people of O‘ahu had been mistreated by their ruler Kumuhana, the O‘ahu chiefs deposed Kumuhana and summoned Kahahana from Maui to be their new ruler. Kahahana accepted and sailed for O‘ahu where he was greeted with rejoicing when he landed on the Waikīkī shores of Kahaloa, an area between today’s Halekulani and Royal Hawaiian Hotels. Kahahana had his residence at Helumoa in Waikīkī as did the future rulers Kahekili and Kamehameha I (Feeser 2006). For a while, Kahahana was a well-loved chief, and much of his good leadership was attributed to the guidance of his high priest Ka‘opulupulu. However, Kahahana’s uncle Kahekili had coveted the O‘ahu kingdom, and he wrongfully convinced Kahahana that Ka‘opulupulu was a traitor. As a result, Kahahana killed his high priest and presented him on the sacrificial altar of the heiau at Helumoa (Pukui 1983:44). As soon as Kahekili learned that the wise priest was dead, he set out to invade and conquer O‘ahu. Kahekili and his army from Maui landed their war canoes on the shores of Waikīkī, covering the entire coast from Ka‘alawai near today’s Diamond Head to Kawehewehe near the present Halekulani Hotel. After three years of fighting, Kahekili finally subdued the forces of Kahahana, and the sovereignty of the O‘ahu kingdom was no more. The year was 1783, and by that time, the Western explorers had also already arrived on O‘ahu’s shores (Kanahele 1995). Thus ended one chapter of O‘ahu’s history and started a new one toward the modern era.

Waikīkī and Wai‘alae in the Historic Era

Since the arrival of Westerners to Hawai‘i in the late 1700s, perhaps no other village in the islands epitomizes the transformation of Hawai‘i as well as Waikīkī does. At the time of contact, Waikīkī was the center of rule for the independent O‘ahu kingdom under Kahahana. Waikīkī remained a seat of political administration even under Kahekili, the chief from Maui who wrested control from Kahahana, and it continued to be the seat of rule for the completely unified Hawaiian Kingdom under Kamehameha, who conquered Kahekili. After little more than a decade of ruling from Waikīkī, Kamehameha moved the seat of government to Honolulu, but Waikīkī continued to be a place of royal residences, surf spots, and temples.

Māhele Land Tenure

The change in the traditional land tenure system in Hawai‘i began with the appointment of the Board of Commissioners to Quiet Land Titles by Kamehameha III in 1845. The Great Māhele took place during the first few months of 1848 when Kamehameha III and more than 240 of his chiefs worked out their interests in the lands of the Kingdom. This division of land was recorded in the Māhele Book. The King retained roughly a million acres as his own as Crown Lands, while approximately a million and a half acres were designated as Government Lands. The Konohiki Awards amounted to about a million and a half acres, however title was not awarded until the konohiki presented the claim before the Land Commission.

In the fall of 1850 legislation was passed allowing citizens to present claims before the Land Commission for parcels that they were cultivating within the Crown, Government, or Konohiki lands. By 1855 the Land Commission had made visits to all of the islands and had received testimony for about 12,000 land claims. Ultimately between 9,000 and 11,000 kuleana land claims were awarded to kama‘āina totaling only about 30,000 acres and recorded in ten large volumes.

Abner Pākī was awarded the ‘ili of Wai‘alae Iki and after his death, John ‘Ī‘ī inherited the lands. Victoria Kamāmalu was awarded the ‘ili of Wai‘alae Nui, where the project area is located, in 1848 under LCA 7713 (Royal Patent 4475). LCA 7713 is extensive with various parcels awarded to Kamāmalu on Maui, Hawai‘i

Island, Lanaʻi, Kauaʻi, Molokaʻi, and Oʻahu. After her death, Bernice Pauahi Bishop inherited the ʻili of Waiʻalae Nui. Many of the parcels within this ʻili are still owned by the Bernice Pauahi Bishop Estate. There are no other LCA awards in the immediate vicinity of the project area, although LCA 228:2, a large parcel awarded to Kaleiheana, is situated to the west of the project area (see Figure 10).

Economic Pursuits of the Late Historic Era

The 1800s brought whalers, sandalwood traders, and Protestant missionaries to Waikīkī's doorstep. The foreigners brought with them new diseases for which Hawaiians had no immunity, and as a result, there was a rapid depopulation of Waikīkī and throughout Hawaiʻi. Waikīkī's once-thriving loʻi kalo and loko iʻa would decline severely.

Agricultural endeavors across Oʻahu were prevalent through the 1800s, with some more profitable than others, and dependent largely on the regional environment and surrounding resources. By the late 19th century, the sugar industry in Hawaiʻi had reached its economic high. There was only one sugar plantation recorded in the Waiʻalae area, Niu Sugar Plantation, and according to Thomas Thrum's 1881 edition of *The Hawaiian Almanac and Annual*, J.C. White was Niu Plantation's operations manager (Thrum 1881:57). There was no other mention of Niu Plantation in Thrum's subsequent annuals, which may indicate that the endeavor did not last. By the 20th century, the former taro lands in and around Waiʻalae were converted into farming communities of immigrant Chinese farmers with fruits, vegetables, and rice among the crops that were cultivated.

Ranching was brought to Waiʻalae by Daniel Paul Rice Isenberg, the son of German-born businessman Paul Isenberg, who was a co-founder of H. Hackfeld & Co. and a manager of the Līhuʻe Sugar Plantation. For a time, Daniel Isenberg managed the Līhuʻe Plantation before moving to Oʻahu and leasing land in Waiʻalae from the Bishop Estate. There, he established a dairy ranch where he also promoted horse racing and bred horses. In his years on Oʻahu he was highly active in local business enterprises and politics. He was also known as "Paulo Liilii" and was close to King Kalākaua, who would often be present at lūaus hosted by Isenberg at his Waiʻalae ranch. Isenberg also founded the first dairyman's association, the first baseball team, and baseball association. After the annexation of Hawaiʻi, Isenberg became highly involved in politics and he was elected to the house of Representatives eight consecutive times (Takasaki 1976).

Historic Maps

Historic maps help to paint a picture of Waiʻalae in years past and illustrate the many changes that have taken place in the region. This section presents a selection of five maps from 1878 to 1927 that provide insight to the project area.

The earliest historic map for this area is from 1878 (Figure 5). Major landforms include telegraph Hill in Kaimukī as well as Lēʻahi (Diamond Head) with a pond in the center. Kupikipikio Point and a fishpond are also visible. A single road or large trail passes through the region from west to east, crossing the Waiʻalae Stream. Off the coast of the project area, the ocean depths are shown and a label reads "mud and sand over coral. Dry at L.W. [Low Water]." No structures are visible near the study area.

An 1881 map of Oʻahu lists the major landowners and ahupuaʻa boundaries (Figure 6). Lēʻahi has a height of 761 feet amsl, while Telegraph Hill is 292 feet high. The land between Lēʻahi and Kāhala is called Kaalawai. Both the Waiʻalae Stream and the smaller Kapakahi Stream bordering the project area are depicted.

An 1883 map depicts the entire southeast coastline of Oʻahu from Diamond Head to Koko Head. In the vicinity of the project area, a large coconut tree grove is shown where the current Waiʻalae Beach Park and Waiʻalae Country club are now (Figure 7). The shoreline appears much as it does today, although there are no

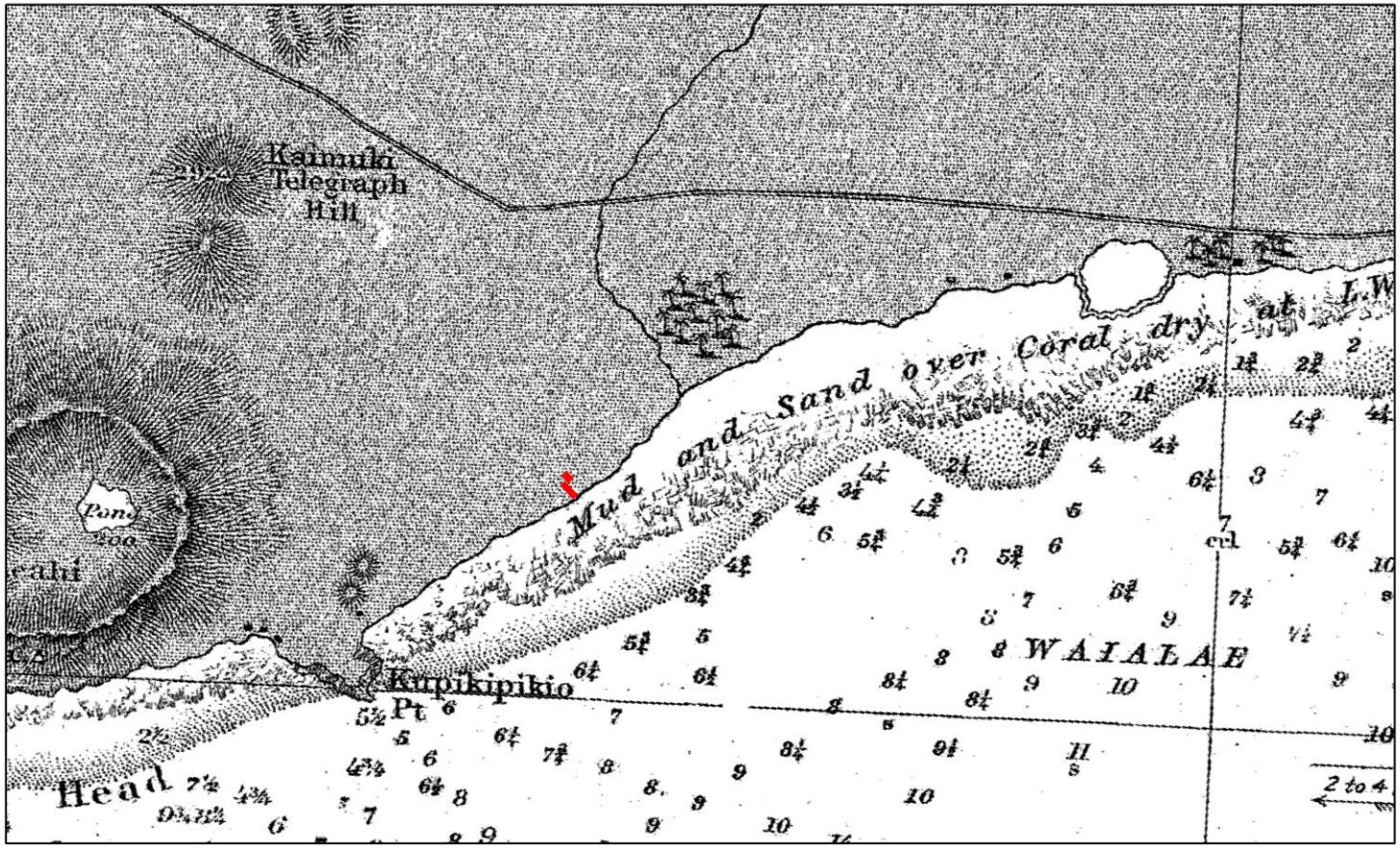


Figure 5. Portion of an early map of Southeast O‘ahu (U.S. Navy 1878).

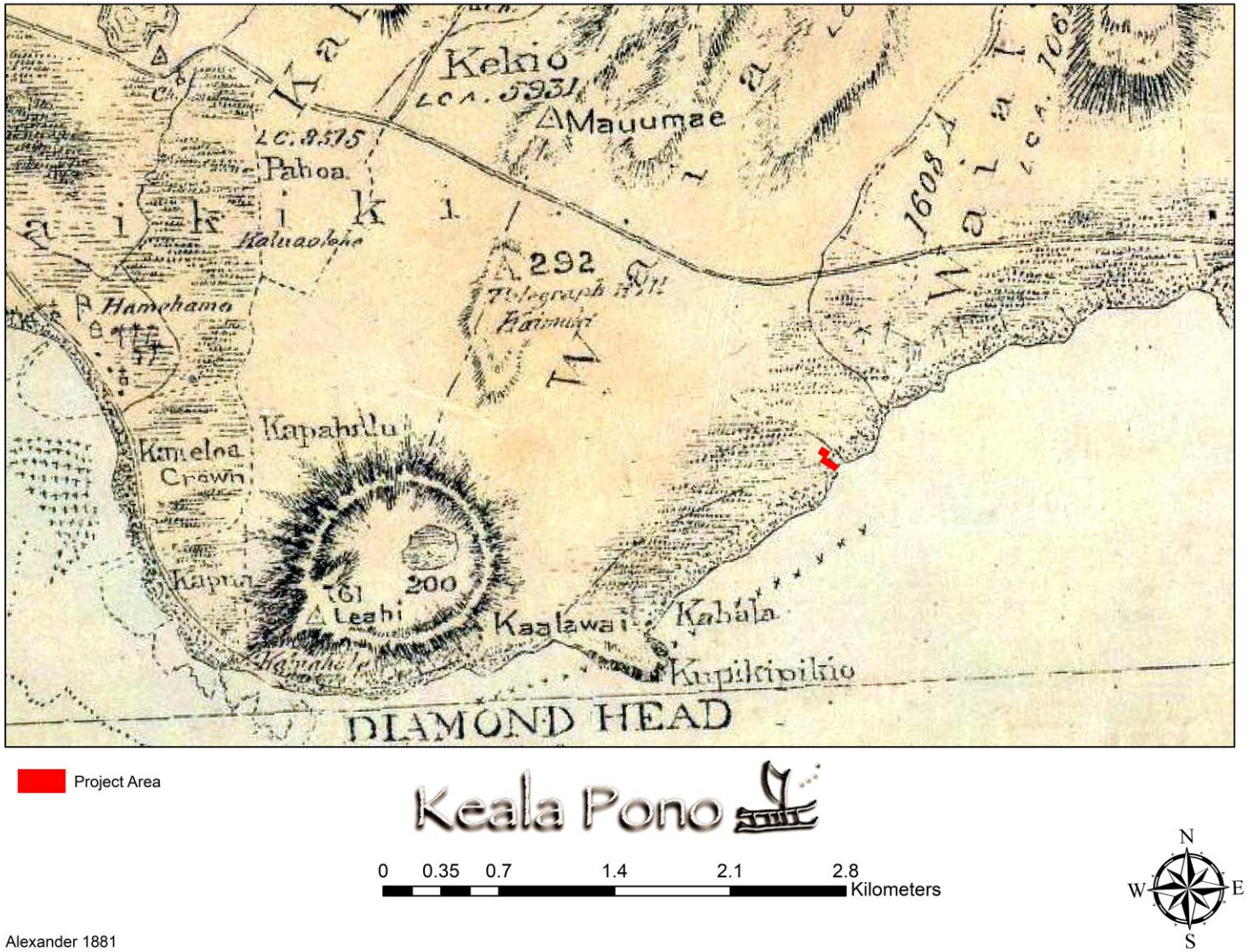


Figure 6. Portion of an early map of O‘ahu (Alexander 1881).

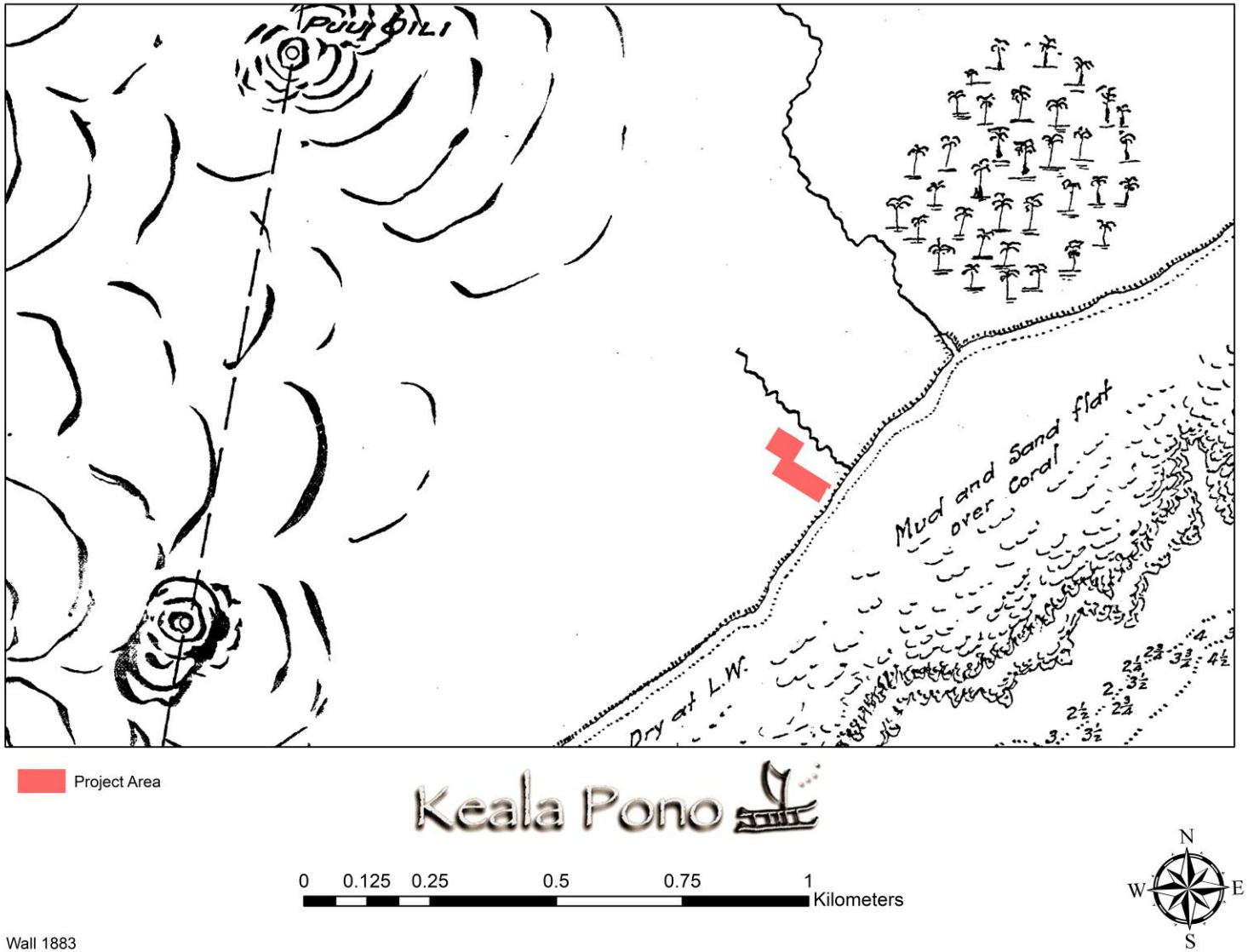


Figure 7. Portion of a map of the southeast coast of O‘ahu (Wall 1883).

houses visible. A small stream is located just off the northeast edge of the project area and the larger Waiʻalae Stream is also shown. Text off the coastline from the project area reads "dry at L.W." and "mud and sand flat over coral." A hill to the northwest of the project area is called Pʻuu Oili.

A Hawaii Territory Survey Map from 1902 shows land use on O'ahu (Figure 8). The project area is located within a region bordered in yellow, representing grazing land. This large area of grazing land spans the majority of the south shore from Waiʻalae Nui until Hawaiʻi Kai. Lēʻahi (Diamond Head) and Kupikipikio Point are designated as a federal reservation (pink shading) and labeled as "govt." The coconut grove and Waiʻalae Stream can still be seen to the east.

A 1913 map illustrates fisheries along the southern coast of Oʻahu, from Diamond Head to Koko Head (Figure 9). The map shows the project area fronting the Waiʻalae Nui Fishery, which is labeled as "Bishop Est." This likely indicates that the fishery was owned or managed by the Bishop Estate. The entry of Waiʻalae Iki Stream to the ocean seems to make up the boarder of the Waiʻalae Nui and Waiʻalae Iki Fisheries. Though larger than Kapakahi Stream, Waiʻalae Stream is not visible. A single roadway passes through this region, which is simply labeled as "Waialae Road." To the southwest of the project area is Waokana; this may be a place name.

A 1927 map shows LCA awards in Kāhala and its environs (Figure 10). A large LCA is illustrated to the west of the project area. This is LCA 228:2, which was awarded to Kaleiheana and labeled as "Kanewai Kahala." Kahala Avenue and Isenberg Road are depicted on this map, with only one unnamed street crossing Isenberg. Kapakahi Stream is labeled, and Waialae Municipal Park has already been established at the mouth of the stream.

Contemporary History

The 19th century closed with the overthrow of the Hawaiian monarchy by foreigners backed by the United States and the annexation of Hawaiʻi into an American territory. As the 1900s started, the U.S. military began construction of a base in Waikīkī at Fort DeRussy and later dredged the Ala Wai Canal, permanently changing the nature of Waikīkī's landscape. This spurred a host of construction projects by developers wanting to capitalize on the filled-in former marshlands. Development came to a standstill during the Second World War when martial law strictly regulated non-military presence in Waikīkī. But after the war, many construction projects in Waikīkī were started. The latter half of the 1900s witnessed hyper-development of Waikīkī, turning it into one of the most famous tourist destinations in the world, although the Kāhala area remains largely residential today.

Previous Archaeology

Many archaeological studies have been conducted in Waiʻalae. The following discussion provides information on archaeological investigations that have been carried out in the vicinity of the project area, based on reports found in the SHPD library in Kapolei, Hawaiʻi (Figure 11 and Table 1). Previous archaeological sites in the region with known locations are listed in Table 2. SIHP (State Inventory of Historic Places) numbers are prefaced by 50-80-14 (Figure 12).

The earliest archaeological survey on Oʻahu was completed by J.G. McAllister in his published work, *Archaeology of Oahu* (1933). This study documented many important Hawaiian cultural sites, including heiau, at a time before many were destroyed. There are no McAllister sites in the vicinity of the current project area, although two were recorded in the Waiʻalae/Wailupe region. Kaunua Kahekili Heiau (Site 55) was located on a ridge top that divides the land areas of Waiʻalae and Wailupe. It was said to be a very large heiau, and the site was later planted with pineapples. McAllister noted that the site was overgrown, and all that remained was "many large rocks embedded in the earth" (McAllister 1933:71). Wailupe Fishpond (Site 56) was situated at the shoreline of Wailupe Ahupuaʻa. McAllister described the fishpond as 41 acres in area, with a wall that was

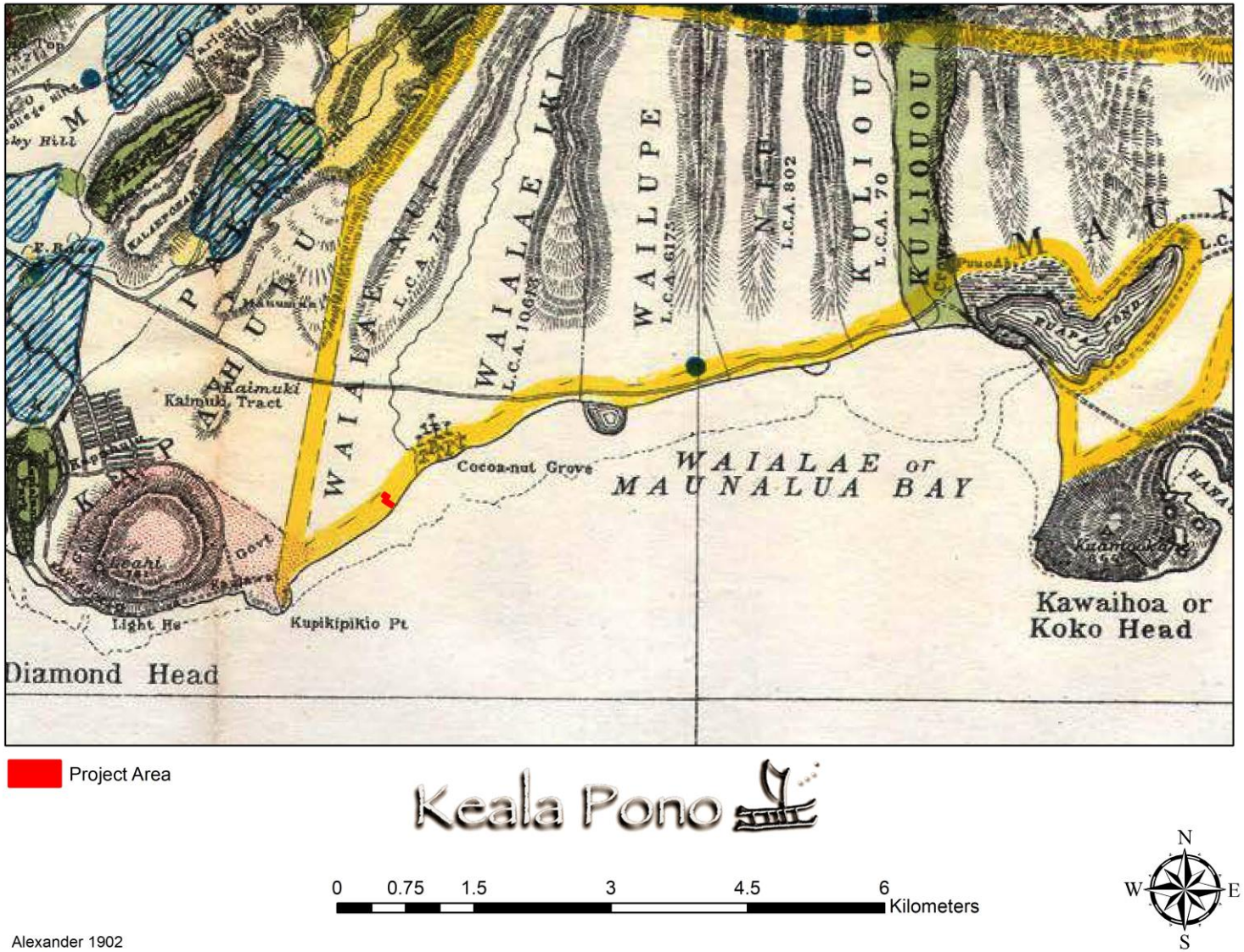


Figure 8. Portion of an O‘ahu land usage map (Wall 1902).

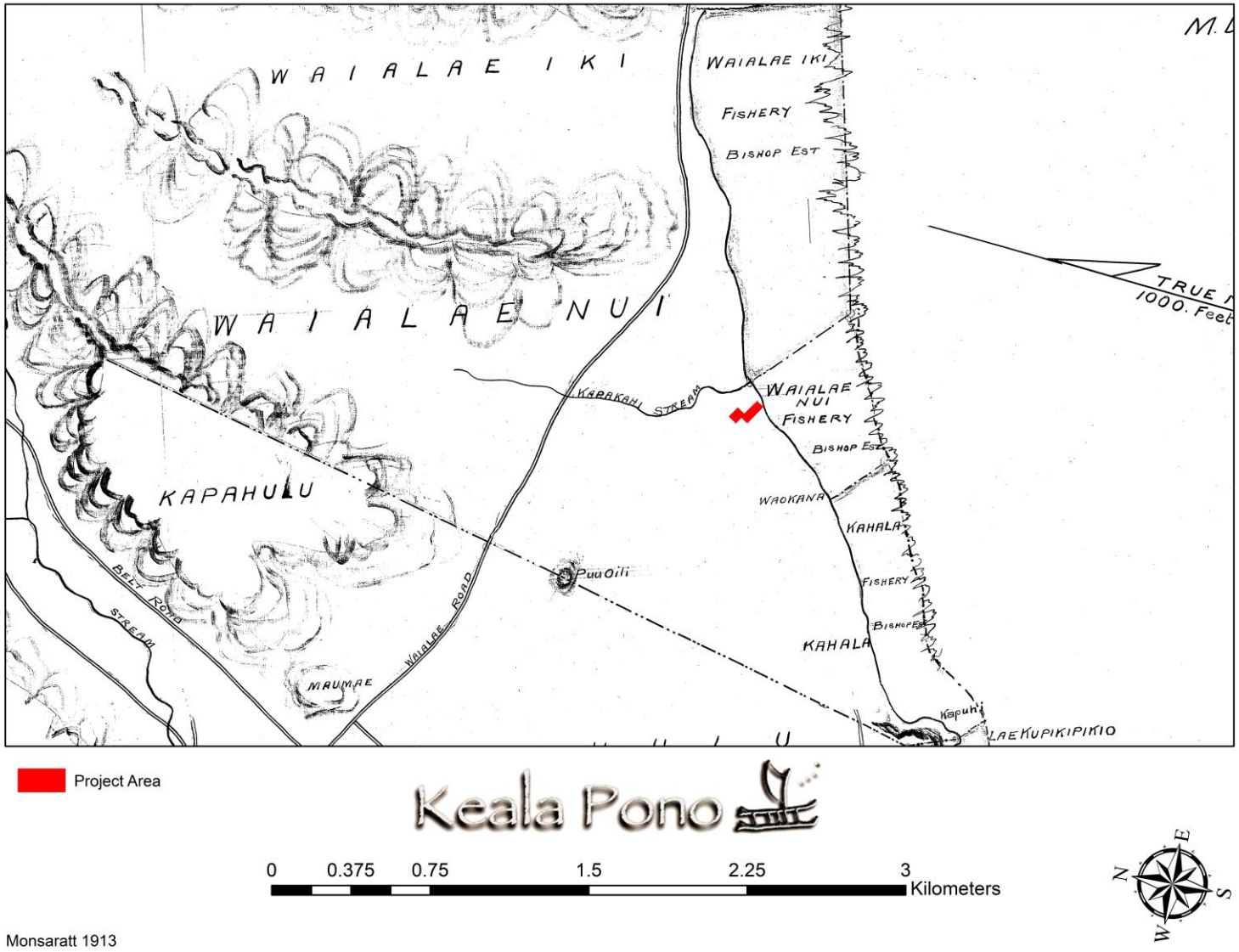
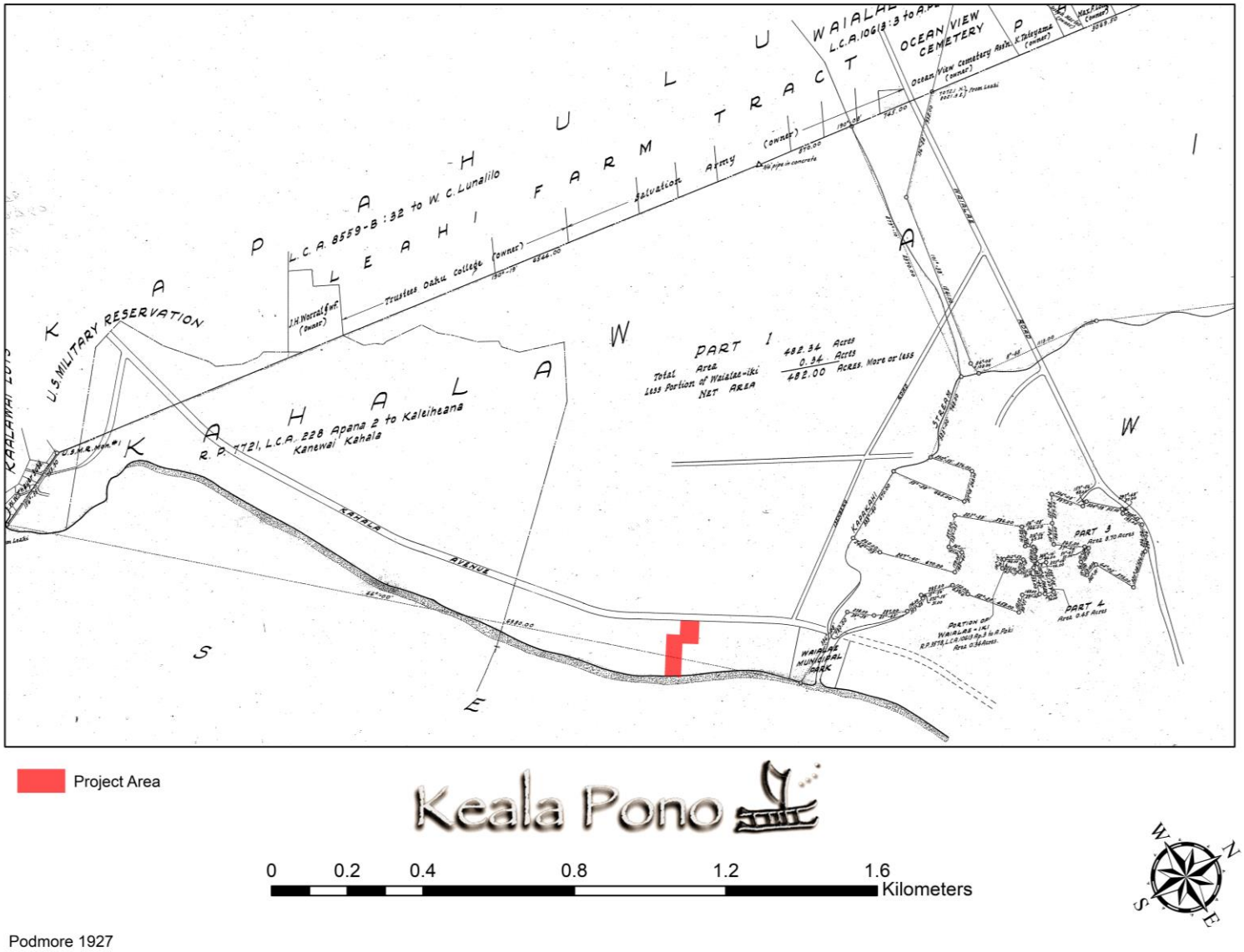


Figure 9. Portion of a fisheries map (Monsarrat 1913).



Project Area

Keala Pono

0 0.2 0.4 0.8 1.2 1.6 Kilometers

Podmore 1927

Figure 10. Portion of a map showing LCA boundaries (Podmore 1927).

Project Area

Keala Pono

0 0.1 0.2 0.4 0.6 0.8 Kilometers

N W E S

Figure 11. Previous archaeological studies in the vicinity of the project area.

Figure 12. Known archaeological sites in the project vicinity.

Table 1. Previous Archaeological Studies in the Project Vicinity

Author/Year	Location	Study Type	Results
McAllister 1933	Island Wide	Survey	Noted one site in the region- Site 55-Kaunua Kahekili Heiau and Site 56-Wailupe Fishpond; neither are near the current project area.
Bath and Griffin 1988	1013 Waiholo St.	Burial Report	Inadvertently discovered a human burial of a 35 year-old female, SIHP 3760.
Bath 1989	4745 Aukai Ave.	Burial Report	Identified and disinterred SIHP 4126, a human burial.
Putzi and Dye 2003	4773 Kāhala Ave.	Burial Report	Recorded SIHP 6632, a cultural layer containing five burials and traditional Hawaiian artifacts.
O'Hare et al. 2008	Waiʻalae Country Club	Literature Review and Field Check	No findings during field check.
Wilson and Spear 2009	Waiʻalae Country Club	Archaeological Monitoring	No findings.
Dagher et al. 2013; Dagher and Spear 2011	Waiʻalae Country Club	Archaeological Monitoring; Burial Site Component of a Data Recovery Plan	Identified two burial sites. SIHP 7206 is a human burial and burial pit, while SIHP 7207 is an in situ human burial with a pit feature of unknown function. Traditional artifacts include a coffee bean sinker and a volcanic glass flake.
Pestana and Spear 2015	4607 Kāhala Avenue	Archaeological Inventory Survey	No findings.
Fechner et al. 2016	Kāhala Hotel and Resort	Archaeological Inventory Survey	No findings.
Pestana and Spear 2017	Waiʻalae Country Club	Archaeological Monitoring	Recorded SIHP 7925, five human burials and grave goods. Cultural layers date to the pre-contact and/or early post-contact era and the 1800s.
Pestana and Spear 2018	4607 Kāhala Ave.	Archaeological Inventory Survey	Documented historic structural remains of a residential complex (SIHP 7943)

2,500 feet long. He noted a sandy expanse at the west end of the fishpond, at least 50 feet wide where four mākāhā allowed water to pass through. The rock wall of the pond was a massive 12 feet wide (McAllister 1933). The fishpond has since been filled in and a residential development was built in its place, now referred to as Wailupe Peninsula.

During construction of a swimming pool at 1013 Waiholo Street, human remains were encountered and the medical examiner's office informed SHPD of the discovery (Bath and Griffin 1988). The remains were in a flexed position and were listed as SIHP 3760. Osteological analysis of the remains determined that the individual was a 35-year-old female. A burial area on the property was established and the remains were reinterred on site.

Iwi kūpuna were again inadvertently identified at a construction site, this time at 4745 Aukai Avenue (Bath 1989). SHPD was notified and it was determined that the burial was partially intact. It was disinterred and further examination determined that the remains were of an approximately 40–45 year-old adult male. The burial was re-interred at the property and designated SIHP 4126.

Table 2. Known Archaeological Sites in the Project Vicinity

SIHP # 50-80-14	Name	Description	Authors
3760	Human burial	A human burial located at 1013 Waiholo Street. Remains were of a 35-year-old female and were reinterred on site.	Bath and Griffin 1988
4126	Human burial	A human burial located at 4745 Aukai Ave.	Bath 1989
6632	Human burials and cultural layer	A cultural layer containing five burials and traditional Hawaiian artifacts at 4773 Kāhala Ave.	Putzi and Dye 2003
7206	Human burial	A burial pit with partial human remains. Traditional artifacts associated with the burial include a basalt coffee bean sinker and a volcanic glass flake.	Dagher et al. 2013
7207	Human burial	Two features, an in situ human burial and a pit feature of unknown function.	Dagher et al. 2013
7925	Human burials	Five human burials, with coffins and in traditional flexed position. Associated cultural layers contained hearth features, animal burials, and pit features that date to the pre-contact and/or early post-contact era and the 1800s.	Pestana and Spear 2017
7943	Structural remains	Historic structural remains of a residential complex dating from approximately 1939 to recent.	Pestana and Spear 2018

Iwi kūpuna were inadvertently identified during the excavation of a utility line at 4773 Kāhala Avenue, adjacent to the project area (Putzi and Dye 2003). Further investigation revealed a cultural layer containing five burials and several pre-contact Hawaiian artifacts. SIHP The cultural layer and burials were designated as SIHP 6632. It was determined that the burials were most likely individuals of Hawaiian ancestry due to the presence of traditional artifacts.

Many archaeological investigations were carried out over the years for construction and improvements to the Waiʻalae Country Club. In 2008, a literature review and field check were completed as part of the Waiʻalae Country Club Master Plan, which included work on the parking lot, tennis court, dining areas, a new lobby area, administration offices, conference rooms, and associated infrastructure (O'Hare et al. 2008). The surface field check produced no findings, however on site monitoring for all ground disturbing activities was recommended due to the high potential for human burials and the possibility of encountering features related to the Māhele, Waiʻalae Ranch, and the Waiʻalae Country Club itself, which was built in 1930. Subsequent archaeological monitoring was conducted at the country club for air conditioning and sprinkler electrical line installation (Wilson and Spear 2009). No cultural properties were encountered during monitoring.

During upgrades to the Waiʻalae Country Club Clubhouse in 2013, human remains were inadvertently encountered during archaeological monitoring (Dagher et al. 2013). SIHP 7206 is an incomplete set of human remains with an associated burial pit feature. An in situ human burial and a pit feature of unknown function were also discovered and listed as SIHP 7207. Traditional Hawaiian artifacts including a basalt coffee bean sinker and volcanic glass flakes were found in the backdirt and thought to be associated with the two sites. The SIHP 7206 burial was reinterred with SIHP 7207 and a barrier was built to protect the remains during future ground disturbance in the area (Dagher and Spear 2011). Also at the Waiʻalae Country Club, archaeological monitoring was completed for the Annex Building Project (Pestana and Spear 2017). An in situ burial cluster of

five individuals and two cultural layers were encountered and designated as SIHP 7925. The cultural layers contained multiple features consisting of hearths, animal burials, and pit features of undetermined function. The human burials were in coffins and in traditional Hawaiian flexed position. Grave goods and artifacts associated with the burial cluster dated to the pre-contact and/or early post-contact periods as well as the early 1800s. The SIHP 7925 burials were preserved in place.

In 2015, ten test trenches were excavated during an archaeological inventory survey at 4607 Kāhala Avenue (Pestana and Spear 2015). A former land surface A-horizon and remnant modern building foundation were documented, however the A-horizon contained no cultural material so the authors reported that no historic properties were identified during the study. Archaeological monitoring was still recommended for any future subsurface work.

An archaeological inventory survey was completed on 3.9 acres for a beachfront improvements project at the Kāhala Hotel and Resort (Fechner et al. 2016). No cultural properties were documented and it was determined that the entire area was previously disturbed by prior construction.

Lastly, in 2018 an archaeological inventory survey was conducted at 4607 Kāhala Avenue in preparation for the construction of three residential buildings (Pestana and Spear 2018). Historic structural remains were documented during the survey and designated as SIHP 7943. The site is thought to have been built around 1939 to recent times. SIHP 7943 consists of surface foundation remnants from a residence and additional structures, possibly a garage or guest house.

Summary of Background Research

Based on the review of land use and previous archaeological investigations, there is high potential for human remains and other cultural properties to occur in the project area. The project location is along the native coastline and underling soils consist of Beach sand (BS) and Jaucas sand (JaC) (Foote et al. 1972; see Figure 3), an environment traditionally favored for human burial. Previous archaeological studies have identified iwi kūpuna, as well as traditional Hawaiian artifacts at an adjacent parcel along with other nearby human burials. It is likely that these kinds of remains will be found during ground disturbance.

ETHNOGRAPHIC SURVEY

As we all know, there are some things that cannot be found in the archives, in textbooks, or at the library. It is here, through the stories, knowledge and experiences of our kamaʻāina and kūpuna, that we are able to better understand the past and plan for our future. With the goal to identify and understand the importance of, and potential impacts to, traditional Hawaiian and/or historic cultural resources and traditional cultural practices of the project lands, ethnographic interviews were conducted with community members who are knowledgeable about the project area.

Methods

This CIA was conducted through a multi-phase process between October and December 2021. Guiding documents for this work include The Hawaiʻi Environmental Council's Guidelines for Assessing Cultural Impacts, A Bill for Environmental Impact Statements, and Act 50 (State of Hawaiʻi). Personnel involved with this study include Windy McElroy, PhD, Principal Investigator of Keala Pono Archaeological Consulting, as well as Gina McGuire, MA, Ethnographer.

Interviewees were selected because they met one or more of the following criteria: 1) was referred by Keala Pono Archaeological Consulting or G70; 2) had/has ties to the project area or vicinity; 3) is a known Hawaiian cultural resource person; 4) is a known Hawaiian traditional practitioner; or 5) was referred by other cultural resource professionals. Two individuals participated in the current study and a third interview is pending. Manaʻo and ʻike shared during these interviews are included in this report.

Interviews were taped using a digital MP3 recorder. During the interviews, interviewees were provided with a map or aerial photograph of the subject property, the Agreement to Participate (Appendix A), and Consent Form (Appendix B), and briefed on the purpose of the CIA. Research categories were addressed in the form of open questions which allowed the interviewee to answer in the manner that he/she was most comfortable. Follow-up questions were asked based on the interviewee's responses or to clarify what was said.

Transcripts were produced by listening to recordings and typing what was said. A copy of the edited transcript was sent to each interviewee for review, along with the Transcript Release Form. The Transcript Release Form provided space for clarifications, corrections, additions, or deletions to the transcript, as well as an opportunity to address any objections to the release of the document (Appendix C). When the forms were returned, transcripts were corrected to reflect any changes made by the interviewee.

Several potential interviewees were contacted, resulting in two interviews, with a third interview pending (Table 3). The third interview was conducted with Lucinda Pyles on January 5, 2022. The interview transcript is currently being reviewed by Ms. Pyle; upon approval, the transcript, interview responses, and recommendations will be incorporated into the CIA The ethnographic analysis process consisted of examining each transcript and organizing information into research themes, or categories. Research topics include connections to the project lands, archaeological sites, traditional practices, changes over time, and concerns and recommendations for the project. Edited transcripts are presented in Appendices D and E.

Interviewee Background

The following section includes background information obtained from each interviewee during the interviews. This includes information on the interviewee's ʻohana and where the interviewee was born and raised, in their own words. Interviewees include Mana Caceres and Richard Turbin.

Table 3. List of Individuals Contacted

Name	Affiliation	Method of Contact	Result of Contact
Mana Caceres	Kona District Burial Council Representative, Waikiki Descendant Family	Phone	Interviewed
Piʻikea Tomczyk	President, Waikiki Hawaiian Civic Club	Email, Telephone	Initial Response Followed by No Response
Leimomi I-Maldonado (Aunty Lei)	Kumu Hula, Ka Hale I O Kahala	Email	Declined
Richard Turbin	Chair, Waialae-Kahala Neighborhood Board	Phone	Interviewed
Scott Haraguchi	Local Fisherman, Kalani High School Graduate	Email, Social Media	No Response
Lucinda Pyles	Local Resident, Involved Community Member	Email. Phone	Interviewed

Mana Caceres

> Ok so my name is Norman Kaleilani Caceres. My family gave me the nickname Mana from the day I was born, so eventually that became my name…But my parents are from Kahuku and Lāʻie on this island [Oʻahu]. And before I was born my parents moved to California to kind of get away from the scene as it was in Hawaiʻi in the mid-ʻ70s…So they lived in California and eventually moved to Washington State where I stayed until I graduated high school. And then after that I went to UH Hilo on the Big Island where I went to school…I was originally there for a Hawaiian studies degree and then I eventually had changed it to communications. So I got my BA in communications. And then I lived on the Big Island for a couple years and then in 2004 I believe, me and my wife moved over with our older three children to the Kapolei Homestead on Oʻahu where we've been ever since.
>
> My family genealogy mostly concentrates on the Hawaiian side from Kona and Kohala on the Big Island, even though we do have, you know, marrying throughout the generations on the other islands, but most of it, the foundation of the genealogy comes from the Big Island. My non-Hawaiian ancestor was Japanese. My great-great-grandfather was working on a ship in the 1800s when they landed in Kona.

Richard Turbin

> Well, when I came to Hawaii I was very lucky…You know I was in an old Hawaiiana house right there, right near where this development is…I think the owner wanted to develop. You know, she was an old kamaʻaina Hawaiian lady and I think she wanted to fix the house up. So I got kicked out after about a year and a half. I moved to Kailua for two years but then got back to Kahala…

Topical Breakouts

A wealth of information was obtained through the oral interviews. Quotes from the interviews are organized in the following sections by topic. Topical breakouts include connections to the project

lands, archaeological sites, traditional practices, changes through time, and concerns and recommendations for the project.

Personal Connections to the Project Lands

> They [my great-grandparents] would go around to different places on the island of Oʻahu to fish and to kind of see the communities around. And Kahala and Maunalua, the Hawaiʻi Kai area, were one of the other places, even though they lived in Lāʻie, they would go to the Maunalua area to fish, give food to the community and also take some home. [Mana Caceres]

> They [my great-grandparents] were well known for the traditional method of catching heʻe, or octopus. Because, you know, the water off of the Kahala Waiʻalae coast is kind of shallow for a bit, you can walk out kind of far because of that, I guess it was a place where they would frequent. You know, twice a month, is what I was told. Couple times a month. To go and catch heʻe and then give it away and feed themselves. [Mana Caceres]

> I got to track it down, but there is videos of them fishing and waterskiing on that side. Back in those days it was legal to catch turtles, so that was another thing they would do over there on that side. [Mana Caceres]

> Me and my family first started getting involved in that coastline maybe about eight, seven or eight years ago. We were involved in consultation and also reburials or iwi kūpuna that was somewhat preserved in place, others were relocated for the golf course on that side. [Mana Caceres]

> Eventually, because of our ties and our connection to the area, first we were asked to mālama the iwi on that side and then eventually projects wanted us to be hired on as cultural monitors. So that kind of is our more recent and consistent tie to the area. [Mana Caceres]

> I lived in Kahala right near the beach. Near the [current] development in an old house from 1970 to ’72. In ’72 I moved to Kailua and I was ’72 to ’74 there then moved back to Ainakoa, which is the first hill just above Kahala in ’74 to 1980. Then 1980, married by then, my wife and I bought a nice Kahala home… [Richard Turbin]

Archaeological Sites

> There was a handful of iwi kūpuna that was documented during the construction of the, I think it was a new pool or a new wing [at the golf course]. [Mana Caceres]

> I have to look at some of my paperwork, but from what I know, there was, you know, some traditional and/or historic graveyards in the area. I believe that was kind of closer to that golf course that we were speaking of. [Mana Caceres]

> I don’t know any that’s in close proximity to the project site. [Mana Caceres]

> Well we did a reburial that was like right on the property line… [Mana Caceres]

> The only other kind of cultural properties that I myself am aware of are the burials along the coastline…I’m not too knowledgeable in the other historic or cultural sites or area. [Mana Caceres]

> Well I’m not sure of any [cultural or historic sites] but it is still very historical. [Richard Turbin]

> I’m sure there are some burial sites too but I don’t know. [Richard Turbin]

That's where King Kamehameha invaded the island of Oahu. Right on Kahala Beach. And that's where the people, the Hawaiian army who fought the takeover, they hid their guns and weapons on Kahala Beach. [Richard Turbin]

Traditional Practices

A lot of local fisherman go there. [Richard Turbin]

Well, I mean they closed most of the right of ways there. So, I mean, honestly I don't think so [when asked if the proposed development would affect access to a place of cultural significance]. Because there's probably going to be a lot of absentee owners anyway. [Richard Turbin]

Um, from what I've seen there's a lot of people that still fish in the area. My family does not. Surfing, the traditional sport that people kind of still do in the area. And of course nobody's harvesting, legally harvesting honu anymore. [Mana Caceres]

Gathering? Other than fishing, I'm not aware of any myself. Oh limu. [Mana Caceres]

I didn't hear anything about hukilau practices in the area, but I would imagine that with the depth of the area and the streams that are coming out, why it wouldn't have been used in that area. [Mana Caceres]

Changes over time

Some of that adverse changes I can see is in the last few years, my personal involvement with some of the sites there is that you can see definite evidence of climate change, specifically shoreline erosion. This is a major problem on that side [of the island]. Some of the people who surf in that area or live in that area I've spoken to, talk about how the sand used to go out farther. And you can really see it on some of the shoreline properties where their yard is constantly being eroded. [Mana Caceres]

Kahala has traditionally been perhaps the nicest residential community in the entire Pacific Basin. Now unfortunately, it's become a place for multi-millionaires, you know, mega-millionaires, but you know, what are you going to do? [Richard Turbin]

It's been a war. I mean it's been a war fighting off developers that want to develop Kahala. [Richard Turbin]

There's been some accretion there. There's been some sand accretion there. 'Cause we got the city to tear down the foliage. I mean the beach. What happened was that some of the owners there, mostly the absentee owners, were planting, were expending the naupaka and the other planting on the beach down towards the water to take away beach. Because some of them don't want beach there because they'd rather have the privacy. But just due to the way the currents have been going and having the city cut it back, that foliage, you know, the beaches have been growing. The beaches have been preserved on the eastern side of Kahala Beach …Where that cement block is and the stairs. That's been eroding, but we're trying to get the city to take out the sand bags. There's all sand bags there and there's other cement things that were put in like breakwaters and we're trying to get the city to cut back the foliage. So hopefully we can save that part of the beach too. So we're working on it, but it's a constant battle. [Richard Turbin]

…It's getting more and more crowded on the weekends because you know, people from all over the island come to Kahala Beach. Which, you know, for me, it's fine. That's why we have beaches. It should be used by the people. Although a lot of people run their dogs there and then the dogs are not leashed. So that's not a good thing. It scares away some old people and people with young kids. [Richard Turbin]

Concerns and Recommendations

My thought is that if it's going to be for mega-millionaires, then at least have single family homes, an estate with a lot of greenery. With a lot of foliage. Not you know, six or eight million dollar homes crammed in. Now I know the plan is to sell these homes to millionaires for a lot of money. But frankly, I don't think they're going to even sell because the people who are going to want to spend the kind of money that the developers want are not going to want to…pay five million dollars for a cramped in house even if it's looking at the waterfront. [Richard Turbin]

Potential to kind of make the beach more crowded, but most of the fancy houses have been bought by absentee owners. [Richard Turbin]

But now, you know, this development goes in. It's about three blocks away from me and it just changes, it just changes the whole ambiance of the neighborhood. [Richard Turbin]

The problem with the Kahala Beach Villas is there's too many condos, lots… But it's just too much. It's too crammed in. It's not Kahala centric. [Richard Turbin]

You know, I'm being honest. I don't like it [the current project]. It's just too much. It's too much. It doesn't fit Kahala. [Richard Turbin]

Well, there are some homeless people. Homeless people that live there [at the project area]. I would prefer there be some development there. It would be nice if it was just, as I mentioned, a smaller amount of homes being built and if permanent residents live there because then there's more community activity. And also less opportunity for homeless people to build camps, homeless camps there. [Richard Turbin]

We see the evidence of erosion and ultimately that not only is a problem for the land owners, but it also becomes a problem for iwi kūpuna because of the erosion oftentimes leads to the kūpuna being eroded out of their final resting places also. Which we've seen. [Mana Caceres]

…I don't think this construction or redevelopment of these particular parcels is going to be any more restrictive than what already is there. [Mana Caceres]

…I would like to see a little bit more effort put towards different ways to protect the shoreline as it is. The sea wall of course is designed to protect what's behind it, you know, the owner's property, but it really kind of, from what I've seen it really adds to the erosion of the surrounding areas. And you can kind of see that on the property that we've been caring for iwi kūpuna up the street. If you take a look. The particular property with the iwi kūpuna has a big sea wall, but then the neighbor's property, we can literally see, I would say at least 10 feet of their yard is now missing within the last three years. And this property that I'm speaking of is smack dab in the middle of two big sea walls. You know what I mean, you can kind of see what that hard surface does. [Mana Caceres]

But there should be an effort to kind of protect the shoreline. And it's just lucky for us that it also protects the property, but for us it's more selfish. We want to make sure that the kūpuna buried along the shoreline are safe. [Mana Caceres]

If there was a way to kind of shy away from tree or shrub removal on that shoreline. The roots are probably the deciding factor as to how much erosion takes place. From what we've seen up and down this coast is a lot of times under certain varieties of trees is where we'll find, you know we're more likely to find iwi kūpuna. Especially in the Kahala area…Now we've seen naupaka and hau planted over people in that area. [Mana Caceres]

I haven't heard anything, but there is some pushback in some communities in that area to where they don't want to see anybody redeveloping or developing. Like I said, I haven't heard anything in that area yet. I think it's a little different in this situation because it's

> already a developed, you know there's already house lots on there, so I don't see it being a big issue. [Mana Caceres]
>
> You know, there's also some pushback for the sizes of houses. What they consider monster houses. People kinda zero in on and try to protest against, but other than that, I don't see…I don't myself see any concerns that the community might have. [Mana Caceres]
>
> So I think, you know, if the project could try and look for ways to kind of ensure that the activities isn't adding to any erosion. You know, I don't know if majority of these places will have to put some kind of barricade or fence up, but it would be nice not to have to pull down all of the plants in order to get the barricade up. [Mana Caceres]

Summary of Ethnographic Survey

Ethnographic interviews were conducted with Mana Caceres and Richard Turbin, and a third interview with Lucinda Pyles is pending. The interviewees are either residents of the project lands or frequent the areas regularly and have cultural knowledge of Kāhala.

The interviewees mentioned multiple burial sites in the coastal region of Kāhala and a traditional and historic cemetery near the Wai‘alae Country Club. Cultural practices that occur at the coast consist of surfing in addition to subsistence practices such as the gathering of limu and he‘e, and fishing. The possibility of hukilau being done in the area was also noted as was the collection of honu for consumption, prior to the tradition being outlawed.

Interviewees also shared several changes they have seen in the Kāhala area over the years. Most notably is coastal erosion, which has resulted in a loss of land and the beach in some areas. As mentioned by one informant, human burials along the beachfront are also disturbed by this coastal erosion. It was noted that development has also changed over time with more large mansions and absentee homeowners in the area.

One interviewee generally supported the project and one had concerns dealing with the development plans, in particular the number of units in relation to the lot size and the lack of green space. The respondent expressed that the condominium-like development was too crammed together and did not fit the character, aesthetic, and feeling of the neighborhood. Another main concern is that the removal of coastal vegetation such as naupaka and hau may displace human remains buried below. Coastal erosion has been known to cause iwi kūpuna to become exposed and this was another area of concern for the project. Also noted was an issue with homeless camps, and the possibility of overcrowding at the beach. One recommendations that was offered consists of changing development plans to fit with the aesthetic of the neighborhood and reduce the number of units on the parcel. Recommendations to curtail coastal erosion were conflicting, with one interviewee advising to leaving vegetation in place, and another wanting to remove vegetation.

CONCLUSIONS AND RECOMMENDATIONS

The Kāhaha area in Waikīkī Ahupuaʻa is an important region on Oʻahu in both the past and present. A rich corpus of background information was found for the area, including moʻolelo, ʻōlelo noʻeau, wind and rain names, information on land use in traditional and historic times, and data from previous archaeological work. Adding significantly to this is the information shared during oral history interviews.

Cultural Resources, Practices, and Beliefs Identified

Research and ethnographic survey compiled for the current study revealed that Kāhala was a culturally significant area where both natural and cultural resources occur. Cultural practices that were mentioned during interviews include fishing and gathering of other marine resources such as heʻe, honu, and limu. Surfing is also practiced at breaks offshore. In traditional times, the ahupuaʻa was known for having freshwater springs, inland terraces, and fishponds at the coast.

The project location is along the coastline, and underling soils consist of Beach sand and Jaucas sand, an environment traditionally favored for human burial. Human burials and cemeteries were also identified during the interviews, although the cemeteries are located near the Waiʻalae Country Club, not in the immediate vicinity of the project area. One burial in particular was mentioned as being found and reinterred near the current study area. Previous archaeological studies have documented iwi kūpuna and a subsurface cultural layer with pre-contact artifacts at an adjacent parcel, as well as several human burials and other sites in Kāhala.

Potential Effects of the Proposed Project

Whereas the proposed project may affect the cultural resources and practices discussed above, it was noted that beach access would not likely be affected. One interviewee stated that the project would not likely cause issues because it is located in an area that is already developed. Another interviewee mentioned that development on the properties would keep the homeless from frequenting the project area. However, several concerns were raised during ethnographic interviews. They include:

- disturbing human burials
- coastal erosion
- changing the aesthetic and character of the neighborhood
- overdevelopment of the project properties
- overcrowding at the beach

Confidential Information Withheld

During the course of researching the present report and conducting the ethnographic survey program, no sensitive or confidential information was discovered or revealed, therefore, no confidential information was withheld.

Conflicting Information

While there were differences in opinions of the interviewees, no conflicting information was obvious in analyzing the gathered sources.

Recommendations/Mitigations

Recommendations discussed during interviews include protecting iwi kūpuna using the following methods:

- keeping all vegetation near the coastline in place, particularly hau and naupaka, which were commonly planted over human burials
- protecting the shoreline from further erosion, which may inadvertently expose human remains

One interviewee does not support the project because of their concern that the new development does not fit the aesthetic and character of Kāhala. It was noted that there will be too many units situated very close together and not enough green space. The suggested mitigation would be to construct homes that fit in with the neighborhood, such as single family homes with more greenery.

Summary and Conclusion

In conclusion, background research and ethnographic interviews noted that human burials may be affected by the proposed project. While other archaeological sites and cultural practices were discussed for the Kāhala area, the interviewees agreed that they would not likely be affected by the project. However, several concerns were raised, focusing on coastal erosion, the disruption of human burials, and overdevelopment. Recommendations for mitigation include ways to protect iwi kūpuna, and also to design the development to fit in with the character of the Kāhala neighborhood. The community should be kept informed and their concerns and recommendations should be considered during all phases of the proposed work. Kāhala is clearly valued, both for its traditional uses and history as well as contemporary role in subsistence and recreation.

GLOSSARY

ahupuaʻa	Traditional Hawaiian land division usually extending from the uplands to the sea.
aliʻi	Chief, chiefess, monarch.
ʻauwai	Ditch, often for irrigated agriculture.
hālau	Meeting house for hula instruction or long house for canoes.
hana	Work, employment, behavior, incident, service, manufacture.
hau	The indigenous tree *Hibiscus tiliaceous*, which had many uses in traditional Hawaiʻi. Sandals were fashioned from the bark and cordage was made from fibers. Wood was shaped into net floats, canoe booms, and various sports equipment and flowers were used medicinally.
heʻe	Octopus (*Polypus* sp.).
heiau	Place of worship and ritual in traditional Hawaiʻi.
honu	The general name for a turtle or tortoise.
hukilau	A net for fishing; to fish with a net.
iʻa	Fish or other marine animal.
ʻieʻie	The vine *Freycinetia arborea*, an endemic, woody branching climber hat grows at altitudes of 300–600 m. In ancient Hawaiʻi, vines were considered sacred and used in basketry and for ceremonial purposes.
ʻike	To see, know, feel; knowledge, awareness, understanding.
ʻili	Traditional land division, usually a subdivision of an ahupuaʻa.
ipu	General name for a vessel or container. Also the bottle gourd *Lagenaria siceraria* or *L. vulgaris*, which was used traditionally for containers, hula instruments, and for medicine.
iwi	Bone.
kahe	To flow, trickle, melt, drop, or menstruate; in heat; a school of fish.
kahu	Honored attendant, guardian, nurse, keeper, administrator, pastor.
kahuna	An expert in any profession, often referring to a priest, sorcerer, or magician.
kalo	The Polynesian-introduced *Colocasia esculenta*, or taro, the staple of the traditional Hawaiian diet.
kamaʻāina	Native-born.
kapu	Taboo, prohibited, forbidden.
keiki	Child.
koʻa	Fishing shrine.
konohiki	The overseer of an ahupuaʻa ranked below a chief; land or fishing rights under control of the konohiki; such rights are sometimes called konohiki rights.
kou	The flowering tree, *Cordia subcordata*, either native to Hawaiʻi or introduced by Polynesians.
kuleana	Right, title, property, portion, responsibility, jurisdiction, authority, interest, claim, ownership.

kupuna	Grandparent, ancestor; kūpuna is the plural form.
kūʻula	A stone god used to attract fish, an altar near the sea, or a hut where fishing gear was kept with kūʻula images to invoke their power.
lauhala	Leaf of the hala, or pandanus tree (*Pandanus odoratissimus*), used for matting and basketry.
lele	A detached part or lot of land belonging to one ʻili, but located in another ʻili.
limu	Refers to all sea plants, such as algae and edible seaweed.
loʻi, loʻi kalo	An irrigated terrace or set of terraces for the cultivation of taro.
loko	Inside, interior. Pond, lake, pool.
loko iʻa kalo	Pond for both fish and taro cultivation.
loko wai	Freshwater lake or pond.
lūʻau	Hawaiian feast, named for the taro tops always served at one; this is not an ancient name, but goes back to at least 1856.
makai	Toward the sea.
Māhele	The 1848 division of land.
makaʻāinana	Common people, or populace; translates to "people that attend the land."
mākāhā	A fishpond sluice gate.
mālama	To care for, preserve, or protect.
māmaki	*Piptarus* spp., a small native tree. Fiber from its bark was used to make a kind of coarse tapa. Sometimes spelled mamake in old texts.
manaʻo	Thoughts, opinions, ideas.
mauka	Toward the mountains.
mele	Song, chant, or poem.
moʻokūauhau	Genealogy.
moʻolelo	A story, myth, history, tradition, legend, or record.
naio	*Myoporum sandwicense*, the bastard sandalwood native to Hawaiʻi.
naupaka	The native shrub *Scaevola* sp., varieties of which are found both in the uplands and by the sea.
niuhi	Man-eating shark; any shark more than 3.5 m long is probably a niuhi. Catching the niuhi was a sport of chiefs.
ʻohana	Family.
ʻōhiʻa ʻai	The mountain apple tree, *Eugenia malaccensis*, a forest tree that grows to 50 ft high.
ʻōhiʻa lehua	The native tree *Metrosideros polymorpha*, the wood of which was utilized for carving images, as temple posts and palisades, for canoe spreaders and gunwales, and in musical instruments.
ʻōlelo noʻeau	Proverb, wise saying, traditional saying.
oli	Chant.
olonā	The native plant *Touchardia latifolia*, traditionally used for making cordage.
paʻa	Stuck, solid, firm, steadfast.

paniwai	Levee, dam, sluice, dike.
pili	A native grass, *Heteropogon contortus*.
pilikia	Trouble.
pōhuehue	The beach morning glory, *Ipomoea pes-caprae* subsp. *brasiliensis*, used medicinally. Vines are also used to drive fish into nets.
post-contact	After A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pre-contact	Prior to A.D. 1778 and the first written records of the Hawaiian Islands made by Captain James Cook and his crew.
pueo	The Hawaiian short-eared owl, *Asio flammeus sandwichensis*, a common ‘aumakua.
pu‘u	Hill, mound, peak.
pu‘uone	Pond near the seashore, as at the end of a stream; divination.
ti (kī)	The plant *Cordyline terminalis*, whose leaves were traditionally used in house thatching, raincoats, sandals, whistles, and as a wrapping for food.
‘uala	The sweet potato, or *Ipomoea batatas*, a Polynesian introduction.
uhiuhi	The endemic tree *Mezoneuron kauaiense*, a legume with pink or red flowers and winged pods. It produces a hard, heavy wood that was used for hōlua sleds, spears, digging sticks, and house posts in ancient times.
umu	Furnace or oven; a pile of rocks placed in the ocean to attract small fish. More commonly called imu.
wahi inoa	Place name.
wauke	The paper mulberry, or *Broussonetia papyrifera*, which was made into tapa cloth in traditional Hawai‘i.

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APPENDIX A: AGREEMENT TO PARTICIPATE

Agreement to Participate in the Cultural Impact Assessment for the

Kahala Beach Villas

Gina McGuire, Ethnographer, Keala Pono Archaeological Consulting

You are invited to participate in a Cultural Impact Assessment (CIA) for the Kahala Beach Villas in Kahala, on Oʻahu (herein referred to as "the Project"). The Assessment is being conducted by Keala Pono Archaeological Consulting (Keala Pono), a cultural resource management firm, at the request of G70 on behalf of the City and County of Honolulu. The ethnographer will explain the purpose of the Assessment, the procedures that will be followed, and the potential benefits and risks of participating. A brief description of the Assessment is written below. Feel free to ask the ethnographer questions if the procedures need further clarification. If you decide to participate, please sign the attached Consent Form. A copy of this form will be provided for you to keep.

Description of the Project

This CIA is being conducted to collect information about the Project in Kahala, through interviews with individuals who are knowledgeable about this area, and/or about information including (but not limited to) cultural practices and beliefs, moʻolelo, mele, or oli associated with this area. The goal of this Assessment is to identify and understand the importance of any traditional Hawaiian and/or historic cultural resources, or traditional cultural practices within the Project. This Assessment will also attempt to identify any effects that the proposed development may have on cultural resources present, or once present within the Project area.

Procedures

After agreeing to participate in the Assessment and signing the Consent Form, the ethnographer will digitally record your interview and it may be transcribed in part or in full. The transcript may be sent to you for editing and final approval. Data from the interview will be used as part of the ethno-historical report for this project and transcripts may be included in part or in full as an appendix to the report. The ethnographer may take notes and photographs and ask you to spell out names or unfamiliar words.

Discomforts and Risks

Possible risks and/or discomforts resulting from participation in this Assessment may include, but are not limited to the following: being interviewed and recorded; having to speak loudly for the recorder; providing information for reports which may be used in the future as a public reference; your uncompensated dedication of time; possible misunderstanding in the transcribing of information; loss of privacy; and worry that your comments may not be understood in the same way you understand them. It is not possible to identify all potential risks, although reasonable safeguards have been taken to minimize them.

Benefits

This Assessment will give you the opportunity to express your thoughts and opinions and share your knowledge, which will be considered, shared, and documented for future generations. Your sharing of knowledge may be instrumental in the preservation of cultural resources, practices, and information.

Confidentiality

Your rights of privacy, confidentiality and/or anonymity will be protected upon request. You may request, for example, that your name and/or sex not be mentioned in the Assessment material, such as in written notes, on tape, and in reports; or you may request that some of the information you provide remain off-the-record and not be recorded in any way. To ensure protection of your privacy, confidentiality and/or anonymity, you should immediately inform the ethnographer of your requests. The ethnographer will ask you to specify the method of protection and note it on the attached Consent Form.

Refusal/Withdrawal

At any time during the interview process, you may choose to not participate any further and ask the ethnographer for the tape and/or notes. If the transcription of your interview is to be included in the report, you will be given an opportunity to review your transcript, and to revise or delete any part of the interview.

APPENDIX B: CONSENT FORM

Consent Form

I, _____, am a participant in the Cultural Impact Assessment for the Kahala Beach Villas (herein referred to as "the Project"). I understand that the purpose of the Assessment is to conduct oral history interviews with individuals knowledgeable about the Project and the surrounding area of Kahala on O'ahu. I understand that Keala Pono Archaeological Consulting and/or G70 will retain the product of my participation (digital recording, transcripts of interviews, etc.) as part of their permanent collection and that the materials may be used for scholarly, educational, land management, and other purposes.

_____ I hereby grant to Keala Pono and G70 ownership of the physical property delivered to the institution and the right to use the property that is the product of my participation (e.g., my interview, photographs, and written materials) as stated above. By giving permission, I understand that I do not give up any copyright or performance rights that I may hold.

_____ I also grant to Keala Pono and G70 my consent for any photographs provided by me or taken of me in the course of my participation in the Assessment to be used, published, and copied by Keala Pono and G70 and its assignees in any medium for purposes of the Assessment.

_____ I agree that Keala Pono and G70 may use my name, photographic image, biographical information, statements, and voice reproduction for this Assessment without further approval on my part.

_____ If transcriptions are to be included in the report, I understand that I will have the opportunity to review my transcripts to ensure that they accurately depict what I meant to convey. I also understand that if I do not return the revised transcripts after two weeks from the date of receipt, my signature below will indicate my release of information for the draft report, although I will still have the opportunity to make revisions during the draft review process.

By signing this permission form, I am acknowledging that I have been informed about the purpose of this Assessment, the procedure, how the data will be gathered, and how the data will be analyzed. I understand that my participation is strictly voluntary, and that I may withdraw from participation at any time without consequence.

_____

Consultant Signature **Date**

_____

Print Name **Phone**

_____

Address

Thank you for participating in this valuable study.

APPENDIX C: TRANSCRIPT RELEASE

Transcript Release

I, _____, am a participant in the Cultural Impact Assessment for the Kahala Beach Villas (herein referred to as "the Project") and was interviewed for the Assessment. I have reviewed the transcripts of the interview and agree that the transcript is complete and accurate except for those matters delineated below under the heading "CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS."

I agree that Keala Pono Archaeological Consulting and/or G70 may use and release my identity, biographical information, and other interview information, for the purpose of including such information in a report to be made public, subject to my specific objections, to release as set forth below under the heading "OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS."

CLARIFICATION, CORRECTIONS, ADDITIONS, DELETIONS:

OBJECTIONS TO RELEASE OF INTERVIEW MATERIALS:

_____

Consultant Signature **Date**

_____

Print Name **Phone**

_____

Address

APPENDIX D: INTERVIEW WITH MANA CACERES

TALKING STORY WITH MANA CACERES (MC)

Ethnographer: Gina McGuire (GM)
Date: November 22, 2021

GM: Today is November 22nd and it's 10 am. I'm here with Mana. So if you can just start telling us a little bit about yourself, where and when you were born, where you grew up.

MC: Ok so my name is Norman Kaleilani Caceres. My family gave me the nickname Mana from the day I was born, so eventually that became my name. At least it was in the house and then people started mispronouncing, even though Mana seems easy to pronounce. So my family started referring to me as Norman outside the house for a little while. But my parents are from Kahuku and Lāʻie on this island [Oʻahu]. And before I was born my parents moved to California to kind of get away from the scene as it was in Hawaiʻi in the mid-ʻ70s. My dad was hanging out with his older cousins who were up to no good, so after my mom got pregnant with me, they decided to move to California to get away from all that. So they lived in California and eventually moved to Washington State where I stayed until I graduated high school. And then after that I went to UH Hilo on the Big Island where I went to school.

GM: Right on. I'm from Hilo side.

MC: So I was originally there for a Hawaiian studies degree and then I eventually had changed it to communications. So I got my BA in communications. And then I lived on the Big Island for a couple years and then in 2004 I believe, me and my wife moved over with our older three children to the Kapolei Homestead on Oʻahu where we've been ever since.

GM: Nice, nice. I don't know if you want to elaborate. I don't know if you're looking at the questions, but I don't know if you want to elaborate on your family background at all.

MC: Oh yeah, can. My family genealogy mostly concentrates on the Hawaiian side from Kona and Kohala on the Big Island, even though we do have, you know, marrying throughout the generations on the other islands, but most of it, the foundation of the genealogy comes from the Big Island. My non-Hawaiian ancestor was Japanese. My great-great-grandfather was working on a ship in the 1800s when they landed in Kona. He fell in love with the place, the people, and obviously my great-great-grandmother, who was Hawaiian and he decided to stay. When the ship left, he stayed. He quickly kind of really absorbed the Hawaiian culture. I believe in the early to mid-1800s, everybody kind of spoke a little bit of every language and he was no exception. He took to all the languages. He was a fisherman before he got here, but then when he got here, the Hawaiian side of the family, my great-great-grandmother's side taught him traditional fishing methods, so he was known in Kailua Kona? to go out and fish. And then back in those days, you would catch enough for

not just your family but for the community or other ʻohana. And then so when they would see his canoe coming back, everybody would go help him, you know pull up the nets or clean the boats, and supplies, and everybody would kind of share in the catch. So that was kind of when my great-grandfather eventually moved to Oʻahu, he kind of took that mentality, brought that mentality with him and his family to where they lived in Lāʻie. They would go around to different places on the island of Oʻahu to fish and to kind of see the communities around. And Kahala and Maunalua, the Hawaiʻi Kai area, were one of the other places, even though they lived in Lāʻie, they would go to the Maunalua area to fish, give food to the community and also take some home.

GM: Wow.

MC: So that's kind of like the earliest moʻolelo that I can find in my own family that links us to the place. They were well know for the traditional method of catching heʻe, or octopus. Because, you know, the water off of the Kahala Waiʻalae coast is kind of shallow for a bit, you can walk out kind of far because of that, I guess it was a place where they would frequent. You know, twice a month, is what I was told. Couple times a month. To go and catch heʻe and then give it away and feed themselves.

GM: Wow. I didnʻt know that about over there. That's super interesting.

MC: Yeah, me neither. I just learned that from my grandmother. I mean I seen old family videos, 'cause my great grandfather was also a bartender in Waikīkī and stuff. I don't know but for some reason they could afford one of those handheld print cameras back in those days that could take videos. I got to track it down, but there is videos of them fishing and waterskiing on that side. Back in those days it was legal to catch turtles, so that was another thing they would do over there on that side.

GM: To catch what? I missed it.

MC: Honu. Turtle.

GM: Oh, ok. Wow. That's super interesting.

MC: That's something everyone wants to talk about nowadays.

GM: Yeah. But I mean it was a practice, right? That was…

MC: Yeah, yeah. It was definitely part of the traditional diet.

GM: Wow, that's super cool. I'm so glad you shared that. And then so for you personally, that's a super cool moʻokūʻauhau connection. Can you share a little bit about your relationship or experience getting to know the Kahala coastline or Waiʻalae coastline?

MC: Me and my family first started getting involved in that coastline maybe about eight, seven or eight years ago. We were involved in consultation and also reburials or iwi kūpuna that was somewhat preserved in place, others were relocated for the golf course on that side. I forget the name of it.

GM: Yeah, I know what you're talking about.

MC: Yeah. There was a handful of iwi kūpuna that was documented during the construction of the, I think it was a new pool or a new wing. Something like that. So that's kind of like my first, my own personal connection to the area. The first one. And then since then we've been more and more involved in that type of kuleana. And also hana. Eventually, because of our ties and our connection to the area, first we were asked to mālama the iwi on that side and then eventually projects wanted us to be hired on as cultural monitors. So that kind of is our more recent and consistent tie to the area.

GM: When I talked to you, I think about the Kahuku project. You're involved with the, was it, the, you were weaving something, right, to repatriate iwi?

MC: Yes. The lauhala funerary baskets are called the kinaʻi.

GM: That's a super cool connection. Can you talk a little bit more about your work at the golf course? What the process looked like for the iwi? You can say no too.

MC: No, it's fine. I'm just trying to rewind my thoughts back to those days. Was a while ago. At that time the involvement of the recognized descendants, which is the role we play on that side. It was more of a, like an after the fact kind of thing. They let us, at least for that instance, they kind of let us know that they found kūpuna and then they let us know when it was time to, you know, do the reburial ceremonies. So that's when we were there physically. To kind of um, retrieve, possession of iwi kūpuna that the state had curated and then we put them back into what was going to be the burial preserve area. And then that was kind of the extent of that. And then after that they started involving us a little earlier in the consultation process to where we were able to kind of comment on an AISP [Archaeological Inventory Survey Plan]. I'm not sure. I don't think I was involved in a CIA at that time, but I did get to do a site visit to where we, me and my family gave some feedback on trenching methods for the AIS and other logistical kind of concerns and questions. And then, um, I think that was the extent. Oh no, and then when they found iwi kūpuna during, I think it was another AIS on that site. I was called in there to kind of give the um, to be the one to make sure that the work was being conducted properly.

GM: That's a huge responsibility.

MC: Yup, yeah.

GM: Switching gears a little bit, but do you have any moʻolelo, mele, oli, wahi inoa that we should be aware of and document for the area?

MC: Um, none that I can recall right now. I have to look at some of my paperwork, but from what I know, there was, you know, some traditional and/or historic graveyards in the area. I believe that was kind of closer to that golf course that we were speaking of. Nothing that I know of as we go further out, towards more specifically, I don't know any that's in close proximity to the project site. And as far as what we know and stuff like that. I'm not sure of any myself.

GM: No worries. Can you speak a little bit as to how the area has changed. From when you were, I don't know if you were down there when you were a keiki to now or just in the last couple years, but things that you're seeing in that area.

MC: Um, there seems to be, I mean this project included, another almost like a wave or you know, another period of time where people are trying to redevelop their properties.

GM: Yeah.

MC: I think there was some pilikia in the news about somebody who bought or owned a whole bunch of properties out there that was just kind of letting it go to shambles and almost people was mistreating the places and all of that stuff. So, you know as with any place, not just Kahala, there's some millionaires there with a need or a want to redevelop the area. Kahala is experiencing that now. Some of that adverse changes I can see is in the last few years, my personal involvement with some of the sites there is that you can see definite evidence of climate change, specifically shoreline erosion. This is a major problem on that side [of the island]. Some of the people who surf in that area or live in that area I've spoken to, talk about how the sand used to go out farther. And you can really see it on some of the shoreline properties where their yard is constantly being eroded. You know, the shoreline. We've seen that through, what is that, oh when they try to fix sea walls. We see the evidence of erosion and ultimately that not only is a problem for the land owners, but it also becomes a problem for iwi kūpuna because of the erosion oftentimes leads to the kūpuna being eroded out of their final resting places also. Which we've seen.

GM: Yeah. My aunt has a house down there and they have like that concrete, you know when you walk down one of those access roads and there's this concrete structure that used to be level with the sand and now it's like four feet. You have to jump down to get to the beach, so yeah, for sure. So this is a wide question. We already kind of talked about the presence of iwi kūpuna in the area, but are there any other cultural sites or historic structures that we should be aware of in the surrounding…This doesn't have to be on this specific coastline, but in the wider Kahala-Waiʻalae area?

MC: Um, let me check the map real quick just to see the area better. Let me see this area here, sorry.

GM: Yeah, no worries.

MC: Well we did a reburial that was like right on the property line and then the neighbors, it was two people, obviously who weren't born and raised here, I mean that was my assumption. But they were sitting on their wall of their property drinking wine and watching us rebury the kūpuna. It was like at midnight and I just thought to myself, how odd and disrespectful. But yeah, I'll have to check on that. But yeah, so most of my, to my knowledge of course the historic and traditional burial grounds or cemeteries are closer to the golf course that I know of. The only other kind of cultural properties that I myself am aware of are the burials along the coastline. Like I'm not too knowledgeable in the other historic or cultural sites or area.

GM: No worries. So I guess the next question, I'm kind of linking number eight and number nine together, but if immediate…this is right above the high tide line, so this is an immediate coastal construction, but do you think that that kind of development would affect any place of cultural significance? And I'm going to add on or gathering practices, within this area?

MC: Looking at the map I don't think so. Only because as it, I think whatever restricted access is already there because of the existing structures or property. Like I don't think this construction or redevelopment of these particular parcels is going to be any more restrictive than what already is there. Now I'm not quite sure, but it looks like from the map there could be a beach access just east…

GM: On that private road?

MC: Yeah. Oh ok I see private road. It looks like there might be something right above the 4775 lot?

GM: Yeah.

MC: Only because it looks like the typical beach access road.

GM: Yeah it does, yeah. Ok.

MC: And then. Do you know if there's a sea wall there?

GM: I don't think there is. I don't think so. I think they've got the natural shrub barrier.

MC: Ok.

GM: Do you have any thoughts on benefits, like from a cultural perspective on putting in coastal hardening?

MC: Um, I would personally, I would like to see a little bit more effort put towards different ways to protect the shoreline as it is. The sea wall of course is designed to protect what's behind it, you know, the owner's property, but It really kind of, from what I've seen it really adds to the erosion of the surrounding areas. And you can kind of see that on the property that we've been caring for iwi kūpuna up the street. If you take a look. The particular property with the iwi kūpuna has a big sea wall, but then the neighbor's property, we can literally see, I would say at least 10 feet of their yard is now missing within the last three years. And this property that I'm speaking of is smack dab in the middle of two big sea walls. You know what I mean, you can kind of see what that hard surface does.

GM: Yeah. So…

MC: But there should be an effort to kind of protect the shoreline. And it's just lucky for us that it also protects the property, but for us it's more selfish. We want to make sure that the kūpuna buried along the shoreline are safe.

GM: That's not selfish. [laughs]

MC: Yeah, exactly. [laughs]

GM: So you mentioned, you know, catching he‘e and honu in this area as traditional gathering practices, but can you think of any other practices or fishing or harvesting, gathering that may have been or continue to be important in the surrounding area?

MC: Um, from what I've seen there's a lot of people that still fish in the area. My family does not. Surfing, the traditional sport that people kind of still do in the area. And of course nobody's harvesting, legally harvesting honu anymore.

GM: Yeah.

MC: One of the things that I'd have to check. I didn't hear anything about hukilau practices in the area, but I would imagine that with the depth of the area and the streams that are coming out, why it wouldn't have been used in that area. Gathering? Other than fishing, I'm not aware of any myself. Oh limu.

GM: Limu. Cool. So, we've talked about a few things about just being really cognizant and aware of protecting not just the property owner's property right, but the fronting shoreline when developing. But also, we've talked about really being aware about iwi kūpuna in the area and bringing in cultural practitioners to be pa‘a with that, but as development in the area, especially this if it goes through will be a very hefty development. Is there anything you recommend being done to reduce their impact or

be something positive that could be done in this area to support cultural practitioners and practices here?

MC: If there was a way to kind of shy away from tree or shrub removal on that shoreline. The roots are probably the deciding factor as to how much erosion takes place. From what we've seen up and down this coast is a lot of times under certain varieties of trees is where we'll find, you know we're more likely to find iwi kūpuna. Especially in the Kahala area. I can see a bunch of palm trees in the picture. Those are probably planted later. Now we've seen naupaka and hau planted over people in that area.

GM: Yeah.

MC: So I think, you know, if the project could try and look for ways to kind of ensure that the activities isn't adding to any erosion. You know, I don't know if majority of these places will have to put some kind of barricade or fence up, but it would be nice not to have to pull down all of the plants in order to get the barricade up.

GM: So, down to the last two questions on the list. Are you aware of any other community concerns? I broaden that not just to a Native Hawaiian community, but a wider community or cultural-specific concerns in the surrounding area that we haven't touched on yet.

MC: I haven't heard of any pilikea yet that the community in Kahala has towards the redevelopment of areas. A little further up the street in the, what is that, the Wailupe area, I've gotten involved in some arguments with the community there who were trying to use iwi kūpuna to stop a private developer from building on his property. They were trying to use the iwi kūpuna to do so. Me and my family was pretty adamant against that. And so we've got a little flack from the community on that side. You know, I don't think it extends to the Kahala area, not that I, you know, I haven't heard anything, but there is some pushback in some communities in that area to where they don't want to see anybody redeveloping or developing. Like I said, I haven't heard anything in that area yet. I think it's a little different in this situation because it's already a developed, you know there's already house lots on there, so I don't see it being a big issue. You know, there's also some pushback for the sizes of houses. What they consider monster houses. People kinda zero in on and try to protest against, but other than that, I don't see…I don't myself see any concerns that the community might have.

GM: Good to know. It's hard when it's already super developed, yeah and you're like, well…like what are you going to do. The last one is if you have A) anything else that I didn't ask about that you want to add but B) if there's any other people that you would recommend we reach out to from this area. Or cultural practitioners.

MC: Um, I can probably think about that. I can't think of anybody right off the top of my head. I do have, there's a few people I know, but they're more on the Maunalua

side. The Hawai‘i Kai side, not too much on the Kahala side. But yeah, I’d have to think about that. Not off the top of my head.

GM: Ok. No worries. Well that was I think really wonderful and I think really helpful to us. I don’t know if there’s anything else you want to add on, but I really appreciate your time.

MC: No problem. Anytime.

APPENDIX E: INTERVIEW WITH RICHARD TURBIN

TALKING STORY WITH RICHARD TURBIN (RT)

Ethnographer: Gina McGuire (GM)
Date: 12/6/21

RT: My objection is that it's too um, it's too you know, condensed a project. The thing about Kahala, Waialae Kahala, you know, especially on the beachfront, what makes it special is that it's kind of old fashioned big lots with a lot of foliage, and a lot of lawns, and a lot of grass. And old style Hawaii homes ok. Now granted, since the Japanese invasion in the 1980s, you have a lot of mansions or mini mansions built on these lots. You know, we would prefer the Hawaiiana style homes, but at least most of those mansions were built on relatively big lots ok. Now, the problem with your development. The problem with the Kahala Beach Villas is there's too many condos, lots. Now I spoke to Tim Gutierrez, and who's the other guy, maybe your boss over there at Group 70, a very nice guy, what's his name? Do you know who I'm talking about?

GM: I don't.

RT: Alright, ok. Anyway, you know, I've expressed my concerns. You know, they're kind of, initially yeah. There were at least on one of the lots quite a few homes, but they were little homes. You know like little cottages. So you know very low-rise, small, rental cottages. They looked a little bit, you know I've been there. It looked kind of southeast very modest southeast type of cottages, but you know, a lot of foliage, tropical Hawaiiana type planting there, so they weren't going to appear in Architect's Digest, but they were compatible with the neighborhood. This development is, there's a lot of fancy smanchy homes crammed in with not very much green space in between the homes. You know? I mean, probably it would look in place in San Diego or you know, Miami Beach, but Kahala, no. No. I mean, we don't want these, really these condominiums. It's kind of like a condominium development because in a sense. Because I know these people are going to be paying a maintenance fee and there's going to be, you know, expenses. I don't know whether they're going to have a security guard or a gated driveway or whatever. I know they're each are going to have their own little pool. They each have their own swimming pool. But it's just too much. It's too crammed in. It's not Kahala centric. You know?

Kahala has traditionally been perhaps the nicest residential community in the entire Pacific Basin. Now unfortunately, it's become a place for multi-millionaires, you know, mega-millionaires, but you know, what are you going to do? My thought is that if it's going to be for mega-millionaires, then at least have single family homes, an estate with a lot of greenery. With a lot of foliage. Not you know, six or eight million dollar homes crammed in. Now I know the plan is to sell these homes to millionaires for a lot of money. But frankly, I don't think they're going to even sell because the people who are going to want to spend the kind of money that the developers want are not going to want to, yeah they're not going to want to pay five million dollars for a cramped in house even if it's looking at the waterfront. Alexander and Baldwin tried

to do something like this down around, down around Hawaii Kai?. Now that was a pretty good lot. This lot all together, you put it all together, what is it? About an acre and a half?

GM: About there yeah.

RT: About an acre and a half, yeah. So, A&B had one of those and they tried to put six units in but they were kind of stacked flat. In other words they were kind of two stories with one unit on each story and they were trying to get five to 10 million for these. They couldn't find buyers. You know when they came to the neighborhood board I said, you know you got a beautiful one and a half acre lot, why don't you put like three beautiful homes there. You know, lot of green space and all that access to the beach and you can probably sell each one for 10 million dollars. You know, eight to 10 million dollars. And you can make your money. Make a nice profit. But no! They wanted to put these stacked flats on. Stacked flats in there and it's six units all together. They couldn't sell 'em. I remember, the head of the A&B, you know, the guy Benjamin, he told me, Rich you were right. We should have listened to our consultants, you know. Too much, you know. And they weren't able to sell them. Now they're trying to sell the lot. So, but here, we've got 12, 13, I mean what, 13 units on an acre and a half. I mean if he could get maybe a million or a million and a half for each unit, but I don't like it. You know, I'm being honest. I don't like it. It's just too much. It's too much. It doesn't fit Kahala. Maybe Diamond Head. Diamond Head has a lot of kind of you know, crammed in houses.

GM: Yeah.

RT: But I don't know. I would love you to go back there and say this is inappropriate to Kahala. Knock it down. You know. Get more green space. Sorry. Sorry guys, but you know. But come on.

GM: Can you share with a me a little bit about your, I know you're on…I'm going to probably say it wrong, but you're on the neighborhood board, the community board. But can you talk a little bit about your experience. When you moved to Kahala, how long you've lived there. Just share a little bit about that with me.

RT: Yup, ok. Well, when I came to Hawaii I was very lucky. Actually I might of lived in one of those little units. You know I was in an old Hawaiiana house right there, right near where this development is. And it was an old style. You know, Hawaii house. Nothing fancy. I think we were three houses form the beach. It was just lovely. I'm very, very fortunate. I think the owner wanted to develop. You know, she was an old kamaʻaina Hawaiian lady and I think she wanted to fix the house up. So I got kicked out after about a year and a half. I moved to Kailua for two years but then got back to Kahala. You know, really nice. Got a girlfriend, we bought a house. Actually Ainakoa [Avenue], right above Kahala, right above Kahala Mall. And then, you know, pretty, pretty house. So anyway, I lived in Kahala right near the beach. Near the [current] development in an old house from 1970 to '72. In '72 I moved to Kailua and

I was ’72 to ’74 there then moved back to Ainakoa, which is the first hill just above Kahala in ’74 to 1980. Then 1980, married by then, my wife and I bought a nice Kahala home on Kolohala Street and Ulili [Street].

GM: Oh, ok.

RT: Just a block from the beach. It was beautiful. I mean, it was, I guess it was one house. Kind of Japanese, Hawaiian style home on a nice lot. Probably about a quarter or a third of an acre, but just a bit lawn, pool in the back, you know. Nice lot in the front. Corner lot, yard in the back. Typical nice Kahala home on Kolohala and Ulili. Again, about a block from the beach. Maybe about a quarter of a mile to the development. And then 1989, moved to where I am now, which is a lot, yeah, it’s about 32,000 square feet, so it’s about two thirds of an acre and it’s on the oceanside of Kahala Avenue and it’s one lot from the beach. And we’ve got our main house and then a guest house that my daughter’s family lives in now. But it’s very spacious. We’ve got a big lawn, pool, tennis court even, it even has a tennis court. It’s beautiful, but really, it fits into the neighborhood. You know? And that’s what’s all around me. But now, you know, this development goes in. It’s about three blocks away from me and it just changes, it just changes the whole ambiance of the neighborhood.

GM: What are some of the main changes you’ve been seeing, that you’ve been seeing in the Kahala, in that area over the last. I mean you’ve been there since the ’70s, but what are some things you’ve been noticing outside of the development?

RT: It’s been a war. I mean it’s been a war fighting off developers that want to develop Kahala. I mean are you familiar with the Kawamoto story?

GM: I’m not.

RT: Ok, well you should be familiar with the Kawamoto story. Well, this billionaire from Japan, the third wealthiest guy in Japan, moved to Hawaii. Word has it that he’s connected to the Yakuza, you know the Japanese mafia? And he made his money setting up girly bars and pachinko shops and gambling shops and the Ginza strip. You know the Ginza strip in Tokyo? Have you been there?

GM: I haven’t but I’ve heard of it.

RT: Yeah, I mean that’s the real entertainment area of Tokyo. They have a lot of, a little bit of 5th Avenue, Time’s Square, you know, ’cause you have a lot of the big department stores. But at night you have a lot of seedy areas, seedy places too. You know, strip bars, girly bars, gambling places, pachinko shops, and that was Kawamoto. That’s how Kawamoto made his money, well he really inherited it from his father and uncle. So anyway, he moved to Hawaii and decided to buy up all of Kahala Beach area. Both sides of Kahala Avenue. He bought up a lot of properties there for a lot of money. Bought people out. And then he destroyed a lot of the houses. He was an urban, a terrorist. A community terrorist. He tore down houses. He tried to

buy my house too and I refused and we were threatened because, well he said, you know, I'm buying all the property around you. I'm destroying it. He would smash and throw rocks in the swimming pools. Smash down fences, smash down trees. His idea was to wreck Kahala and Kahala would be so wrecked he could get it rezoned a hotel resort area.

GM: What!

RT: He was crazy, wild, horrible. The mayor didn't help us. The Department of Planning and Permitting were bought off. You know, five of the Department of Planning and Permitting people are now under indictment by the Feds for taking bribes.

GM: I did not know that.

RT: So these guys took bribes from Kawamoto and they've taken bribes from a lot of other people. They're still taking bribes and hopefully they're going to go to prison. They've been indicted and they're going to trial, criminal trial. Five of the investigators for the city's Department of Planning and Permitting.

[RT continues to talk about other city corruption at the time]

RT: So anyway, Kawamoto finally was…he bought up almost all of the Kahala Avenue properties. Finally he was arrested by Japan. By the Japanese authorities for tax fraud and they took away his passport. They took away his visa. He couldn't leave Japan. He recently died. He was placed under house arrest basically.

[RT continues to talk about Kawamoto]

RT: You know Alexander & Baldwin? A&B?

GM: Yeah.

RT: They bought all of his property. And they bought it for 100 million. It was a real sweet deal. And they wound up selling most of it to wealthy people. And since then most of the properties have been fixed up. All of them have been fixed up. But the biggest lot A&B kept for themselves and they went to the city council to get variances to build this development. Something like your development. You know, the one you're working on.

[recording cut off]

[GM & RT continue talking about luxury A&B developments]

GM: No, that's all super valuable. So I'm required to ask the next three questions and it's ok if you don't know or if you do, that's great. But do you know of any traditional

sites or this can be historically significant buildings which are located nearby? Examples might be burials, archaeological sites, historic structures that we should be aware of in the surrounding area.

RT: Well I'm not sure of any but it is still very historical. That's where King Kamehameha invaded the island of Oahu. Right on Kahala Beach. And that's where the people, the Hawaiian army who fought the takeover, they hid their guns and weapons on Kahala Beach. I'm sure there are some burial sites too but I don't know. I don't know.

GM: So this next question can be expanded to recreational activities or I don't know if anybody gathers there, ocean users I'm imaging. But do you think the proposed development would affect any place of cultural significance or of access to a place either of gathering or of cultural significance?

RT: Hmm. Well, I mean they closed most of the right of ways there. So, I mean, honestly I don't think so. Because there's probably going to be a lot of absentee owners anyway. Potential to kind of make the beach more crowded, but most of the fancy houses have been bought by absentee owners.

GM: That's interesting.

RT: Yeah.

GM: And then the next question is if you're aware of any traditional gathering practices in the surrounding area. Both past or ongoing that we should be aware of.

RT: A lot of local fisherman. A lot of local fisherman go there. But it's getting more and more crowded on the weekends because you know, people from all over the island come to Kahala Beach. Which, you know, for me, it's fine. That's why we have beaches. It should be used by the people. Although a lot of people run their dogs there and then the dogs are not leashed. So that's not a good thing. It scares away some old people and people with young kids.

GM: So you've spoken a bit about how this particular development doesn't fit with the character and like, I would say design, but feeling of this neighborhood. Do you have any other community concerns that you might want to bring up or just address?

RT: Well, there are some homeless people. Homeless people that live there [at the project area]. I would prefer there be some development there. It would be nice if it was just, as I mentioned, a smaller amount of homes being built and if permanent residents live there because then there's more community activity. And also less opportunity for homeless people to build camps, homeless camps there.

GM: Yeah that makes sense. So unless there's anything you want to add at this point. My last question is if there's anyone else you recommend that we talk story with who might have a cultural, historical, or just community knowledge about this area?

RT: Well the other neighborhood board members. I don't have their phone numbers, but other neighborhood board members would be Lucinda Piles. You might want to talk to. And Peter Dudgeon.

GM: Ok.

RT: Ok. There are other neighborhood board members, ok?

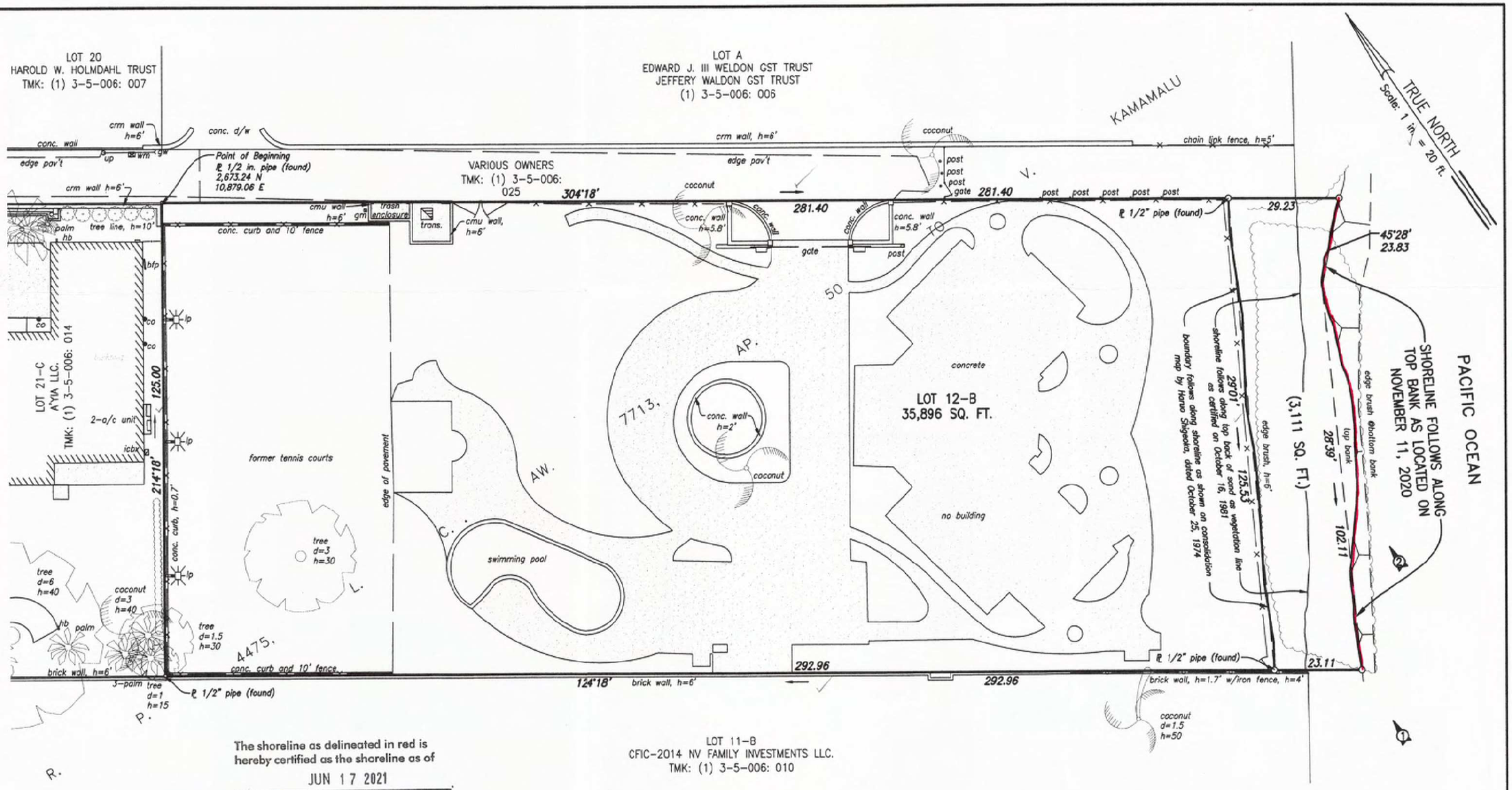
[GM gets mailing address and makes closing remarks]

RT: Ok. Also, my side of the beach where this development is, you know, where they want to put in your development. There's been some accretion there. There's been some sand accretion there. 'Cause we got the city to tear down the foliage. I mean the beach. What happened was that some of the owners there, mostly the absentee owners, were planting, were expending the naupaka and the other planting on the beach down towards the water to take away beach. Because some of them don't want beach there because they'd rather have the privacy. But just due to the way the currents have been going and having the city cut it back, that foliage, you know, the beaches have been growing. The beaches have been preserved on the eastern side of Kahala Beach of where the Honukai? is. Where that cement block is and the stairs. That's been eroding, but we're trying to get the city to take out the sand bags. There's all sand bags there and there's other cement things that were put in like breakwaters and we're trying to get the city to cut back the foliage. So hopefully we can save that part of the beach too. So we're working on it, but it's a constant battle. It's a, I mean, what are you going to do. It's a constant battle, Gina. But hopefully it's still there the next time you visit.

GM: Yeah that would be nice.

Appendix E

Certified Shoreline Survey



The shoreline as delineated in red is hereby certified as the shoreline as of

JUN 17 2021

Chairperson, Board of Land and Natural Resources

NOTES:

1. Azimuths shown on this map are referred to Government Survey Triangulation Station "LEAHI" ⚠.
2. Names of adjoining property owners were taken from Real Property Tax Records.
3. Shoreline certification is for building setback purposes. ◄1 Denotes photo number and direction.
4. Map is based on a field survey on NOVEMBER 11, 2020

SHORELINE CERTIFICATION MAP

OF 4767-D KAHALA AVENUE

LOT 12-B OF THE CONSOLIDATION OF LOTS 12 AND 12A
OF SECTION A, WAIALAE BEACH LOTS,
BEING PORTION OF ROYAL PATENT 4475, LAND COMMISSION AWARD 7713
APANA 50 TO VICTORIA V. KAMAMALU
SITUATED IN WAIALAE-NUI, HONOLULU, OAHU, HAWAII
TAX MAP KEY: (1) 3-5-006: 009

SITE ADDRESS: 4767-B KAHALA AVENUE
OWNER: A'YIA LLC

ERIK S. KANESHIRO
LICENSED PROFESSIONAL LAND SURVEYOR
No. 9826
HAWAII, U.S.A.

AUSTIN, TSUTSUMI, & ASSOCIATES INC.
501 SUMNER STREET, SUITE 521
HONOLULU, HI 96817, (808) 533-3646

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

ERIK S. KANESHIRO
LICENSED PROFESSIONAL LAND SURVEYOR
CERTIFICATE No. 9826

NOVEMBER 13, 2020
15" X 21" = 2.19 SQ. FT.

Austin Tsutsumi & ASSOCIATES, INC.
CIVIL ENGINEERS | SURVEYORS | HONOLULU | WAILUKU | HILO, HAWAII

Y:\2019\19-346.1 4767 B AND D KAHALA AVENUE\DWG\4767 - D KAHALA AVE SHORELINE.DWG
JOB NO. 0-19-346.2 DATE: 012221

Appendix F

Early Consultation Package

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

October 06, 2021

Subject: Early Consultation Request for Environmental Assessment
A'Yia Kāhala Residences
4767-B, 4767-D, 4769 & 4775 Kāhala Avenue
Honolulu, Island of Oʻahu, Hawaiʻi
Tax Map Key: (1) 3-5-006:007, 009, 014, and 025

Aloha:

On behalf of A'Yia LLC, G70 is undertaking the preparation of a Draft Environmental Assessment (DEA) for the "A'Yia Kāhala Residences" ("Project") located in Honolulu, Oʻahu, Hawaiʻi. The DEA will be prepared pursuant to Revised Ordinances of Honolulu Chapter 25, *Special Management Area*, and in accordance with Hawaiʻi Revised Statutes Chapter 343 and Hawaiʻi Administrative Rules Chapter 11-200.1.

We are conducting early consultation with agencies, elected officials, organizations and individuals who may be interested in the environmental review of this Project. Enclosed is an Early Consultation Handout, which includes a Project description and location map for your review. If you would like to provide comments, please send via U.S. mail or email to the G70 contact indicated below, no later than November 05, 2021.

G70
111 S. King Street, Suite 170
Honolulu, HI 96813
Attn: Jeff Overton
Phone: (808) 523-5866
Email: AyiaKahalaEA@g70.design

Thank you for your participation in the early consultation for this Project.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Jeffrey H. Overton, AICP, LEED AP
Principal

Enclosure: Early Consultation Handout

This Early Consultation Handout has been prepared pursuant to Revised Ordinances of Honolulu (ROH) Chapter 25, and in accordance with Hawai'i Revised Statutes (HRS) Chapter 343, and Hawai'i Administrative Rules (HAR) Chapter 11-200.1.

PROJECT INFORMATION SUMMARY

Type of Document:	Draft Environmental Assessment (DEA)
Project Name:	A'Yia Kāhala Residences
Applicant:	A'Yia LLC 4614 Kilauea Avenue, Suite 205 Honolulu, Hawai'i 96816
Approving Agency:	City and County of Honolulu (County) Department of Planning and Permitting 650 South King Street, 7th Floor Honolulu, Hawai'i 96813
HRS, Chapter 343 Req.:	ROH Chapter 25, *Special Management Area*
Project Location:	4767-B, 4767-D, 4769 & 4775 Kāhala Avenue Honolulu, HI 96816 *(Figure 1: Project Location)*
Tax Map Key (TMK) Parcels and Recorded Fee Owners:	TMK Parcels: (1) 3-5-006: 007, 009, and 014 – A'Yia LLC TMK Parcel: (1) 3-5-006: 025 – Various Owners
Project Area:	TMK Parcel 007– 0.65 acres (27,988 SF) TMK Parcel 009 – 0.79 acres (35,896 SF) TMK Parcel 014 – 0.22 acres (9,375 SF) TMK Parcel 025 – 0.15 acres (6,986 SF)
State Land Use District:	Urban District
County Zoning District:	R-5 – Residential District
Primary Urban Center Development Plan:	Urban District
Special Management Area (SMA):	Within SMA
Flood Zone:	Zone AE

PROJECT SITE

The "A'Yia Kāhala Residences" ("Project") site is located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue in Honolulu, on the island of O'ahu, Hawai'i (See attached Project location map *Figure 1: Project Location*).

The Project site is in the Wai'alae-Kāhala neighborhood, between the intersections of Kāhala Avenue/Koloa Street and Kāhala Avenue/Pueo Street. The site is bordered by the Pacific Ocean to the southeast, Kāhala Avenue to the northeast and is predominantly surrounded by single-family residences. Further northeast of the site is the Wai'alae Beach Park, Wai'alae Country Club, Kahala Beach Apartments, and The Kahala Hotel & Resort.

The site is within the State Land Use Urban District and the County Zoning R-5 District (Residential).

OVERVIEW OF PROPOSED PROJECT

A'Yia LLC proposes to redevelop single-family residences, which will include the following:

- One existing single-family residence on Parcel 014 (4767-B Kāhala Avenue) will be replaced with one new single-family residence.
- Six existing single-family residences on Parcel 007 (4775 Kāhala Avenue) will be replaced with five new single-family residences.
- Six single-family residences will be redeveloped on Parcel 009 (4767-D Kāhala Avenue) to replace a previously existing large ocean-front estate.
- The existing shared driveway on Parcel 025 (4769 Kāhala Avenue) will be improved to provide continued access to the residences.

A'Yia LLC is committed to develop and build sustainable, energy-efficient residences that will help to advance the residential quality and character of this Kāhala neighborhood. A'Yia LLC plans to attain LEED Certification for all homes from the U.S. Green Building Council's Leadership in Energy and Environmental Design Program. This residential redevelopment will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, rainwater management, use of sustainable building materials, shaded streetscapes, and landscaping.

PURPOSE OF ENVIRONMENTAL ASSESSMENT

On behalf of A'Yia LLC, G70 is undertaking the preparation of a DEA, pursuant to ROH Chapter 25, in support of a SMA Use Permit Application. The DEA will be prepared in accordance with the content and procedural requirements of HRS Chapter 343 and HAR Chapter 11-200.1. The DEA will include a description of the Proposed Action and alternatives considered; a description of the existing environment; identification and analysis of potential impacts; and proposed mitigation measures.

Figure 1: Project Location

Appendix G

Public Meeting Notice

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

October 15, 2021

Subject: Early Consultation Request for Environmental Assessment
The Kahala Beach Villas
4767-B, 4767-D, 4769 & 4775 Kāhala Avenue
Honolulu, Island of O'ahu, Hawai'i
Tax Map Key: (1) 3-5-006:007, 009, 014, and 025

Aloha:

On behalf of A'Yia LLC, G70 is undertaking the preparation of a Draft Environmental Assessment (DEA) for "The Kahala Beach Villas" ("Project") located in Honolulu, O'ahu, Hawai'i. The DEA will be prepared pursuant to Revised Ordinances of Honolulu Chapter 25, *Special Management Area*, and in accordance with Hawai'i Revised Statutes Chapter 343 and Hawai'i Administrative Rules Chapter 11-200.1.

We are conducting early consultation with agencies, elected officials, organizations and individuals who may be interested in the environmental review of this Project. Enclosed is an Early Consultation Handout, which includes a Project description and location map for your review. If you would like to provide comments, please send via U.S. mail or email to the G70 contact indicated below, no later than November 05, 2021.

G70
111 S. King Street, Suite 170
Honolulu, HI 96813
Attn: Jeff Overton
Phone: (808) 523-5866
Email: AyiaKahalaEA@g70.design

In support of the DEA and a Special Management Area Use Permit application, a Project presentation will be made at the Wai'alae-Kāhala Neighborhood Board (NB) No. 3 meeting on Thursday, October 21, 2021, at 5:00 p.m. We invite you to attend the Wai'alae-Kāhala NB No. 3 meeting, which will be held virtually via Webex. The Webex meeting information is below:

- **Meeting link:** https://cchnl.webex.com/cchnl/j.php?MTID=m980087a03ad3d1c23845811822073c72
- **Meeting number:** 2496 178 8731
- **Password:** wknb#3 (956203 from phones and video systems)
- **Join by phone:** +1-408-418-9388 U.S. Toll / +1-213-306-3065 U.S. Toll (Los Angeles)
- **Access code:** 2496 178 8731

Please contact G70 Planner Michele Leong if you have questions via phone: (808) 441-1625 or email: michelel@g70.design. Thank you for your participation in the early consultation for this Project.

Sincerely,

GROUP 70 INTERNATIONAL, INC., dba G70

Jeffrey H. Overton, AICP, LEED AP
Principal

Enclosure: Early Consultation Handout

This Early Consultation Handout has been prepared pursuant to Revised Ordinances of Honolulu (ROH) Chapter 25, and in accordance with Hawai‘i Revised Statutes (HRS) Chapter 343, and Hawai‘i Administrative Rules (HAR) Chapter 11-200.1.

PROJECT INFORMATION SUMMARY

Type of Document:	Draft Environmental Assessment (DEA)
Project Name:	The Kahala Beach Villas
Applicant:	A’Yia LLC 4614 Kilauea Avenue, Suite 205 Honolulu, Hawai‘i 96816
Approving Agency:	City and County of Honolulu (County) Department of Planning and Permitting 650 South King Street, 7th Floor Honolulu, Hawai‘i 96813
HRS, Chapter 343 Req.:	ROH Chapter 25, *Special Management Area*
Project Location:	4767-B, 4767-D, 4769 & 4775 Kāhala Avenue Honolulu, HI 96816 *(Figure 1: Project Location)*
Tax Map Key (TMK) Parcels and Recorded Fee Owners:	TMK Parcels: (1) 3-5-006: 007, 009, and 014 – A’Yia LLC TMK Parcel: (1) 3-5-006: 025 – Various Owners
Project Area:	TMK Parcel 007– 0.65 acres (27,988 SF) TMK Parcel 009 – 0.79 acres (35,896 SF) TMK Parcel 014 – 0.22 acres (9,375 SF) TMK Parcel 025 – 0.15 acres (6,986 SF)
State Land Use District:	Urban District
County Zoning District:	R-5 – Residential District
Primary Urban Center Development Plan:	Urban District
Special Management Area (SMA):	Within SMA
Flood Zone:	Zone AE

PROJECT SITE

"The Kahala Beach Villas" ("Project") site is located at 4767-B, 4767-D, 4769 & 4775 Kāhala Avenue in Honolulu, on the island of Oʻahu, Hawaiʻi (See attached Project location map *Figure 1: Project Location*).

The Project site is in the Waiʻalae-Kāhala neighborhood, between the intersections of Kāhala Avenue/Koloa Street and Kāhala Avenue/Pueo Street. The site is bordered by the Pacific Ocean to the southeast, Kāhala Avenue to the northeast and is predominantly surrounded by single-family residences. Further northeast of the site is the Waiʻalae Beach Park, Waiʻalae Country Club, Kahala Beach Apartments, and The Kahala Hotel & Resort.

The site is within the State Land Use Urban District and the County Zoning R-5 District (Residential).

OVERVIEW OF PROPOSED PROJECT

A'Yia LLC proposes to redevelop single-family residences, which will include the following:

- One existing single-family residence on Parcel 014 (4767-B Kāhala Avenue) will be replaced with one new single-family residence.
- Six existing single-family residences on Parcel 007 (4775 Kāhala Avenue) will be replaced with five new single-family residences.
- Six single-family residences will be redeveloped on Parcel 009 (4767-D Kāhala Avenue) to replace a previously existing large ocean-front estate.
- The existing shared driveway on Parcel 025 (4769 Kāhala Avenue) will be improved to provide continued access to the residences.

A'Yia LLC is committed to develop and build sustainable, energy-efficient residences that will help to advance the residential quality and character of this Kāhala neighborhood. A'Yia LLC plans to attain LEED Certification for all homes from the U.S. Green Building Council's Leadership in Energy and Environmental Design Program. This residential redevelopment will deliver significant environmental benefits, including energy conservation, green energy production, water conservation, rainwater management, use of sustainable building materials, shaded streetscapes, and landscaping.

PURPOSE OF ENVIRONMENTAL ASSESSMENT

On behalf of A'Yia LLC, G70 is undertaking the preparation of a DEA, pursuant to ROH Chapter 25, in support of a SMA Use Permit Application. The DEA will be prepared in accordance with the content and procedural requirements of HRS Chapter 343 and HAR Chapter 11-200.1. The DEA will include a description of the Proposed Action and alternatives considered; a description of the existing environment; identification and analysis of potential impacts; and proposed mitigation measures.

Figure 1: Project Location

Appendix H

Early Consultation Comments

Early Consultation Comments

Federal Agencies

United States Department of the Interior

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

In Reply Refer To:
01EPIF00-2022-TA-0027

October 27, 2021

Mr. Jeff Overton
G70
111 S. King Street, Suite 170
Honolulu, Hawai'i 96813

Subject: Technical Assistance Regarding the Draft Environmental Assessment for the A'yia Kāhala Residences, O'ahu

Dear Mr. Overton:

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,

AARON NADIG Digitally signed by AARON NADIG Date: 2021.10.27 19:02:34 -10'00'

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/'ōpe'ape'a	E	☒
Reptiles			
Chelonia mydas	green sea turtle/honu - Central North Pacific distinct population segment (DPS)	T	☐
Eretmochelys imbricata	hawksbill sea turtle/ honu 'ea or 'ea	E	☐
Birds			
Anas wyvilliana	Hawaiian duck/koloa	E	☐
Branta sandvicensis	Hawaiian goose/nēnē	T	☐
Fulica alai	Hawaiian coot/'alae ke'oke'o	E	☐
Gallinula galeata sandvicensis	Hawaiian gallinule/'alae 'ula	E	☐
Himantopus mexicanus knudseni	Hawaiian stilt/ae'o	E	☐
Oceanodroma castro	band-rumped storm-petrel Hawai'i DPS/'akē'akē	E	☒
Pterodroma sandwichensis	Hawaiian petrel/'ua'u	E	☒
Puffinus auricularis newelli	Newell's shearwater/'a'o	T	☒
Ardenna pacificus	wedge-tailed shearwater/'ua'u kani	MBTA	☒
Buteo solitarius	Hawaiian hawk/'io	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	ko‘oloa‘ula	E	O, L, M, H	☐
Achyranthes splendens var. *rotundata*	‘ewa hinahina	E	O	☐
Bonamia menziesii	no common name	E	K, O, L, M, H	☐
Canavalia pubescens	‘āwikiwiki	E	Ni, K, L, M	☐
Colubrina oppositifolia	kauila	E	O, M, H	☐
Cyperus trachysanthos	pu‘uka‘a	E	K, O	☐
Gouania hillebrandii	no common name	E	Mo, M	☐
Hibiscus brackenridgei	ma‘o 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	‘ihi‘ihi	E	Ni, O, Mo	☐
Mezoneuron kavaiense	uhiuhi	E	O, H	☐
Nothocestrum breviflorum	‘aiea	E	H	☐
Panicum fauriei var. *carteri*	Carter’s panicgrass	E	Molokini Islet (O), Mo	☐
Panicum niihauense	lau‘ehu	E	K	☐
Peucedanum sandwicense	makou	E	K, O, Mo, M	☐
Pleomele (Chrysodracon) hawaiiensis	halapepe	E	H	☐
Portulaca sclerocarpa	‘ihi	E	L, H	☐
Portulaca villosa	‘ihi	E	Le, Ka, Ni, O, Mo, M, L, H, Nihoa	☐
Pritchardia affinis (maideniana)	loulu	E	H	☐
Pseudognaphalium sandwicensium var. *molokaiense*	‘ena‘ena	E	Mo, M	☐
Scaevola coriacea	dwarf naupaka	E	Mo, M	☐
Schenkia (*Centaurium*) *sebaeoides*	‘āwiwi	E	K, O, Mo, L, M	☐
Sesbania tomentosa	‘ōhai	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=O‘ahu, K=Kaua‘i, M=Maui, H=island of Hawai‘i, L=Lāna‘i, Mo=Moloka‘i, Ka=Kaho‘olawe, Ni=Ni‘ihau, Le=Lehua

Early Consultation Comments

State of Hawai‘i Agencies

DAVID Y. IGE
GOVERNOR OF HAWAII

ELIZABETH A. CHAR, 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:

10019CEC.21

October 21, 2021

Mr. Jeffrey H. Overton, AICP, LEED AP
Principal
G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

SUBJECT: Comments on Early Consultation Request for Environmental Assessment (EA), A'Yia Kahala Residences
4767-B, 4767-D, 4769 & 4775 Kahala Avenue
Honolulu, Island of Oahu, Hawaii
Tax Map Key: (1) 3-5-006:007, 009, 014, and 025

This letter is to inform you that the Department of Health (DOH), Clean Water Branch (CWB) will no longer be responding directly to requests for comments on the following documents (Pre-consultation, Early Consultation, Preparation Notice, Draft, Final, Addendums, and/or Supplements):

- Environmental Impact Statements (EIS)
- Environmental Assessments (EA)
- Stream Channel Alteration Permits (SCAP)
- Stream Diversion Works Permits (SDWP)
- Well Construction/Pump Installation Permits
- Conservation District Use Applications (CDUA)
- Special Management Area Permits (SMAP)
- Shoreline Setback Areas (SSA)

Please download the CWB Standard Comments Memo located at our website: https://health.hawaii.gov/cwb/files/2018/05/Memo-CWB-Standard-Comments.pdf as our standard comments regarding your project's responsibilities to maintain water quality and any necessary permitting. The DOH-CWB will not provide direct responses to these requests. Agencies and/or project coordinators may download and use this memo as the CWB's official comments.

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

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

EC:na

DAVID Y. IGE
GOVERNOR

JADE T. BUTAY
DIRECTOR

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

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

IN REPLY REFER TO:
DIR 0983
HWY-PS 2.6830

October 22, 2021

VIA EMAIL: AyiaKahalaEA@g70.design

Mr. Jeff Overton
111 South King Street, Suite 700
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: A'Yia Kahala Residences – Early Consultation for Environmental Assessment
Honolulu, Oahu
Tax Map Key Nos.: (1) 3-5-006: 007, 009, 014, and 025

Thank you for your letter dated October 6, 2021. The A'Yia LLC is proposing to redevelop four parcels of land along Kahala Avenue that will include: 1) Parcel 014 – existing single-family (S-F) residence replaced with a new S-F residence; 2) Parcel 007 – 6 existing S-F residences replaced with 5 new S-F residences; 3) Parcel 009 – former large ocean-front estate replaced with 6 new S-F residences; and 4) Parcel 025 – existing private access road lot to be improved.

The project site is approximately 1 mile from the eastbound connection to H-1/Kalanianaole Highway.

Due to the project's small scale and relatively far distance to/from H-1/Kalanianaole Highway, it is not expected to have any significant impact to State highways.

If you have any questions, please contact Jeyan Thirugnanam, Systems Planning Engineer, Highways Division, Planning Branch at (808) 587-6336 or by email at jeyan.thirugnanam@hawaii.gov. Please reference file review number PS 2021-179.

Sincerely,

JADE T. BUTAY
Director of Transportation

STATE OF HAWAII
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT

DAVID Y. IGE
GOVERNOR

MARY ALICE EVANS
DIRECTOR

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

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

Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Program

DTS 202110121144SE

November 2, 2021

Mr. Jeff Overton, G70
111 S. King Street, Suite 170
Honolulu, HI 96813

Dear Mr. Overton:

Subject: Early Consultation Request for Environmental Assessment, A'Yia Kahala Residences at 4767-B, 4767-D, 4769 and 4775 Kahala Avenue, Honolulu, Oahu; Tax Map Key: (1) 3-5-006: 007, 009, 014 and 025

The Office of Planning and Sustainable Development (OPSD) is in receipt of your Environmental Assessment (EA) early consultation request, received October 12, 2021, for the "A'Yia Kahala Residences" project along the coast at 4767-B, 4767-D, 4769 and 4775 Kahala Avenue, Honolulu, Oahu.

According to the early consultation request, the project site is within the State Land Use Urban District and the County Zoning R-5 District (Residential).

A'Yia LLC proposes to redevelop single-family residences, which will include the following:

- One existing single-family residence on Parcel 014 (4767-B Kahala Avenue) will be replaced with one new single-family residence.
- Six existing single-family residences on Parcel 007 (4775 Kahala Avenue) will be replaced with five new single-family residences.
- Six single-family residences will be redeveloped on Parcel 009 (4767-D Kahala Avenue) to replace a previously existing large ocean-front estate.
- The existing shared driveway on Parcel 025 (4769 Kahala Avenue) will be improved to provide continued access to the residences.

The OPSD has reviewed the subject early consultation request and has the following comments to offer:

1. The EA should provide a regional location map of the subject property on the Island of Oahu, with the project site in relation to the county designated special management area (SMA) under the Hawaii Coastal Zone Management (CZM) Law, Hawaii Revised Statutes (HRS) Chapter 205A.

The EA should discuss the trigger(s) of preparation of an EA under HRS Chapter 343 and/or county SMA Ordinance if a SMA use permit is required for the proposed project.

2. The Hawaii CZM Law, HRS Chapter 205A, requires all state and county agencies to enforce the CZM objectives and policies. The subject EA should include an assessment with mitigation measures if needed, as to how the proposed project conforms to each of the CZM objectives and supporting policies set forth in HRS § 205A-2, as amended.

3. If the subject EA will serve as a supporting document for the SMA use permit application, the OPSD recommends that the EA specifically discuss the compliance with the requirements of SMA use under Revised Ordinances of Honolulu (ROH) Chapter 25, and shoreline setbacks under ROH Chapter 23, for the proposed residence project by consulting with the Department of Planning and Permitting, City and County of Honolulu. Please note that shoreline hardening structures, including seawalls and revetments, are prohibited at sites with beaches pursuant to HRS § 205A-2(c)(9)(B) and HRS § 205A-46(a)(9), as amended, enacted by Act 16, Session Laws of Hawaii 2020.

4. Sea level rise increases the risk of waves, storm surges, high tide and shoreline erosion to coastal development. To assess any potential impacts of sea level rise on the proposed development area, the OPSD suggests the EA refer to the findings of the Hawaii Sea Level Rise Vulnerability and Adaptation Report 2017, accepted by the Hawaii Climate Change Mitigation and Adaptation Commission. The Report, and Hawaii Sea Level Rise Viewer at https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/ particularly identifies a 3.2-foot sea level rise exposure area across the main Hawaiian Islands, including Oahu, which may occur in the mid to latter half of the 21st century. The EA should provide a map of 3.2-foot sea level rise exposure area in relation to the property area, and consider site-specific mitigation measures, including design elevation and setbacks from the shoreline (e.g., erosion red line under 3.2-foot sea level rise) during the life of the proposed structures, to respond to the potential impacts of 3.2-foot sea level rise on the proposed development.

5. Given the potential disturbance of total land area, the applicant should consult with the Department of Health, Clean Water Branch to confirm whether a National Pollution Discharge Elimination System General Permit will be required for the proposed residence project.

6. The OPSD has developed guidance on stormwater runoff strategies, which offer techniques to prevent land-based pollutants and sediment from potentially affecting water resources. The OPSD recommends that the subject EA consider the mitigation

measures from the following stormwater assessment guidance to mitigate stormwater runoff impacts:

Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area. https://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

If you have any questions regarding this comment letter, please contact Shichao Li of our office at (808) 587-2841 or email at shichao.li@hawaii.gov.

Sincerely,

Mary Alice Evans

Mary Alice Evans
Director

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

November 09, 2021

LD 1156

G70
Attn: Jeff Overton
111 S. King Street, Suite 170
Honolulu, HI 96813

Via email: AyiaKahalaEA@g70.design

Dear Sirs:

SUBJECT: **Early Consultation Request for Environmental Assessment**
A`Yia Kāhāla Residences Project
4767-B, 4767-D, and 4775 Kāhala Avenue, Honolulu, Island of Oahu, Hawaii
TMK: (1) 3-5-006:007, 009, 014, and 025

Thank you for the opportunity to review and comment on the subject project. In addition to previous comments from the Department of Land and Natural Resources (DLNR) dated November 08, 2021, enclosed are comments received from DLNR's Division of Forestry and Wildlife on the subject matter.

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

October 14, 2021

LD1156

MEMORANDUM

TO: **DLNR Agencies:**
X Div. of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
__Div. of Boating & Ocean Recreation
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Div. of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
__Div. of State Parks
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Office of Conservation & Coastal Lands *(via email: sharleen.k.kuba@hawaii.gov)*
X Land Division – Oahu District *(via email: barry.w.cheung@hawaii.gov)*

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

SUBJECT: **Early Consultation Request for Environmental Assessment**
A`Yia Kāhala Residences Project

LOCATION: 4767-B, 4767-D, and 4775 Kāhala Avenue, Honolulu, Island of Oahu, Hawaii
TMK: (1) 3-5-006:007, 009, 014, and 025

APPLICANT: **G70 on behalf of A`Yia Kāhala Residences**

Transmitted for your review and comment is information on the above-referenced project. Please review the attached information and submit any comments by the internal deadline of **November 04, 2021** to barbara.j.lee@hawaii.gov at the Land Division.

If no response is received by the above due date, we will assume your agency has no comments at this time. Should you have any questions about this request, please contact Barbara Lee at barbara.j.lee@hawaii.gov. Thank you.

BRIEF COMMENTS:

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

Signed: DGS
Print Name: DAVID G. SMITH, Administrator
Division: Division of Forestry and Wildlife
Date: Nov 8, 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

November 8, 2021

MEMORANDUM *Log no. 3384*

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 Early Consultation Request for Environmental Assessment A'Yia Kahala Residences Project**

The Department of Land and Natural Resources, Division of Forestry and Wildlife has received your inquiry regarding the early consultation request for the A'Yia Kahala Residences Project in Honolulu on O'ahu, Hawai'i, TMKs: (1) 3-5-006:007, 009, 014 and 025. The proposed project consists of replacing existing single-family residences and one large ocean-front estate into new single-family residences and improving a shared driveway.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of your project area and may roost in nearby trees. If any trees must be removed for the project during the bat breeding season there is a risk of injury or mortality to juvenile bats. 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.

The state endangered Hawaiian Monk Seal (*Monachus schauinslandi*) and threatened Green Sea Turtle (*Chelonia mydas*) have the potential to occur or haul out on shore within the vicinity of the proposed project site. We understand that the mitigation taken if either species is detected within 100 meters of the project area will be to cease construction operations and not continue until the focal animal has departed the area on its own accord. DOFAW concurs with and supports this approach.

We note that artificial lighting can adversely impact seabirds that may pass through the area at night by causing disorientation. This disorientation can result in collision with manmade artifacts or grounding of birds. For nighttime lighting that might be required, DOFAW recommends that all lights be fully shielded to minimize impacts. Nighttime work that requires outdoor lighting

should be avoided during the seabird fledging season from September 15 through December 15. This is the period when young seabirds take their maiden voyage to the open sea. For illustrations and guidance related to seabird-friendly light styles that also protect the dark, starry skies of Hawai'i please visit: https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf.

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, vertebrate and invertebrate pests (e.g. Little Fire Ants, Coconut Rhinoceros Beetles), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the O'ahu Invasive Species Committee at (808) 266-7994 in planning, design, construction and operation of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel and visitors should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

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

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

Sincerely,

DAVID G. SMITH
Administrator

DAVID Y. IGE
GOVERNOR OF HAWAII

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 08, 2021

LD 1156

G70
Attn: Jeff Overton
111 S. King Street, Suite 170
Honolulu, HI 96813

Via email: AyiaKahalaEA@g70.design

Dear Sirs:

SUBJECT: **Early Consultation Request for Environmental Assessment**
A`Yia Kāhāla Residences Project
4767-B, 4767-D, and 4775 Kāhala Avenue, Honolulu, Island of Oahu, Hawaii
TMK: (1) 3-5-006:007, 009, 014, and 025

Thank you for the opportunity to review and comment on the subject project. 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) Engineering Division. 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

October 14, 2021

LD1156

MEMORANDUM

FROM:

~~TO:~~ **DLNR Agencies:**
X Div. of Aquatic Resources *(via email: kendall.l.tucker@hawaii.gov)*
__Div. of Boating & Ocean Recreation
X Engineering Division *(via email: DLNR.Engr@hawaii.gov)*
X Div. of Forestry & Wildlife *(via email: rubyrosa.t.terrago@hawaii.gov)*
__Div. of State Parks
X Commission on Water Resource Management *(via email: DLNR.CWRM@hawaii.gov)*
X Office of Conservation & Coastal Lands *(via email: sharleen.k.kuba@hawaii.gov)*
X Land Division – Oahu District *(via email: barry.w.cheung@hawaii.gov)*

TO:

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

SUBJECT: **Early Consultation Request for Environmental Assessment**
A`Yia Kāhala Residences Project

LOCATION: 4767-B, 4767-D, and 4775 Kāhala Avenue, Honolulu, Island of Oahu, Hawaii
TMK: (1) 3-5-006:007, 009, 014, and 025

APPLICANT: **G70 on behalf of A`Yia Kāhala Residences**

Transmitted for your review and comment is information on the above-referenced project. Please review the attached information and submit any comments by the internal deadline of **November 04, 2021** to barbara.j.lee@hawaii.gov at the Land Division.

If no response is received by the above due date, we will assume your agency has no comments at this time. Should you have any questions about this request, please contact Barbara Lee at barbara.j.lee@hawaii.gov. Thank you.

BRIEF COMMENTS:

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

Signed: CSC
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: Oct 28, 2021

Attachments
Cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Early Consultation Request for Environmental Assessment
A'Yia Kahala Residences Project
Location: 4767-B, 4767-D, and 4775 Kahala Avenue, Honolulu, Island of Oahu, Hawaii
TMK(s): (1) 3-5-006:007, 009, 014, and 025
Applicant: G70 on behalf of A'Yia Kahala Residences

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). Be advised that 44CFR, Chapter 1, Subchapter B, Part 60 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 zones subject to NFIP requirements are identified on FEMA's Flood Insurance Rate Maps (FIRM). The official FIRMs can be accessed through FEMA's Map Service Center (msc.fema.gov). Our Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT) could also be used to research flood hazard information.

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) 270-7139.
- Kauai: County of Kauai, Department of Public Works (808) 241-4849.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: Oct 28, 2021

Early Consultation Comments

City and County of Honolulu Agencies

Michele Leong

From: Jacinto-Kawabata, Marie <m.jacinto-kawaba@honolulu.gov>
Sent: Monday, October 11, 2021 4:30 PM
To: 220061-02 A'Yia Kahala EA & SMA Project
Subject: Early Consultation Request for Environmental Assessment for A'Yia Kahala Residences

Aloha Mr. Overton,

Director Toiya has reviewed the Early Consultation Handout for the A'Yia Kahala Residences project and has no comments.

Mahalo,

Marie Jacinto-Kawabata
Clerk
City & County of Honolulu
Office: (808) 723-8960
Fax: (808) 768-1492

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8480 • Fax: (808) 768-4567
Web site: www.honolulu.gov

RICK BLANGIARDI
MAYOR

ALEX KOZLOV, P.E.
DIRECTOR

HAKU MILLES, P.E.
DEPUTY DIRECTOR

October 14, 2021

G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813

Attn: Jeff Overton

Dear Mr. Overton:

Subject: Early Consultation Request for Environmental Assessment
AYia Kahala Residences
4767-B, 4767-D, 4769 & 4775 Kahala Avenue
Honolulu, Island of Oahu, Hawaii
Tax Map Key (1) 3-5-006:007, 009, 014 and 025

Thank you for the opportunity to review and comment. The Department of Design and Construction has no comments to offer at this time.

Should you have any further questions, please contact me at 768-8480.

Sincerely,

PK Alex Kozlov, P.E.
Director

AK:krn (864549)

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Ulu`ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

RICK BLANGIARDI
MAYOR

ROGER BABCOCK, JR., Ph.D., P.E.
DIRECTOR AND CHIEF ENGINEER

DAWN B. SZEWCZYK, P.E.
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 21-622

October 18, 2021

Mr. Jeff Overton
G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Early Consultation Request for Environmental Assessment
A'Yia Kahala Residences
4767-B, 4767-D, 4769 & 4775 Kahala Avenue,
TMK's: (1) 3-6-006:007, 009, 014 and 025

Thank you for the opportunity to review and comment on the subject project.

Our comments are as follows:

- During construction and upon completion of the project, any damages/deficiencies along the sidewalks, catch basins, and/or roadways, shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu.
- Please note, the Aukai Ditch that is located behind TMK; 3-5-06:007 is maintained by the Department of Facility Maintenance, any damages shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu.
- A portion of TMK: 3-5-006:025 between TMK's: 3-5-006:014 and 007 is a portion of a sewer easement that is under the jurisdiction of the Department of Environmental Services.
- On parcel TMK: 3-5-006:007, there is an inlet and outlet that is under the jurisdiction of the Department of Facility Maintenance, if there are any damages/deficiencies, it shall be repaired to City Standards and accepted by the City and at no cost to the City and County of Honolulu.

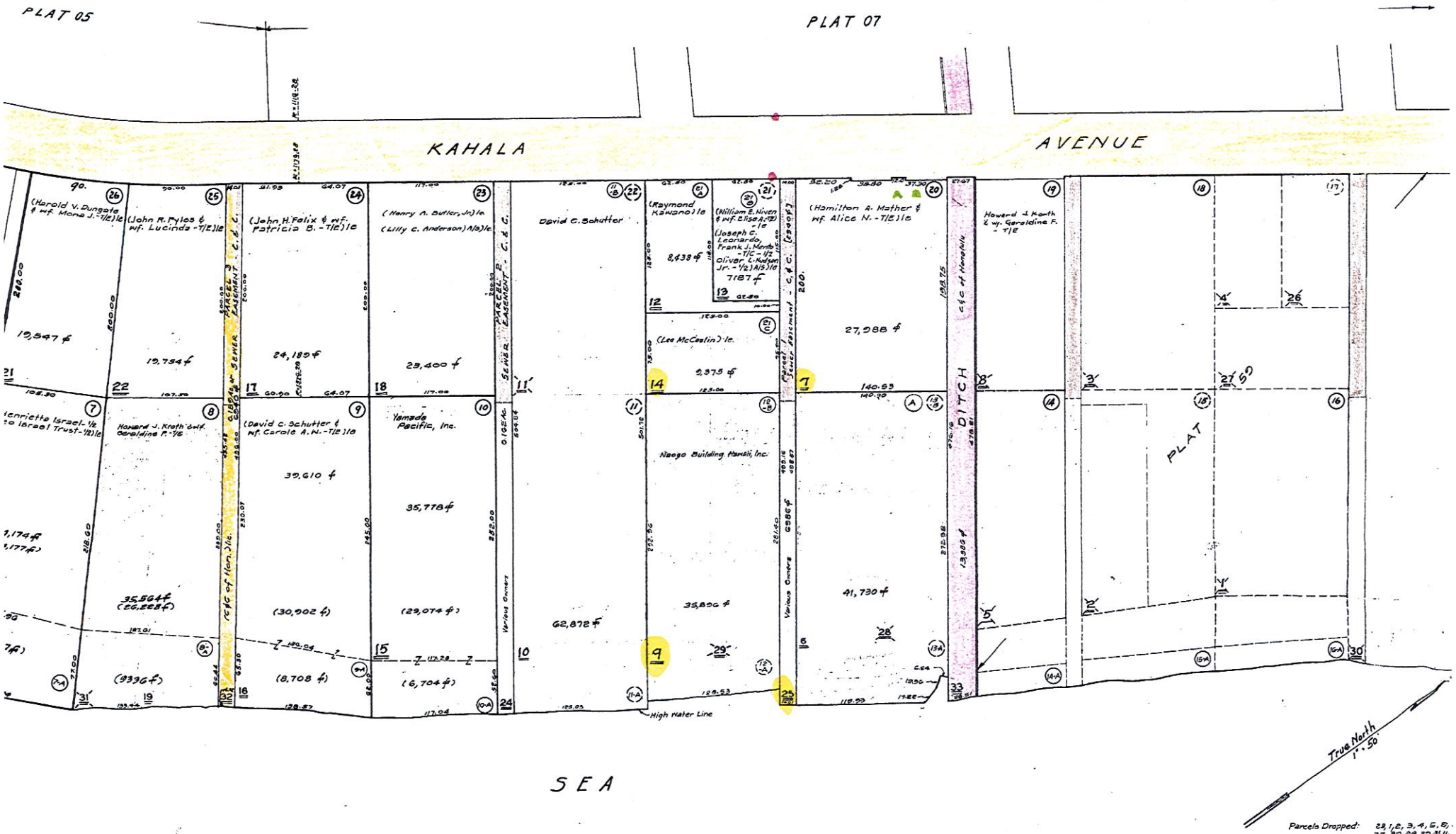
If you have any questions, please call Mr. Kyle Oyasato of the Division of Road Maintenance at 768-3697.

Sincerely,

W Roger Babcock, Jr., Ph.D, P.E.
Director and Chief Engineer

Attachment

Ditch - c&c maintained
Sewer
catch basin
inlet/outlet (city maintained)
City street



Parcels Dropped: 23, 1, 2, 3, 4, 5, 6, 27, 30, 28, 29, 31, 11,

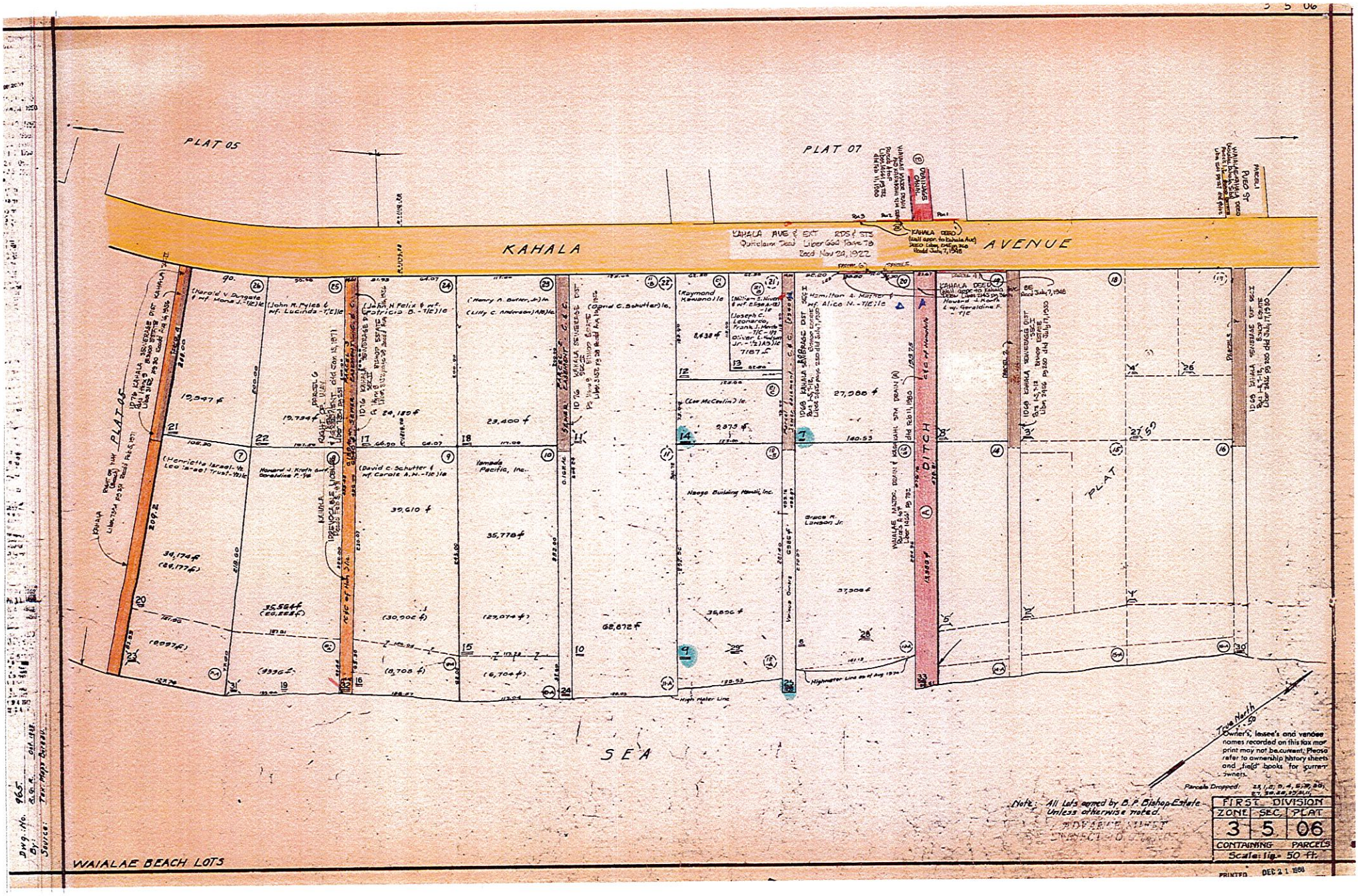
Note: All Lots owned by B. P. Bishop Estate Unless otherwise noted.

ADVANCE SHEET
SUBJECT TO CHANGE

FIRST DIVISIO		
ZONE	SEC.	PLA
3	5	0
CONTAINING		PARC
Scale: lin. = 50 ft		

CH LOTS

A inlet/outlet



BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843
www.boardofwatersupply.com

October 20, 2021

RECEIVED
OCT 25 2021
G70

Mr. Jeffrey H. Overton, AICP, LEED AP
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Your Letter Dated October 6, 2021 Requesting Comments on the Early Consultation Request for Environmental Assessment for the Proposed Twelve Single-Family Residences for A'Yia Kahala Residences, Tax Map Key: 3-5-006: 007, 009, 014, 025

Thank you for your letter regarding the proposed twelve new residential unit project.

The existing water system cannot provide adequate off-site fire protection to the proposed development. The Board of Water Supply (BWS) Water System Standards (WSS) require a fire hydrant spacing of 350 feet in the vicinity of single-family developments and provide a flow of 1,000 gallons per minute (gpm). The nearest fire hydrant, Fire Hydrant No. M01486, is approximately 360 linear feet away from the parcel with Tax Map Key: 3-5-006: 009. Therefore, the developer will be required to coordinate the on-site fire protection requirements with the Fire Prevention Bureau of the Honolulu Fire Department. The fire hydrant spacing along Kahala Avenue is approximately 375 feet.

The construction drawings shall be submitted for our review and approval, and the construction schedule shall be coordinated with BWS to minimize impact on our water system.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and daily storage.

Water conservation measures are required for all proposed developments. These measures include utilization of nonpotable water for irrigation using rain catchment, drought tolerant plants, xeriscape landscaping, efficient irrigation systems, such as a drip system and moisture sensors, and the use of Water Sense labeled ultra-low flow water fixtures and toilets.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at (808) 748-5443.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

RICK BLANGIARDI
MAYOR

RADE K. VANIC
INTERIM CHIEF

OUR REFERENCE EO-DK

October 21, 2021

SENT VIA EMAIL

Mr. Jeff Overton
AyiaKahalaEA@g70.design

Dear Mr. Overton:

This is in response to your letter dated for October 6, 2021 requesting input on the Early Consultation, Draft Environmental Assessment, for the proposed development of the A'Yia Kahala Residences project.

The Honolulu Police Department (HPD) recommends that all necessary signs, lights, barricades, and other safety equipment be installed and maintained by the contractor during the construction phase of the project, as Kahala Avenue is a two-way road traversed by vehicles and pedestrians. The HPD also recommends that adequate notification be made to residents in the area prior to deliveries or possible road closures, as any impacts to pedestrian and/or vehicular traffic may cause issues and disruptions to residents which could lead to complaints.

If there are any questions, please call Acting Major Brian Lynch of District 7 (East Honolulu) at 723-3369.

Thank you for the opportunity to review this project.

Sincerely,

DARREN CHUN
Assistant Chief of Police
Support Services Bureau

HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

RICK BLANGIARDI
MAYOR

LIONEL CAMARA JR.
ACTING FIRE CHIEF

SHELDON K. HAO
ACTING DEPUTY FIRE CHIEF

October 25, 2021

RECEIVED
OCT 28 2021
G70

Mr. Jeffrey Overton, AICP, LEED AP
Principal
Group 70 international, Inc.
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

Subject: Early Consultation for Draft Environmental Assessment
A'Yia Kahala Residences
4767-B, 4767-D, 4769 and 4775 Kahala Avenue
Honolulu, Hawaii 96816
Tax Map Keys: 3-5-006: 007, 009, 014, and 025

In response to your letter dated October 6, 2021, regarding the abovementioned subject, the Honolulu Fire Department (HFD) reviewed the submitted information and requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet (46 meters) from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1; 2018 Edition, Sections 18.2.3.2.2 and 18.2.3.2.2.1, as amended.)

   A fire department access road shall extend to within 50 feet (15 meters) of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1; 2018 Edition, Section 18.2.3.2.1.)

2. An approved water supply capable of supply the required fire flow for fire protection shall be provided to all premises upon which facilities, buildings, or portions of buildings are hereafter constructed or moved

into the jurisdiction. The approved water supply shall be in accordance with Section 18.4. (NFPA 1; 2018 Edition, Section 18.3.1.)

3. The fire department access roads shall be in accordance with Section 18.2.3. (NFPA 1; 2018 Edition, Section 18.2.3.)

4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Reid Yoshida of our Fire Prevention Bureau at 808-723-7151 or ryoshida@honolulu.gov.

Sincerely,

JASON SAMALA
Assistant Chief

JS/TC:bh

DEPARTMENT OF PARKS & RECREATION

CITY AND COUNTY OF HONOLULU

1000 Uluohia Street, Suite 309, Kapolei, Hawaii 96707
Phone: (808) 768-3003 • Fax: (808) 768-3053
Website: www.honolulu.gov

RICK BLANGIARDI
MAYOR

LAURA H. THIELEN
DIRECTOR

KEHAULANI PU'U
DEPUTY DIRECTOR

October 25, 2021

RECEIVED
OCT 29 2021
G70

Mr. Jeffrey Overton, AICP, LEED AP
G70
111 S. King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

SUBJECT: Early Consultation Request for Environmental Assessment
A'Yia Kahala Residences
Tax Map Key: (1) 3-5-006:007, 009, 014 and 025

Thank you for the opportunity to review and comment at the Pre Consultation stage of the Environmental Assessment for the subject A'Yia Kahala Residences project.

The project sites are not abutting any City park and the proposed project will not impact any facility or program of the department. We have no comments other than to note that the net increase of four single family residences will require the developer to comply with the requirements of the Park Dedication Ordinance.

Should you have any questions, please contact Mr. John Reid, Planner at 768-3017.

Sincerely

Laura H. Thielen
Director

LHT:jr
(864622)

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honoluludpp.org • CITY WEB SITE: www.honolulu.gov

RICK BLANGIARDI
MAYOR

DEAN UCHIDA
DIRECTOR

DAWN TAKEUCHI APUNA
DEPUTY DIRECTOR

EUGENE H. TAKAHASHI
DEPUTY DIRECTOR

RECEIVED
NOV 08 2021
G70

November 5, 2021

2021/ELOG-2079(MS)

Mr. Jeff H. Overton
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

SUBJECT: Early Consultation for Environmental Assessment (EA)
A'Yia Kahala Residences
4767-B, 4767-D, 4769, and 4775 Kahala Avenue
Tax Map Keys 3-5-006: 007, 009, 014, and 025

This is in response to your letter, received October 8 and 19, 2021, requesting comments on the pre-draft EA for the subject Project. According to your letter, the Project will involve the following:

- 4767-B Kahala Avenue: replacing an existing single-family dwelling with a new single-family dwelling;
- 4767-D Kahala Avenue: adding six new single-family dwellings;
- 4769 Kahala Avenue: improving an existing shared driveway; and
- 4775 Kahala Avenue: replacing six existing single-family dwellings with five new single-family dwellings.

The Project consists of three residential lots and one private road that provides access to the residential lots from Kahala Avenue. Parcels 9 and 25 are shoreline lots and all four parcels are within the Special Management Area (SMA) and the R-5 Residential District. Our comments regarding the items to address within the draft EA are provided below:

1. The draft EA should provide a description of the existing and proposed development on the subject properties, including a description of development permit history and the existing and proposed land uses.

2. There are existing structures on each of the four parcels. The draft EA should describe all existing structures on the site, including shoreline hardening structures, dwellings, garages, tennis courts, pools, stairways, fences and gates, etc. The draft EA should specify existing structures that will remain and whether they were lawfully established.

3. The draft EA should address the Project's consistency with the relevant policies of the General Plan and the Primary Urban Center Development Plan. This section should specifically address policies related to shoreline development.

4. Include a discussion of the Project's consistency with the applicable development standards of the zoning district under the Land Use Ordinance0, Chapter 21, Revised Ordinances of Honolulu (ROH).

5. Parcel 9 is a shoreline lot, which is subject to shoreline erosion. The Project site is susceptible to Sea Level Rise (SLR), tsunami, and storm surge. Mayor's Directive 18-2, issued on July 16, 2018, requires all City departments and agencies to use the Hawaii *SLR Vulnerability and Adaptation Report*, the *SLR Guidance* and the *Climate Change Brief* in planning decisions. As a result, proposed development activities within the SMA must be evaluated not only for potential impacts to sensitive SMA resources, but also for current and future susceptibility to coastal hazards such as flooding, SLR, wave action, tsunami, storm surge, and erosion. The draft EA should explore ways to reduce potential impacts to the development including siting the dwellings and structures as far from the shoreline as possible and outside areas that will be impacted by SLR and erosion during the life of the structure.

6. The subject properties are in a Tsunami Evacuation Zone. The National Hurricane Storm Surge Hazard Maps indicate coastal area long the Project site may be subject to flooding inundation of less than three feet above ground level during a Category 1 hurricane event. The draft EA should discuss any impacts by storm surge on the property, and identify mitigation strategies that would need to be employed.

7. The subject properties are within Flood Zone AE (an area subject to inundation by a one percent annual chance flood) with a determined base flood elevation of eight feet. Development on the site is subject to the provisions of the Flood Hazard Areas Ordinance, Chapter 21A, ROH.

8. All development must be located outside of the shoreline setback area, which currently extends 40 feet mauka of the Certified Shoreline for most residential properties. This setback distance from the shoreline must be confirmed on a shoreline survey certified by the State of Hawaii, and must also be reflected in the plans submitted for the SMA Use Permit to confirm compliance with the Shoreline Setback Ordinance (Chapter 23, ROH). A draft shoreline survey should be included and evaluated in the draft EA. A certified shoreline survey should be included in the final EA.

   Alternatively, if the Applicant seeks to waive the requirement for a certified shoreline survey and locate all development more than 55 feet from an uncertified (presumed) shoreline, the draft EA should include a shoreline survey and plans that identify and label the proposed distance from the presumed shoreline. Under this approach, the Applicant must provide evidence documenting the location of the presumed shoreline. Such information may include, but is not limited to, a previously certified shoreline survey, erosion and/or accretion information, historic versus current photographs, and physical or geographic markers such as survey pins or trees that document the level of change in the shoreline since the most recent certified shoreline survey. Please note that a waiver of the requirement for a certified survey is subject to the discretion of the Director of the Department of Planning and Permitting.

9. The draft EA should include a discussion of any other land use permits anticipated to be required prior to Project implementation.

Should you have any questions, please contact Malynne Simeon, of our Land Use Approval Branch, at (808) 768-8023 or via email at msimeon@honolulu.gov.

Very truly yours,

Alex D. Beatty

for Dean Uchida
Director

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • web: www.honolulu.gov

RICK BLANGIARDI
MAYOR

J. ROGER MORTON
DIRECTOR

JON Y. NOUCHI
DEPUTY DIRECTOR

TP10/21-864812

November 5, 2021

Mr. Jeffrey H. Overton, AICP, LEED AP, Principal
G70
111 South King Street, Suite 170
Honolulu, Hawaii 96813

Dear Mr. Overton:

SUBJECT: Early Consultation Request for Environmental Assessment
Ayia Kahala Residences
4767-B, 4767-D, 4769 & 4775 Kahala Avenue
Honolulu, Island of Oahu, Hawaii
Tax Map Key: (1) 3-5-006:007, 009, 014, and 025

Thank you for the opportunity to provide written comments regarding the subject project. We have the following comments.

1. **Street Usage Permit**. A street usage permit from the Department of Transportation Services (DTS) should be obtained for any construction-related work that may require the temporary closure of any traffic lane or pedestrian mall on a City street.

2. **Neighborhood Impacts**. The area representatives, neighborhood board, as well as the area residents, businesses, emergency personnel (fire, ambulance, and police), Oahu Transit Services, Inc. (TheBus and TheHandi-Van), etc., should be kept apprised of the details and status throughout the project and the impacts that the project may have on the adjoining local street area network.

3. **Bus Stops**. The project site is in the immediate vicinity of bus stops. Please coordinate roadway impacts with DTS – Transportation Mobility Division (TMD). Contact DTS-TMD at TheBusStop@honolulu.gov

4. **Disability and Communication Access Board (DCAB).** Project plans (vehicular and pedestrian circulation, sidewalks, parking and pedestrian pathways, vehicular ingress/egress, etc.) should be reviewed and approved by DCAB to ensure full compliance with Americans with Disabilities Act requirements.

Should you have any questions, please contact Greg Tsugawa, of my staff, at (808) 768-6683.

Very truly yours,

J. Roger Morton
Director

Early Consultation Comments

Organizations, Neighbors, and Individuals

Michele Leong

From: Liu, Rouen <rouen.liu@hawaiianelectric.com>
Sent: Wednesday, October 20, 2021 4:56 PM
To: 220061-02 A'Yia Kahala EA & SMA Project
Cc: Kuwaye, Kristen
Subject: Pre-Assessment Consultation - Ayia Kahala Residences

Dear Mr. Overton,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should Hawaiian Electric have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities. We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Ayia Kahala Residences project comes to fruition, please continue to keep us informed.

Should there be any questions, please contact me at 543-7245.

Thank you,
Rouen Liu
Permit Engineer