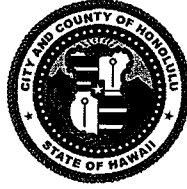


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 768-8000 • FAX: (808) 768-6041
DEPT. WEB SITE: www.honolulu.gov • CITY WEB SITE: www.honolulu.gov

RICK BLANGIARDI
MAYOR



DEAN UCHIDA
DIRECTOR

DAWN TAKEUCHI APUNA
DEPUTY DIRECTOR

August 8, 2022

2022/ED-5(LM)

Ms. Mary Alice Evans
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
Environmental Assessment (EA)
Project: Paullin Residence
Owner/Applicant: Barbara Paullin
Agent: James Hayes and Makena White (Planning Solutions)
Location: 57-321 Pahipahialua Street - Kawela Beach Lots
Tax Map Key: 5-7-003: 057

With this letter, the Department of Planning and Permitting hereby transmits the FEA and Finding of No Significant Impact for the Paullin Residence Project at the above site in the Koolauloa District on the Island of Oahu, for publication in the August 23, 2022, edition of *The Environmental Notice*.

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

Should you have any questions, please contact Laura Mo, of our Urban Design Branch, at (808) 768-8025 or via email at laura.mo@honolulu.gov.

Very truly yours,

A handwritten signature in black ink, appearing to read "Dean Uchida", is written over a faint, larger version of the signature.

Dean Uchida
Director

**NON-CHAPTER 343 DOCUMENT
PUBLICATION FORM
OFFICE OF ENVIRONMENTAL QUALITY CONTROL**

Project Name: Paullin Residence

Applicable Law: Chapter 25, Revised Ordinances of Honolulu

Type of Document: Environmental Assessment – Finding of No Significant Impact (FONSI)

Island: Oahu

District: Koolauloa

TMK: (1) 5-7-003: 057

Permits Required: Special Management Area Use Permit, Building, Individual Wastewater System

Applicant or Proposing Agency:

Barbara Paullin
2510 Via Campesina
Palos Verdest Estates, California 90724
(310) 968-2346

Approving Agency or Accepting Authority:

Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813
Laura Mo - Land Use Permits Division
(808) 768-8025
laura.mo@honolulu.gov

Consultant:

James Hayes
Planning Solutions Inc.
711 Kapiolani Boulevard, Suite 950
Honolulu, Hawaii 96813
(808) 550-4483
jim@psi-hi.com

Status: Final EA – FONSI

Project Summary:

The proposal consists of the the following actions: (a) removal of existing structures, and (b) development of a new single-family residence with two bedrooms, two and a half baths, a small lanai facing the road, and a larger lanai facing the ocean. The new structure will (a) have a total interior area of roughly 1,700 square feet; (b) comply with all land use requirements, including yard, height, and shoreline setback; and (c) be elevated so that the living area is above the base flood elevation.

Reasons Supporting Determination: See Section 5 (Page 5-1).

**FINAL ENVIRONMENTAL ASSESSMENT &
FINDING OF NO SIGNIFICANT IMPACT,
57-321 PAHIPAHI‘ĀLUA STREET
PAULLIN RESIDENCE**



**PREPARED FOR:
The Paullin Family**

PREPARED BY:



**P L A N N I N G
S O L U T I O N S**

JULY 2022

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LIST OF ACRONYMS

AFONSI	Anticipated Finding of No Significant Impact
AMP	Archaeological Monitoring Plan
BFE	Base Flood Elevation
BMP	Best Management Practice
CCH	City and County of Honolulu
CIA	Cultural Impact Assessment
CRM	Concrete Reinforced Masonry
CZM	Coastal Zone Management
DEA	Draft Environmental Assessment
DLNR	Department of Land and Natural Resources
DPP	Department of Planning and Permitting
EA	Environmental Assessment
EIS	Environmental Impact Statement

FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
HAR	Hawai‘i Administrative Rules
HCC	Honolulu City Council
HDOH	State of Hawai‘i, Department of Health
HDOT	State of Hawai‘i, Department of Transportation
HEPA	Hawai‘i Environmental Policy Act
HPD	Honolulu Police Department
HRS	Hawai‘i Revised Statutes
IBC	International Building Code
IPCC	Intergovernmental Panel on Climate Change
IRC	International Residential Code
IWS	Individual Wastewater System
MSL	Mean Sea Level
NOAA	National Oceanographic and Atmospheric Agency
NSSCP	North Shore Sustainable Community Plan
OR&L	Oahu Rail and Land Company
PSI	Planning Solutions, Inc.
ROH	Revised Ordinances of Honolulu
SHPD	State Historic Preservation Division
SLR	Sea Level Rise
SLR-XA	Sea Level Rise Exposure Area
SMA	Special Management Area
SMP	Special Management Area Permit
TMK	Tax Map Key
UBC	Uniform Building Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey

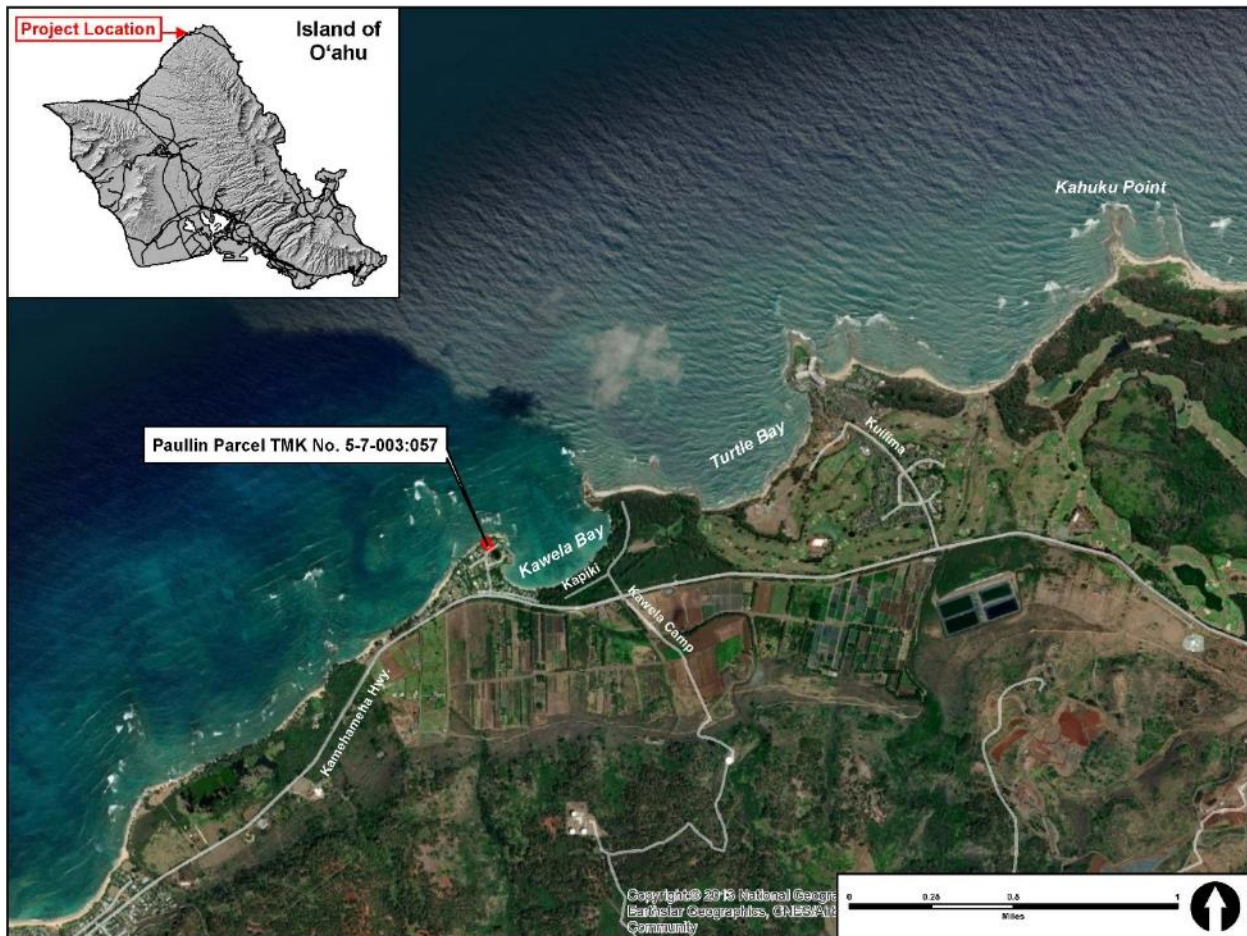
1 INTRODUCTION

1.1 PURPOSE AND NEED

The purpose of the proposal is to utilize the subject property, 57-321 Pahipahi‘ālua Street (TMK No. (1) 5-7-003:057; Figure 1.1) in a manner consistent with its zoning (residential; R-5; Figure 1.2) and other applicable land use rules and regulations (e.g., shoreline setback) so that a family can live on the property.

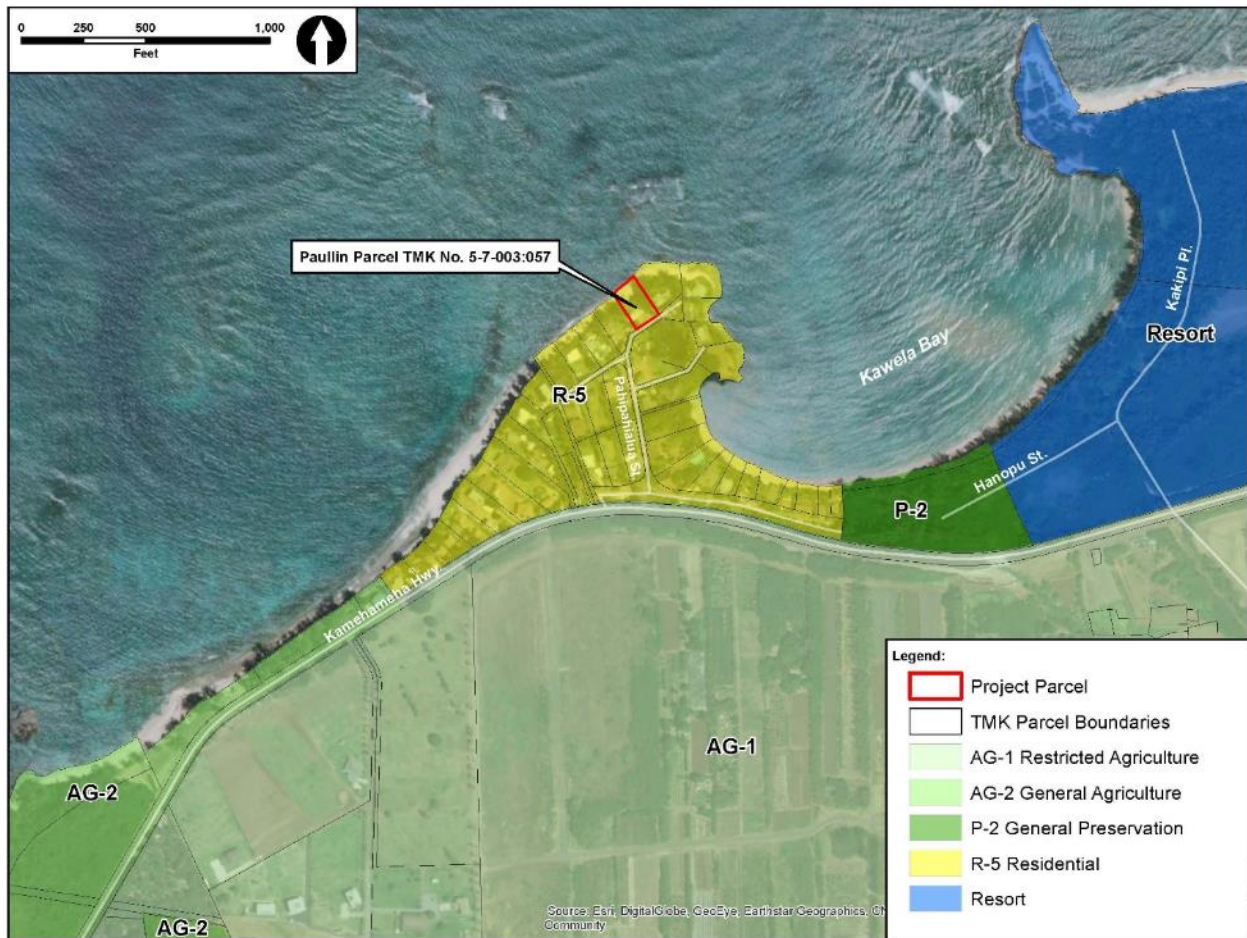
The proposed action is needed because, although the subject property has been used in a manner consistent with its zoning for decades, the existing improvements are aged and do not meet the needs of the new owners.

Figure 1.1: Location Map



Source: Planning Solutions, Inc.

Figure 1.2: Zoning Map



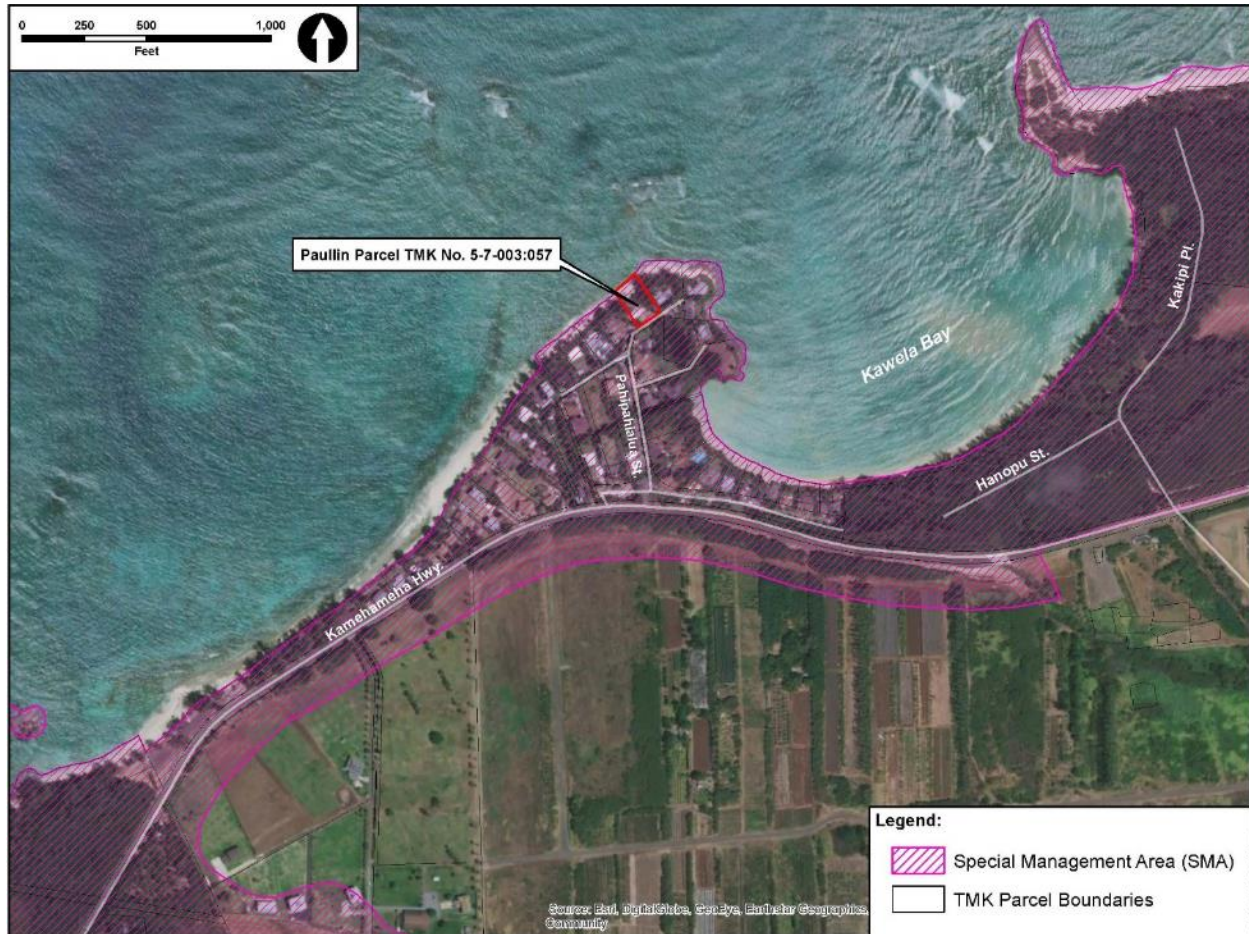
1.2 ENVIRONMENTAL ASSESSMENT TRIGGER

As detailed in Chapter 2, the new owner of the property, the Paullin Family, is proposing to construct a two-story, single-family residence, which will be similar in nature and use to the existing, roughly 80-year-old structure. The residence will be located at 57-321 Pahipahi‘ālua Street near Kawela Bay, O‘ahu, Hawai‘i on TMK No. 5-7-003:057 (Figure 1.2). The subject parcel is located in the Special Management Area (SMA) and, consequently, will require an SMA Permit (SMP), pursuant to Revised Ordinances of Honolulu (ROH), Chapter 25 (Figure 1.3). Because the total value of the proposed project is greater than \$500,000, it will require an SMP Major issued via Resolution by the Honolulu City Council (HCC).

In the past, pursuant to ROH, Chapter 25-1.3(2)(A), construction or reconstruction of a single-family residence of less than 7,500 square feet of floor area, and which was not part of a larger development, was not considered development and was not required to obtain an SMP. However, on September 15, 2020, the Governor of the State of Hawai‘i signed into law Act 016, Senate Bill 2060 SD2, which is intended to strengthen the State’s Coastal Zone Management (CZM) program. Pursuant to that, the City and County of Honolulu (CCH), Department of Planning and Permitting (DPP) has begun implementing changes to how it administers ROH Chapter 25, relating to the

SMA, and ROH Chapter 23, pertaining to shoreline setbacks. Thus, because the proposed residence is situated on a shoreline lot, as defined by ROH, Chapter 23-1.3, with the potential to be impacted by waves, storm surge, high tides, or shoreline erosion, it is considered “development” and requires an SMP Major.

Figure 1.3: SMA Map



Source: Planning Solutions, Inc.

As part of the process to obtain an SMP Major, pursuant to ROH, Chapter 25-3.3(c), the proposed project must first prepare an Environmental Assessment (EA). This EA is intended to satisfy that requirement and provide the necessary information and analysis so that DPP can support issuance of an SMP Major by the HCC. This EA has been prepared in accordance with the requirements of ROH, Chapter 25, as well as Hawai‘i Revised Statutes (HRS), Chapter 343 and its implementing regulations contained in Hawai‘i Administrative Rules (HAR), Title 11, Chapter 200.1.

1.3 PERMITS AND APPROVALS

The permits and approvals required in order to construct the proposed residence at 57-321 Pahipahi‘ālua Street are identified in Table 1.1.

Table 1.1: Permits and Approvals

<i>Permit</i>	<i>Issuing Authority</i>
ROH §25 Environmental Review	CCH DPP
Certified Shoreline	Department of Land and Natural Resources (DLNR)
Historic Review (HRS §6E-42)	DLNR, State Historic Preservation Division
Special Management Area Permit – Major	CCH, County Council
Individual Wastewater System Permit	Department of Health, Wastewater Branch
Building Permit	CCH DPP

Source: Compiled by Planning Solutions, Inc.

2 PROPOSED ACTION AND ALTERNATIVES

2.1 DESCRIPTION OF THE PROJECT PARCEL

The subject parcel, TMK No. (1) 5-7-003:057 at 57-321 Pahipahi‘ālua Street near Kawela Bay, O‘ahu, Hawai‘i, is a shoreline lot with a total area of 0.4360 acre (18,992 square feet). The recorded owner of the parcel is Barbara L. Paullin with an address of 504 Paseo Del Mar, Palos Verdes Estates, California 90274.

The parcel is accessed via the privately-owned Pahipahi‘ālua Street off of Kamehameha Highway (State Route 83); there is an automatic gate at the entrance to the neighborhood off Kamehameha Highway. The neighboring properties to the northeast and southwest of the parcel are both privately-owned and in residential use. To the north is Pahipahi‘ālua Beach and the Pacific Ocean, and to the south, on the other side of Pahipahi‘ālua Street, is another privately-owned residence.

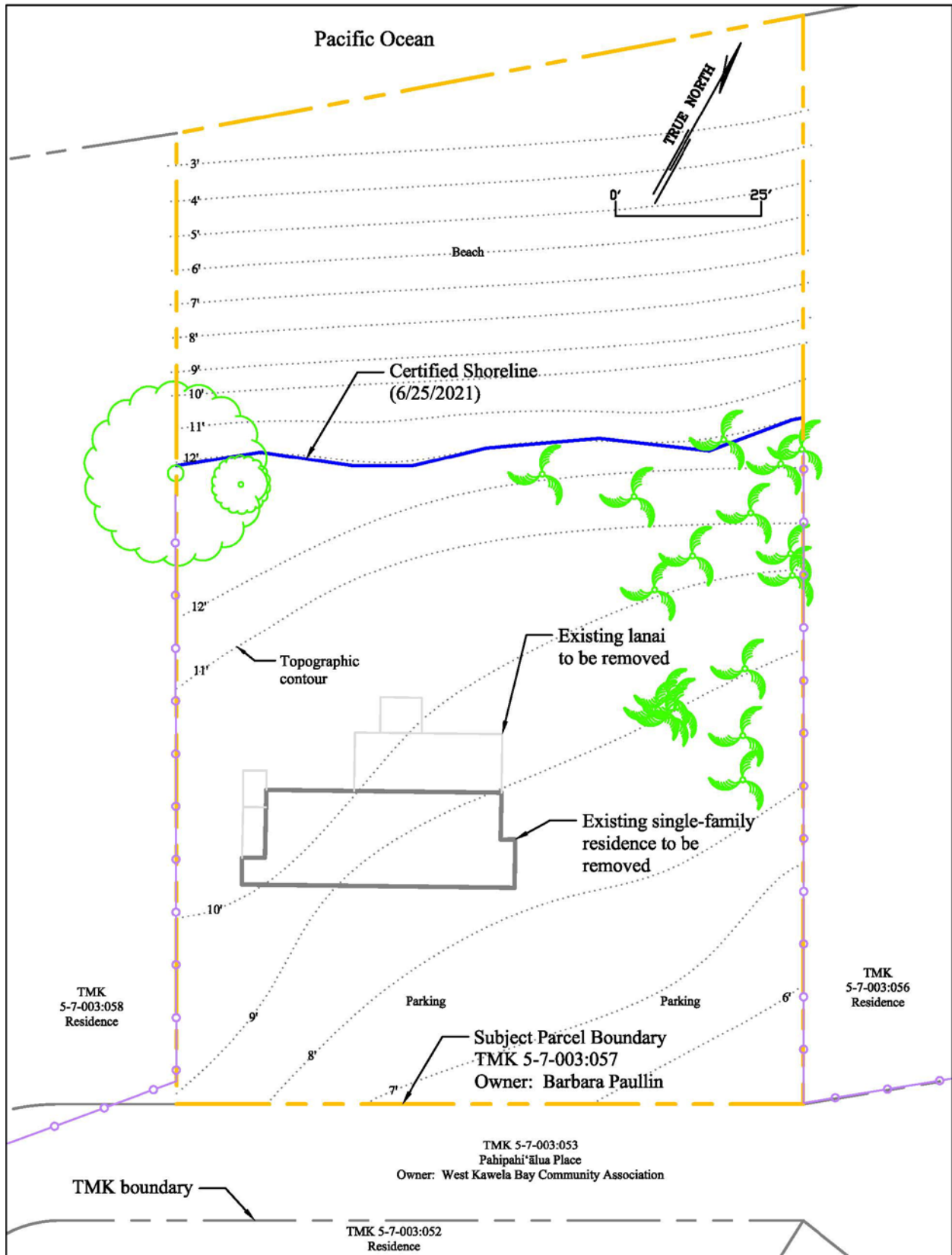
Currently, the parcel is occupied by a single-story residence, with an open lanai on its makai side (Figure 2.1). Figure 2.2 provides an aerial view of the parcel and Figure 2.3 provides ground-level photographs of existing conditions on the project site. CCH records indicate that the residence was constructed in 1943 and has a living area of approximately 656 square feet, with one bedroom and one bathroom. The condition of the dwelling is aged but serviceable.

This structure is surrounded by a grass lawn interspersed with vegetation, including a sea almond (false kamani) tree, cape jasmine, sea grape, cranium lily, naupaka, coconut palms, and ironwood trees (Figure 2.2 and Figure 2.3, photographs a through d). A wooden fence is present between the subject parcel and the neighboring residential parcels (Figure 2.3, photographs c and d). Open parking areas are along the road side of the property (Figure 2.3, photographs e and f).

The coastline at the subject parcel, and neighboring/other parcels in the area, is natural (Figure 2.4, photograph a.); there are no seawalls, revetments, retaining walls, or other shoreline hardening structures. There is a sandy beach followed by a generally rocky shoreline and shallow reef (Figure 2.4, photographs a. and b.). The parcel boundaries extend across the roughly 55-foot-wide sand beach area to the water’s edge (Figure 2.2); it is understood that the portion of the parcel makai of the certified shoreline is not “owned” by the parcel owner. Roughly 35 percent of the parcel area (approximately 6,900 square feet) is seaward of the shoreline, as the shoreline was certified in 2021 (Figure 2.1 and Figure 2.2; Appendix C). This results in roughly 12,100 square feet (0.28 acre) of the parcel consisting of fast land. As discussed in Section 3.1.5, it appears that this situation has existed since the parcel was created; the fact that the makai extent of the parcel extends to the water line is not due to shoreline erosion.

Topographically, the highest portions of the parcel, at roughly 10 to 13 feet above mean sea level (MSL), are near the shoreline and along the western boundary. The ground surface slopes slightly toward the road with the low point occurring near the eastern corner of the parcel, at roughly 6 feet above MSL.

Figure 2.1: Site Plan, Existing Conditions



Source: Welch & Weeks LLC and Planning Solutions, Inc.

Figure 2.2: Aerial Photograph of Existing Site Conditions



Source: PSI, from GoogleEarth

Figure 2.3: Ground-Level Photographs of Existing Site Conditions



a. Residence, looking south from near shoreline.



b. Residence, looking east from near shoreline.



c. Landscaping and boundary fence, looking north from lanai.



d. Landscaping and boundary fence, looking west from lanai.



e. Parking and residence, looking north from road.



f. Parking and residence, looking west from road.

Source: Planning Solutions, Inc.; all photos dated December 15, 2021.

Figure 2.4: Ground-Level Photographs of Existing Shoreline Conditions

*a. Shoreline
fronting subject
parcel, looking
southwest from
water’s edge.
Palm tree trunk
visible on left is
in the subject
parcel.*



*b. Shoreline
and broad
shallow fringing
reef fronting
subject parcel,
looking north
from near
subject parcel.*



Source: Planning Solutions, Inc.; all photos dated December 15, 2021.

2.2 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action consists of:

1. The HCC issuing a SMA Major Permit to the Paullin Family for the proposed project as described in Section 2.3.
2. The Paullin Family obtaining other necessary permits and approvals and implementing the proposed project as described in Section 2.3.

2.3 DESCRIPTION OF THE PROPOSED PROJECT

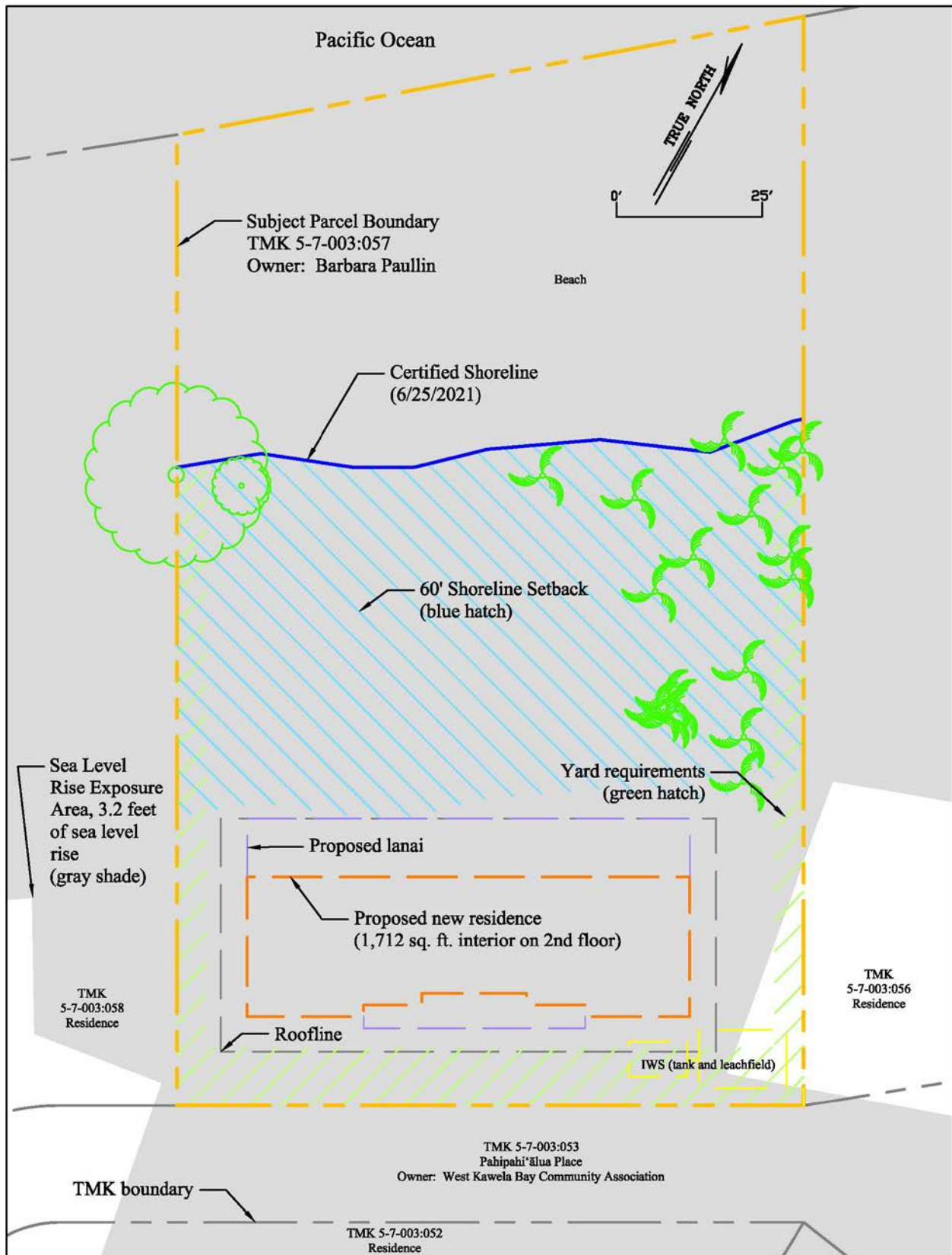
The Paullin Family purchased the property in 2021 with the intention of constructing a single-family residence for their use. A site plan for the proposed project is provided in Figure 2.5. Elevation and rendered views of the proposed structure Figure 2.6 and Figure 2.7, respectively. These figures are provided for quick reference; a set of drawings with additional detail are included in Appendix B. All figures and plans are conceptual at this stage of the project’s development. Plans will be refined based on review comments and owner desires; however, substantial modifications to the design are not anticipated. The following subsections provide additional detail on various elements of the proposed development.

2.3.1 PRIMARY COMPONENTS

The primary proposed project components consist of the applicant:

- Demolishing and removing the (Figure 2.1):
 - 656 square foot primary dwelling.
 - Existing Individual Wastewater System (IWS).
 - Nuisance vegetation present on undeveloped portions of the lot.
- Constructing, utilizing, and maintaining a (Figure 2.5, Figure 2.6, and Figure 2.7):
 - Two-story, single-family residence. The ground level will have break-away walls, not be considered living space, and consist of a lanai area, 2-vehicle garage, and storage space. The second level will consist of approximately 1,712 square feet of interior space, including 2 bedrooms and 2.5 baths, a small lanai facing the road, and a larger lanai facing the ocean.
 - New IWS near the parcel’s boundary with Pahipahi‘ālua Street.
 - Driveway connecting the garage with Pahipahi‘ālua Street.

Figure 2.5: Proposed Site Plan with Proposed Shoreline Certification and Setbacks



Source: PSI and Welch and Weeks Architects

Figure 2.6: Elevation View



Note: View is from the road toward the ocean.
Source: Welch and Weeks Architects

Figure 2.7: Rendering of Proposed Project



Note: View is from ocean side of parcel toward the road.
Source: Welch and Weeks Architects

The design of the proposed structures is intended to maintain a low profile and a Hawaiian sense of scale and place, harmonized with the character of the residential community along Pahipahi‘ālua Street. The inhabitable interior space of the new residence will be elevated roughly 8 feet above grade so that the bottom of the floor structure is above the Base Flood Elevation (BFE), which is 18 feet above MSL. All new structures will conform to all applicable regulations and standards, to the maximum extent practicable. For example, the new residential structures will be outside of all yards and setbacks, including a 60 foot shoreline setback,¹ be less than the applicable height limit of 30 feet; and not exceed the allowable building area (Section 4.2.3 and 4.2.4).

¹ The current shoreline setback (defined in ROH Chapter 23) is 40 feet. This project is using a 60-foot setback for reasons detailed in Section 4.2.4.

2.3.2 ACCESSORY COMPONENTS

The following accessory components will be constructed and maintained as needed and/or per manufacturer’s recommendations. As these components are either at the ground surface or installed in the subsurface, they may require maintenance following storm events, tsunamis, or other stochastic events. This will be conducted, as necessary, to ensure proper operation and good condition.

Parking. The central space under the residence will be finished as a two-vehicle garage with a concrete slab on grade with breakaway walls (Figure 2.6). This will be the primary parking for residence inhabitants.

Driveway. There will be roughly 20 feet of space between the road and the garage (Figure 2.5). Just over half of that distance will be under roof. The driveway between the road and garage will be perpendicular to the road and garage, straight, roughly 24 feet wide, and finished with gravel similar to the street.

Fence/Gate. Fences already exist along the sides of the parcel. A new 6-foot tall fence will be erected along the roadway. The new fence will connect to the two side fences. A gate will be placed at the driveway for access.

Wastewater System. Project plans call for installation of an HDOH-permitted (Section 1.3) IWS for the new residence. Wastewater will be piped to an underground IWS, located near the property boundary along Pahipahi‘ālua Street for ease of access (Figure 2.5). The IWS will consist of a new septic tank and leach field that will be located between the residence and Pahipahi‘ālua Street. The IWS will be roughly 150 feet from the Pacific Ocean and 70 feet from Kapi Pond.

Stormwater System. A subsurface drainage system, including a drywell, will be installed and stormwater from roof downspouts will be directed to it.

Landscaping. The existing landscape will be retained, to the extent possible. Additional landscaping may be added; however, the bulk of the lot will be planted and maintained as a lawn. A sprinkler system will be installed to provide irrigation for the landscaping. Landscaping and irrigation will be installed and operated in a manner that confines new plantings and irrigation water to the area mauka of the certified shoreline and does not create a public nuisance by inducing vegetation makai of the certified shoreline in a beach transit corridor.

2.3.3 DESCRIPTION OF PROPOSED CONSTRUCTION

The proposed demolition and construction can be accomplished with standard construction equipment; no novel equipment or techniques are required to complete the project. Little or no grading will be required; however, some trenching and excavation will be required for: (i) the concrete foundation; (ii) the IWS; and (iii) utility connections (e.g., water pipes and lawn sprinklers). Best Management Practices (BMPs) will be implemented throughout the entire process from demolition through construction to prevent fugitive dust from leaving the site and unmanaged storm water from discharging into waters of the State of Hawai‘i. Physical BMPs will include:

- A stabilized construction site ingress and egress.

- The use of silt fences and/or silt socks to manage storm water runoff.

The plans submitted to obtain building permits will detail the BMPs for erosion and sediment control. Administrative BMPs will include the application of water to control dust during demolition; protocols regarding equipment fueling, materials storage, and waste management; maintaining a petroleum spill kit on site; and policies regarding limiting the disturbance area and stabilizing disturbed areas. There are no storm drains in the project area.

The construction will employ traditional trades (e.g., carpentry, electricians, plumbers, laborers) and will be carried out during normal business hours. All construction staging will occur on-site. Materials will be delivered in phases, as needed, as the construction progresses. Workers will be informed that nearby Kapi Pond is a sensitive resource and that care should be taken at all time to avoid impacts to it by not parking or placing materials within 30 feet of the pond or entering the pond for any reason, including swimming or fishing, without the pond owner’s permission.

Notification of residents along Pahipahi‘ālua Street and the community association will be initiated prior to commencing construction activities. Worker travel and parking will also be coordinated to either occur on-site or in appropriate nearby areas.

An archaeological monitor will be present on-site to observe all ground-disturbing activities to ensure that any archaeological resources inadvertently encountered during construction are properly identified and managed (Section 3.2.3).

2.3.4 PRELIMINARY SCHEDULE

The Paullin Family intends to complete all phases of the proposed residential project, including obtaining all required permits and approvals, demolition, and reconstruction as expeditiously as practicable. The major project-related tasks, and their preliminary schedule for completion, are presented in Table 2.1 below.

Table 2.1: Preliminary Schedule for the Proposed Action

<i>Task</i>	<i>Estimated Start Date</i>	<i>Estimated Completion Date</i>
Pre-Environmental Assessment Scoping	12/20/2021	1/20/2022
Shoreline Certification		6/25/2021
Environmental Assessment	1/20/2022	8/2022
Special Management Area – Major Permit	8/2022	11/2022
Other Permitting, Construction Bidding, and Contractor Selection	11/2022	5/2023
Demolition and Removal	5/2023	6/2023
Construction	6/2023	6/2024

Source: Compiled by Planning Solutions, Inc.

2.3.5 ESTIMATED PROJECT BUDGET

The estimated project cost is \$1.7 million..

2.4 PROJECT ALTERNATIVES

2.4.1 FRAMEWORK FOR CONSIDERATION OF ALTERNATIVES

Title 11, Chapter 200.1, HAR contains the State of Hawai‘i, Department of Health (HDOH) environmental review rules. HAR, §11-200.1-9 deals with applicant actions such as the proposed project. It requires that, for actions not exempt, the applicant must consider the environmental factors and available alternatives and disclose those in an EA or Environmental Impact Statement (EIS). HAR §11-200.1-18 establishes the process for the preparation and content of an EA. Among the requirements listed, HAR §11-200.1-18(d)(7) requires the identification and analysis of impacts of alternatives considered during project planning.

In accordance with those requirements, the Paullin Family has considered a number of alternatives before determining that the Proposed Action described above is its preferred alternative. The process consisted of formally defining the purpose and need for the project (Section 1.1), identifying other ways in which those objectives might be achieved (i.e., alternatives, including those specifically recommended by HRS, Chapter 343 and HAR §11-200.1), and evaluating each alternative with respect to the project’s objectives. Possibilities considered included the “No Action Alternative,” alternative locations, alternative configurations for the project, alternative scales for the proposed project, and alternative timing (i.e., delayed action).

2.4.2 ALTERNATIVES FOR DETAILED CONSIDERATION

The Paullin Family has concluded that the only alternatives that merit detailed consideration in this EA are:

- The Proposed Action Alternative, described previously in this chapter. The Paullin Family has concluded that constructing and occupying facilities at the proposed site on its present timeline would enable it to best meet its purpose and need as described in Section 1.1. Thus, the Proposed Action represents its preferred alternative.
- The No Action Alternative. Under the No Action Alternative, existing conditions on the project parcel would not be changed. No attempts would be made to remove the structures present on the site, and no new construction would occur there. While the No Action Alternative does not meet the project’s purpose and need as defined in Section 1.1, it is considered here pursuant to the recommendations of HRS, Chapter 343 and HAR §11-200.1, and to provide a baseline for comparison and contrast with the action alternative (i.e., the Proposed Action).

Only these two alternatives will be analyzed in Chapters 3 and 4.

2.4.3 ALTERNATIVES CONSIDERED BUT REJECTED

The following subsections briefly describe the other alternatives considered and the factors that were used to decide that they should be excluded from detailed consideration.

2.4.3.1 Restoration of Existing Residence

Despite being nearly 80 years old, the existing residence on the property is adequately maintained. However, the structure is very small (656 square feet) and not all aspects of it meet current code. Because the size of the structure is not adequate to meet their needs, the Paullin Family has concluded that investing in renovations to bring the residence into compliance would be relatively costly and would not deliver a satisfactory outcome. This situation has led them to conclude that the Proposed Action (see Section 2.3) is a preferrable course of action. Consequently, the Paullin Family has eliminated the restoration alternative from further consideration and evaluation.

2.4.3.2 Alternative Scale

In considering the residential needs of the project, the Paullin Family considered constructing a single-family residence at the same location, but with an alternative scale. The scale could be larger or smaller than that outlined in Section 2.3. The subject 0.4360 acre (18,992 square foot) parcel, with roughly 12,100 square feet of fast land, is certainly capable of hosting a larger residence. Having evaluated the larger scale possibility, project planners and owners concluded that it would exceed their residential needs and lacked the Hawaiian sense of place and scale that they are trying to create. A smaller structure was determined to be less attractive because it would not provide sufficient space for the family’s residential needs. Therefore, the Paullin Family eliminated these scale alternatives from further consideration.

2.4.3.3 Delayed Action Alternative

As noted previously, HAR §11-200.1 recommends the consideration of a variety of alternatives, including those of a substantially different nature than the Proposed Action, to include alternative timing (i.e., delayed action). The Paullin Family’s Proposed Action is for the sole purpose of developing a residence at 57-321 Pahipahi‘ālua Street, meeting the purpose and need identified in Section 1.1 of this report. As such, the project planners believe that a delayed action alternative may be dismissed out of hand because it would neither address the purpose or meet the needs of the proposed project. Further, to prolong development of the residence would offer no countervailing advantages. For these reasons, the Paullin Family has determined that a delayed action alternative is not a viable option and eliminated it from further consideration in this EA.

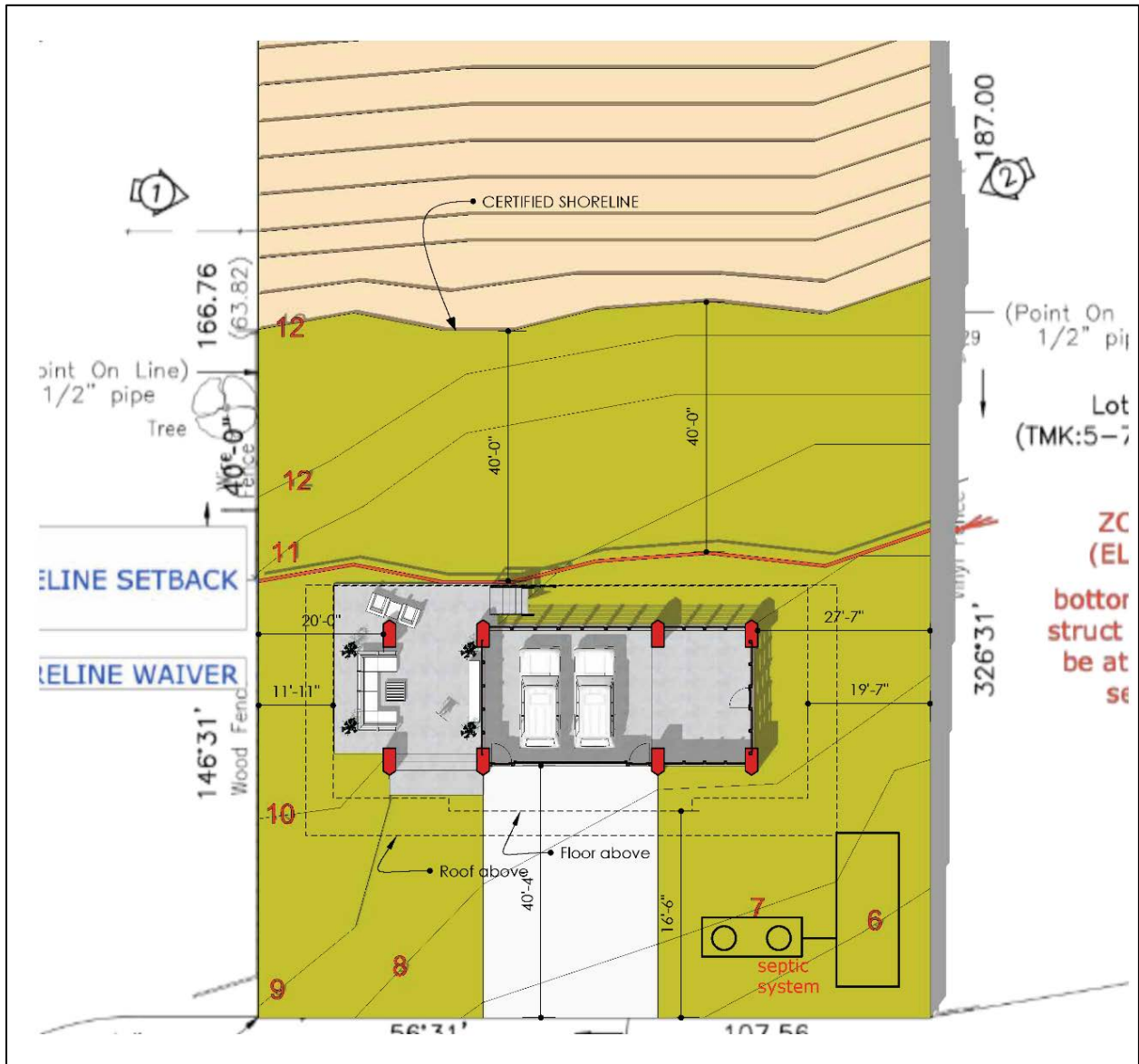
2.4.3.4 Alternative Location

HAR §11-200.1 also recommends the consideration of alternative locations for a Proposed Action. Conceptually, an alternative location can be either an alternate location on the island or selecting an alternate site within the proposed parcel. Related to the first possibility, the determination with regard to alternate locations elsewhere on the island was made, in effect, when the Paullin Family acquired TMK No. 5-7-003:057. The Paullin Family did so in the belief that this site possesses all of the characteristics which make it a desirable location for the proposed project, and that other available sites did not possess the same combination of characteristics which make the current location ideal for the proposed use. Having now purchased the property, which possesses the appropriate underlying zoning and other characteristics, no advantage can be identified to further investigate alternative properties.

However, in recognition of their property’s projected exposure to sea level rise hazards, the Paullin Family has also considered locating all planned development as far mauka and on the highest area of elevation found on the lot. Complicating this approach is the topography of the site, as shown in Figure 2.1, which rises in elevation as one moves closer to the shore and descends several feet as one moves towards Pahipahi‘ālua Street. Thus, two possibilities exist: (i) moving the development further from the shore and seeking the highest elevation area further from the shore – the southwestern corner of the property; or (ii) moving the proposed development higher in elevation and closer to the shore. In exploring the first possibility, shifting the proposed development further from the shore to the far southwest corner of the property, the lot offers limited space for such a shift; the structure could only be shifted approximately 5.25 feet inland and 7 feet to the west of its proposed location shown in Figure 2.1. The Paullin Family considered this possibility vis-à-vis the coastal hazards discussed in Chapter 3 and concluded that such a move would not substantially reduce the project’s susceptibility to tsunami, flooding, high wave, sea level rise, erosion, volcanic, or seismic hazards. Such a location’s impacts on all resources and from the various hazards would be nearly identical to the Proposed Action and they would be less than significant. In the absence of any clear advantages to such a move, the Paullin Family determined that this approach did not have merit and will not be considered further in this document.

The Paullin Family considered the second possibility: an alternative which prioritized elevating the proposed single family residence to the highest point possible on the property, abutting the current 40 foot shoreline setback area. One such configuration of the property under this scenario is shown in Figure 2.8. While other potential configurations for the single-family residence could also be considered, with varying orientations for the driveway, garage, and IWS, these would not affect the fundamental viability of such an alternative. When considering this alternative vis-à-vis the coastal hazards discussed in Chapter 3, the Paullin Family concluded that such a move would, if anything, increase the project’s susceptibility to tsunami, flooding, high wave, sea level rise, erosion, volcanic, or seismic hazards, and consequently was not a viable alternative that warranted detailed consideration in this document.

Figure 2.8: Maximum Elevation Alternative



Source: Welch and Weeks (2021)

3 EXISTING ENVIRONMENT, POTENTIAL IMPACTS, AND MITIGATION

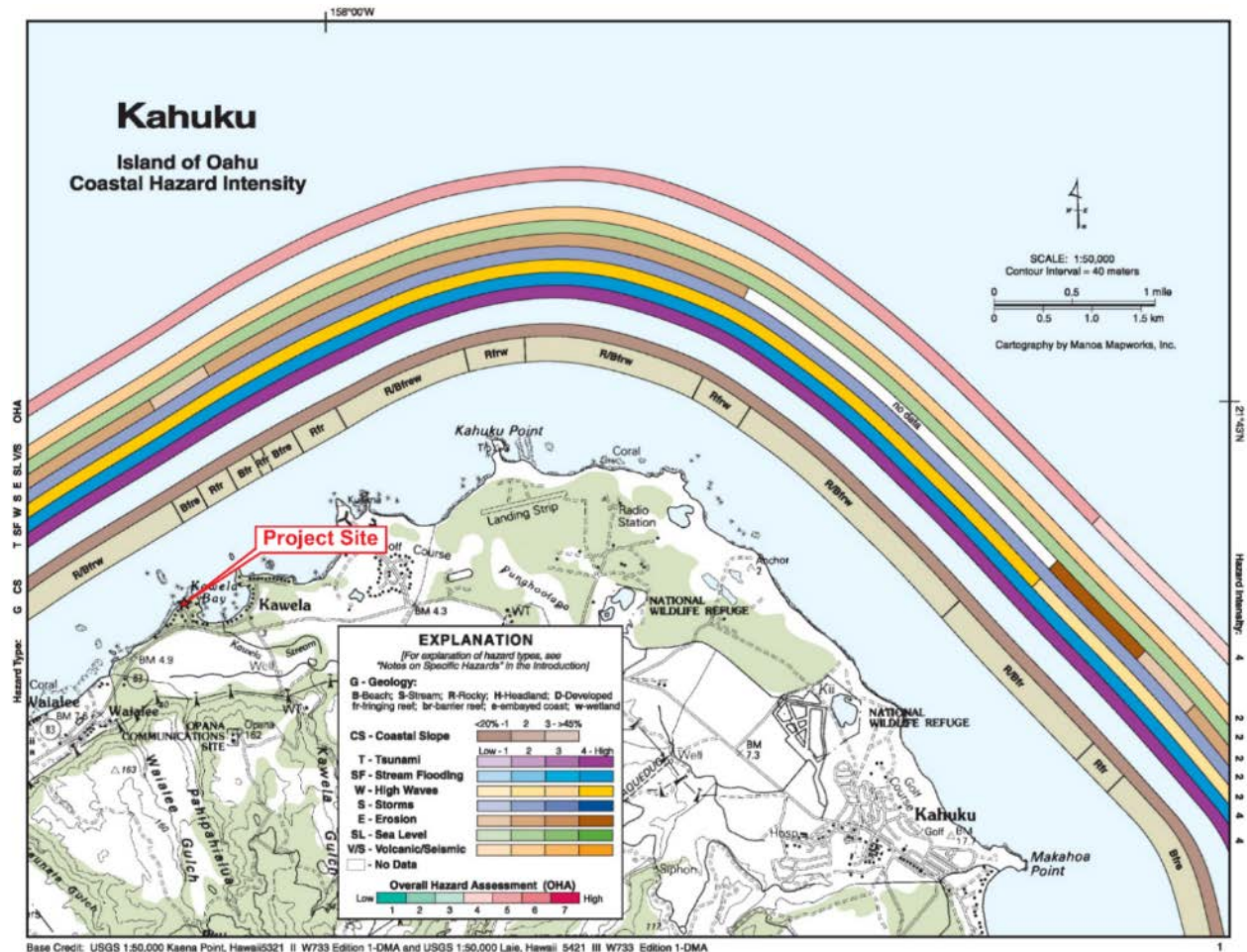
This chapter describes the potential environmental effects of the Proposed Action and the No Action Alternative, as described in Chapter 2. This chapter is organized by resource category (e.g., coastal hazards, archaeological and cultural resources, etc.). The discussion under each topic includes: (i) an overview of existing conditions on the project site; (ii) the potential environmental impacts that may occur as a result of implementation of one of the alternatives considered in this EA; and, where appropriate, (iii) any measures that the Paullin Family will take to avoid, minimize, or mitigate potential adverse effects. The scale of the discussion is commensurate with the potential for impacts. Where appropriate, the larger environmental context (e.g., the North Shore) is discussed, and in other cases the focus is narrower (e.g., the project site). The discussion of impacts also distinguishes between short-term impacts (i.e., those occurring when construction equipment and personnel are actively implementing demolition and construction processes) and those that may result over the long-term as a result of the project.

3.1 COASTAL ZONE HAZARDS

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) provides an overview of coastal hazards throughout Hawai‘i, including in the vicinity of the project site. It indicates that the conditions and hazards for the Pahipahi‘ālua Street community, including the subject parcel, are as follows (Figure 3.1):

- Geology: Rocky/beach coast with a fringing reef and coastal wetland (R/Bfrw)
- Coastal Slope: 1 (<20%)
- Tsunami Hazard: 4 out of 4, the highest hazard level
- Stream Flooding Hazard: 4 out of 4, the highest hazard level
- High Waves Hazard: 4 out of 4, the highest hazard level
- Storms Hazard: 3 out of 4, medium-high hazard level
- Erosion Hazard: 3 out of 4, medium-high hazard level
- Sea Level Hazard: 3 out of 4, medium-high hazard level
- Volcanic/Seismic Hazard: 3 out of 4, medium-high hazard level
- Overall Hazard Assessment: 5 out of 7

Figure 3.1: Overview of Coastal Hazards



Source: Atlas of Natural Hazards in the Hawaiian Coastal Zone (USGS, 2002)

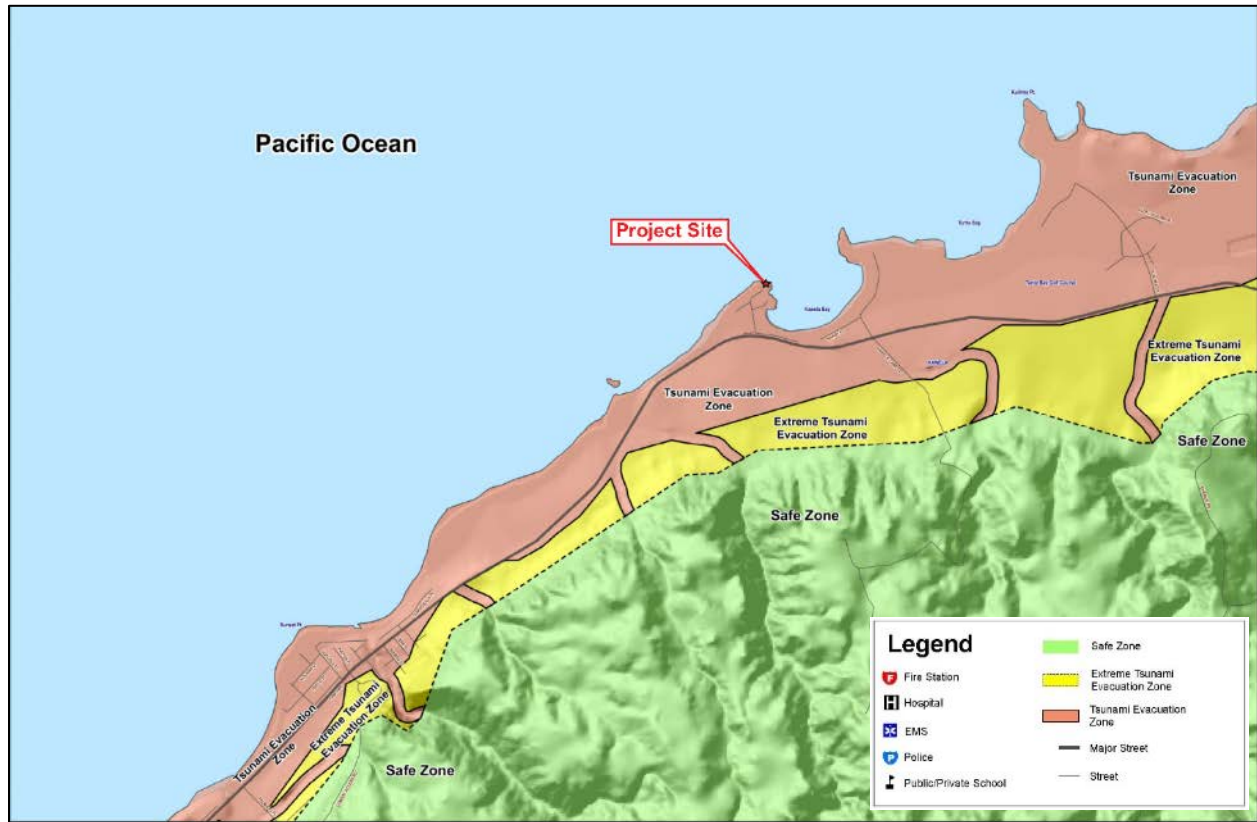
The Overall Hazard Assessment is moderate to high (5) from Waiale‘e around Kahuku Point to just north of Kahuku town, while south to Makahoa Point, where the wave energy is lower, it is reduced to moderate (4). The following subsections consider these hazards in more detail, then the impacts are discussed (Section 3.1.8), and finally, the avoidance, minimization, and mitigation measures are presented (Section 3.1.9).

3.1.1 TSUNAMI HAZARD

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) indicates that “The tsunami and stream flooding hazards are ranked high along the entire Kahuku coastline. During the 1946 and 1957 tsunamis, flood inundation heights of 27 and 23 ft were recorded at Kahuku Point.”

The subject site is within the tsunami evaluation zone as illustrated on Figure 3.2.

Figure 3.2: Tsunami Evaluation Zone



Source: http://www.honolulu.gov/rep/site/dem/dem_docs/tsunami_evac/etez_final/Malaekahana_to_Sunset_Beach_map11_inset2.pdf
(downloaded December 17, 2021)

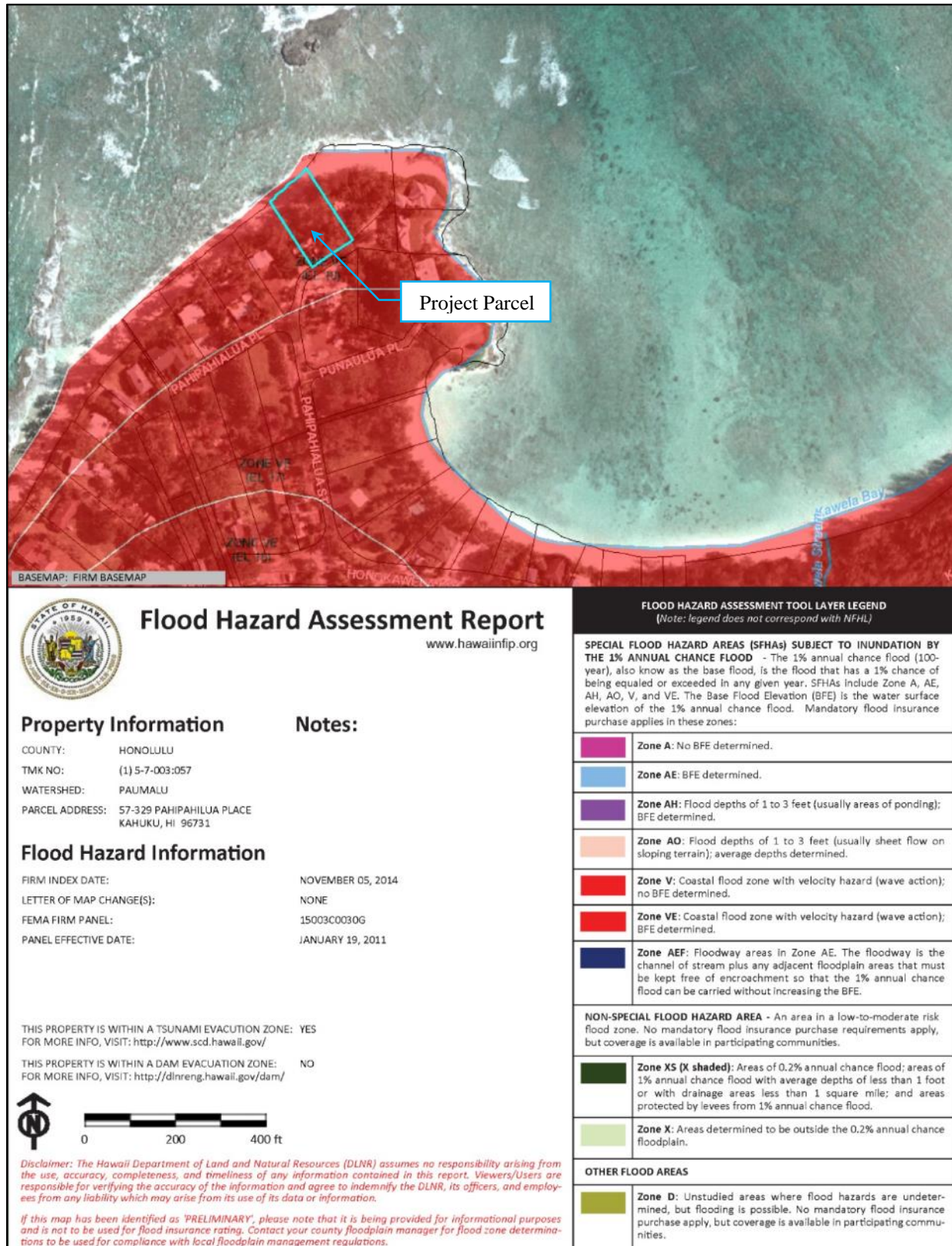
3.1.2 FLOODING HAZARDS – TSUNAMI, STREAMS, & STORMS

The National Flood Insurance Program, administered by the Federal Emergency Management Agency (FEMA), maintains floodplain and flood hazard maps for use in determining a reference height that allows property insurance companies to assess flood risk, known as the BFE. Along the coastline of the North Shore of O‘ahu, Hawai‘i, the greatest 1 percent annual flood risk is considered by FEMA to be associated with tsunami wave inundation, and not from storm surge or stream flooding.

The project parcel is entirely in the VE zone, which indicates a 100-year coastal flood zone that have additional velocity hazards associated with waves (including tsunami runup) (Figure 3.3). The BFE has been determined in this zone and is 18 feet across the entire parcel, including the portion where structures are proposed.

The project parcel is located roughly 1,200 feet from Kawela Stream, to the southeast, and two miles from Paumalu Stream to the southwest. These are relatively small streams and runoff flowing down them, even during high flow, is not expected to affect the parcel, or, if they do, the flood elevation would be lower than the BFE identified above.

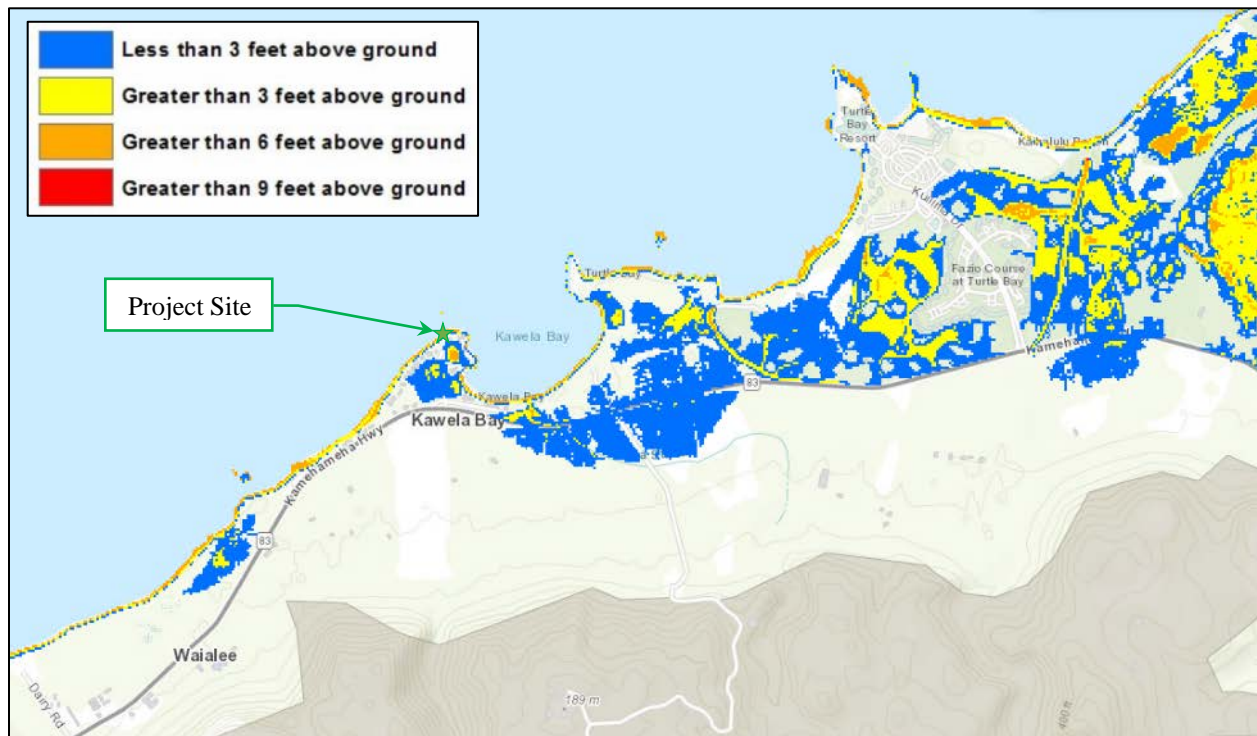
Figure 3.3: Flood Zone Assessment Report



Source: State of Hawai'i, Department of Land and Natural Resources, Flood Hazard Assessment Tool. <http://gis.hawaiiinfip.org/FHAT/> (Accessed December 17, 2021)

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) set the storm hazard level at the project site at 3 out of 4 (medium-high; see Figure 3.1). The Atlas’ hazard ranking for storms is primarily associated with the storm surge and high wind hazards. The medium-high ranking is primarily associated with the relatively modest predicted storm surge in the area. According to the National Oceanographic and Atmospheric Agency (NOAA) National Storm Surge Hazard Maps (Figure 3.4), no portion of the Pahipahi‘ālua Street community would likely experience a storm surge of more than 9 feet during a Category 4 hurricane (see Section 3.1.4 for further discussion of storms). Therefore, storm surge in the area is anticipated to be far below the BFE at the project site.

Figure 3.4: Storm Surge Hazard, Category 4 Hurricane



Source: <https://www.nhc.noaa.gov/nationalsurge/> (downloaded December 21, 2021)

3.1.3 HIGH WAVES HAZARD

As stated in Section 3.1.1, the *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) indicates that “The hazard associated with high waves is ranked high around the entire Kahuku Point, but is reduced to moderately low southeast of the Point where the coast is partly sheltered from north swell.” Property owners and architects that have managed construction on Pahipahi‘ālua Street ocean front parcels in the past have reported that high waves occurring as part of large north to northwest swells in the winter periodically top the coastal sand berm and run onto the landscaped portions of those shoreline parcels. The frequency of such occurrences is unknown.

The *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report* (Hawai‘i Climate Change Mitigation and Adaptation Commission (HCCMAC), 2017) included numerical modeling to estimate the potential impacts that a 0.5, 1.1, 2.0, and 3.2-foot rise in sea level would have on coastal hazards, including annual high wave flooding. Those heights of sea level rise are predicted to occur in 2030, 2050, 2075, and 2100, respectively. The HCCMAC report indicates that the

annual high wave model considers the historical record of wave heights recorded at offshore buoys around the islands and accounts for different exposures (e.g., north shore vs. south shore). It does not consider potential changes in wave conditions due to changing storm patterns, effects of storm surge, more extreme yet less frequent wave events, or tsunamis. Furthermore, it does not consider changes in shoreline location due to coastal erosion. Modeled flood depths of less than 4 inches (10 centimeters) were not included.

Figure 3.5 shows the annual high wave flooding exposure area in the vicinity of the project area with 0.5 feet of sea level rise; Figure 3.6 shows both the 1.1 and 2.0 foot of sea level rise scenarios; and Figure 3.7 shows the annual high wave flooding exposure area in the vicinity of the project area with 3.2 feet of sea level rise (a sea level rise that is not expected to occur until 2100).

Figure 3.5: Annual High Wave Flooding in Project Area under a 0.5-foot Sea Level Rise Scenario (2030)



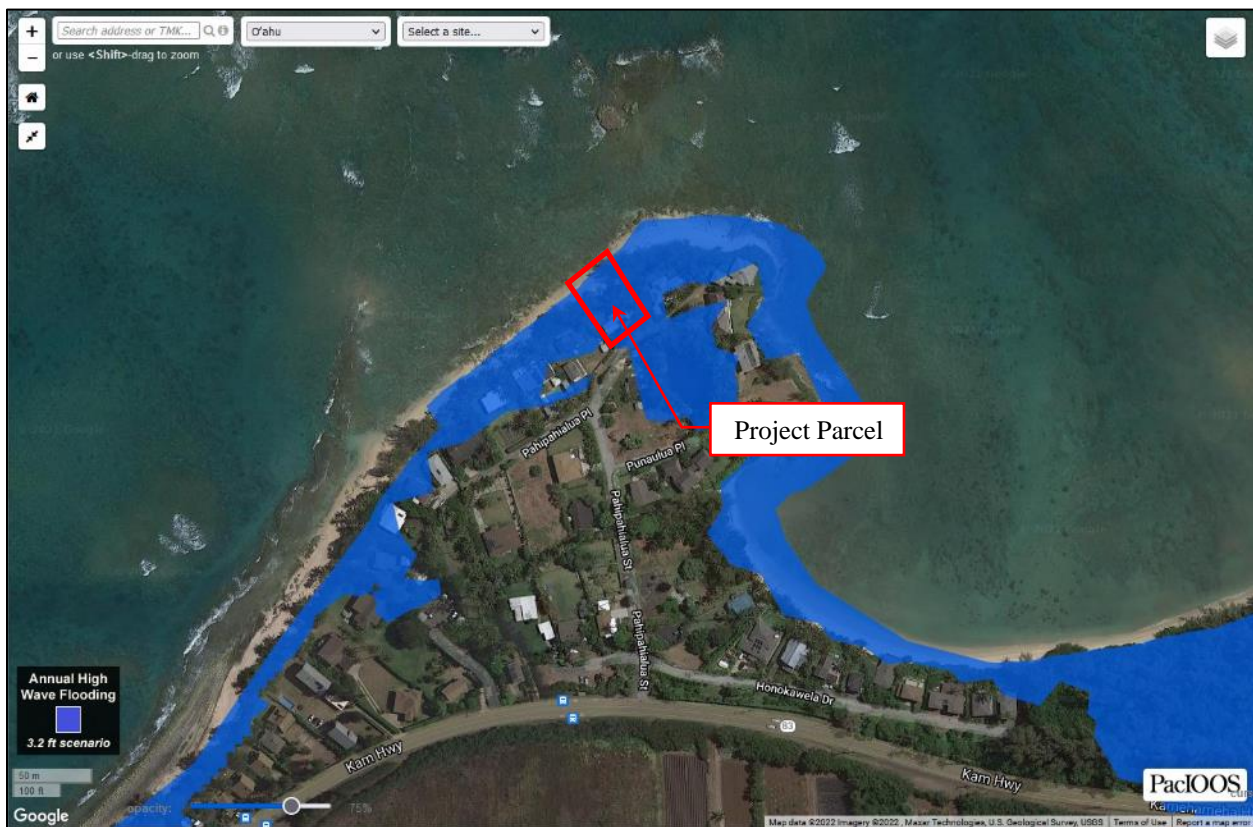
Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed January 6, 2022).

Figure 3.6: Annual High Wave Flooding in Project Area under a 1.1-foot (2050), and 2.0-foot (2075) Sea Level Rise Scenarios



Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed January 6, 2022).

Figure 3.7: Annual High Wave Flooding in Project Area under a 3.2-foot Sea Level Rise Scenario



Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed January 7, 2022).

As shown in Figure 3.5, Figure 3.6, and Figure 3.7, a gradually increasing portion of the project parcel is modeled to be affected by sea level rise and annual high wave flooding between now and

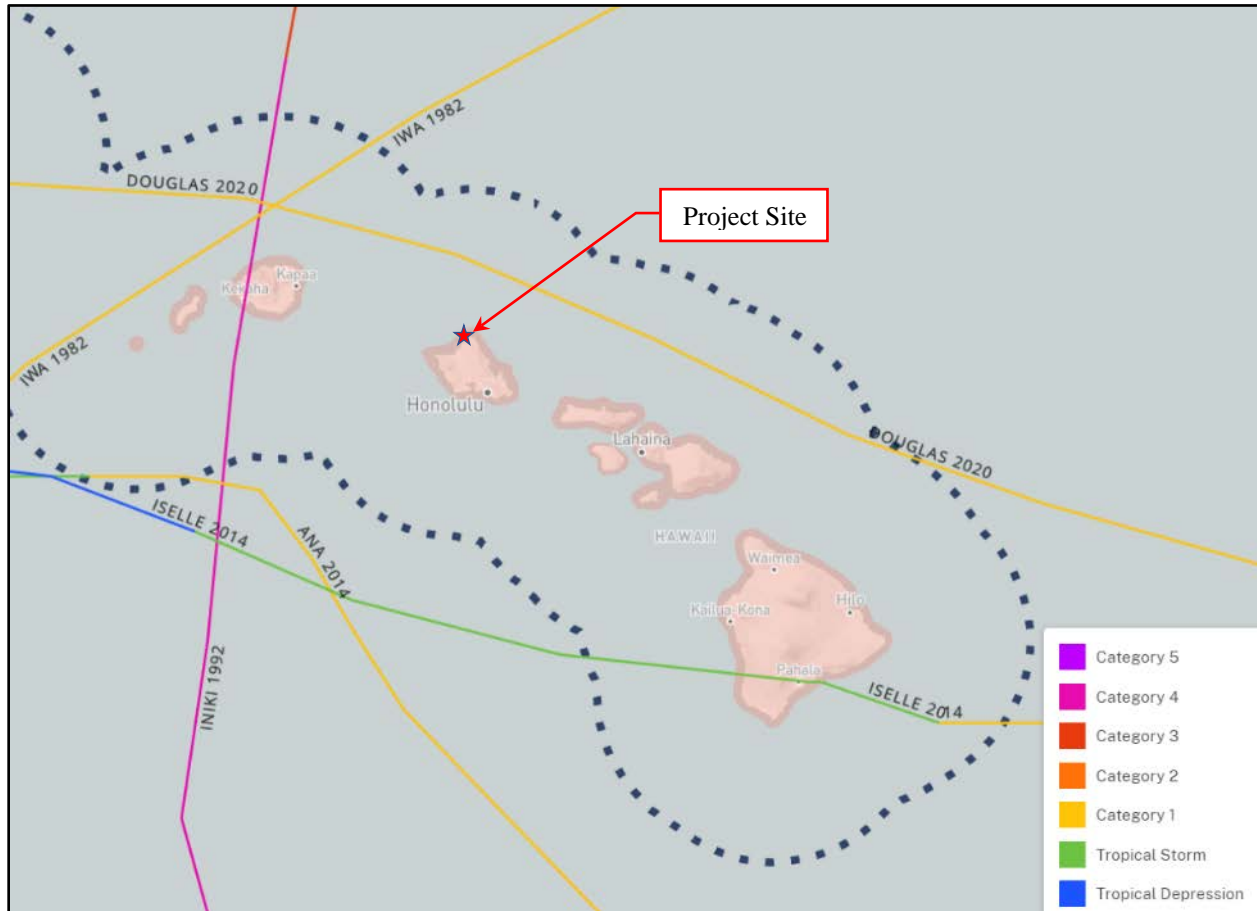
2100. While only the makai portion of the parcel is expected to be impacted under typical circumstances, the parcel does have the potential to be impacted by annual high wave flooding as sea levels rise. As mentioned above, such high wave flooding is occurring periodically now; this modelling suggests that the frequency of such flooding and the portion of the subject parcel affected will gradually increase as sea levels rise.

3.1.4 STORM HAZARD

The official Central Pacific Hurricane Season runs from June 1 through November 30; the primary hurricane season in Hawai‘i is considered July through September. During this period, tropical storms generally form off the west coast of Mexico and move westward across the Central Pacific. These storms typically pass south of the Hawaiian Islands and sometimes have a northward curvature near the islands. Late season tropical storms follow a somewhat different track, forming south of Hawai‘i and moving north toward the islands. When these storms generate sustained wind speeds over 64 knots (74 mph) they are hurricanes. A handful of hurricanes have passed within 60 miles of the main Hawaiian Islands in the past 40 years (Figure 3.8):

- Iwa in 1982 (Category 1)
- Iniki in 1992 (Category 4)
- Iselle in 2014 (Category 1)
- Ana in 2014 (Category 1)
- Douglas in 2020 (Category 1)

Figure 3.8: Hurricanes Within 60 Miles of the Main Hawaiian Islands (1980-2020)



Source: <https://coast.noaa.gov/hurricanes/#map=4/32/-80> (accessed September 16, 2021).

The damage and injury associated with these meteorological phenomena is the result of high winds, marine overwash (i.e., storm surge), heavy rains, tornadoes, and other intense small-scale winds and high waves. The intensity of the hazard is typically proportional to the proximity (distance) from the storm and the intensity (category) of the storm. The *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) set the storm hazard level at the project site at 3 out of 4 (medium-high; see Figure 3.1). The Atlas' hazard ranking for storms is primarily associated with the storm surge and high wind hazards. As detailed in Section 3.1.3, the storm surge is not anticipated to exceed 9 feet for a Category 4 hurricane; if the storm surge was predicted to exceed 10 feet, then the hazard ranking would be higher.

3.1.5 EROSION HAZARD

Factors that contribute to coastal erosion and beach loss include:

- Construction of shoreline hardening structures, which, while limiting coastal land loss landward of the structure, does not alleviate beach loss and may accelerate erosion on the seaward side of the structures by reducing sediment deposition.
- Reduced sediment supply either from landward or seaward (primarily reef) sources. Obvious causes, such as beach sand mining and structures that prevent natural access

to back-beach deposits, remove sediment from the active littoral system. More complex issues may be related to reef health and carbonate production which, in turn, may be linked to changes in water quality.

- Large storms, which can transport sediment beyond the littoral system.²
- Sea level rise, which leads to a landward migration of the shoreline.

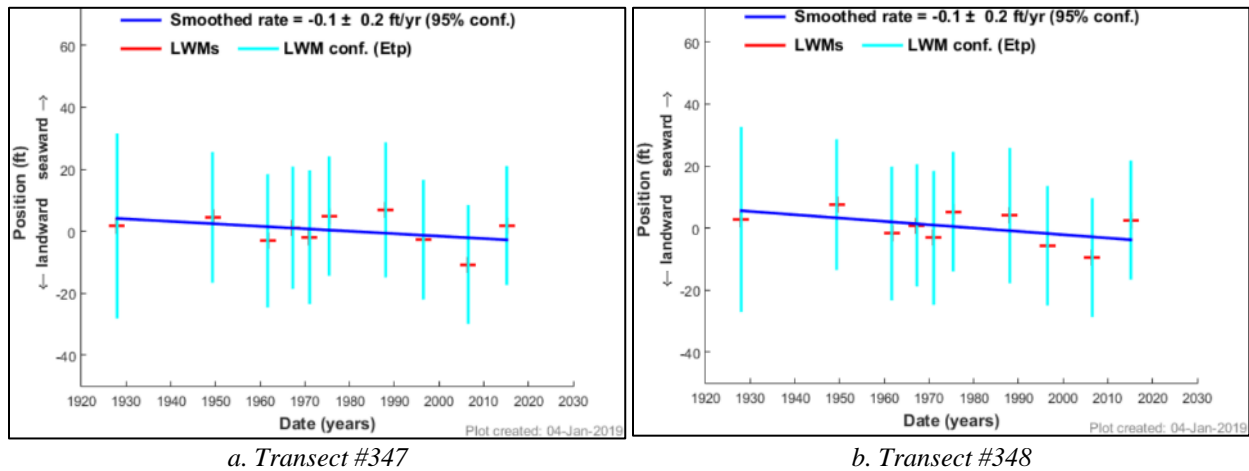
Chronic long-term shoreline erosion generally represents permanent shoreline recession and land losses and is often manifested in the form of seasonally or episodically recurring erosion events from which the shoreline never fully recovers. This means that erosion may occur during a certain season of the year and accretion may occur during another season of the year but over the years the net result is a gradual shoreline retreat.

The Coastal Geology Group in the School of Ocean and Earth Science and Technology at the University of Hawai‘i (UH) developed a web map that provides information from their Hawai‘i Shoreline Study. As part of the study they developed “Future Erosion Hazard Zones,” which are lands that are projected to be vulnerable to erosion by a specified year and associated height of sea level rise. The UH model considered both historic shoreline change data and modeled responses of the beach profile to increased sea level. The historic erosion rate was calculated by measuring changes in the location of the low-water mark feature (or “beach toe”) at the seaward edge of the beach. The low-water mark was used because it is more readily identified in historic aerial photographs than the vegetation line, which can be obscured by the tree canopy and other features. UH indicates that there is an 80 percent certainty that the area landward of the modeled coastal erosion area will be safe from erosion at the specified sea level rise scenario.

However, the model does not consider changes in erosion behavior due to the presence of existing seawalls or other coastal armoring; thus, if armoring structures exist (which it does not in this case), the erosion projection often extends well landward of them. Further, the model does not consider: (i) likely increases in wave energy propagating across the fringing reef as sea levels rise, (ii) potential changes in reef accretion, (iii) possible changes in nearshore sediment processes, or (iv) potential changes in sediment supply from future shoreline development and engineering. The coastal erosion hazard is based on the assumption that erodible sands extend inland beyond the vegetation line. As sea level rise causes the shoreline to retreat, beach loss may be offset by two factors: (i) the absence of a hardened shoreline that would prevent natural migration, and (ii) backshore geology predominantly composed of unconsolidated sand that feeds the beach. Figure 3.9 provides the output from the website for the area of the subject project.

² The littoral system is the area from the landward edge of the coastal upland (e.g., the certified shoreline) to the seaward edge of the nearshore zone (e.g., the edge of the shallow fringing reef).

Figure 3.10: Waiale‘e, Transects #347 and #348, Low Water Mark



Source: https://www.soest.hawaii.edu/coasts/ArcOnline/Oahu/TransectPlots/FEET/Waialeale_FEET_347.png and https://www.soest.hawaii.edu/coasts/ArcOnline/Oahu/TransectPlots/FEET/Waialeale_FEET_348.png, accessed January 28, 2022.

The historic low water level marks and vegetation lines, which are based on aerial photos from 1928 through 2006, are fairly tightly grouped (Figure 3.10). The uncertainty related to UH’s placement of the historic lines results in the 95 percent confidence interval for shoreline erosion ranging from +0.1 to -0.3 foot/year.³ The tight grouping of the historic lines and erosion rate confidence interval suggest that the fact the subject parcel extends to roughly the current water line is a result of the way the parcel was drawn when it was created. It is not due to shoreline erosion occurring after the parcel was established. The TMK map does not note how the seaward extent of the parcel was established, but neighboring TMK Plat 5-7-005 states that the makai boundary of shoreline parcels in that plat “follows along Highwater Mark (Vegetation Line) at Seashore as of July 11, 1983.” The shoreline parcels along Pahipahi‘ālua Place and Street (plat 5-7-003) extend roughly 57 feet further makai than the parcels on Plat 5-7-005. The shoreline survey conducted for the subject parcel in 2021 (Appendix C) found that the distance between the certified shoreline and the makai extent of the TMK is roughly 57 feet.

As shown in Figure 2.4, the beach fronting the subject parcel does not show extensive signs of active shoreline erosion. Evidence that the beach and shoreline are stable include (i) the beach is gently and evenly sloped, (ii) the rack line is below the vegetation line, (iii) the vegetation along the shoreline is healthy (despite a lack of irrigation on the subject parcel), (iv) there is a relatively smooth and gradual transition from the sandy beach to the landscaped portion of the parcel, (v) there is low natural berm behind the vegetation line, and (vi) no property owners along this stretch of shoreline have attempted to install shoreline protection devices or harden the shoreline and none of the structures, several of which have been present since the 1940s, are threatened by shoreline erosion. The fact that the near shore berm (discussed further in Section 3.6) is relatively low is likely a result of the broad shallow reef just offshore, which dissipates wave energy before it reaches the beach. Furthermore, neighboring landowners who have resided in the area for over 40 years stated that the shoreline has not eroded but does fluctuate slightly with the seasons.

³ A -0.1 foot/year rate of erosion from 1928 through 2022 would result in the shoreline retreating 9.4 feet. At the confidence interval limits (+0.1 and -0.3 foot/year), the shoreline could have accreted 9.4 feet or retreated up to 28.2 feet since 1928.

Nevertheless, there is minor evidence of shoreline erosion stress. Figure 3.11 illustrates that minor evidence – tree roots near the vegetation line/certified shoreline becoming exposed. The bleached nature of some of the exposed root suggest that they have been exposed periodically for years. The fact that not all the exposed roots are bleached suggest that this condition may also be seasonal, the photograph was taken in mid-December following several large winter swells.

Figure 3.11: Minor Evidence of Shoreline Erosion



Source: Planning Solutions, Inc.; all photos dated December 15, 2021.

A characteristic of the subject parcel that UH indicates is likely to influence its vulnerability to coastal erosion is its subsurface geology. The UH model assumes the material behind the existing shoreline consists of erodible sands. The parcels ground surface primarily consists of coralline sand but there is visible evidence at the ground surface that there are substantial subsurface coral formations. Massive corals are clearly evident at the ground surface in the southwestern portion of the site (Figure 2.3, photograph e.). In addition, the U.S. Geological Survey Geologic Map of the Island of O‘ahu (2007) (Figure 3.12), indicates that the subject parcel’s geology consist of reef, not erodible sand. The Geological Survey map shows “beach deposits” as a finger roughly along Pahipahi‘ālua Street that extending into the reef, but hard reef deposits are also evident on the ground surface along the perimeter of Kapi Pond in that area.

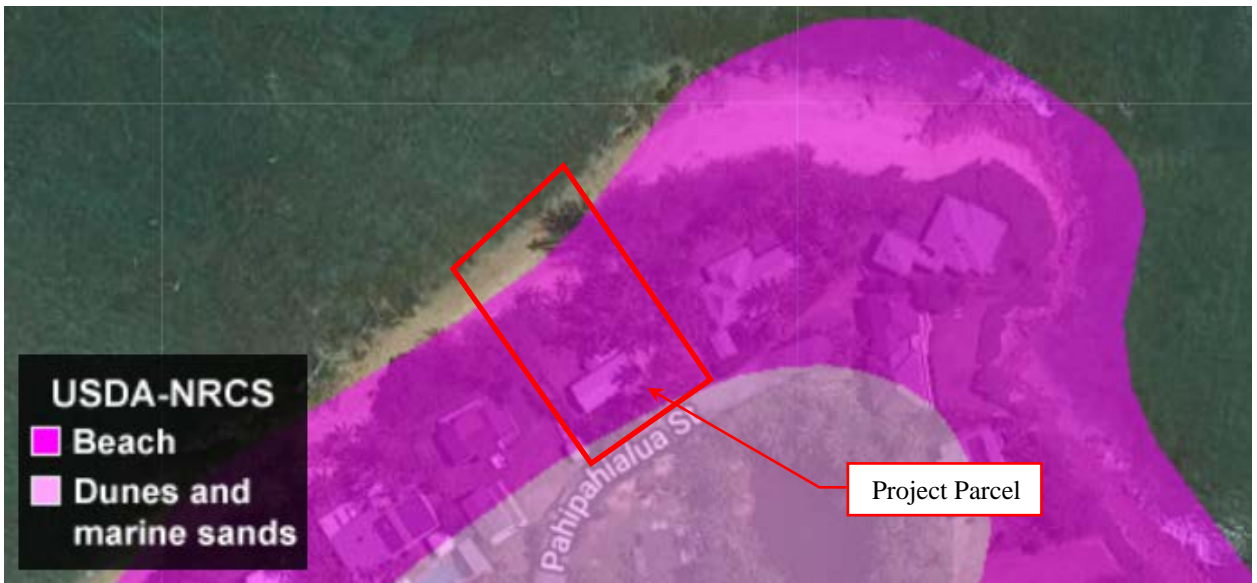
Somewhat in contrast to the Geological Survey map, a U.S. Department of Agriculture, Natural Resources Conservation Service map of “beaches and sand” (Figure 3.13) shows a beach over most of the project parcel and “dunes and marine sands” as a finger roughly along Pahipahi‘ālua Street.

Figure 3.12: U.S. Geological Survey Geology



Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed January 6, 2022).

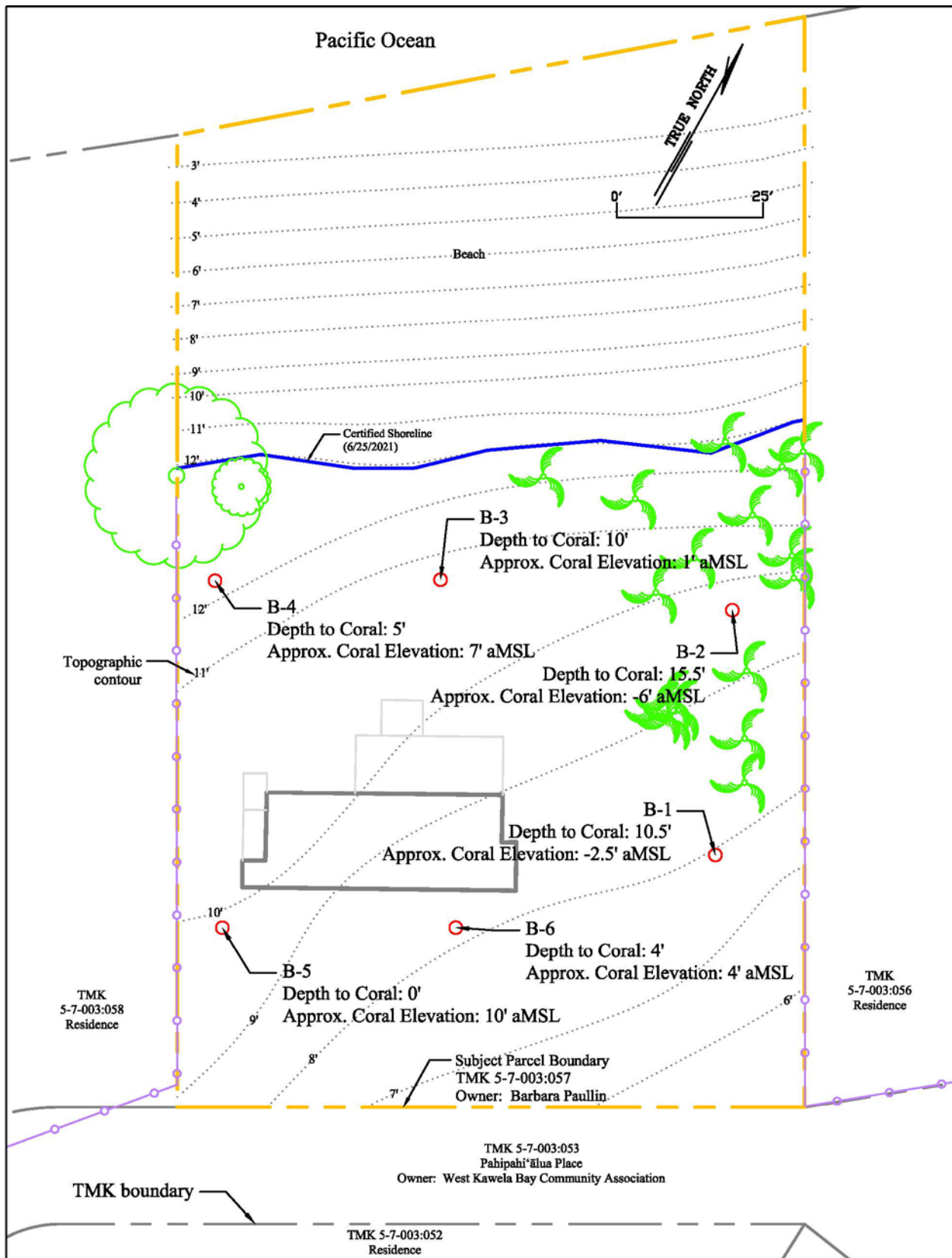
Figure 3.13: U.S. Department of Agriculture Beaches and Sands



Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed June 7, 2022).

As part of geotechnical work conducted for the Proposed Action, JPB Engineering, Inc. conducted a series of test borings on the site in February, 2022 that confirmed the presence and depth of coral at various locations throughout the property (Appendix D). The material between the coral and ground surface was predominately sand with some organic clay. Figure 3.14 depicts the boring locations, indicates the depth at which coral was encountered, and estimates the elevation of the top of the coral.

Figure 3.14: Test Borings with Depth to and Elevation of Top of Coral



Source: JPB Engineering, Inc. (2022) and PSI.

As shown in Figure 3.14, the coral varies from 0 feet below ground/10 feet above MSL at boring B-5 in the southwest corner of the site to 15.5 feet below ground/6 feet below MSL at boring B-2 on the northwest side of the parcel. The coral extended to 20 feet below ground, the maximum depth explored. Although the coral occurs deeper on the eastern side of the property, coral at higher elevations is clearly visible further to the east along the coastline at the mouth of Kawela Bay.

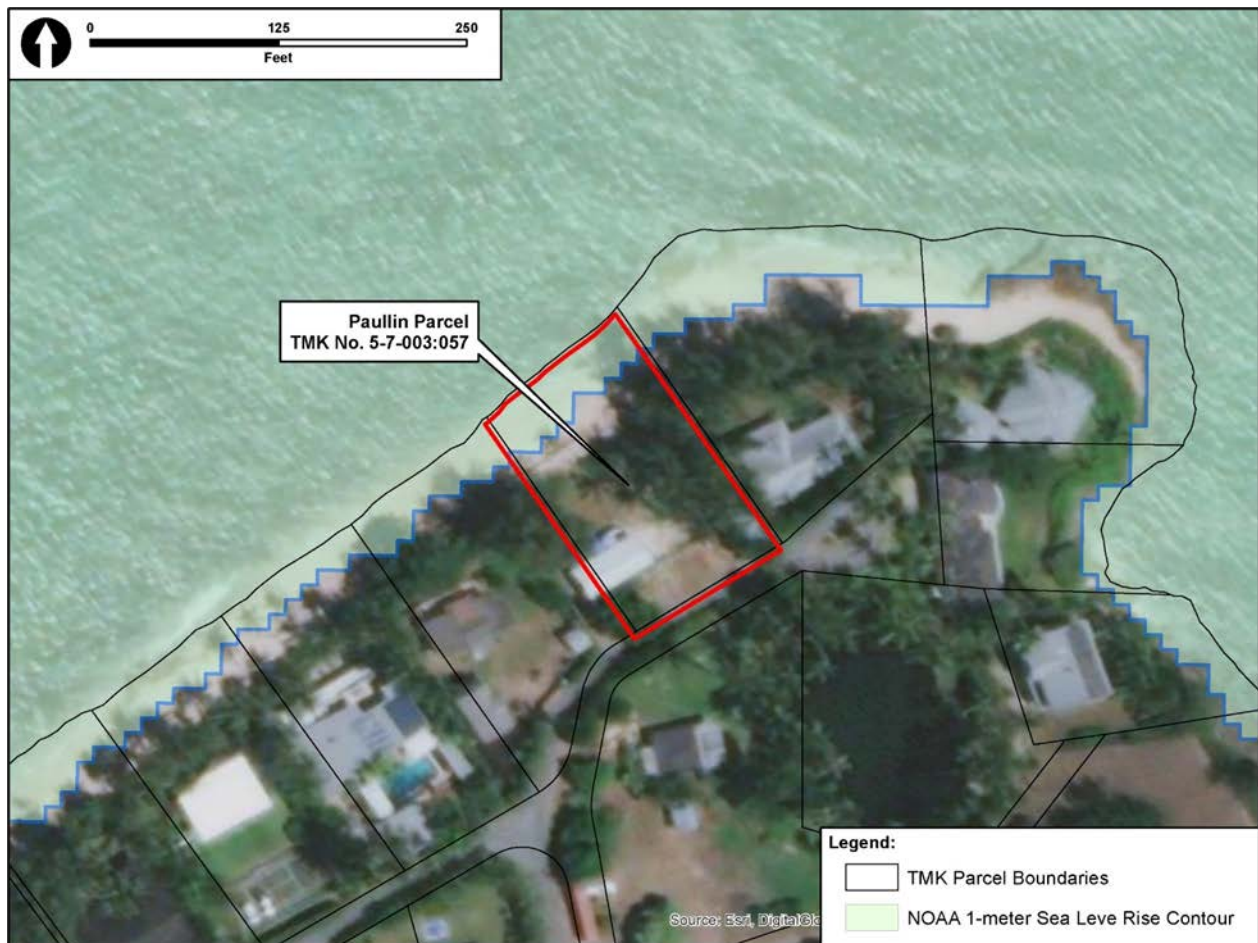
As Figure 3.9 shows, the UH study indicates that under predicted sea level rise scenarios the coastline at the project site is vulnerable to coastal erosion. Vulnerable areas are found along all the shoreline lots of Pahipahi‘ālua Street and Pahipahi‘ālua Place. However, it is critical to note that:

- Evidence presented in this section suggests that subsurface conditions in the area are not consistent with the UH Hawai‘i Shoreline Study assumptions. The study assumes erodible sands extend inland beyond the vegetation line but there are multiple lines of evidence that indicate hard corals are present. Thus, the parcel is not as vulnerable to coastal erosion as the study projects.
- The most extreme future coastal erosion projections are for scenarios roughly 80 years in the future.

3.1.6 SEA LEVEL RISE HAZARD

The global community of climate scientists has concluded that sea levels are currently rising and that this trend is expected to continue for the foreseeable future. The Intergovernmental Panel on Climate Change (IPCC) has predicted (IPCC, 2013) that the average temperature in the Hawaiian Islands is likely to increase by 0.9° F to 1.7° F (0.5° to 1.5 C°) by 2100, rainfall is likely to decrease by, at most, 10 percent, and sea level could rise between 0.85 to 3.2 feet (0.26 to 0.98 meter). Given that likelihood, it is incumbent upon planners to look at the potential effects this trend could have on development and examine ways in which project designs can accommodate these changes. To partially illustrate the impact of Sea Level Rise (SLR) on the project vicinity, Figure 3.15 depicts the project site superimposed with the NOAA 1 meter (3.2 feet) SLR contour.

Figure 3.15: One Meter SLR Map (2100)

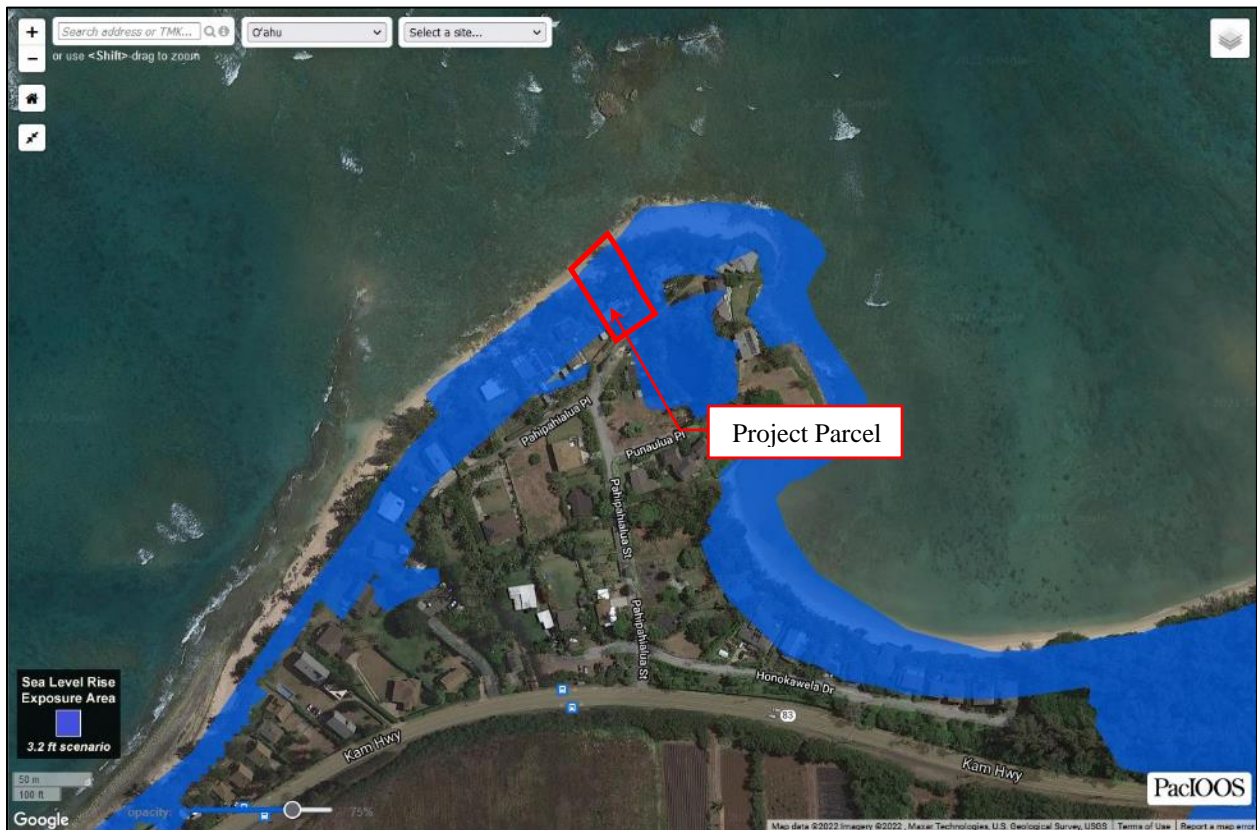


Source: NOAA Office of Coastal Management (2016)

While Figure 3.15 depicts the change in the static sea level rise, or passive flooding, associated with a 1-meter (3.2 feet) SLR, the *Hawai‘i Sea Level Rise Vulnerability and Adaptation Report* (HCCMAC, 2017) goes a step further when assessing the hazards associated with SLR. It modeled the three chronic flood hazards associated with SLR: (i) passive flooding; (ii) annual high wave flooding (see Section 3.1.4. for detailed discussion); and (iii) coastal erosion (see Section 3.1.5 for a detailed discussion). The combined footprint of these three hazards define what the report terms the “Sea Level Rise Exposure Area” (SLR-XA) and indicates flooding in the area will be associated with “long-term, chronic hazards punctuated by annual or more frequent flooding events.” UH indicates that the SLR-XA comes with the considerations and limitations associated with each of the three models (passive flooding, annual high wave flooding, and shoreline erosion). The modeling does not account for the interactive and compounding nature of the three hazards, which would be expected to occur.

Figure 3.16 shows the SLR-XA in the vicinity of the project area with 3.2 feet of sea level rise, which is not expected to occur until 2100. Because annual high wave flooding is the greatest SLR hazard in the Pahipahi‘ālua Place area, the SLR-XA is identical to the annual high wave flooding exposure area shown in Figure 3.7.

Figure 3.16: Sea Level Rise Exposure Area in Project Area under a 3.2-foot Sea Level Rise Scenario (2100)



Source: Sea Level Rise : State of Hawai‘i Sea Level Rise Viewer, An Interactive Mapping Tool in Support of the State of Hawai‘i Sea Level Rise Vulnerability and Adaptation Report. <http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> (accessed January 6, 2022).

3.1.7 VOLCANIC/SEISMIC HAZARD

The *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (USGS, 2002) indicates that “The hazard due to volcanism and seismicity is also ranked moderately low as it is throughout the northern half of Oahu.” The Atlas’ ranking of this hazard attempt to account for the variability in (i) geology, (ii) Uniform Building Code (UBC) seismic zone factor rankings for each island, (iii) history of volcanic and seismic activity, and (iv) recent scientific predictions of the probability distribution of seismic hazards among the main Hawaiian Islands. It notes that the volcanic/seismic hazard ranking generally increases uniformly from Kaua‘i toward Hawai‘i Island, because of the increase in volcanic and seismic activity found along Hawai‘i Island’s south-east coast.

Like all of O‘ahu, the project site is designated by the UBC as Seismic Zone 2a. Current building codes, including the International Building Code (IBC), include minimum design criteria for structures to address the potential for damage due to seismic disturbances specific to each seismic zone. There is no threat of volcanic eruptions directly affecting the project area directly.

3.1.8 POTENTIAL IMPACTS

The Proposed Action will not have a discernable impact on these coastal zone hazards (tsunami, flooding, high waves, storms, erosion, sea level rise, or earthquakes). However, the project parcel, being a shoreline parcel, is situated such that it can be impacted by one or more of these hazards. Because the project parcel is located along a rocky/beach coast with a fringing reef and is at an elevation of roughly 10 feet above MSL, the potential impacts associated with the coastal zone hazards are somewhat muted. Hazards with the potential to directly impact the portion of the parcel where structures would be built are associated with tsunami (Figure 3.2), annual high waves once sea level rise reaches 2.0 feet (Figure 3.6 and Figure 3.7), and potentially coastal erosion once sea level rise reaches 3.2 feet (Figure 3.9)⁴.

Prior to 2100:

- Tsunamis may occur but would be unlikely to reach the living area of the proposed residence, which is elevated above the BFE. The geotechnical study prepared for the proposed project (Appendix D) states that during floods with velocity (e.g., a tsunami), soil extended to an average depth of about 7.2 feet below existing grade are vulnerable to scour. This means that the sands deposited on the underlying coral would be susceptible to being washed away, especially in proximity to solid foundation elements of the proposed structure. In addition, a tsunami that overwashes the subject property could damage ground-level infrastructure such as water lines, the IWS, the drywells, landscaping irrigation, and items, including vehicles, present on the ground floor when the tsunami strikes.
- Storms (high wind, storm surge, and high waves) may occur but would be unlikely to have a substantial adverse effect on the proposed residence since it is required to be designed to withstand high winds and will be elevated above the BFE. The storm surge predicted from a Category 4 hurricane, which has not impacted the area in recorded history, would not exceed 9 feet. While not impacting the elevated living area, a storm surge could damage ground-level infrastructure such as water lines, the IWS, the drywells, landscaping irrigation, and items, including vehicles, present on the ground floor when the storm surge occurs.
- High waves may more frequently crest the shoreline berm and flow onto the parcel as the sea level rises. During the early years of occupancy such occurrences may be an occasional winter season nuisance but will not substantially affect the parcel, which is dominated by salt-tolerant landscaping, or the proposed residence, which will have a foundation that extends to the underlying coral and be sufficient to weather such events. As sea level rises, the frequency and severity of high wave flooding may increase and possibly damage ground-level infrastructure such as water lines, the IWS, the drywells, and landscaping irrigation. Vehicles parked in the garage and furniture at the ground level would also be potentially subject to damage.
- Shoreline erosion may advance toward the proposed residence, but the ground where the residence’s foundation would be placed is not within the area modeled to be

⁴ The maximum modeled vulnerability to shoreline erosion shown on Figure 3.9 extends to the edge of the foundation for the proposed residence.

vulnerable to shoreline erosion (Figure 2.5). Furthermore, for the reasons outlined in Section 3.1.5 (primarily the presence of massive coral reef deposits in the site’s subsurface in addition to erodible sand), it is unlikely that shoreline erosion will advance as modeled.

After 2100, when sea level rise is predicted to reach 3.2 feet, a combination of the coastal hazards, or shoreline erosion alone, could render the proposed residence uninhabitable. By 2100, the project proponents will no longer be present and the proposed residence would be reaching the end of its design life. At that time, the existing level of sea level rise and coastal erosion plus the prevailing coastal zone policy will dictate the appropriate actions. The appropriate action may well be demolition of the residence and abandonment of the subject parcel to provide for an orderly retreat from the shoreline.

Because these hazards are not anticipated to render the proposed residence uninhabitable until after the end of its design life, it has been assessed the associated impact will be less than significant.

Similar to the Proposed Action, the No Action Alternative will not have a discernable impact on these coastal zone hazards (tsunami, flooding, high waves, storms, erosion, sea level rise, or earthquakes). However, the existing structure will become dilapidated and is not elevated above the BFE. Therefore, the continued presence of the existing structure constitutes a potential hazard (e.g., it could collapse and become flotsam or airborne) should one of these coastal hazards occur.

3.1.9 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

In general, the proposed project will address these hazards and their associated potential impacts in a similar manner as existing residences have for years and new residences will in the future. This will include:

- Meeting or exceeding IBC’s minimum design standards for Seismic Zone 2a.
- Conforming to current construction practices, and meeting all requirements of the 2012 International Residential Code (IRC), as amended by CCH.
- Ensuring the foundation is a deep system that extends through the surficial sand, where present, and acquires competent bearing in the coral foundation.
- Considering measures to reduce hurricane risk as outlined in FEMA’s Coastal Construction Manual. This will involve the use of roofing materials that are engineered to withstand Category 5 hurricane winds and other building materials designed to protect against wind, fire, and rain.
- Complying with all development standards of ROH, §21-9.10 *Flood Hazard Districts* applicable to the coastal high hazard district.
- Elevating the residence and lanai so that the bottom of the first floor structure is at an elevation of roughly 18 feet above MSL, which is above the BFE.
- Not placing structures within the shoreline setback (Figure 2.5) or area modeled to be vulnerable to shoreline erosion prior to sea level rise reach 3.2 feet (Figure 3.9).
- Abiding by emergency orders, such as tsunami evacuations.

- Maintaining the property in a way that minimizes the potential for the coastal zone hazards to cause property damage or undo risk to human health and safety, such as keeping the property reasonably clear of debris and maintaining easy ingress and egress.
- Maintaining flood insurance coverage, provided it is available.
- Maintaining landscape: (i) in a manner consistent with applicable guidance such that it does not encroach onto the beach, impede public use of the beach, or otherwise affect littoral processes; (ii) with salt and wind tolerant plantings; (iii) in a manner that does not inhibit the landward migration of coastal features such as coastal berms.

Implementing these measures will avoid, minimize, and mitigate the potential impacts of the coastal zone hazards.

3.2 ARCHAEOLOGICAL AND CULTURAL RESOURCES

3.2.1 CONTEXT

The project site is located in the Pahipahi‘ālua Ahupua‘a, Ko‘olauloa Moku, on the northern side of O‘ahu, Hawai‘i, an area known to be inhabited by native Hawaiians in both pre- and post-Contact eras. While no new archaeological investigations or reports were prepared for this project, during preliminary planning and preparation for the Proposed Action, the project’s planners have reviewed a variety of sources of information regarding the potential for archaeological, historical, or cultural resources to be present on, near, or associated with, the project site. In addition to accessing the HICRIS, UH, and OHA websites, the following documents were reviewed:

- State of Hawai‘i Department of Transportation, 2017. *Final Environmental Assessment for Kawela Bridge and Nanahu Bridge Replacement Project, Kamehameha Highway, Route 83, Island of O‘ahu*. Prepared by CH2M Hill, Honolulu,
- Cultural Surveys Hawai‘i, Inc. (CSH), (2016). *Cultural Impact Assessment for the Kawela Stream Bridge and Ho‘olapa Stream-Nanahu Bridge Replacement Project*. Prepared for CH2M Hill, Honolulu, Hawai‘i.
- CSH, 2016. *Final Archaeological Inventory Survey Report for the Ho‘olapa Stream-Nanahu Bridge Replacement Project, Kahuku Ahupua‘a, Ko‘olauloa District, O‘ahu, Federal Highway Administration/Central Federal Lands Highway Division (FHWA/CFLHD) Contract DTFH68-13-R-00027, TMKs: [1] 5-6-003:044 por., [1] 5-6-005:013 por., and [1] 5-6-005 Kamehameha Highway Right-of-Way*. Prepared for CH2M Hill, Honolulu, Hawai‘i.
- CSH, 2016. *Final Archaeological Inventory Survey Report for the Kawela Stream Bridge Replacement Project, ‘Ōpana, Kawela, and Pahipahi‘ālua Ahupua‘a, Ko‘olauloa District, O‘ahu, Federal Highway Administration/Central Federal Lands Highway Division (FHWA/CFLHD) Contract DTFH68-13-R-00027, TMKs: [1] 5-7-001:021 por., 5-7-006:022 por., and 5-7-001 Kamehameha Highway Right-of-Way*. Prepared for CH2M Hill, Honolulu, Hawai‘i.

- Haun & Associates, 2011. *Final Plan for Supplemental Archaeological Inventory Survey, Lands of Kahuku, Punalu‘u, Ulupehupehu, ‘Ōi‘o, Hanaka‘oe, Kawela, and ‘Ōpana, Ko‘olauloa District, Island of O‘ahu, TMK: (1) 5-6-03: 040-042, 044; 5-7-01:01, 013, 016, 017, 020, 022, 028, 030, 031, 033; 5-7-06: 01-017, 019, 020.* Prepared for Turtle Bay Resort Development, Kahuku, Hawai‘i.

3.2.1.1 Historical Context

3.2.1.1.1 Overview

In Pre-Contact and early historic times, the North Shore region of O‘ahu, including the current project site, was scattered with small fishing villages. The project site is located in the Pahipahi‘ālua Ahupua‘a, which takes its name from a fishing shrine once located near there, and also lends its name to the road which the parcel is accessed by. Cultivation in and around the area would have been limited to small gardens for dryland kalo, ulu, mai‘a, ‘uala, and similar food crops, rather than extensive irrigated complexes. Area inhabitants likely exchanged marine resources, which they obtained and managed, for other foodstuffs, such as taro, with their more agriculturally invested neighbors in Waimea River Valley and Anahulu River Valley, both to the south of the current project site.

Beginning in the early 1800s, the sandalwood trade initiated economic and cultural transformations in the Ko‘olauloa Moku. The demands put on the maka‘āinana (commoners) to harvest sandalwood for trade caused many taro fields to become fallow. As the sandalwood trade collapsed in the 1830s, Protestant missionaries were establishing their presence on the North Shore. In the latter half of the 1800s, Chinese immigrants began to cultivate rice in areas where taro once thrived. In 1892, there were 180 acres under rice cultivation in Ko‘olauloa Moku, including Pahipahi‘ālua Ahupua‘a.

The Oahu Railway and Land Company (OR&L), which connected outlying areas of O‘ahu to Honolulu, reached Waialua in 1898 and continued on to Kahuku in 1899. Also in 1899, the two-story Haleiwa Hotel was opened at Waialua Bay providing a place for tourists riding the OR&L a place to stay on the North Shore. The OR&L also spurred large scale sugar farming on the North Shore. Beginning in 1890, the Kahuku Plantation Company leased lands from the Campbell Estate and built the Kahuku Sugar Mill, which operated from 1893 to 1971, and quickly became the focal point of the community.

From pre-contact times, the coastal area has been utilized for habitation. The 1935 U.S. Army War Department Terrain Map, Lā‘ie Quadrangle, shows several structures, likely residential, along the shoreline, primarily along Kawela Bay near OR&L’s Kawela Station but some in the Pahipahi‘ālua Street area as well. Gradually, as vehicle access to the region became easier and sugar production waned, residential and resort development along the coastline in the region increased. In addition, the coastal plain mauka of Kamehameha Highway transitioned from sugar production to diversified agriculture. The upland, mauka ‘āpana, is utilized for diversified agriculture, wind energy, and military operations.

3.2.1.1.2 Māhele

During the Māhele in 1848, nearly the entire ahupua‘a of Pahipahi‘ālua was awarded to William Lunalilo, who was later crowned King Kamehameha V, mō‘ī of the Kingdom of Hawai‘i. Following the death of Kamehameha V in 1874, Pahipahi‘ālua Ahupua‘a was passed on through a succession of owners. Today, the federal government presently retains ownership of much of the area mauka of Kamehameha Highway.

Land Commission Awards documentation from the Māhele indicates a wide range of indigenous Hawaiian subsistence activities being practiced in the vicinity. The coastal ‘āpana was used for fishing and habitation and the mauka ‘āpana as kula to cultivate ‘uala. The pali (cliffs) were a source of wauke and hala. In the Pahipahi‘ālua Street area there were two Land Commission Awards:

- LCA 2767. Available documents indicate that this LCA, which covers 0.54 acres, was for Kapi Pond, which is discussed in Section 3.2.1.1.3, and that awardee, Naauhau, used it as a fish pond.
- LCA 2873:3. No information could be found related to this LCA other than the awardee’s name, which was Kaunahi. Notes on the OHA’s Kipuka website suggest that no records could be found for this LCA, which is to the northeast of LCA 2767

3.2.1.1.3 Kapi Pond

The first survey of the area was conducted by J. Gilbert McAllister of the Bernice P. Bishop Museum in the 1930s. He asked long-term residents about both physical and legendary sites of each district during his island-wide survey of O‘ahu in the 1930s. He identified Kapi or Punaulua Pond, which is located on the other side of Pahipahi‘ālua Street from the project parcel, as Site 258. McAllister described the pond as follows:

Small fresh-water fishpond known as Kapi or Punaulua, Waimea side of Kawela Bay. Not more than 100 feet wide. The legend concerning it, according to Luika Kaio and Kahiona Apuakehau who drove with me to the site, and Plunket, the Hawaiian forest ranger who acted as interpreter, is as follows:

There were once gathered on the beach near this site a great many people. This was long before Europeans had come and when there were not many Hawaiians, so that a gathering of this size was enough to occasion the comments of a stranger who approached. This was Kane, but the people did not recognize him. “Why are so many of you gathered here?” he inquired. “To catch the oio. A large school swims near in the water,” they replied. “Those are not oio,” said Kane, “they are eel.” But the people only laughed. Certainly they knew oio when they saw them. Who was this stranger to dispute the words of kamaainas? So Kane wagered that they were eel, and the people wagered against him. The canoes with the long, large nets were launched and the school surrounded. Great was their surprise when they found the fish to be eel. Who could this strange man be? That evening Kane accompanied them up to the mountains. It was a long trip up the valley to reach the springs of fresh water, and the people were tired. They stopped at the entrance of the valley for rest, and here in the presence of all the people, Kane struck the stone known as Waikane, from which water immediately poured

forth and has been flowing almost to this day. (See Site 259.) Apparently Kane, who was joined by Kanaloa, lived at Opana for some time, for just outside of Kawela Bay there are rocks, horseshoe in shape and known as Papaamui, where these brothers were wont to scoop for fish. Near the beach and in line with Waikane was a fishing shrine (ko‘a.) called Pahipahialua. Site 259. Large stone, known as Waikane, beside the stream bed on the mountain side of Kawela Bay and at the foot of the palis in the land Hanakaoe. Long ago the Hawaiians had to go far up the valley in order to get fresh water, but when Kane struck the stone water flowed from it and continued to flow up to the time the plantation built a pump just below the rock. [McAllister 1933:152]⁵

Based on this recounting to McCallister, Kapi Pond is a legendary place. It is not listed in the Hawai‘i Registry of Historic Places but is identified by SIHP site number 50-80-02-00258. The pond is in TMK 5-7-003:051, which is zoned R-5 and located on the opposite side of Pahipahi‘ālua Street from the subject parcel. Figure 3.17 is a view of Kapi Pond from near Pahipahi‘ālua Street. Unlikely most shoreline fishponds in the Hawaiian Island, which typically include a built wall along at least a portion of their seaward side, Kapi Pond appears to be an entirely natural feature that is fully enclosed. There is no natural surface channel or excavated surface channel with a gate between the pond and Kawela Bay. Kapi Pond appears to be a natural sink hole or depression in the coral cap rock.

⁵ McAllister site 259, the Waikāne stone, is located approximately 1 miles southeast of the subject parcel.

Figure 3.17: Photograph of Kapi Pond



Source: Planning Solutions, Inc.; all photos dated December 15, 2021.

3.2.1.1.4 ‘Ōpana Radar Site

By the 1930s, much of Pahipahi‘ālua Ahupua‘a and the adjacent ‘Ōpana Ahupua‘a to the north, were in the hands of the federal government. In December 1939, the U.S. military, experimenting with the advantages of radar, established an Aircraft Warning Service (AWS) that used radar for the defense of American territory. Under the command of Col. Wilfred H. Tetley, the AWS established six mobile radar detector sets at: (i) Kawailoa, (ii) Wai‘anae, (iii) Ka‘a‘awa, (iv) Koko Head, (v) Schofield Barracks, and (vi) Fort Shafter. On Thanksgiving Day in 1941, the same day the Japanese fleet sailed for its Pearl Harbor mission, the radar set from Schofield Barracks was moved to the ‘Ōpana Radar Site, a location 532 feet above sea level mauka of Kamehameha Highway in Pahipahi‘ālua Ahupua‘a that provided an unobstructed view of Kawela Bay and the Pacific Ocean. The unit was comprised of four trucks carrying the transmitter, modulator, water cooler, receiver, oscilloscope, operator, generator, and antenna.

On December 7, 1941, the ‘Ōpana Radar Site was manned by Private Joseph L. Lockard and Private George Elliot, who detected approaching aircraft at 7:02am while practicing with the radar equipment. The men reported their findings to the temporary information center at Fort Shafter. The information center’s staff had gone to breakfast and Lt. Kermit Tyler received the report. Tyler reasoned that the activity was a flight of Army B-17 bombers scheduled to arrive at that morning and advised the radar crew not to worry. Elliot and Lockard continued plotting the incoming planes until 7:40 when contact was lost. Shortly before 8:00 a.m. the two men headed

to Kawaihoa for breakfast and only learned about the attack when they arrived. Elliot and Lockard rushed back to the ‘Ōpana Radar Site and operated the radar until the attack ended. The missed opportunity to correctly identify the incoming Japanese air attack is one of the great, and unanswerable “what might have been” questions of military history.

Currently, a modern Navy telecommunications station occupies the top of the ‘Ōpana Hill adjacent to the ‘Ōpana Radar Site. The ‘Ōpana Radar Site, located approximately one mile south of the current project’s location, is a National Historic Landmark today.

3.2.1.1.5 Soils

According to the U.S. Department of Agriculture, Natural Resource Conservation Service, the soil at the subject parcel is a combination of Beach Sand (BS) and Jaucas Series (JaC). A geotechnical survey of the project site has been conducted to inform project planning. The survey, included in Appendix D, found sand sitting on a coral substrate and is summarized in Section 3.1.5. The combination of sand and coral at the ground surface within the project parcel and the findings of the geotechnical study show that, unlike some other North Shore areas, the subject parcel does not consist solely of a coastal sand dunes or storm berm. The entire parcel is devoid of natural surface features except for evidence of massive subsurface coral primarily in the southwestern portion of the parcel.

3.2.1.1.6 Burials

Several burials have been inadvertently found during construction in the region and others have been found in test trenches. Most have been encountered in the Kuilima Resort area (in the Kawela Bay Archaeological Area and the Punaho‘olapa Marsh) or at Kahuku Point (Kahuku Archaeological Area). Most of these burials were found in sand dunes but one was found in a man-made stone-lined crypt and another was found in a sink hole. At least one of the burials appeared to be associated with a wooden casket. Many of the burials were thought to date to the pre-contact period; a few of them were obviously post-contact period burials. Most of these burials were encountered in areas with sand deposits that are much more extensive than those present at the subject parcel.

No burials have been found in the Pahipahi‘ālua community where the subject parcel is located. The nearest recorded burial to the subject parcel was encountered in the portion of Kawela Bay that is part of the Kuilima Resort, roughly 1,400 feet southeast of the subject parcel.

3.2.1.1.7 Historic Site in HICRIS

The HICRIS website indicates that the Trentino or Kahuku Plantation Manager’s Beach Cottage (site 50-80-02-09099) is listed on the Hawai‘i Registry of Historic Places. The beach cottage was built in 1918 and is significant as a rare example of a very intact, early 20th century beach cottage constructed in Hawai‘i and for its association with the development of Kawela Bay as an oceanside retreat. The cottage is located on TMK 5-7-003:041, which is within the private Pahipahi‘ālua residential community, roughly 900 feet southeast of the subject parcel.

3.2.1.2 Cultural Practices

Interviews with long-term, knowledgeable, neighboring residents on Pahipahi‘ālua Street, including Lance and Rochelle Blaisdell, indicate that cultural practices and resources are not known to occur on the project parcel, which has been in private residential use since at least the 1950s. The shoreline area in the vicinity of the project parcel, but not the project parcel itself, is periodically traversed to access surfing, fishing, and paddling areas. Fishermen, surfers, and others access the shoreline from Kamehameha Highway at nearby Waiale‘e or Kawela Bay Beaches. Furthermore, although there has been periodic vegetation management around nearby Kapi Pond, there has been no traditional or customary use or activity at Kapi Pond (e.g., fish rearing or harvesting) in the memory of nearby long-term residents.

3.2.1.3 Identified Potential Historical Resources

Reports available for other projects in the vicinity indicate that there are a variety of archaeological resources in the Ko‘olauloa District, but that none have been identified on the project parcel. The nearest potential historic resource to the subject parcel is Kapi Pond, which is roughly 30 feet away on the south side of Pahipahi‘ālua Street. The nearest resource on the Hawai‘i Registry of Historic Places is the Trentino or Kahuku Plantation Manager’s Beach Cottage (Site No. 50-80-02-09099), which is roughly 900 feet southeast of the subject parcel.

3.2.1.4 Previous Ground Disturbance

It is unknown if construction of Pahipahi‘ālua Street or the past use of the area resulted in substantial ground disturbances at the subject parcel. Plans associated with the 1943 construction of the existing residence are not available. Overall, it appears that limited, if any, mass grading occurred during past development of the area and the subject parcel.

The following on-site ground disturbances are evident: (i) excavations for shallow structural foundations for the existing residence; (ii) trenching for water line installation; and (iii) excavation for the individual wastewater system.

3.2.2 POTENTIAL IMPACTS

3.2.2.1 Proposed Action Construction-Phase Potential Impacts

Under the Proposed Action, ground disturbance will be limited to the maximum degree practicable. During the construction phase, ground disturbance will be limited to the portion of the parcel nearest the road; the portion of the parcel makai of the existing structure will not be disturbed by the proposed project. Ground disturbance will be confined to the subject parcel (TMK No. 5-7-003:056) to the maximum extent possible; however, some limited trenching for utilities may extend into the road area (TMK No. 5-7-003:053). Ground disturbances will be limited to the following:

- Vehicles and equipment traversing the mauka portion of the parcel to remove the existing residential structure and build the proposed residential structure.
- An excavation to close the existing IWS (an area that has been previously disturbed).

- Residential structure foundation: excavations will be needed for foundations at each of the eight vertical column (see drawings in Appendix B) and grade beams that form a grid and connect those 8 column foundations. This will result in excavations roughly 5 feet square at the 8 locations and trenches roughly 3 feet wide and a total of 148 feet long for the grade beams. The depth of these excavations will be established by the soils report; they will be to a depth that results in the foundation components being connected to the underlying coral formation.
- Utilities: a trench roughly 1 foot wide, 20 feet long, and 2 feet deep to reroute the water line from the road to the proposed residential structure.
- IWS: an excavation roughly 6.5 feet wide, 11.8 feet long, and 6.5 feet deep for the septic tank and an area roughly 10 feet wide, 15 feet long, and 1.75 foot deep for the leach field.
- Minor trenches for a landscape irrigation system.

In addition to the ground disturbance listed above, material will be imported to finish the driveway and parking areas.

There are two potential impacts associated with the construction phase: (i) inadvertent finds of cultural materials and/or burials during construction, and (ii) adverse impacts to Kapi Pond due to stormwater runoff, wind-born debris, or other unanticipated incidents. The likelihood of either of these impacts occurring is low and the avoidance, minimization, and mitigation measures outlined in Section 3.2.3 will further reduce their likelihood.

3.2.2.2 Proposed Action Long-Term Residential Use Potential Impacts

The Proposed Action involved the continued use of the subject parcel for residential purposes, which has been ongoing for over 70 years. The residential use is consistent with the residential use of the neighboring properties, other than the pond. While the proposed residential structure’s size and height is greater than the existing residential structure on the subject parcel, its size and height is similar to the size and height of the residential structures on neighboring and nearby parcels. Vegetation along the roadway, parcel boundaries, and edge of the pond will obscure view of the new residence from the pond.

The Proposed Action will not restrict access to the shoreline. The proposed residence will be visible from the shoreline and nearshore waters, but will not change the character or obstruct views from the shoreline and nearshore waters. Thus, the Proposed Action will not adversely affect cultural practices, such as fishing, surfing, and paddling, that may utilize the beach and nearshore waters.

3.2.2.3 Proposed Action Impact Assessment

Project planners have concluded that the Proposed Action will have a less than significant impact on cultural and historic resources. In the parlance of HRS Chapter 6E, planners have concluded that the Proposed Action would have no effect on archaeological or historic properties. This assessment was reached based on the discussion above and the fact that:

- The project site has been in continuous residential use for over 70 years and the Proposed Action does not change the site’s use.
- No archaeological or cultural resources or practices have been identified on the subject parcel.
- The avoidance, minimization, and mitigation measures outlined in Section 3.2.3 will be implemented.

To substantiate this conclusion materials will be submitted to the State Historic Preservation Division (SHPD) with a request for their review and response. In addition, this EA is being provided to SHPD with a request for review and comment.

3.2.2.4 No Action Alternative

The No Action Alternative would not involve any demolition or ground-disturbing activities and does not have the potential to impact historic properties or cultural practices.

3.2.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

The Paullin Family proposes to (i) implement construction-phase BMPs as outlined in Section 2.3.3, and (ii) conduct archaeological monitoring during all initial ground disturbances associated with the proposed project. Should SHPD concur that archaeological monitoring is the appropriate approach for the proposed project and that no archaeological inventory survey is required in advance, then an Archaeological Monitoring Plan (AMP) will be prepared and submitted for SHPD review and approval prior to the commencement of project development activities.

The AMP will include the following provisions:

- SHPD will be notified upon the onset and completion of the monitoring activities.
- Prior to the start of any subsurface development activities, a meeting will be held among the construction contractor, the project proponent, and the qualified archaeological monitor to discuss the procedures for monitoring. At the meeting, it will be explained that the monitoring archaeologist has the authority to halt ground-disturbing activities in the event that archaeological or other cultural resources are encountered. If archaeological or other cultural resources identified during monitoring are deemed significant, SHPD will be notified, and consultations will be conducted as appropriate.
- The qualified archaeological monitor will be present on-site to observe all subsurface ground-disturbing activities. When on-site, the monitor will keep a daily log of activities performed and any discoveries made. The monitor will inspect all exposed soil and sediments, and the stratigraphic profiles of any deep cuts will be examined.
- All cultural deposits and sequences (including representative natural sequences) identified during the monitoring effort will be mapped, representative scaled profile drawings and plan views will be prepared, photographs will be taken, and the stratigraphic deposits will be described in detail using standard USDA soil descriptions and Munsell colors. If intact cultural deposits are discovered during monitoring, an assessment will be made as to their integrity and significance using the criteria

enumerated in HAR, 13§13-275-6(b). If the deposit is deemed significant and is likely to be further impacted by demolition activities, work in the affected area will be curtailed, and an appropriate mitigation strategy will be developed in consultation with SHPD.

- Subsurface cultural features observed will be fully described, drawn, and photographed. Provenience information will also be recorded and related to an established project datum ensuring accurate horizontal and vertical placement. The limits of the feature will be defined, if possible, without further excavation, and any natural or cultural associations (including surrounding soil) will be noted. Where appropriate, samples (e.g., soil, charcoal, etc.) for further analyses will be recovered and processed.
- Artifacts observed in the removed soil will be recovered and their general provenience recorded. All traditional Pre-Contact Hawaiian artifacts and diagnostic post-Contact artifacts will be recovered for laboratory analysis. The precise locations of any items found in situ will be recorded and the items photographed and recovered for subsequent laboratory analysis. Any observed associations will also be documented, and the surrounding soil will be fully described using standard USDA soil descriptions and Munsell colors.
- If human skeletal remains are encountered during the monitoring effort, the on-site monitor will halt all ground-disturbing activity in the immediate area of the discovery, stabilize the remains and contact the appropriate authorities. SHPD staff from the Archaeology Branch and from the History and Culture Branch will be notified immediately, and the monitor will notify the appropriate on-site construction personnel, the Police, and Medical Examiner, as appropriate. If the skeletal material is determined to be Historic or Pre-Contact (as opposed to recent), the monitoring archaeologist will direct the applicant to seek SHPD guidance on how to proceed with the discovery, and the human skeletal remains will be handled in compliance with HRS Chapter 43.6, HAR §13-300, and DLNR-SHPD directives. If the remains are determined to be recent, the Honolulu Police Department will be contacted.

Following completion of archaeological monitoring, a draft monitoring report will be prepared and submitted to SHPD for review and acceptance. This report will follow the specifications contained in HAR §13-279-5. If any human skeletal remains are recovered as part of the monitoring project, they will be summarized in the final monitoring report following procedures contained in HAR §13-300.

3.3 VISUAL AND AESTHETIC RESOURCES

3.3.1 EXISTING CONDITIONS

The CCH’s *General Plan* (Amended 2002), regarding aesthetic and scenic resources, is focused on:

“the preservation of scenic resources such as mature trees, scenic views and vistas, key landmarks, and historic and cultural features; the use of urban design principles that emphasize aesthetic compatibility while meeting functional

standards; and reviewing standards to ensure that the character of older communities is maintained while still allowing for new construction and maintaining older facilities.”

The *Ko‘olauloa Sustainable Communities Plan (KSCP)* contains a number of relevant provisions related to scenic resources, identifying its mountains watersheds, streams, nearshore waters, beaches, reefs, and offshore islands as scenic resources deserving special recognition and protection through land use policies and guidelines which protect the most sensitive areas of natural beauty and dramatic scenery. These provisions are encapsulated in Chapter 2 of the KSCP, entitled *The Vision of Ko‘olauloa’s Future (KSCP, 1999)*:

The vision for Ko‘olau Loa seeks to preserve the region’s rural character and its natural, cultural and scenic resources. The community envisions a safe and healthy community based on strong family values, where residents have access to quality jobs, affordable housing and ample recreational opportunities within the region. Ko‘olau Loa will remain country, characterized by small towns and villages with distinctive identities that exist in harmony with the natural settings, defined by the mountain ridges and scenic open spaces which help give the region its unique form of organization.

Throughout the area near Pahipahi‘ālua Street, including Kawela Bay to the north and Pahipahi‘ālua Beach to the south, the primary views are toward or along the coast. None of the significant scenic views broadly defined in the KSCP, such as mountain ridges, valleys, open areas, or coastal resources, are in the immediate vicinity of the proposed project site. Figure 3.18 shows the view from Kamehameha Highway, which is identified as a scenic highway by the KSCP. As can be seen, Pahipahi‘ālua Street is a private, gated access road, and the intervening landscaping and structures prevent direct public views of the property or the ocean beyond it. Figure 3.17 contains a photograph of a view toward the Pacific Ocean and the project site from Pahipahi‘ālua Street, which is a private street. The photograph illustrates the way the modest slope of the project parcel, together with the intermittent screen caused by the existing structure and landscaping, prevent views of the ocean from Pahipahi‘ālua Street. Figure 3.20 shows the view of the subject parcel from the waterline. The photograph illustrates that the existing residence and neighboring residences are visible from, but setback from the beach and shoreline.

Figure 3.18: View Toward Ocean from Kamehameha Highway near the Project Site



Source: Planning Solutions, Inc. (December 2021)

Figure 3.19: View toward Ocean from Pahipahi‘ālua Street at the Project Site



Source: Planning Solutions, Inc. (December 2021)

Figure 3.20: View toward Subject Parcel from Waterline



Source: Planning Solutions, Inc. (December 2021)

3.3.2 POTENTIAL IMPACTS

The Proposed Action will not materially change views from Kamehameha Highway, the beach, or other publicly-accessible locations, relative to existing conditions. The screening landscaping that can be seen in Figure 3.18 that prevents views from Kamehameha Highway toward the ocean is not located on the project parcel and will not be modified by the Proposed Action. From Pahipahi‘ālua Street, which is a private road, the view will be somewhat modified by the change from the existing to proposed residence, but the view will remain substantially the same, with the ocean not visible. The Proposed Action will not substantially change to views along the shoreline at Pahipahi‘ālua Beach or Kawela Bay. When viewed from the portion of the beach nearest the subject parcel (which is not a primary destination for those that visit this beach), the view will change slightly because the proposed residence would be wider and taller than the existing residence. The new residence would be setback from the shoreline, which will minimize the change in view. None of the scenic resources identified in the KSCP would be impacted by the Proposed Action and, as a result, the visual impact of the Proposed Action is negligible and no mitigation is required.

The No Action Alternative would not have any significant impact on visual and aesthetic resources; however, the existing improvements present on the site would continue to age and degrade over time.

3.4 PROTECTED SPECIES

3.4.1 EXISTING CONDITIONS

No rare, threatened, endangered, or otherwise protected species are known to exist on the project site. Some protected species, including the Pacific Golden Plover or Kōlea (*Pluvialis fluva*) and Hawaiian Hoary Bat or ‘Ōpe‘ape‘a (*Lasiurus cinereus semotus*), may occasionally visit the project site, but have not been seen during site inspections or reported by previous residents.

Green sea turtles (*Chelonia mydas*) are known to occur in nearshore waters adjacent to the project site. They may haul out on the sandy area at the water’s edge fronting the subject parcel but were not observed during site inspections. No turtle nesting is known to have occurred along the shoreline fronting the parcel. Other protected species may occur in nearshore waters or overfly the area; these include other sea turtle species, monk seals, and seabirds (shearwaters, petrels, terns, tropicbirds, and frigates).

The marine water offshore of the project parcel are part of the Hawaiian Islands Humpback Whale National Marine Sanctuary. The nearest terrestrial designated critical habitat or sanctuary is more than six miles from the project parcel.

3.4.2 POTENTIAL IMPACTS

Under the Proposed Action, the project will not substantially change the overall character of the project parcel: it will continue to be used as a residence, lot coverage will be roughly the same, and similar landscaping will be maintained. The proposed project will not alter the character of the shoreline area. Thus, the Proposed Action does not have the potential to result in more than a negligible impact on protected species or their habitat.

The No Action Alternative does not have the potential to directly impact protected species.

3.4.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

To reduce the potential for harmful interactions between nocturnally flying seabirds, including Wedge-tailed Shearwaters, and sea turtles with exterior lighting and manmade structures, construction activities will be limited to daylight hours when lighting is not required. If it becomes necessary to conduct any construction operations after dark, construction lighting will be shielded and not pointed toward the ocean to prevent light attraction of native seabirds and turtles.

To avoid and minimize potential impacts to protected species, the project will:

- Use only exterior lighting that is identified as “acceptable” by the DLNR’s Wildlife Lighting guidelines at the time it is specified in project designs. The current guidelines are available at <https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf>. Thus, all exterior lighting will be fully shielded.
- Design all exterior lighting to avoid light trespass beyond the relatively level area on the project parcel so the light sources (the bulbs or diodes) are not visible from the beach or water line.

- Use light sources that are “warm” with ratings of 3000 Kelvin or lower, which typically have a lower blue light content.
- Maintain landscaping on the project parcel and ensure that it is done in a manner that does not unnaturally encourage or discourage shoreline groundcover vegetation such as naupaka.

3.5 SURFACE WATER AND WETLANDS

3.5.1 EXISTING CONDITIONS

The nearest streams are Kawela Stream approximately 0.25 miles to the north and Paumalu Stream approximately 2.5 miles to the south. Figure 3.21 illustrates the surface waters and wetlands in the project area as mapped in the National Wetlands Inventory by the U.S. Fish and Wildlife Service.

Figure 3.21: Surface Waters and Wetlands



Source: <https://www.fws.gov/wetlands/data/mapper.html>, accessed February 3, 2022.

As shown on Figure 3.21, other than wetlands associated directly with the Pacific Ocean, the nearest surface water body is Kapi Pond (Section 3.2.1.1.3). The wetlands identified in the figure are:

- PUBH. This is a Kapi Pond. According to the National Wetlands Inventory, this wetland consists of a 0.19 acre freshwater pond habitat classified as a PUBH.⁶

⁶ PUBH indicates **Palustrine (P) system**, which includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5

- M2USN. This is the intertidal portion of the beach, which is considered an estuarine and marine wetland habitat classified as M2USN.⁷
- M2RSN. This is the rocky portion of the intertidal area, which is considered an estuarine and marine wetland habitat classified as M2RSN.⁸
- M1RFIL. This is the open ocean coral reef marine area, which is considered an estuarine and marine deep-water habitat classified as M1RFIL.⁹ This habitat extends to roughly 0.6 miles offshore.

3.5.2 POTENTIAL IMPACTS

Under the Proposed Action, the project will not substantially change the overall character of the project parcel: it will continue to be used as a residence and similar, salt-tolerant landscaping will be maintained. Lot coverage and impervious area will nominally increase, but the change in stormwater quantity from the roofed be not be substantial and the highly permeable nature of the sand and coral substrate will absorb it as it does today. During construction the project will implement BMPs to address stormwater and potential pollutants. The proposed project will not alter stormwater flow or quantity in a substantial way. Thus, the Proposed Action does not have the potential to result in more than a negligible impact on surface water and wetlands.

The No Action Alternative does not have the potential to directly impact surface water or wetlands.

ppt. It also includes wetlands lacking such vegetation, but with all of the following four characteristics: (1) area less than 8 ha (20 acres); (2) active wave-formed or bedrock shoreline features lacking; (3) water depth in the deepest part of basin less than 2.5 m (8.2 ft) at low water; and (4) salinity due to ocean-derived salts less than 0.5 ppt. **Unconsolidated Bottom (UB) class**, which includes all wetlands and deep-water habitats with at least 25% cover of particles smaller than stones (less than 6-7 cm), and a vegetative cover less than 30%. **Permanently Flooded (H) water regime**, which means water covers the substrate throughout the year in all years.

⁷ M2USN indicates **Marine (M) system**, which consists of the open ocean overlying the continental shelf and its associated high-energy coastline. Marine habitats are exposed to the waves and currents of the open ocean, and the Water Regimes are determined primarily by the ebb and flow of oceanic tides. Salinities exceed 30 parts per thousand (ppt), with little or no dilution except outside the mouths of estuaries. Shallow coastal indentations or bays without appreciable freshwater inflow, and coasts with exposed rocky islands that provide the mainland with little or no shelter from wind and waves, are also considered part of the Marine System because they generally support typical marine biota. **Intertidal (2) subsystem**, which is a habitat flooded and exposed by tides; includes the associated splash zone. **Unconsolidated Shore (US) class**, which includes all wetland habitats having two characteristics: (1) unconsolidated substrates with less than 75 percent areal cover of stones, boulders or bedrock and; (2) less than 30 percent areal cover of vegetation. Landforms such as beaches, bars, and flats are included in the Unconsolidated Shore class. **Regularly Flooded (N) water regime**, which means the tides alternately flood and expose the substrate at least once daily.

⁸ M2RSN indicates the same as the M2USN above, but instead of the unconsolidated shore class, this is a **Rocky Shore (RS) class**, which indicates a high energy shoreline environments characterized by bedrock, stones, or boulders which singly or in combination have an areal cover 75% percent or more and less than 30 percent vegetative cover by area.

⁹ M1RFIL indicates **Marine (M) system**, which is detailed in footnote 7. **Subtidal (1) subsystem**, which indicates the substrate in these habitats is continuously covered with tidal water (i.e., located below extreme low water). **Reef (RF) class**, which includes ridge-like or mound-like structures generally at or below the surface of the water. They are usually formed by the colonization and growth of sedentary invertebrates, mollusks or other shellfish or they may be natural rock outcrops or artificial structures. Reefs are characterized by their elevation above the surrounding substrate and as an obstruction to normal water movement. **Coral (1) subclass**, which are coral reefs found almost entirely within the subtidal subsystem of the Marine System, although the upper part of certain reefs may be exposed. They are widely distributed in shallow warm waters in Hawaii, Puerto Rico, the Virgin Islands, and southern Florida. **Subtidal (L) water regime**, which means tidal salt water continuously covers the substrate.

3.5.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

To reduce the potential for adverse impacts to surface water and wetlands, during construction the project will implement BMPs to address stormwater and potential pollutants. The BMPs are discussed in Section 2.3.3.

3.6 SAND DUNES

3.6.1 EXISTING CONDITIONS

Because, the prevailing trade winds are side to offshore in the region, coastal sand dunes, if present, are not formed by blowing sand but rather wave action. Such formations are commonly referred to as storm berms because they form when storm waves deposit sand at higher elevations than normal wave action does, forming a berm. Such a berm is evident near the shoreline at the subject site (Figure 2.1) where the highest elevation, just over 12 feet above MSL, occurs slightly mauka of the certified shoreline and then the ground slopes down to the beach and to the street. This storm berm extends laterally along the coastline from the mouth of Kawela Bay westward along Pahipahi‘ālua Street, Pahipahi‘ālua Place, and beyond.

As discussed in Sections 3.1.5 and 3.2.1.1.5, the subsurface at the subject parcel is a combination of sand and hard coral. The elevation of the storm berm is consistent along the shoreline regardless of the coral’s depth below the ground surface. The slope of the berm toward the street varies with the elevation of coral. Where the coral is at a high elevation, the land elevation remains high and the sand thins dramatically; where the coral is a lower elevation, the land elevation declines as the sand berm thins.

Vegetation on the storm berm and throughout the project parcel consists of salt-tolerant species, including ironwood, coconut palms, naupaka, and grass (Figure 2.3, photographs c. and d.).

3.6.2 POTENTIAL IMPACTS

The new single-family residence is proposed to be sited near the southern corner of the property (Figure 2.5). This would place the residence nearly as far as it can be from the storm berm/dune while respecting yard requirements. This minimizes the potential for direct impacts to the berm in the near term. It is anticipated that residents will occasionally walk over the dune to access the beach from the new residence. It is not anticipated that this activity would substantially effect the dune because the number of trips would be consistent with the past.

Overtime, should coastal erosion occur as projected (Section 3.1.5), the storm berm would naturally migrate landward unless a structure or consistent activity (e.g., post-storm grading) prevented its migration. The proposed structure would be set back from the shoreline further than surrounding residences. The design of the proposed residence also allows for water, and the sand it transports, to flow relatively freely across the site when high wave flooding occurs. As such, it would provide for berm migration better than other developments or design options. Nevertheless, eventually the proposed structure may impact the landward migration of the storm berm. At such a time, it would be likely that coast hazards would be affecting the proposed project (Section 3.1.8) with increased frequency. At that time, the project proponents will no longer be present and the proposed residence would be reaching the end of its design life. The existing level of sea level

rise, coastal erosion, other factors, and the prevailing coastal zone policy at that time will dictate the appropriate actions. The appropriate action may well be demolition of the residence and abandonment of the subject parcel to provide for an orderly retreat from the shoreline.

Because impacts to the storm berm/dune are not anticipated until after the end of its design life, it has been assessed the associated impact will be less than significant.

The No Action Alternative would potentially have a greater adverse effect on the storm berm/dune because it would involve the continued use of the existing residence, which is closer to the shoreline than the proposed residence. The continued presence of the existing structure, which is relatively low to the ground, would adversely affect the landward migration of the dune sooner than the proposed residence would.

3.6.3 AVOIDANCE, MINIMIZATION, OR MITIGATION MEASURES

Specific measures that reduce the potential for the Proposed Action to result in adverse impacts to the sand dune present on TMK No. 5-7-003:057, or the broader dune system of which it is a part, include:

- Situating the new construction on the southeastern side of the parcel, away from the bulk of the dune and maximizing the use of the portion of the parcel with relatively shallow (high elevation) coral.
- Minimizing the footprint of the new construction, with a small first floor and elevated living space, will reduce the area impacted by new construction when compared with more typical home designs.
- Reusing all native sand excavated during the course of construction on site and not using imported aggregate to backfill excavations.¹⁰
- Conducting landscaping between the dwelling and shoreline that consists of vegetation that is naturally hardy and/or endemic to the dune or shoreline area and managed in a manner that maintains its ability to hold sand.
- Allowing the storm berm/dune to migrate naturally. Sand deposited in the landscaped portion of the parcel during storm events will not be removed; vegetation will be allowed to become established through the new sand following such events.

3.7 OTHER RESOURCES AND TOPICS

Due to the nature of the proposed project – replacing existing structures with similar new structures in order to continue the same use, which is consistent with all applicable land use rules and regulations, at the same intensity of use – the Proposed Action has no potential to substantially impact other resources or conditions. Therefore, the following topics, which are sometimes discussed in detail in EAs, are only briefly mentioned in this section:

¹⁰ Imported aggregate will be used on the driveway and potentially other limited surface treatments in the area between the new home and the street, but will not be used to backfill excavations except where specifically directed by geotechnical engineers, such as capillary break zones beneath concrete slabs.

- Topography, geology, and soils. The project parcel gently slopes from a shoreline storm berm (roughly 12 feet above MSL) to the road (roughly 6 to 10 feet above MSL), is part of a coral protrusion into the Pacific Ocean, and the soil is mapped as Jaucas Series (JaC). The proposed project does not involve mass grading or other activities that have the potential to meaningfully modify topography or impact geology and soil resources.
- Hydrology (groundwater and marine waters). The Kawaihoa basal freshwater lens aquifer is present beneath the site; there are no wells nearby. The Pacific Ocean in the area is considered Class A, which is to be protected for recreational purposes and aesthetic enjoyment. The proposed project does not involve activities or uses that have the potential to meaningfully affect these resources or limit their uses.
- Air Quality. Air quality in the region is good; all federal and state air quality standards have been attained. As discussed in Section 2.3.3, dust will be controlled during construction. The proposed project does not involve activities or uses that have the potential to meaningfully affect air quality on a regional scale.
- Noise. The predominant noise sources in the vicinity of the project site are traffic from Kamehameha Highway and background noise from the ocean due to wave action. The proposed project does not involve activities or uses that have the potential to meaningfully affect the sonic environment.
- Public Utilities, Infrastructure, and Services.
 - Water. The Board of Water Supply provides potable water to the project parcel. This will continue to be the case and substantial changes in water use are not anticipated.
 - Electricity and communications. Overhead lines provide electrical and communication services to the project parcel. This will continue to be the case and substantial changes in demand are not anticipated.
 - Wastewater. There is no municipal sanitary wastewater system serving the project parcel. The project site is currently served by an IWS that is permitted by the HDOH and will be closed per HDOH guidelines. A new HDOH IWS permit will be obtained and a new IWS installed as part of the Proposed Action (Section 1.3).
 - Storm water management. Currently, storm water from the roof of the existing structure, the only area of hardscape, is allowed to flow to the ground surface and percolate into the ground. The roof of the proposed residence will remain the principle area of hardscape under the proposed project. Like the existing practice, storm water from the roof will be directed to the landscaped portion of the parcel and allowed to percolate into the ground.
 - Solid waste. The project site is served by the Department of Environmental Services, Solid Waste Division, which provides weekly collection of solid waste, recycling, and green waste. This will continue to be the case and substantial changes in solid waste generation are not anticipated.
 - Fire. The project parcel is primarily served by the Sunset Beach Fire Station No. 11 at 59-719 Kamehameha Highway. The nearest fire hydrant is located at

the corner of Pahipahi‘ālua Street and Pahipahi‘ālua Place, roughly 125 feet from the subject parcel. Area residents report that HFD routinely inspects and tests the hydrant. Because this is a private residential community, the fire hydrant is not the standard yellow fire hydrant typical of public streets.

- *Police.* The project parcel is in Honolulu Police Department District 4, serving Kailua, Kaneohe, and Kahuku. The police station for the area is the Kahuku Substation located at 56-470 Kamehameha Highway.
- *Schools.* The project parcel is in the Castle-Kahuku public school complex. Children residing at the site, if any, would be eligible to attend Kahuku Elementary School at 56-170 Pualalea Street and Kahuku High School and Intermediate at 56-490 Kamehameha Highway.
- *Parks.* The nearest parts are Waiale‘e Beach Park, which is roughly 0.4 miles to the southwest, and an undeveloped beach park at Kawela Bay, which is roughly 0.2 miles to the southeast. Regarding the Kawela Bay park site, CCH own two contiguous parcels just west of the Turtle Bay Resort that total 9.9 acres. Currently there are no formal park or recreational amenities (the parcel does contain beach land along Kawela Bay) but CCH plans to develop the property for recreational purposes, including trails and 22 public parking spaces.
- *Other services.* Primary medical services on the North Shore are provided by: (i) Queen’s Health Care Center Hale‘iwa; (ii) Kahuku Medical Center; and (iii) Wahiawā General Hospital. In addition, Emergency Medical Services Division staff and trucks are located at the Sunset Beach Fire Station and co-respond with Honolulu Fire Department.
- *Roads.* The parcel is accessed via the privately-owned Pahipahi‘ālua Street, which is off Kamehameha Highway (State Route 83). In January 2021, 24-hour traffic volumes on Kamehameha Highway were nearly 15,000 vehicles and peak hour volumes were roughly 600 vehicles in each direction. The Paullin Family will notify area residents of the presence of construction vehicles, workers, and equipment during construction of the proposed single-family residence.

The proposed project does not involve activities or uses that have the potential to meaningfully affect public utilities, infrastructure, and services.

3.8 CONSTRUCTION PHASE AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Although the construction period will be short relative to the life of the structure built, the potential for impacts related to air quality, water quality, noise, and other neighborhood-level inconveniences and impacts is greatest during the relatively brief construction period. This is because there will be more people and equipment at the site and more ground disturbance of the site than at any other time over the life of the project. Several measures will be implemented to avoid, minimize, and/or mitigate potential construction-phase impacts including the following:

- Stage all materials and equipment on the project parcel.

- Require contractors to park on-site, or in areas along Pahipahi‘ālua Street which are entirely out of the travelway.
- Implement standard work hours: Monday through Friday (excluding holidays) from 7am to 6pm and Saturday from 9am to 6pm and comply with all applicable provisions of HAR §11-46 *Community Noise Control*.
- Conduct construction activities such that they comply with (i) Honolulu’s *Rules Relating Storm Drainage Standards*, (ii) ROH Chapter 14 regarding Public Works Infrastructure Requirements, (iii) HAR 11-54 *Water Quality Standards*, and (iv) HAR 11-55 *Water Pollution Controls*. Typical measures will include establishing and maintaining appropriate construction BMPs until the site has been stabilized, such as a designated site ingress and egress, appropriately stockpiling materials on-site to prevent runoff, limiting the total area of exposed earth, and establishing landscaping as early as possible on disturbed areas. The final construction plans will provide additional information on BMPs for erosion and sediment control.
- Maintain all construction equipment in proper tune according to manufacturer’s specifications and further minimize noise by properly maintaining mufflers and other noise-attenuating equipment.
- Fuel all off-road and equipment, including but not limited to backhoes, tractors, generator sets, and compressors, in a designated location with sufficient spill response equipment and materials.

3.9 CUMULATIVE IMPACTS

Cumulative effects are impacts which result from the incremental effects of an activity when added to other related past, present, and reasonable foreseeable future action, regardless of which agency, organization, or individual undertakes such action(s). Cumulative impacts may result from individually minor but collectively significant actions taking place over a period of time.

The Proposed Action consists of demolition and removal of an existing, one bedroom, single-family residence and its replacement with a new two-bedroom, single-family residence, constituting continued residential use of a residential lot. The proposed project is not contingent on any other action, public or private, and will not individually cause future actions to be taken by any public or private entities. Therefore, the project will not generate secondary or cumulative impacts.

4 CONSISTENCY WITH LAND USE PLANS, POLICIES, AND CONTROLS

This chapter discusses the relationship of the Proposed Action with applicable land use plans, policies, and regulations at the local and state level.

4.1 STATE OF HAWAI‘I

4.1.1 HAWAI‘I STATE PLAN, HRS §226

Adopted in 1978 and last revised in 1991, the *Hawai‘i State Plan* is intended to guide the long-range development of the State by:

- Identifying goals, objectives, and policies for the State and its residents;
- Establishing a basis for determining priorities and allocating resources; and
- Providing a unifying vision to enable coordination between the various counties’ plans, programs, policies, projects and regulatory activities to assist them in developing their county plans, programs, and projects and the State’s long-range development objectives.

The *Hawai‘i State Plan* is a policy document. It depends on implementing laws and regulations to achieve its goals. While not all sections of the *Hawai‘i State Plan* are directly applicable to the Proposed Action, the most relevant are identified and discussed below.

§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 towards achievement of the following objectives:

- (1) Greater opportunities for Hawaii’s people to secure reasonably priced, safe, sanitary, livable homes situated in environments that satisfactorily accommodate the needs and desires of families and individuals.*
- (2) The orderly development of residential areas sensitive to community needs and other land uses.*

Discussion: The Proposed Action is intended to develop a single-family residence in a residentially-zoned community on a parcel currently in residential use. As such, the project is intended to develop an appropriately-located, livable home to meet the needs and desires of the family that will inhabit it. The Proposed Action will result in the orderly redevelopment of a residential parcel, and has been planned in consultation with the adjacent landowners and in a manner sensitive to the needs of the Pahipahi‘ālua Street community.

§226-19(b): To achieve the housing objectives, it shall be the policy of the State to:

- (1) Effectively accommodate the housing needs of Hawaii’s people.*
- (3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.*

- (4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.*
- (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.*
- (6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.*
- (7) Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the cultures and values of the community.*

Discussion: The Proposed Action is intended to develop a single-family residence on a residentially-zoned lot in an existing residential community. As such, it is a modest contribution to meeting the residential needs of the people of Hawai‘i. By removing an existing single-family residence and replacing it with a new single-family residence, it will maintain and enhance an existing residential parcel in an existing residential area. Further, the design of the proposed structures is intended to maintain a Hawaiian sense of scale and place, in tune with the character of the surrounding community along Pahipahi‘ālua Street. In doing so, it is consistent with the policy of siting and design of housing which is in harmony with its physical setting, easily accommodated by the public facilities and services in the area, and with the neighborhood.

4.1.2 HAWAI‘I 2050 SUSTAINABILITY PLAN

The *Hawai‘i 2050 Sustainability Plan* is a blueprint for Hawai‘i’s preferred future. It is the most comprehensive planning process since the *Hawai‘i State Plan* was developed over four decades ago. The *Hawai‘i 2050 Sustainability Plan* has five major goals, designed to achieve the State of Hawaii’s preferred future by the year 2050. Each goal is supported by a set of strategic actions that must be implemented in order to achieve the goal. Under each goal and set of strategic actions are a specific indicators, which are quantifiable measures of progress. Considered together, the *Hawai‘i 2050 Sustainability Plan*’s: (i) goals identify what it hopes to achieve, (ii) the strategic actions characterize the paths to achieving the Plan’s goals, and (iii) the indicators serve to measure progress along the way. The Plan’s goals are in no particular order or priority and are of equal importance, both interrelated and interdependent of one another; they are:

Goal One. A Way of Life – Living sustainably is part of our daily practice in Hawai‘i.

Goal Two. The Economy – Our diversified and globally competitive economy enables us to meaningfully live, work and play in Hawai‘i.

Goal Three. Environment and Natural Resources – Our natural resources are responsibly and respectfully used, replenished and preserved for future generations.

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

Goal Five. Kānaka Maoli and Island Values – Our Kānaka Maoli and island cultures and values are thriving and perpetuated.

Discussion: Of these, Goal Four is the most relevant to the Proposed Action, touching on the need to provide for the community’s social well-being. While the focus of the goal is not housing development, it’s first Strategic Action (i.e., Goal 4, Strategic Action 1) stipulates that having a safe and decent place to live is a measure of a humane and compassionate society. The plan goes on to establish that providing for the basic necessities of living, including adequate housing, is a critical component of sustainable development in the State of Hawai‘i. To the extent that the Proposed Action will result in a modest contribution to the maintenance of the available housing stock on O‘ahu and, per Goal 3, move development an additional 15 feet from the shoreline, while not interfering with the ability to achieve the other goals, it is consistent with the goals and strategic actions of the *Hawai‘i 2050 Sustainability Plan*.

4.1.3 HAWAI‘I LAND USE LAW; HRS §205

Chapter 205, HRS established the State Land Use Commission and gives this body the authority to designate all lands in the State as Urban, Rural, Agricultural, or Conservation District. The counties make all land use decisions within the Urban District in accordance with their respective county general plans, development plans, and zoning ordinances. The counties also regulate land use in the State Rural and Agricultural Districts, but within the limits specified by HRS, Chapter 205.

The proposed project is located in the State’s Urban Land Use District. Hawai‘i Administrative Rule §15-15-18 characterizes the Urban District as exhibiting “city-like” concentrations of people, structures, streets, with an urban level of services and other related land uses. It also stresses the importance of ensuring availability of basic services and utilities in urban areas.

Discussion: The Proposed Action, while modest and residential in nature and scope, is consistent with the land uses envisioned for the State Urban District, contributing to the envisioned concentration of people and structures in appropriate areas. In addition, the proposed project will not alter or detract from the overall character of the surrounding community; therefore, it is an appropriate land use in the Urban District.

4.1.4 COASTAL ZONE MANAGEMENT PROGRAM, HRS §205A

The objectives of the Hawai‘i CZM Program are set forth in Hawai‘i Revised Statutes, Chapter 205A. The State Office of Planning and Sustainable Development administers Hawai‘i’s CZM Program. The program is intended to promote the protection and maintenance of valuable coastal resources. All lands in Hawai‘i are classified as valuable coastal resources. A general discussion of the project’s consistency with the objectives and policies of Hawai‘i’s CZM Program follows.

4.1.4.1 Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

Policies:

- 1) Improve coordination and funding of coastal recreational planning and management; and*
- 2) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*

- a) *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
- b) *Requiring replacement of coastal resources having significant recreational value including, but not limited to, surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
- c) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
- d) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
- e) *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;*
- f) *Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
- g) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
- h) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

Discussion: The Proposed Action will have no effect on coastal recreational resources. It is not near a dedicated public right-of-way to access the shoreline. While the project is adjacent to the shoreline and near areas used by the public for recreation, including surfing and fishing, the project will be confined to the project parcel and not affect access or recreation in a way material different than the existing residential use of the subject parcel, if at all.

4.1.4.2 Historic Resources

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

Policies:

- 1) *Identify and analyze significant archaeological resources;*
- 2) *Maximize information retention through preservation of remains and artifacts or salvage operations; and*

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

Discussion: There are no known archaeological or historic resources present on the project site, it is not within a historic or cultural district, and project activity will be confined to a parcel that has been developed since the 1940s. Section 3.2 provides archaeological and cultural background information for the area. That section also outlines why it has been determined that no historic resources will be directly or adversely affected by the proposed project. Thus, the Proposed Action is consistent with this policy of the CZM Program.

4.1.4.3 Scenic and Open Space Resources

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

Policies:

- 1) Identify valued scenic resources in the coastal zone management area;*
- 2) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;*
- 2) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and*
- 4) Encourage those developments that are not coastal dependent to locate in inland areas.*

Discussion: As discussed in Section 3.3, coastal open space and scenic resources will not be adversely affected by the Proposed Action. It is anticipated that: (i) the project site does not abut a scenic landmark, (ii) the proposed structure is consistent in scale with nearby residences, (iii) all adjacent parcels are developed, (iv) the proposed structure will not be visible from Kamehameha Highway (the nearest coastal public roadway), and (iv) all development will be outside the shoreline setback. Once completed, the new single-family residence should be compatible with other residences along Pahipahi‘ālua Street. In addition, the Proposed Action will not appreciably alter natural landforms or adversely impact public views to and from the shoreline from publicly-accessible locations.

4.1.4.4 Coastal Ecosystems

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

Policies:

- 1) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- 2) Improve the technical basis for natural resource management;*

- 3) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
- 4) *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*
- 5) *Promote water quantity and quality planning and management practices that 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 Proposed Action will not interact with or affect coastal ecosystems or any other water body in a manner materially different than the existing residential use of the subject parcel. As described in Section 3.4, the project site does not provide habitat for protected species and is not near protected habitat, reserves, or conservation districts.

4.1.4.5 Economic Uses

Objective: *Provide public or private facilities and improvements important to the State’s economy in suitable locations.*

Policies:

- 1) *Concentrate coastal dependent development in appropriate areas;*
- 2) *Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*
- 3) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*
 - a) *Use of presently designated locations is not feasible;*
 - b) *Adverse environmental effects are minimized; and*
 - c) *The development is important to the State’s economy.*

Discussion: The Proposed Action is a residential development in a coastal, residentially-zoned community. The parcel has been placed in the State Urban Land Use District and is zoned R-5 Residential by the CCH. As such, it is appropriately-located on a parcel which is already in residential use, consistent with these state and county land use designations. There are no harbors, ports, designated tourist destinations, or other substantial commercial operations nearby.

4.1.4.6 Coastal Hazards

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

Policies:

- 1) *Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;*
- 2) *Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint source pollution hazards;*
- 3) *Ensure that developments comply with requirements of the Federal Flood Insurance Program; and*
- 4) *Prevent coastal flooding from inland projects.*

Discussion: Section 3.1 discussed coastal hazards in detail. Although the project site is within the tsunami evaluation zone, it complies with the related programs. The living level of the structure will be above the BFE; the proposed single-family residence will not cause or contribute to coastal flooding.

4.1.4.7 Managing Development

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

Policies:

- 1) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- 2) *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
- 3) *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 Paullin Family has initiated contact (see Chapter 6) and continues to work cooperatively with all government agencies with oversight responsibilities to facilitate efficient processing of permits and informed decision-making by the responsible parties. In addition, they have, via public outreach and this EA, attempted to communicate the potential impacts of the Proposed Action to the public in clear and understandable terms. The proposed activity conforms with applicable state and county land use designations and rules, no variances are being requested.

4.1.4.8 Public Participation

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

Policies:

- 1) *Promote public involvement in coastal zone management processes;*
- 2) *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

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

Discussion: A public notice of availability for the DEA was published in the ERP’s bi-monthly bulletin, *The Environmental Notice* on April 23, 2022. During the 30-day public review period the public had an opportunity to review and comment on the DEA, pursuant to the requirements of HAR 11-200.1. A presentation introducing the Proposed Action was made to Ko‘olauloa Neighborhood Board No. 28 on June 9, 2022 and to the Office of Councilmember Heidi Tsuneyoshi on July 11, 2022. The SMA Major Permit process will provide additional opportunities for public participation.

4.1.4.9 Beach Protection

Objective: *Protect beaches for public use and recreation.*

Policies:

1) 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;

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

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

Discussion: The Proposed Action poses no risk to beaches and is fully consistent with the objectives and policies related to beach and coastal dune protection contained in HRS §§ 205A-2(b)(9) and 205A-2(c)(9), as amended. No structures are planned seaward of the shoreline setback, and no interactions with littoral processes would be involved.

4.1.4.1 Marine Resources

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

Policies:

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

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

- 3) *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;*
- 4) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- 5) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

Discussion: The Proposed Action will not adversely impact the protection, use, and sustainable development of marine and coastal resources. No new structures are slated to occur within 60 feet of the shoreline.

4.2 CITY AND COUNTY OF HONOLULU

4.2.1 COUNTY GENERAL PLAN

The *General Plan for the City and County of Honolulu* was adopted in 1977, and has been subsequently amended (most recently in 2002). The *General Plan for the City and County of Honolulu* is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of O‘ahu’s residents and the strategies of actions to achieve them. It is the focal point of a comprehensive planning process that addresses physical, social, economic and environmental concerns affecting the CCH. This planning process serves as the coordinative means by which the CCH government provides for the future growth of the metropolitan area of Honolulu.

The *General Plan for the City and County of Honolulu* poses several objectives related to housing. Section I, Population, Objective C, proposes: “To establish a pattern of population distribution that will allow the people of Oahu to live and work in harmony.” Further developing this theme, Section I, Objective C, Policy 3 states:

Policy 3

Manage physical growth and development in the urban-fringe and rural areas so that:

- a. An undesirable spreading of development is prevented; and*
- b. Their population densities are consistent with the character of development and environmental qualities desired for such areas.*

Discussion: To the extent that the Proposed Action will develop a new single-family residence on a lot already designated and used for residential purposes in a rural area, it will avoid any undesirable spread of development. Furthermore, the proposed structures are consistent with the character of development and environmental qualities of the surrounding Pahipahi‘ālua Street community in both nature and scope.

The *General Plan for the City and County of Honolulu* further devotes an entire chapter to the subject of housing. Section IV, Housing, Objective A states the CCH’s policy, “To provide decent

housing for all the people of Oahu at prices they can afford.” Specific policies follow from that, including:

Policy 4

Establish public, and encourage private, programs to maintain and improve the condition of existing housing.

Policy 11

Encourage the construction of affordable homes within established low-density communities by such means as ‘ohana units, duplex dwellings, and cluster development.

Discussion: The Proposed Action, which consists of demolition, removal, and replacement of an existing single-family residence is intended to rehabilitate an existing residential lot, allowing its continued use for years to come, consistent with the policy of maintaining and improving the existing housing stock on O‘ahu. Thus, the Proposed Action actively promotes these housing policies of the *General Plan for the City and County of Honolulu*.

4.2.2 KO‘OLAULOA SUSTAINABLE COMMUNITY PLAN (2020)

The purpose of the *Ko‘olau Loa Sustainable Communities Plan (KLSCP; 2020)* is to maintain and enhance the natural and manmade elements of the Ko‘olau Loa region that make its rural character unique and special. Consistent with County General Plan policies, the KLSCP allows for limited growth to accommodate the existing and future housing and employment needs, while maintaining a population size consistent with the region’s open space, country atmosphere, and rural lifestyle.

The KLSCP (2020) establishes that the role of the Koolau Loa region in Oahu’s development patten is to maintain its character as a rural area and specifies that its natural resources and predominantly “country” character be maintained by establishing policies for future land use and development in the region that (KLSCP 2020):

Maintain and, where possible, expand critical open space areas and shoreline views between the existing pattern of community development so as to preserve a separation between the natural and built environment within each ahupua‘a.

Preserve continuous coastal views and scenic views of ridges, valley slopes, and prominent land features.

The KLSCP’s proposed land use policies are intended to provide guidance for future actions and agency decision-making. General policies are broad statements of intent that express the CCH’s overall philosophy toward particular land uses and their effective management. Planning principles and guidelines provide more specific guidance in terms of planning, design, and implementation of projects and programs. The overarching theme of the KSCP is that the Ko‘olauloa region should remain relatively stable, and oriented toward maintaining and enhancing the region’s ability to sustain its suburban and rural character and the relaxed lifestyle that flows from it.

As depicted in Appendix A of the KLSCP (2020) *Land Use Map*, the proposed project and all of Pahipahi‘ālua Street are within the Rural Community Boundary and are designated for Rural

Residential use. While the Proposed Action constitutes redevelopment, as opposed to development of a previously undeveloped lot, it is within the limits designated by the KLSCP for residential use. As no proposals for residential uses can be considered outside the Rural Community Boundary, the Proposed Action is consistent with this directive, preventing the encroachment of development onto agricultural lands and open space resources.

Section 3.5 of the KLSCP (2020) discusses residential communities in the plan area, defining appropriate elements which aid and enhance the overall quality of life in the community. Pahipahi‘ālua Street is defined as a Rural Residential area in the KSCP.

Section 3.5.2 *Guidelines* and Section 3.5.2.2 *Rural Residential* provide the following guidelines for rural-residential as: (i) not exceeding 5-12 units per acre, and (ii) not over two stories or 25 feet in height, although the height may vary in response to required flood elevation, slope, or other physical site constraints. In addition, specific physical characteristics of rural-residential areas include (KLSCP, Section 3.5.2):

- *Smaller building footprints, less lot coverage, and greater open space than encountered in more urbanized areas;*
- *Alternative development patterns such as clustering and traditional compact layouts to preserve open space and minimize infrastructure demands;*
- *Low-rise structures, generally not exceeding two stories;*
- *Relatively narrow roadway widths;*
- *Minimal amount of paved driveway surfaces;*
- *Landscaping and design alternatives that reduce impervious surfaces, such as grassed swales rather than curbs and gutters; and*
- *Building, landscaping, and fencing design elements that impart an informal, open feeling.*

The design of the proposed single-family residence generally comport with these design guidelines for development in rural-residential portions of the KLSCP plan area. Finally, as called for in Section 3.5 of the KLSCP, the Proposed Action has been designed to be generally compatible with the predominant form of existing homes on adjacent properties and within the Pahipahi‘ālua Street neighborhood as a whole.

4.2.3 LAND USE ORDINANCE, ROH §21

The purpose of the CCH’s Land Use Ordinance (LUO), contained in ROH, Chapter 21, is to regulate land use in a manner that will encourage orderly development in accordance with adopted land use policies, including the *General Plan for the City and County of Honolulu* and the KSCP. These standards govern the location, height, area, and siting of structures, yard areas, off-street parking facilities, and open spaces, and the use of structures and land for agriculture, industry, business, residences, and other purposes.

Discussion: The Proposed Action is located in the CCH’s R-5 Residential District (Figure 1.2). The intent of the R-5 Residential District is to allow for urban residential development. Because the Proposed Action consists of construction of a new single-family residence on a site designated and currently used for residential purposes, it is an allowable use per the CCH’s LUO. In addition, the proposed structures will meet all applicable design standards with respect to minimum lot area and width/depth, minimum front and side yards, maximum building area, height, and other factors, as summarized in Table 4.1. Thus, the Proposed Action is consistent with the CCH’s LUO.

Table 4.1: Summary of LUO Compliance

<i>LUO Standard</i>	<i>R-5 Zone</i>	<i>Proposed Action</i>
Minimum Lot Area	5,000 square feet	17,720 square feet (12,100 square feet fast land)
Minimum lot width and depth	50 feet	107 feet
Front Yard	10 feet	18 feet
Side Yard	5 feet	12 feet
Rear Yard	5 feet	60 feet
Maximum Building Area	50%	21% (of fast land)
Maximum Height	25-30 feet	26’3” (see note below)
Maximum Density Floor Area Ratio	0.7	0.14 (of fast land)
Maximum Number of Wet Bars/Dwelling	1	0
Maximum Number of Laundry Rooms/Dwelling	1	1
Maximum Number of Bathrooms/Dwelling	8 if one dwelling/lot 4 if two dwellings/lot	2
Maximum Impervious Surface	75% of total zoning lot area	28% (of fast land)
Minimum Off-Street Parking Ratio	1:1,000	1:856 (2 spots)

Notes: Per LUO Sec. 21-9.10, “(b) Dwellings in country, residential and agricultural districts, as well as detached dwellings and duplex units in apartment and apartment mixed use districts, may exceed the maximum height in the district by no more than five feet if required to have its lowest floor elevated to or above the base flood elevation, provided such additional height shall not be greater than 25 feet above the base flood elevation.” This is applicable to the proposed project, where the lowest floor is elevated 8’8” off the ground so that it is above the BFE.

Source: LUO Standard and R-5 Zone columns: Land Use Ordinance, Department of Planning and Permitting, City and County of Honolulu, December 2020, Revise to January 22, 2021. Proposed Action column: Planning Solutions, Inc.

4.2.4 SHORELINE SETBACK, ROH §23

ROH, Chapter 23 Shoreline Setbacks establishes the standards and procedures, which apply to all lands within the shoreline area on O‘ahu. The “shoreline area” means all the land area between the certified shoreline and the shoreline setback line. The “certified shoreline” means the shoreline as established by a surveyor and certified by the DLNR under HAR 13-222. The shoreline survey conducted on June 25, 2021, by Jaime F. Alimboyoguen, and attached in Appendix C, was certified by DLNR on November 17, 2021. The shoreline determined by that survey and the associated shoreline area (a 60-foot-wide setback)¹¹ is illustrated in Figure 2.5.

¹¹ The current version of ROH Chapter 23 indicates a 40 foot setback. DPP and the City Council are currently considering modifications to the shoreline setback. That proposal, if adopted as currently drafted, would establish a shoreline setback ranging from 60 feet to 130 feet, depending on historic erosion rates. It indicates that shoreline lots with a history of coastal erosion would be subject to a setback based on the erosion rate, measured as 60 feet (the base setback) plus 70 times the annual coastal erosion rate, up to a maximum setback of 130 feet. Using the UH modeled rate of shoreline erosion (Section 3.1.5) of 0.1 foot per year, the shoreline setback at the subject parcel would be 60 + (70 * 0.1) = 67 feet. Due to uncertainty regarding whether the proposed modification to the shoreline setback will be adopted as drafted and the discussion in Section 3.1.5 that presents a site-specific evidence that shoreline erosion has not occurred at the subject parcel (e.g., the historic rate of erosion is 0.0 feet per year), we have chosen to use the proposed 60 foot base shoreline setback in this document.

The Paullin Family has elected to seek a waiver of the requirement for a certified shoreline survey and locate all development more than 55 feet from the “presumed” shoreline as it was surveyed on June 25, 2021. The Paullin Family submits that although the certification of the June 25, 2021, shoreline survey will expire prior to the award of the SMA permit that is part of the Proposed Action (Section 2.2), that survey in combination with the discussion of the shoreline erosion in Section 3.1.5 adequately define the shoreline at the subject parcel.

Uses permitted in the shoreline setback are minor structures, such as open work fences and limited paver walkways (20 square feet). The Proposed Action does not propose any new construction in the shoreline area (Figure 2.5). It does, however, propose the demolition of the existing residence, which is partially within the shoreline area. All proposed new structures on the subject parcel will be landward of the certified shoreline and a 60-foot-wide shoreline area; therefore, the proposal complies with the current ROH Chapter 23.

4.2.5 SPECIAL MANAGEMENT AREA REVIEW, ROH §25

As discussed in Section 1.2, the Proposed Action is located in the CCH’s SMA (Figure 1.3), and therefore will require SMA Major Permit coverage prior to being initiated. The following subsections discuss the project’s consistency with *SMA Review Guidelines* contained in ROH, Chapter 25, which relates to shoreline management. Each subsection addresses one of the guidelines listed in this ordinance. For ease of review, the guidelines are reproduced in italics, followed by a discussion of the project’s consistency with them.

4.2.5.1 Public Access

Impacts on Public Access

All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that: §25-3.2a(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;

Discussion: The Proposed Action would take place entirely within TMK No. 5-7-003:057, which is not accessible to the public. Because there is no public shoreline access via the site, and because no work will take place in any off-site public shoreline access, no impacts related to public access are anticipated. The improvements to the parcel, including landscaping and irrigation lines, will not affect the shoreline, and would not impair off-site public access to beaches, recreation areas, or reserves. The public will continue to have unfettered lateral access along the shoreline fronting the project parcel.

4.2.5.2 Recreation Areas and Wildlife Reserves

Impacts on Recreation Areas and Wildlife Reserves

All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that: §25-3.2a(2): Adequate and properly located public recreation areas and wildlife preserves are reserved;

Discussion: As discussed in Section 3.7, the planned CCH park at Kawela Bay is the closest public recreation area; the nearest natural reserve is the James Campbell National Wildlife Refuge managed by the U.S. Fish and Wildlife Service, approximately 2.5 miles to the east. Because all of the work for the Proposed Action would be confined to TMK No. 5-7-003:057, there is no potential for these activities to impact public recreation areas or wildlife reserves in the area.

4.2.5.3 Solid and Liquid Waste Treatment Facilities

Impacts on Solid and Liquid Waste Treatment Facilities

All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that: §25-3.2a(3): Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon special management area resources;...

Discussion: The Proposed Action will not have any impact on solid or liquid waste treatment facilities, aside from minor deposits of solid waste to an appropriate landfill during the demolition and removal of the existing single-family residence on the property. Once complete, the proposed single-family residence will deposit liquid waste into an on-site, HDOH-permitted IWS (Section 1.3) and will, therefore, have no impact on municipal sewers or wastewater treatment facilities.

4.2.5.4 Land Forms, Vegetation, and Water Resources

Impacts on Land Forms, Vegetation, and Water Resources

All development in the special management area shall be subject to reasonable terms and conditions set by the council to ensure that: §25-3.2a(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: Because the proposed site has already been developed for residential purposes, only very minor grading and site preparation is needed. The Proposed Action will not significantly affect or alter land forms, vegetation, or water resources. The site will continue to have the same general physiographic and topographic characteristics, and thus would have a similar overall appearance as it does at the present time (Figure 2.3).

4.2.5.5 Cumulative Impacts

Cumulative Impacts and Impacts on Planning Options

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

§25-3.2b(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;

Discussion: The Proposed Action consists of removing an existing single-family residence and replacing it with a new single-family residence. As a one-for-one replacement, the Proposed Action will not make any cumulative contribution to adverse environmental impacts, nor is it part of a larger action which could have substantial adverse effects, or which would eliminate planning options in the future.

4.2.5.6 CZM Program Objectives and SMA Guidelines

Consistency with CZM Program Objectives and Policies and with the State SMA Guidelines

No development shall be approved unless the council has first found that: §25-3.2b (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;

Discussion: As discussed in detail in Section 4.1.4, the Proposed Action is consistent with the objectives and policies of the CZM Program. The CCH’s SMA Review Guidelines, discussed in this section, are based upon and consistent with the State of Hawai‘i’s CZM Guidelines. The Office of Planning and Sustainable Development, Department of Business, Economic Development and Tourism (DBEDT) was provided with a copy of this report to permit their confirmation that the project is consistent with the CZM Program’s policies and objectives. The nature and scope of this project does not trigger the requirement for a CZM consistency review.

4.2.5.7 County General Plan, Development Plans, and Zoning

Consistency with County General Plan, Development Plans, and Zoning

No development shall be approved unless the council has first found that: §25-3.2b(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: Sections 4.2.1, 4.2.2, and 4.2.3 documents the Proposed Action’s consistency with the *General Plan for the City and County of Honolulu*, the KSCP, and the LUO, respectively.

4.2.5.8 Bays, Salt Marshes, River Mouths, Sloughs, or Lagoons

Impacts on Bays, Salt Marshes, River Mouths, Sloughs, or Lagoons

The council shall seek to minimize, where reasonable: §25-3.2c(1) Dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon;

Discussion: The Proposed Action described and analyzed in this report will not include any dredging, filling, or other modifications to any bay, estuary, salt marsh, river mouth, slough, or lagoon.

4.2.5.9 Beaches and Public Recreation

Impacts on Beaches and Public Recreation

The council shall seek to minimize, where reasonable: §25-3.2c(2) Any development which would reduce the size of any beach or other area usable for public recreation;

Discussion: The beach and shoreline fronting the subject parcel is not experiencing erosion. The Proposed Action will have no impact on the size of any beach or other area usable for public recreation. All of the proposed demolition, removal, and construction activities proposed as part of the project will be confined to TMK No. 5-7-003:057 and will have no impact on nearby beaches or public recreation.

4.2.5.10 Other Coastal Resources within the SMA

Impacts on Other Coastal Resources within the Special Management Area

The council shall seek to minimize, where reasonable: §25-3.2c(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;

Discussion: The Proposed Action will not restrict public access to any coastal resource in the area. It is not near a dedicated public right-of-way to access the shoreline.

4.2.5.11 Lines of Sight Toward the Sea

Impacts on Lines of Sight Toward the Sea

The council shall seek to minimize, where reasonable: §25-3.2c(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;...

Discussion: As discussed in Section 3.3, the Proposed Action will not lead to substantial modifications to the existing line of sight from Kamehameha Highway, the area’s principal arterial and nearest public coastal road. Existing vegetation, topography, and structures currently obstruct views of the shoreline from Kamehameha Highway in the project vicinity, and will continue to do so once the Proposed Action is implemented, and the project will have no effect on available lines of sight in nearby areas.

4.2.5.12 Water Quality, Open Water, Fisheries, Fishing Grounds, Wildlife Habitats and Agricultural Land Use

Impacts on Water Quality, Open Water, Fisheries, Fishing Grounds, Wildlife Habitats and Agricultural Land Use

The council shall seek to minimize, where reasonable: §25-3.2c(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: No project-related activities will involve work in, or discharges to, area waterbodies. No adverse impacts to area water quality, fisheries, fishing grounds, wildlife habitat, or agricultural lands are anticipated as a result of the Proposed Action.

5 DETERMINATION

5.1 SIGNIFICANCE CRITERIA

Hawai‘i Administrative Rule §11-200.1-14 establishes procedures for determining if an EIS should be prepared or if a FONSI is warranted. HAR §11-200.1-14(d) provides that proposing agencies should issue an environmental impact statement preparation notice for actions that it determines may have a significant effect on the environment. HAR §11-200.1-13(b) lists the following criteria to be used in making that determination.

In most instances, an action shall be determined to have a significant effect on the environment if it:

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;
2. Curtails the range of beneficial uses of the environment;
3. Conflicts with the State’s long-term environmental policies or goals as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;
4. Substantially affects the economic or social welfare of the community or State;
5. Substantially affects public health;
6. Involves substantial secondary impacts, such as population changes or effects on public facilities;
7. Involves a substantial degradation of environmental quality;
8. Is individually limited but cumulatively has considerable effect on the environment or involves a commitment for larger actions;
9. Substantially affects a rare, threatened, or endangered species, or its habitat;
10. Detrimentally affects air or water quality or ambient noise levels;
11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;
12. Substantially affects scenic vistas and viewplanes identified in county or state plans or studies; or,
13. Requires substantial energy consumption.

5.2 FINDINGS

The potential effects of the Proposed Action was evaluated relative to these 13 significance criteria. The Paullin Family’s findings with respect to each criterion are summarized in the following subsections.

5.2.1 IRREVOCABLE LOSS OR DESTRUCTION OF VALUABLE RESOURCE

The Proposed Action consists of the demolition and removal of an existing single-family residence and construction of a new single-family residence in its place. It does not involve the loss of any significant or valuable cultural or natural resources.

5.2.2 CURTAILS BENEFICIAL USES

The proposed single-family residence would be for residential use on a lot zoned R-5 Residential by the CCH, and consequently may be deemed a beneficial use of the environment. Further, the site has been in continuous residential use since 1943. Thus, it's continued residential use will not curtail other beneficial uses of the area and will allow for the continued, beneficial use of the site for residential purposes.

5.2.3 CONFLICTS WITH LONG-TERM ENVIRONMENTAL POLICIES OR GOALS

As discussed in Chapter 4, the Proposed Action is consistent with all applicable plans, policies, and controls, including the *Hawai‘i State Plan* and the *General Plan for the City and County of Honolulu*. Further, the Proposed Action is consistent with the State of Hawai‘i’s long-term environmental policies and goals, as expressed in HRS, Chapter 344 and elsewhere in state law.

5.2.4 SUBSTANTIALLY AFFECTS ECONOMIC OR SOCIAL WELFARE

The Proposed Action will not have substantial effects on economic or social welfare. Its purpose is solely to demolish and remove an existing, aged single-family residence and replace it with a new single-family residence.

5.2.5 PUBLIC HEALTH EFFECTS

The Proposed Action will not adversely affect air or water quality, including water sources used for drinking or recreation. Neither will it generate other emissions that will have a significant adverse effect on public health.

5.2.6 PRODUCE SUBSTANTIAL SECONDARY IMPACTS

The Proposed Action will not produce substantial secondary impacts, nor will it foster population growth, promote economic development, or stress public facilities or services. Instead, it is solely intended to demolish and remove an existing, aged single-family residence and replace it with a new single-family residence.

5.2.7 SUBSTANTIALLY DEGRADE THE ENVIRONMENT

The Proposed Action will not have substantial long-term environmental effects. The work will temporarily elevate noise levels and generate limited nuisance airborne dust during construction, but these impacts will be localized and of limited duration. Adequate measures will be taken to control the intensity of construction noise and dust, and the effects will be brief and minimal.

5.2.1 CUMULATIVE EFFECTS OR COMMITMENT TO A LARGER ACTION

The Proposed Action does not represent a commitment to a larger action and is not intended to facilitate substantial economic or population growth. It is intended solely to demolish and remove an existing single-family residence and replace it with a new single-family residence on a parcel designated by the State and CCH for residential use.

5.2.2 EFFECTS ON RARE, THREATENED, OR ENDANGERED SPECIES

As discussed in Section 3.4, no rare, threatened, or endangered species are known to utilize the project site, and no activities are contemplated that would pose a threat to rare, threatened, or endangered species, or their habitat. In addition, the Proposed Action does not utilize any resource or habitat needed for the protection of rare, threatened, or endangered species.

5.2.3 AFFECTS AIR OR WATER QUALITY OR AMBIENT NOISE LEVELS

Noise levels and airborne emissions will temporarily increase during demolition, removal, and construction activities. BMPs will be implemented and any effects will be brief, relatively minor, and restricted to the immediate vicinity of the project site. Once construction is completed, the proposed project will not produce airborne emissions, waterborne pollution, or noise.

5.2.4 ENVIRONMENTALLY SENSITIVE AREA

As discussed in Section 3.1, and due to its proximity to the shoreline, the project site is in a Special Flood Hazard Area and a Tsunami Inundation Zone. However, the project site has been in continuous use for residential purposes since shortly after WWII. In addition, the parcel on which the Proposed Action is located has been designated as being in the Urban Land Use District by the State of Hawai‘i and placed in the R-5 Residential Zoning District by the CCH. These designations indicated that state and local governments consider the site appropriate for residential development.

5.2.5 AFFECTS SCENIC VISTAS AND VIEW PLANES

As discussed in Section 3.3, the proposed project is not visible from scenic vistas identified in county or state plans or studies and is not visible in viewplanes identified in county or state plans or studies; therefore, it will not substantially affect them.

5.2.6 REQUIRES SUBSTANTIAL ENERGY CONSUMPTION

The demolition, removal, and construction operations that are proposed will require the use of modest amounts of energy. However, once these relatively brief construction operations are complete, the proposed project will require only as much energy as is typical of a single-family residence of its size.

5.1 DETERMINATION

In view of the foregoing, the Paullin Family’s assessment is that the proposed project will not have a significant adverse impact on the environment. Consequently, DPP has issued a FONSI for the Proposed Action.

6 CONSULTATION AND DISTRIBUTION

6.1 EARLY CONSULTATION

A critical component of the planning effort for the Proposed Action was developing and implementing an early consultation program to inform public agencies and obtain their input regarding the project’s purpose, scope, potential impacts, and recommended mitigation measures. Pursuant to HAR, 11-200.1-18, the Paullin Family sought, at the earliest practicable time, the advice and input of DPP, the CCH agency responsible for implementing the *General Plan for the City and County of Honolulu*, other agencies that have jurisdiction over resources with the potential to be affected by the Proposed Action, and the owner of both adjacent parcels. Table 6.1 identifies the agencies that were sent early consultation letters. The complete text of all scoping letters and responses are provided in Appendix A.

Table 6.1: Early Consultation

<i>Recipient</i>	<i>Response Received</i>
Department of Planning and Permitting	Yes, letter
Division of Forestry and Wildlife	Yes, letter
Dr. Lance and Rochelle Blaisdell (Adjacent Landowners)	Yes, verbal
Linda Lichter and Nick Marck (Adjacent Landowners)	Yes, email
Office of Conservation and Coastal Lands	Yes, letter
Office of Planning and Sustainable Development	Yes, letter

Source: Compiled by Planning Solutions, Inc. (2022)

6.2 DISTRIBUTION OF THE DEA

The DEA was prepared as an applicant action with DPP acting as the approving agency. It was published in the Office of Planning and Sustainable Development, Environmental Review Program’s (ERP) bi-monthly bulletin, *The Environmental Notice*, on April 23, 2022. This initiated a 30-day public review and comment period. The Paullin Family provided the DEA to the parties listed in Table 6.2 with a request for review and comment.

Table 6.2: DEA Distribution List

Federal Agencies	City and County of Honolulu
U.S. Army Corps of Engineers, Honolulu District	Board of Water Supply
U.S. Department of Agriculture	Department of Community Services
U.S. Department of Commerce	Department of Design and Construction
U.S. Department of Homeland Security	Department of Environmental Services
U.S. Department of Housing and Urban Development	Department of Facility Services
U.S. Department of Transportation – Federal Aviation Administration	Department of Parks and Recreation
U.S. Department of Transportation – Federal Highway Administration	Department of Planning and Permitting
U.S. Environmental Protection Agency, Region 9	Department of Transportation Services
U.S. Fish and Wildlife Service, Pacific Islands Field Office	Honolulu Fire Department
State Agencies	Honolulu Police Department
Department of Agriculture	Elected Officials
Department of Accounting and General Services	U.S Senator Brian Schatz
Department of Business, Economic Development, and Tourism (DBEDT)	U.S. Senator Mazie Hirono
DBEDT, Hawai‘i Housing and Finance Development Corporation	U.S. Representative Kaiiali‘i Kahele
DBEDT, Hawai‘i State Energy Office	U.S. Representative Ed Case
DBEDT, Office of Planning and Sustainable Development	Governor David Ige
Department of Defense	Mayor Rick Blangiardi
Department of Education	State Senator Gil Riviere
Department of Hawaiian Home Lands	State Representative Sean Quinlan
Department of Health (DOH), Clean Air Branch	Councilmember Heidi Tsuneyoshi
DOH, Clean Water Branch	Ko‘olauloa Neighborhood Board No. 28
DOH, Environmental Health Services	Libraries and Depositories
DOH, Wastewater Branch	Hawai‘i State Library Documents Center
	Kahuku Public Library
Department of Human Services	Waialua Public Library
Department of Labor and Industrial Relations	Media
Department of Land and Natural Resources (DLNR)	Honolulu Star Advertiser
DLNR, Division of Forestry and Wildlife	Honolulu Civil Beat
DLNR, State Historic Preservation Division	Neighbors
Department of Transportation, Long Range Planning Branch	Dr. Lance and Rochelle Blaisdell
Office of Hawaiian Affairs	Linda Lichter and Nick Marck
Water Resources Research Center	Sam Ahia and Renee Martin
Utilities	Ann Jacobsen
Hawai‘i Gas	
Hawaiian Electric Co., Inc.	
Hawaiian Telcom	

Source: Compiled by Planning Solutions, Inc. (2022)

6.3 RESPONSE TO COMMENTS AND DISTRIBUTION OF THE FEA/FONSI

Table 6.3 lists the parties that submitted written comments on the DEA/AFONSI during the 30-day comment period. This FEA reflects revisions based upon relevant information received during the public review period. The Paullin Family is providing each organization a response to their substantive comments and a copy of the FEA/FONSI. A copy of the FEA/FONSI is also being provided to the Hawai‘i Document Center. Copies of all comments received, and the responses provided, are reproduced at the end of this chapter.

Table 6.3: Comments on the DEA/AFONSI

<i>No.</i>	<i>Commenter</i>	<i>Organization</i>
1	Kolvin Kekua, Network Engineer	Hawaiian Telcom
2	Charmian Dang, U.S. Fish and Wildlife Biologist	U.S. Fish and Wildlife Service
3	Alex Kozlov, Director	Department of Design and Construction
4	Anton Krucky, Director	Department of Community Services
5	Rade Vanic, Interim Chief of Police	Honolulu Police Department
6	Jade Butay, Director of Transportation	Department of Transportation
7	William Ailā, Jr., Chairman	Department of Hawaiian Home Lands
8	Sina Pruder, Chief	HDOH Wastewater Branch
9	Christine Kinimaka, Public Works Administrator	Department of Accounting and General Services
10	Tad T. Nakayama, Project Manager	Hawai‘i Department of Defense
11	Ernest Lau, Manager and Chief Engineer	Board of Water Supply
12	Scott Nakasone, Assistant Division Administrator	Department of Human Services
13	Thomas Lileikis, Program Manager	HDOH Indoor and Radiological Health Branch
14	Craig Uchimura, Acting Assistant Chief	Honolulu Fire Department
15	Carty Chang, Chief Engineer	DLNR Engineering Division
16	Mary Alice Evans, Director	DBEDT Office of Planning and Sustainable Development
17	Roy Ikeda, Interim Public Works Administrator	Hawai‘i Department of Education
18	K. Tiger Mills, Acting Administrator	DLNR Office of Conservation and Coastal Lands
19	Dean Uchida, Director	Department of Planning and Permitting
20	Kristen Caskey, Environmental Health Specialist	HDOH Clean Air Branch

Source: Compiled by Planning Solutions, Inc. (2022)

From: Kolvin Kekua <Kolvin.Kekua@hawaiiantel.com>
Sent: Thursday, April 28, 2022 1:59 PM
To: Julia Ham Tashima <julia@psi-hi.com>
Cc: Sean Cross <Sean.Cross@hawaiiantel.com>
Subject: Paullin Residence Draft Environmental Assessment

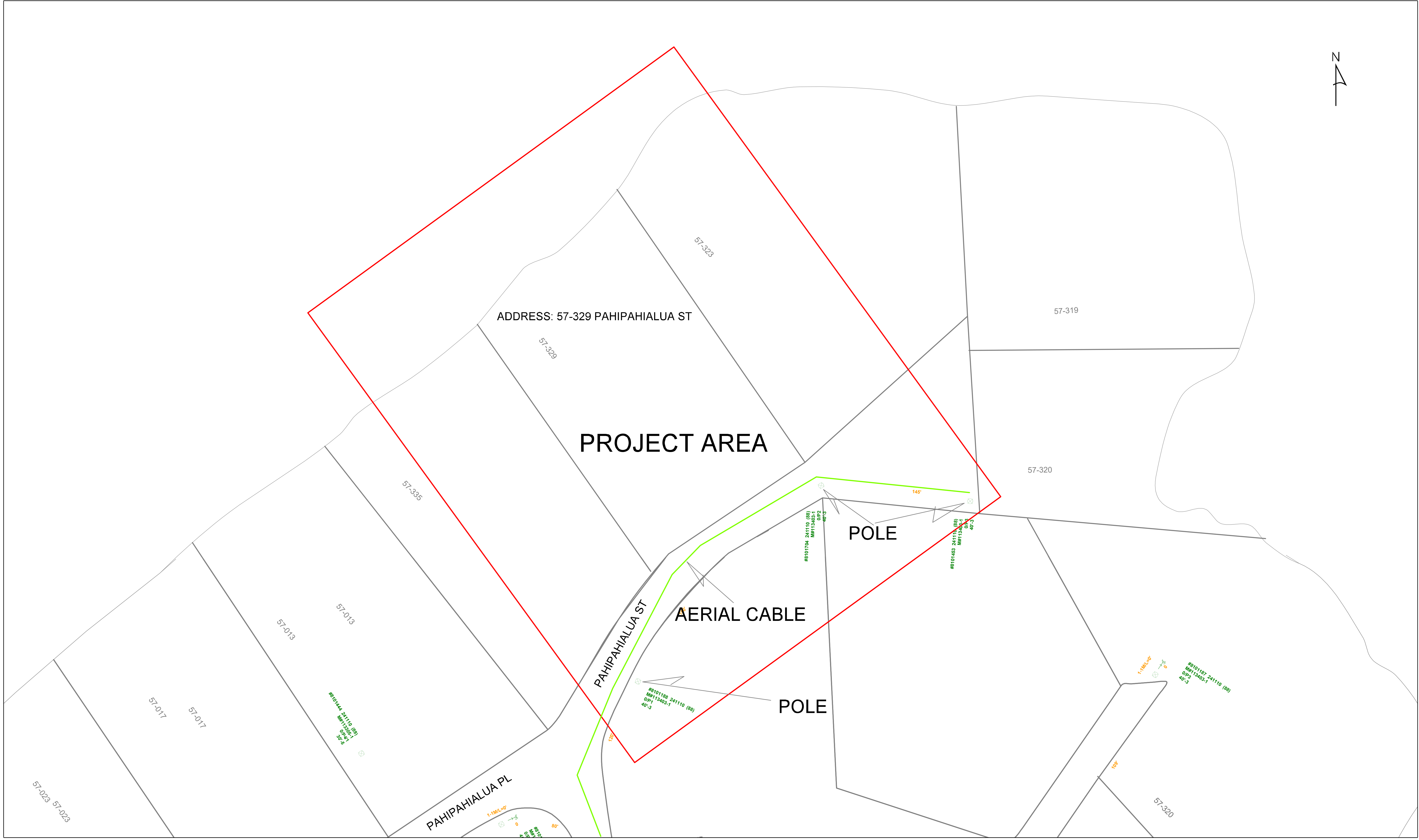
Hello Julia,

After Reviewing the draft environmental assessment, we would like to inform you that the plans submitted will not interfere with any HT infrastructure in the area. Attached is a work print showing the closest HT poles in the area of the jobsite. This response is for the draft environmental assessment only- there was no telecom design to bring service to the property included in the documents. Thanks.

Mahalo,

Kolvin Kekua
Network Engineer – Outside Plant
Hawaiian Telcom
O: 808.460-9613 | C: 808.799.6172
kolvin.kekua@hawaiiantel.com





NOTE AREA	SPECIAL CIRCUITS ASGNMT REC'S DATE _____ DESIGN REVIEW REQ'D <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, ATTACH COMPLETED SPECIAL SERVICES CHANGE NOTICE _____ <input type="checkbox"/> T1 <input type="checkbox"/> DATA <input type="checkbox"/> TRUNK <input type="checkbox"/> SELEX <input type="checkbox"/> OTHER <input type="checkbox"/> NONE	TRANSMISSION CRITERIA BRIDGE TAP(S) FOOTAGE _____ END SECTION FOOTAGE _____ LOOP ELR _____ OHMS LOOP EML _____ dB OFFICE LOOP LIMIT _____ OHMS	WORK SAFELY HIGH VOLTAGE POWER CO. _____ KV _____ PHASE _____ CONNECTED _____ GROUNDED _____ COMMENTS _____	PROPRIETARY INFORMATION FOR USE BY AUTHORIZED HAWAIIAN TELCOM EMPLOYEES ONLY CODES: N/A JOB PRE-FIELDED BY: _____ DATE PRE-FIELDED: _____ PIPELINE NO. _____ ENG KOLVIN KEKUA TEL: 808-460-9613 DRAWN BY KOLVIN KEKUA DATE: 04/28/2022 APP'D _____ SHT 1 OF 1		PCAT: N/A C.O. N/A TITLE: HT EQUIPMENT IN THE AREA OF THE DRAFT ENVIRONMENTAL ASSESSMENT	ISSUE <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REV NO. _____ DATE: _____
				Hawaiian Telcom		W.C.: N/A WO NO.: N/A CTRL: N/A	



August 8, 2022

Kolvin Kekua, Network Engineer
Hawaiian Telcom
Via email: Kolvin.Kekua@hawaiiantel.com

**Subject: Response to Comment on Draft Environmental Assessment for the
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Kolvin:

Thank you for your April 28, 2022, email message and work print attachment concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the proposed action will not interfere with any Hawaiian Telcom infrastructure or operations. You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP
Planner

From: [Dang, Charmian I](#)
To: [Makena White](#); [Jim Hayes](#)
Cc: abeatty@honolulu.gov
Subject: Subject: 2022-0037072-S7-001 Species List for the Proposed Paullin Residence at 57-321 Pahipahi'ālua Street
TMK (1) 5-7-003:057 Kahuku, O'ahu
Date: Monday, May 2, 2022 2:28:42 PM
Attachments: [2022-0037072-S7-001 Paullin Construction Kahuku Oahu.pdf](#)
[IPaC Info Letter Species List Instructions PIFWO 20Apr2022 Final.pdf](#)

Dear Mr. White,

Attached you will find the FWS Pacific Islands Fish and Wildlife Office's response to your species list request for the above named project.

We thank you for your efforts to conserve listed species and native habitats. Please contact me should you have any questions pertaining to this response or require further guidance. When referring to this project, please include this reference number 2022-0037072-S7-001.

Aloha,

Charmian Dang

~~~~~  
Charmian Dang  
U. S. Fish and Wildlife Biologist  
Pacific Islands Fish and Wildlife Office  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawaii 96850  
808-792-9400



# 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

May 2, 2022

In Reply Refer To:  
2022-0037072-S7-001

Mr. Mākena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Blvd., Suite 950  
Honolulu, Hawai'i 96813

Subject: Species List for the Proposed Paullin Residence at 57-321 Pahipahi'ālua Street  
TMK (1) 5-7-003:057 Kahuku, O'ahu

Dear Mr. White:

Thank you for your email of April 27, 2022, requesting a species list and guidance for the proposed construction of the Paullin Residence at 57-321 Pahipahi'ālua Street TMK (1) 5-7-003:057, on the island of O'ahu. The proposed project consists of the removal of existing structures and the development of a new two-story, single-family residence. The new structure will have a total interior area of roughly 1,700 square feet, comply with all land use requirements, including yard, height, and shoreline setback, and be elevated so that the living area is above the base flood elevation.

This letter has been prepared under the authority of and in accordance with provisions of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (ESA). Based on this authority, we offer the following comments for your consideration. We have reviewed the information you provided and pertinent information in our files, as it pertains to listed species and designated critical habitat in accordance with section 7 of the ESA. There is no federally designated critical habitat within the immediate vicinity of the proposed project. Our data indicate the following federally listed species may occur or transit through the vicinity of the proposed project area: the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*); and the endangered Hawaiian petrel (*Pterodroma sandwichensis*), endangered Hawai'i distinct population segment (DPS) of band-rumped storm-petrel (*Oceanodroma castro*), and threatened Newell's shearwater (*Puffinus auricularis newelli*) (hereafter collectively referred to as Hawaiian seabirds); and the threatened Central North Pacific distinct population segment (DPS) of the green sea turtle (honu, *Chelonia mydas*) (hereafter referred to as green sea turtle).

**INTERIOR REGION 9**  
**COLUMBIA-PACIFIC NORTHWEST**

IDAHO, MONTANA\*, OREGON\*, WASHINGTON

\*PARTIAL

**INTERIOR REGION 12**  
**PACIFIC ISLANDS**

AMERICAN SAMOA, GUAM, HAWAI'I,  
NORTHERN MARIANA ISLANDS



### Hawaiian hoary bat

The Hawaiian hoary bat roosts in woody vegetation across all islands and will leave their young unattended in trees and shrubs when they forage. If trees or shrubs 15 feet or taller are cleared during the pupping season, June 1 through September 15, there is a risk that young bats could inadvertently be harmed or killed, since they are too young to fly or move away from disturbance. Hawaiian hoary bats forage for insects from as low as 3 feet to higher than 500 feet above the ground and can become entangled in barbed wire used for fencing.

To avoid and minimize impacts to the endangered Hawaiian hoary bat we recommend you incorporate the following applicable measures into your project description:

- Do not disturb, remove, or trim woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15).
- Do not use barbed wire for fencing.

### Hawaiian seabirds

Hawaiian seabirds may traverse the project area at night during the breeding, nesting and fledging seasons (March 1 to December 15). Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

To avoid and minimize potential project impacts to seabirds we recommend you incorporate the following measures into your project description:

- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches and controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
- Avoid nighttime construction during the seabird fledging period, September 15 through December 15.

### Green sea turtle

The Service consults on sea turtles and their use of terrestrial habitats (beaches where nesting and/or basking is known to occur), whereas the National Marine Fisheries Service (NMFS) consults on sea turtles and their use of off-shore and open ocean habitats. We recommend that you consult with NMFS regarding the potential impacts from the proposed project to sea turtles in off-shore and open ocean habitats.

Green sea turtles may nest on any sandy beach area in the Pacific Islands. Nesting occurs on beaches from May through September, peaking in June and July, with hatchlings emerging through November and December. Construction on, or in the vicinity of, beaches can result in sand and sediment compaction, sea turtle nest destruction, beach erosion, contaminant and nutrient runoff, and an increase in direct and ambient light pollution which may disorient

hatchlings or deter nesting females. Off-road vehicle traffic may result in direct impacts to sea turtles and nests, and also contributes to habitat degradation through erosion and compaction.

Projects that alter the natural beach profile, such as nourishment and hardening, including the placement of seawalls, jetties, sandbags, and other structures, are known to reduce the suitability of on-shore habitat for sea turtles. These types of projects often result in sand compaction, erosion, and additional sedimentation in nearshore habitats, resulting in adverse effects to the ecological community and future sea turtle nests. The hardening of a shoreline increases the potential for erosion in adjacent areas, resulting in subsequent requests to install stabilization structures or conduct beach nourishment in adjacent areas. Given projected sea level rise estimates, the likelihood of increase in storm surge intensity, and other factors associated with climate change, we anticipate that beach erosion will continue and likely increase.

Where possible, projects should consider alternatives that avoid the modification or hardening of coastlines. Beach nourishment or beach hardening projects should evaluate the long-term effect to sea turtle nesting habitat and consider the cumulative effects.

To avoid and minimize project impacts to green sea turtles and their nests we recommend you consider incorporating the following applicable measures into your project description:

- No vehicle use on or modification of the beach/dune environment during the sea turtle nesting or hatching season (May to December).
- Do not remove native dune vegetation.
- Incorporate applicable best management practices regarding Work in Aquatic Environments (see enclosed) into the project design.
- Have a biologist familiar with sea turtles conduct a visual survey of the project site to ensure no basking sea turtles are present.
  - If a basking sea turtle is found within the project area, cease all mechanical or construction activities within 100 feet until the animal voluntarily leaves the area.
  - Cease all activities between the basking turtle and the ocean.
- Remove any project-related debris, trash, or equipment from the beach if not actively being used.
- Do not stockpile project-related materials in the intertidal zone, reef flats, or stream channels.

**Lighting:** Optimal nesting habitat is a dark beach free of barriers that restrict sea turtle movement. Nesting turtles may be deterred from approaching or laying successful nests on lighted or disturbed beaches. They may become disoriented by artificial lighting, leading to exhaustion and placement of a nest in an inappropriate location (such as at or below the high tide line). Hatchlings that emerge from nests may also be disoriented by artificial lighting. Inland areas visible from the beach should be sufficiently dark to allow for successful navigation to the ocean.

Your letter did not state if night work would be involved in the study. If it does, to avoid and minimize project impacts to green sea turtles from lighting we recommend you consider incorporating the following applicable measures into your project description:

- Avoid nighttime work during the nesting and hatching season (May to December).

- Minimize the use of lighting and shield all project-related lights so the light is not visible from any beach.
  - If lights can't be fully shielded or if headlights must be used, fully enclose the light source with light filtering tape or filters.
- Incorporate design measures into the construction or operation of buildings adjacent to the beach to reduce ambient outdoor lighting such as:
  - tinting or using automatic window shades for exterior windows that face the beach;
  - reducing the height of exterior lighting to below 3 feet and pointed downward or away from the beach; and
  - minimize light intensity to the lowest level feasible and, when possible, include timers and motion sensors.

We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Charmian Dang, Fish and Wildlife Biologist (phone: 808-792-9400, email: [Charmian\\_Dang@fws.gov](mailto:Charmian_Dang@fws.gov)). When referring to this project, please include this reference number: 2022-0037072-S7-001.

Sincerely,

Island Team Manager  
Pacific Islands Fish and Wildlife Office  
O'ahu, Kaua'i, Northwestern Hawaiian  
Islands, and American Samoa



# 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

Subject: IPaC generated official species list for the Pacific Islands Fish and Wildlife Office

Dear Action Agency or Applicant:

The Pacific Islands Fish and Wildlife Office (PIFWO) is transitioning to the Information for Planning and Consultation (IPaC) online portal, <https://ipac.ecosphere.fws.gov/> for federal action agencies and non-federal agencies or individuals to obtain official species lists, including threatened and endangered species, designated critical habitat, and avoidance and minimization measures to consider in your general project design. IPaC has been used by continental USFWS offices to provide official species lists and avoidance and minimization guidance since 2017. Using IPaC expedites the process for species list distribution. Obtaining a species list in IPaC is relatively straightforward and takes minimal time to complete. Step by step instructions are included below.

Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of your species list should be verified after 90 days. New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change the species list. Verification can be completed by visiting the IPaC website at regular intervals during project planning and implementation. An updated list may be requested through the IPaC system by completing the same process used to obtain the initial species list.

We hope this process provides efficiencies to our partners in obtaining a species list. For federal action agencies, it also opens additional IPaC functionality that the PIFWO office is still working on, such as the use of Determination Keys for informal section 7 programmatic consultations. We will let our agency partners know when that functionality becomes available.

If you have questions about a species list obtained through the IPaC system or need assistance in completing an IPaC species list request, please contact the Service at 808-792-9400 or via email at [pifwo\\_admin@fws.gov](mailto:pifwo_admin@fws.gov). We appreciate your efforts to conserve listed species across the Pacific Islands.

INTERIOR REGION 9  
COLUMBIA-PACIFIC NORTHWEST

IDAHO, MONTANA\*, OREGON\*, WASHINGTON

INTERIOR REGION 12  
PACIFIC ISLANDS


AMERICAN SĀMOA, GUAM, HAWAI'I, NORTHERN  
MARIANA ISLANDS

## Instructions for Action Agencies and partners to obtain an official species list in IPaC

- Navigate to <https://ipac.ecosphere.fws.gov/>
- You can get an unofficial species list without logging in. However, if you want an official species list you will need to log in first using your Login.gov account. If you don't have an IPaC account, they are easy to create.

### Log in ×

LOGIN.GOV LOGIN  
You can use your Login.gov profile as your IPaC account. You will need to allow IPaC to read your [basic profile information](#).

**LOG IN WITH  LOGIN.GOV**

IPAC LOGIN  
> [Why do I need an IPaC account?](#)

Select Log in with Login.gov and sign in using your email and password.

**Email address**

**Password**  Show password

**Sign in**

[Create an account](#)

[Sign in with your government employee ID](#)

If you have a PIV or CAC card, you can sign in using that method as well.

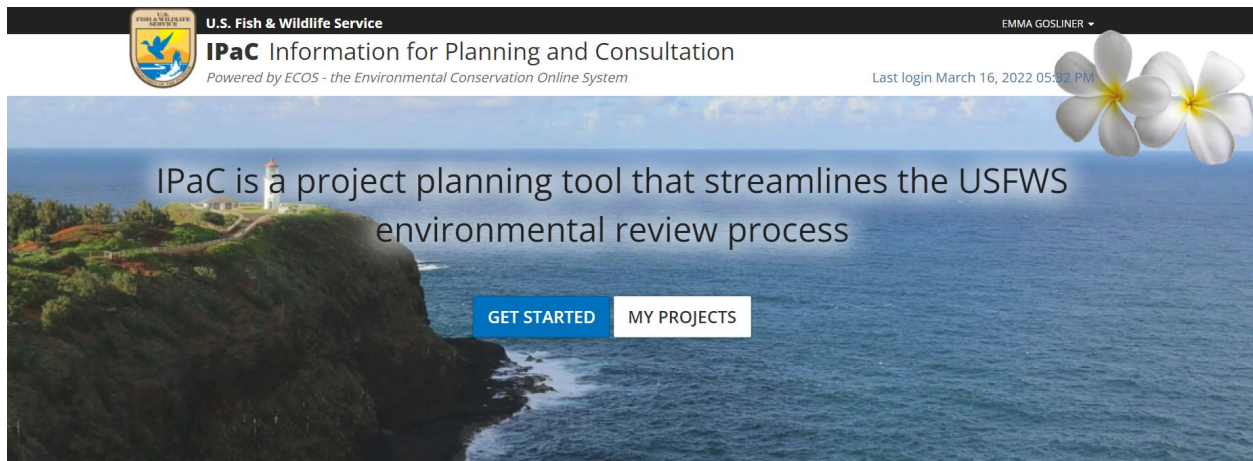
## Sign in with your PIV or CAC

Make sure you have a [Login.gov](#) account and you've set up PIV/CAC as a two-factor authentication method.

[Insert your PIV/CAC](#)

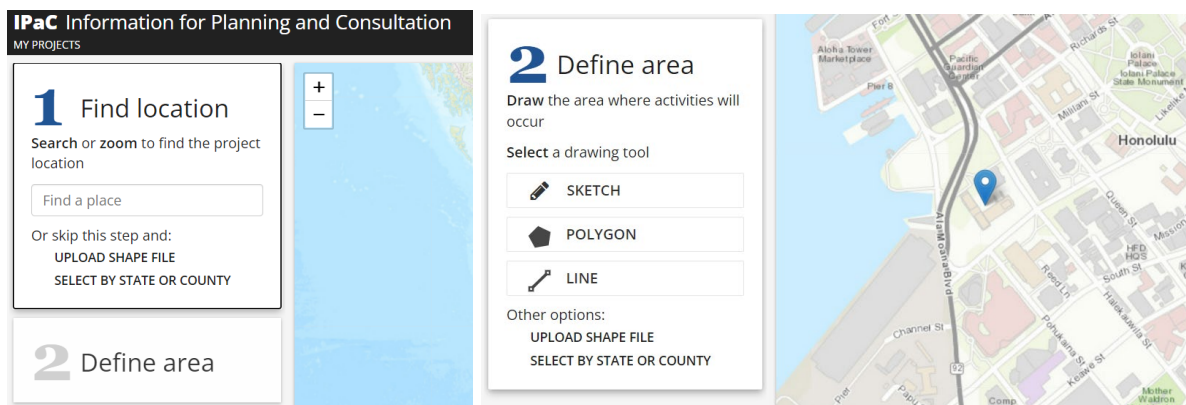
[Cancel](#)

- Once you log in, select “Get Started”.

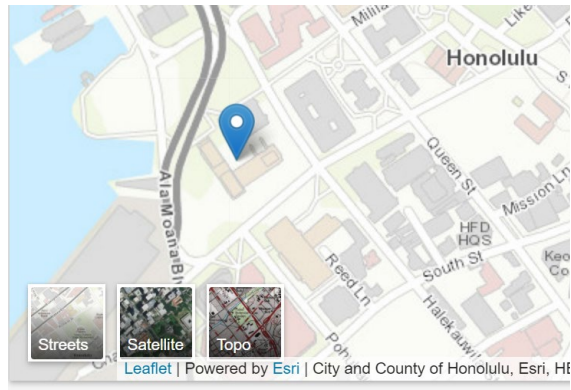


The image shows the IPaC landing page. At the top, there is a navigation bar with the U.S. Fish & Wildlife Service logo, the text "U.S. Fish & Wildlife Service", and the user name "EMMA GOSLINER". Below this is the main header "IPaC Information for Planning and Consultation" with the subtext "Powered by ECOS - the Environmental Conservation Online System". A login timestamp "Last login March 16, 2022 05:32 PM" is visible. The main content area features a scenic background image of a coastline with a lighthouse. Overlaid on this image is the text "IPaC is a project planning tool that streamlines the USFWS environmental review process". At the bottom of this section are two buttons: "GET STARTED" (highlighted in blue) and "MY PROJECTS".

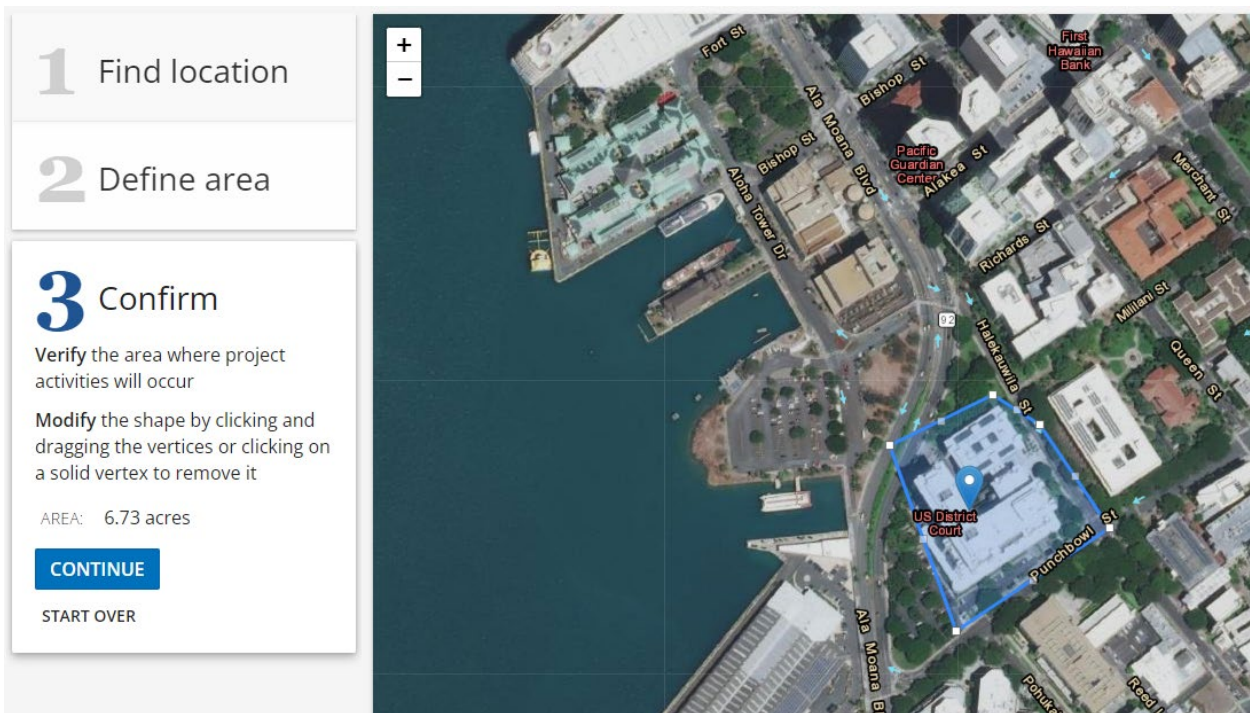
- Define the action area: Identify the location of the proposed action by uploading an existing shapefile or by entering an address or coordinates of the action area. Once identified on the map, you can manually draw the action area using the drawing tools.



The image displays the "Define area" step of the IPaC workflow. On the left, a sidebar contains two main sections: "1 Find location" and "2 Define area". The "Find location" section includes a search box labeled "Find a place" and options to "UPLOAD SHAPE FILE" or "SELECT BY STATE OR COUNTY". The "Define area" section is currently active. The main content area is titled "2 Define area" and contains the instruction "Draw the area where activities will occur". Below this, there are three drawing tool options: "SKETCH" (with a pencil icon), "POLYGON" (with a black polygon icon), and "LINE" (with a line icon). At the bottom, there are "Other options:" including "UPLOAD SHAPE FILE" and "SELECT BY STATE OR COUNTY". On the right side, a map of Honolulu is shown with a blue location pin and a drawing tool icon overlaid on the map.



To help identify your action area you can choose between multiple base maps available.



Press continue when you have finished drawing or uploading the action area location.

- The species information on the page that follows is not official. However, it identifies the project County, local Fish and Wildlife Field Office, species covered under NOAA Fisheries as well as Migratory Bird Treaty Act species. The list can be viewed in Thumbnail or List format.
- Once the species list populates you will see images of the species that may occur on, near, or transgress across your project. Click on SPECIES GUIDELINES on your top right to see Avoidance and Minimization measures to incorporate into your General Project Design Guidelines.

**Explore location**  
 LOCAL OFFICE: PACIFIC ISLANDS FISH AND WILDL. OFC

LOCATION: Honolulu County, Hawaii  
 CHANGE LOCATION

**Resources**

- ENDANGERED SPECIES 20
- MIGRATORY BIRDS 5
- FACILITIES
- WETLANDS !

PRINT RESOURCE LIST

**What's next?**  
 Define a project at this location to evaluate potential impacts, get an official species list, and make species determinations.  
 DEFINE PROJECT

**Endangered species**

Listed species (1) and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries (2)).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).


Additional information on endangered species data is provided [below](#).

The following species are potentially affected by activities in this location:

THUMBNAILS LIST SPECIES GUIDELINES

**Mammals**

Endangered



Hawaiian Hoary Bat  
*Lasiurus cinereus semotus*  
 Wherever found

- Continue with the following steps to comply with the requirements of ESA section 7 to obtain an **official species list**.
- Select Define Project

**Define project**

Define a project at this location to evaluate potential impacts, get an official species list, and make species determinations.

Project name

Project description  
 Describe the location, size, scope, and timing of this project.

 OPTIONAL

Enter the Project Name and a brief description of the project (a description is not mandatory, but recommended for future coordination with the Service). Click SAVE at bottom of page.

- At the bottom of the What's next box on the right, click Request Species List



## Test Project

Testing

LOCATION Honolulu County, Hawaii  
CREATED March 17, 2022

1 MEMBER 2 DOCUMENTS

### What's next?

**ESA REVIEW**  
Review this project's effects on listed species pursuant to the Endangered Species Act (ESA), as part of the overall regulatory review.

[START REVIEW](#)

**SPECIES LIST**  
Requesting an official species list is now part of IPaC's ESA Review.

[REQUEST SPECIES LIST](#)

**Local office**  
Pacific Islands Fish And Wildlife Office

- on the following screen, click Yes, Request Species List

## Endangered Species Act Review

[← BACK](#)
[EXIT REVIEW](#)

**1** Request an official species list

**2** Evaluate determination keys  
No Dkeys for project

**3** Analyze project (optional)

**4** Download documentation

### Step 1: Request an official species list

An official species list is a letter from the local U.S. Fish and Wildlife Service field office that assists in the evaluation of potential impacts of your project. It includes a list of species that should be considered under [Section 7](#) of the Endangered Species Act, a project tracking number, and other pertinent information from the field office.

#### Does this project require an official species list?

Federal agencies are required to "request of the Secretary of Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action" ([Section 7](#) of the Endangered Species Act).

This requirement applies to projects that are **conducted, permitted, funded, or licensed** by any Federal agency.

[YES, REQUEST A SPECIES LIST](#)
[SKIP / DOES NOT APPLY](#)

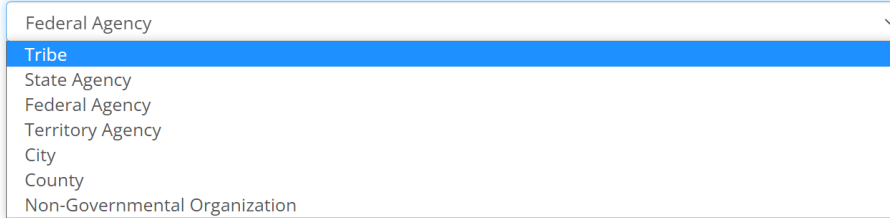
- Fill out the contact information for yourself or your agency. Contractors, state partners, and any other project proponents may request a species list and should be covered using the dropdown menus.

## Tell us about the project and your organization or agency

Is this project being conducted, permitted, funded, or licensed by a Federal agency?

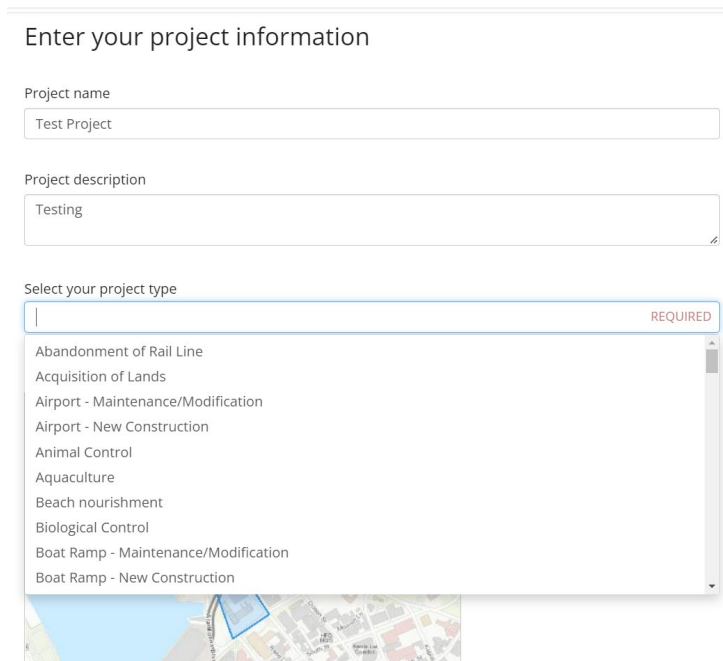
- Yes  
 No

What kind of organization are you working for directly?



A pull-down menu with a white background and a blue border. The menu is open, showing a list of organization types. The top item is 'Federal Agency' with a small downward arrow. Below it, 'Tribe' is highlighted with a blue background. Other items include 'State Agency', 'Federal Agency', 'Territory Agency', 'City', 'County', and 'Non-Governmental Organization'.

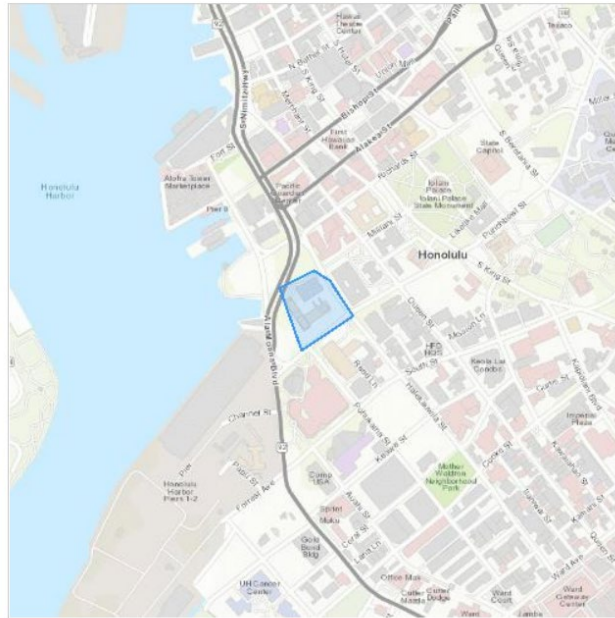
- From the pull-down menu for Classify Type of Project, select the project type that best fits the proposed action.



A form titled "Enter your project information" with a light gray border. It contains three main sections: "Project name" with a text input field containing "Test Project"; "Project description" with a text area containing "Testing"; and "Select your project type" with a dropdown menu. The dropdown menu is open, showing a list of project types: "Abandonment of Rail Line", "Acquisition of Lands", "Airport - Maintenance/Modification", "Airport - New Construction", "Animal Control", "Aquaculture", "Beach nourishment", "Biological Control", "Boat Ramp - Maintenance/Modification", and "Boat Ramp - New Construction". The word "REQUIRED" is written in red in the top right corner of the dropdown menu. Below the dropdown menu is a small map showing a street grid and a blue highlighted area.

- Once all required sections are filled out, press **SUBMIT OFFICIAL SPECIES LIST REQUEST**

Location



[SUBMIT OFFICIAL SPECIES LIST REQUEST](#)

- An Official Species List should be generated and available for download in a couple of seconds.
- If you need additional information on a species, click on their name that is hot-linked to their species information page. A brief overview of the species' status, description and critical habitat will appear as well as a link to their ECOS species profile.

**Resources**


- ENDANGERED SPECIES 20
- MIGRATORY BIRDS 5
- FACILITIES
- WETLANDS !

[PRINT RESOURCE LIST](#)

**What's next?**  
Define a project at this location to evaluate potential impacts, get an official species list, and make species determinations.

[DEFINE PROJECT](#)

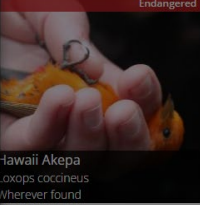
**ʻIiwi**  
*Drepanis coccinea*



**STATUS**  
Threatened: A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

**DESCRIPTION**  
The liwi is an Hawaiian forest bird in the endemic honeycreeper subfamily of the Fringillidae (finch family). Iiwi are medium-sized forest birds (total body length is approximately 14 centimeters (cm) (5.5 inches (in)) with bright scarlet feathers, black wings and tail, and a small white patch on the inner secondary flight feathers. The bill is long, deeply

**Endangered**



Hawaii Akepa  
*Loxia coccinea*  
Wherever found



August 8, 2022

Charmian Dang, U.S. Fish and Wildlife Biologist  
Pacific Islands Fish and Wildlife Office  
U.S. Fish and Wildlife Service  
300 Ala Moana Boulevard, Room 3-122  
Honolulu, Hawai'i 96850  
Via email: [charmian\\_dang@fws.gov](mailto:charmian_dang@fws.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Ms. Dang:

Thank you for your May 2, 2022 letter (Ref. No. 2022-0037072-S7-001) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that there is no federally designated critical habitat within the immediate vicinity of the proposed action. Thank you also for providing the information and recommendations regarding protected species of plants and animals that may occur in the immediate vicinity of the project area. As outlined in Section 3.4 of the DEA, no protected species, including those listed in your letter, have been observed in the project area. The Paullin Family will work with its contractors to understand and observe the measures contained in Section 3.4.3 of the DEA, which mirror those in your letter and will avoid and minimize potential impacts to protected species.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

DEPARTMENT OF DESIGN AND CONSTRUCTION  
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11<sup>TH</sup> FLOOR  
HONOLULU, HAWAII 96813  
Phone: (808) 768-8480 • Fax: (808) 768-4567  
Web site: [www.honolulu.gov](http://www.honolulu.gov)

RICK BLANGIARDI  
MAYOR



ALEX KOZLOV, P.E.  
DIRECTOR

HAKU MILLES, P.E.  
DEPUTY DIRECTOR

May 3, 2022

SENT VIA EMAIL

Ms. Makena White, AICP  
makena@psi-hi.com

Dear Ms. White:

Subject: Draft Environmental Assessment and Anticipated Finding of No  
Significant Impact (DEA/AFONSI)  
Paullin Residence 57-321 Pahipahialua Street  
Koolauloa District, Island of Oahu  
TMK: (1) 5-7-003:057

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 questions, please contact me at (808) 768-8480.

Sincerely,

A handwritten signature in blue ink, appearing to read "Alex Kozlov".

Alex Kozlov, P.E.  
Director

AK:karn (879122)



August 8, 2022

Mr. Alex Koslov, P.E., Director  
Department of Design and Construction  
City and County of Honolulu  
Via Email: [ddc@honolulu.gov](mailto:ddc@honolulu.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Koslov:

Thank you for your May 3, 2022, letter concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the Department of Design and Construction has no comments to offer at this time. You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

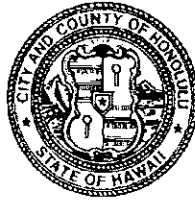
In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

DEPARTMENT OF COMMUNITY SERVICES  
CITY AND COUNTY OF HONOLULU

925 DILLINGHAM BOULEVARD, SUITE 200 • HONOLULU, HAWAII 96817  
PHONE: (808) 768-7762 • FAX: (808) 768-7792  
[www.honolulu.gov/dcs](http://www.honolulu.gov/dcs)



RICK BLANGIARDI  
MAYOR

ANTON C. KRUCKY  
DIRECTOR

AEDWARD LOS BANOS  
DEPUTY DIRECTOR

April 28, 2022

Mākena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawai'i 96813  
Email: [makena@psi-hi.com](mailto:makena@psi-hi.com)

Dear Ms. White:

SUBJECT: DRAFT Environmental Assessment & Anticipated FONSI  
Paullin Residence at 57-321 Pahipahi'ālua Street  
Kawela Beach Lots, TMK: (1) 5-7-003:057, Kahuku, Hawai'i 96731

Thank you for your notice of a Draft Environmental Assessment and Anticipated Finding of No Significant Impact for the Paullin Residence project located in Kahuku.

Our review indicates that the proposed project will have no adverse impacts on any Department of Community Services activities or projects in the surrounding neighborhood.

Thank you for providing us the opportunity to comment on this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Anton C. Krucky".

*eur* Anton C. Krucky  
Director



P L A N N I N G RECEIVED  
S O L U T I O N S

DCS/Admin

1310

22 APR 25 P12 36

April 23, 2022

DEPT OF COMMUNITY  
SERVICES

**SUBJECT: Draft Environmental Assessment and Anticipated Finding of No  
Significant Impact (DEA/AFONSI)  
Paullin Residence 57-321 Pahipahi'ālua Street  
Ko'olauloa District, Island of O'ahu  
Tax Map Key: (1) 5-7-003:057**

Dear Participant,

On behalf of the applicant, the Paullin Family, and the Department of Planning and Permitting, Planning Solutions, Inc. transmits to you the subject DEA/AFONSI. The document discloses the potential environmental effects of the proposed action.

The Environmental Review Program of the State's Office of Planning and Sustainable Development has indicated it will publish an announcement of availability for the subject DEA/AFONSI in the April 23, 2022, edition of *The Environmental Notice* (TEN). The DEA/AFONSI will be available online via the TEN and can be accessed with the link below:

[https://files.hawaii.gov/dbedt/erp/Other\\_TEN\\_Publications/2022-04-23-OA-Chapter-25-DEA-Paullin-Residence.pdf](https://files.hawaii.gov/dbedt/erp/Other_TEN_Publications/2022-04-23-OA-Chapter-25-DEA-Paullin-Residence.pdf)

We invite you to review the DEA/AFONSI and provide your comments to:

Mākena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, HI 96813  
[makena@psi-hi.com](mailto:makena@psi-hi.com)

The deadline for comments on the subject DEA/AFONSI is May 23, 2022.

Please contact me at (808) 550-4538 should there be any questions about this letter or the DEA/AFONSI. Thank you for your participation in this environmental review process.

Sincerely,

Mākena White, AICP





August 8, 2022

Mr. Anton C. Krucky, Director  
Department of Community Services  
City and County of Honolulu  
925 Dillingham Boulevard, Suite 200  
Honolulu, Hawai'i 96817

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Krucky:

Thank you for your April 28, 2022, letter concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the proposed action will have no adverse impacts on any Department of Community Services activities or projects.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

POLICE DEPARTMENT  
CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813  
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulu-pd.org



RICK BLANGIARDI  
MAYOR

RADE K. VANIC  
INTERIM CHIEF

OUR REFERENCE **EO-DK**

**May 4, 2022**

**SENT VIA EMAIL**

Mr. Makena White, AICP  
makena@psi-hi.com

Dear Mr. White:

This is in response to your letter of April 23, 2022, requesting input on the Draft Environmental Assessment and Finding of No Significant Impact for the replacement of the single-family residence at 57-321 Pahipahialua Street in Kahuku.

The Honolulu Police Department has reviewed the project and recommends that adequate notification be made to area residents due to the potential ingress and egress of construction vehicles, equipment, and deliveries during the construction phase of the project.

If there are any questions, please call Major Crizalmer Caraang of District 4 (Kaneohe, Kailua, and Kahuku) at (808) 723-8639.

Thank you for the opportunity to review this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Darren Chun", with a long horizontal line extending to the right.

**DARREN CHUN**  
Assistant Chief of Police  
Support Services Bureau



August 8, 2022

Rade K. Vanic, Interim Chief of Police  
Attn: Darren Chun, Assistant Chief of Police  
Honolulu Police Department  
Via Email: [hpdcchiefsoffice@honolulu.gov](mailto:hpdcchiefsoffice@honolulu.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi‘ālua Street Project**

Dear Chief Vanic:

Thank you for your May 4, 2022, letter (Ref. EO-DK) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi 'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

As indicated in your letter, Section 3.7 of the Final Environmental Assessment (FEA) clarifies that the Paullin Family will notify area residents of the presence of construction vehicles, workers, and equipment during construction of the proposed single-family residence.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner



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

JADE T. BUTAY  
DIRECTOR  
  
Deputy Directors  
ROSS M. HIGASHI  
EDUARDO P. MANGLALLAN  
EDWIN H. SNIFFEN

IN REPLY REFER TO:  
DIR 0444  
STP 8.3389

May 6, 2022

VIA EMAIL: [makena@psi-hi.com](mailto:makena@psi-hi.com)

Mr. Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment (EA)  
Paullin Residence at 57-321 Pahipahialua Street  
Kawela Bay, Oahu, Hawaii  
Tax Map Key: (1) 5-7-003: 057

Thank you for your letter dated April 23, 2022 requesting the review and comment on the subject Draft EA. The Hawaii Department of Transportation (HDOT) has reviewed the Draft EA and understands the proposed project involves the demolition of the existing residence and construction of a new single-family residence at 57-321 Pahipahialua Street near Kawela Bay. The subject property is located approximately 0.1 miles away from Kamehameha Highway (State Route 83), which is the nearest roadway under HDOT jurisdiction.

Based on the project description and location, HDOT does not anticipate any significant adverse impacts to State roadways, therefore we have no comments to provide.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jade T. Butay".

JADE T. BUTAY  
Director of Transportation



August 8, 2022

Jade T. Butay, Director of Transportation  
Attn: Natasha P. Torres  
Statewide Transportation Planning Office  
Department of Transportation, State of Hawai'i  
Via Email: [blayne.h.nikaido@hawaii.gov](mailto:blayne.h.nikaido@hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Butay:

Thank you for your May 6, 2022, letter (Ref. No. DIR 0444 STP 8.3389) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

We are grateful for your confirmation that the proposed action will not have any significant adverse impacts to State roadways and that your Department does not have any comments to provide.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

DAVID Y. IGE  
GOVERNOR  
STATE OF HAWAII

JOSH GREEN  
LT GOVERNOR  
STATE OF HAWAII



WILLIAM J. AILĀ, JR.  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

TYLER I. GOMES  
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

P O BOX 1879  
HONOLULU, HAWAII 96805

May 9, 2022

Ref.:PO-22-117

Mākena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Blvd., Suite 950  
Honolulu, HI 96813  
[makena@psi-hi.com](mailto:makena@psi-hi.com)

Aloha Mākena:

**Subject:** Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA/AFONSI)  
Paullin Residence  
57-321 Pahipahi'ālua Street  
Ko'olauloa Moku, O'ahu, Hawai'i  
TMK: (1) 5-7-003:057

The Department of Hawaiian Home Lands acknowledges receiving the request for comments on the above-cited project. After reviewing the materials submitted, due to its lack of proximity to Hawaiian Home Lands, we do not anticipate any impacts to our lands or beneficiaries from the project.

However, we highly encourage all agencies to consult with Hawaiian Homestead community associations and other (N)ative Hawaiian organizations when preparing environmental assessments in order to better assess potential impacts to cultural and natural resources, access and other rights of Native Hawaiians.

Mahalo for the opportunity to provide comments. If you have any questions, please contact the Planning Office at (808)620-9500, or via email at: [dhhl.planning@hawaii.gov](mailto:dhhl.planning@hawaii.gov).

Me ke aloha,

William J. Ailā, Jr., Chairman  
Hawaiian Homes Commission



August 8, 2022

William J. Ailā, Jr., Chairman  
Hawaiian Homes Commission  
Department of Hawaiian Home Lands  
State of Hawaii  
Via Email: [dhhl.planning@hawaii.gov](mailto:dhhl.planning@hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Chairman Ailā:

Thank you for your May 9, 2022, letter (Ref.: PO-22-117) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that your Department does not anticipate any impacts to Hawaiian Home Lands or beneficiaries as a result of the proposed action. As indicated in your letter, the Paullin Family will continue to consult with native Hawaiian organizations throughout the assessment process.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

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:

LUD – 1 5 7 003 057 DEA AFONSI  
Paullin Residence ID 6081

May 11, 2022

Mr. Makena White, AICP  
Planning Solutions  
Pacific Park Plaza, Suite 950  
711 Kapiolani Boulevard  
Honolulu, Hawaii 96813-5213  
Email: [makena@psi-hi.com](mailto:makena@psi-hi.com)

Dear Mr. White:

Subject: Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA/ AFONSI)  
Paullin Residence, 57-321 Pahipahialua Street, Kahuku, Hawaii 96731  
TMK (1) 5-7-003: 057

Thank you for allowing us the opportunity to provide comments for the subject DEA.

The subject project is located in the critical wastewater disposal area as determined by the Oahu Wastewater Advisory Committee and in the Board of Water Supply's Pass Zone. We have no wastewater systems records on file for the subject property.

There are major improvements that are proposed for the subject residence that will require a new individual wastewater system (IWS). Please be informed that the new IWS shall conform to applicable provisions of the Chapter 11-62, Hawaii Administrative Rules (HAR), "Wastewater Systems."

Please be informed that the proposed wastewater systems for the subdivision/development may have to include design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. All wastewater plans must conform to applicable provisions of the Chapter 11-62, HAR, "Wastewater Systems."

Should you have any questions, please call Mr. Mark Tomomitsu of my staff at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF  
Wastewater Branch





August 8, 2022

Sina Pruder, Chief  
Attn: Lori Morikami, Planner  
Wastewater Branch  
Department of Health, State of Hawai'i  
Via Email: [lori.morikami@doh.hawaii.gov](mailto:lori.morikami@doh.hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Chief Pruder:

Thank you for your May 11, 2022, letter (your reference LUD – 1 5 7 003 057 DEA AFONSI, Paullin Residence ID 6081) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impact for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your letter. To simplify your review, we have reproduced your substantive comments below in italics, followed by our response:

**Comment 1:**

*There are major improvements that are proposed for the subject residence that will require a new individual wastewater system (IWS). Please be informed that the new IWS shall conform to applicable provisions of the Chapter 11-62, Hawaii Administrative Rules (HAR), "Wastewater Systems."*

**Response:**

As listed in Section 2.3.1 and Table 1.2 of the DEA, the project understands that an IWS permit is required from your department. The Paullin Family will work with Wastewater Branch to meet all required standards and obtain all necessary permits and approvals for the proposed IWS prior to construction.

**Comment 2:**

*Please be informed that the proposed wastewater systems for the subdivision/development may have to include design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. All wastewater plans must conform to applicable provisions of the Chapter 11-62, HAR, "Wastewater Systems."*

**Response:**

Section 3.2 of the DEA addresses archaeological and cultural resources in the project area. Other sections of the DEA address public trust resources, such as Section 3.5 which addresses surface waters and other resources. The existing IWS and the proposed IWS will be similar distances from the ocean and the pond (roughly 150 and 70 feet, respectively). The proposed action will close the existing IWS, which is likely a cesspool, and install a modern IWS that meets current design standards. The existing on-site IWS and similar nearby residential IWS have operated for years with no apparent adverse effects to historic resources or public trust resources. By converting to a modern, permitted IWS, it is anticipated that the potential for adverse impacts related to wastewater management will be reduced. IWS design plans and permit application materials will be submitted to your office at the appropriate time.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

A handwritten signature in blue ink that reads "Makena".

Mākena White, AICP  
Planner

DAVID Y. IGE  
GOVERNOR



CURT T. OTAGURO  
COMPTROLLER  
AUDREY HIDANO  
DEPUTY COMPTROLLER

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

(P)22.071

MAY - 9 2022

Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA/AFONSI)  
Paullin Residence, 57-321 Pahipahialua Street  
Koolauloa, Oahu, Hawaii  
TMK: (1) 5-7-003: 057

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

If you have any questions, your staff may call Ms. Gayle Takasaki of the Planning Branch at 586-0584.

Sincerely,

*Joseph M. Earing*  
for CHRISTINE L. KINIMAKA  
Public Works Administrator

GT:dk



August 8, 2022

Christine L. Kinimaka, Public Works Administrator  
Department of Accounting and General Services  
State of Hawaii  
P.O. Box 119  
Honolulu, Hawai'i 96810-0119

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Ms. Kinimaka:

Thank you for your May 9, 2022, letter [Ref. No. (P)22.071] concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the proposed action will have no impact to your Department's projects or facilities. You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

## Makena White

---

**From:** Nakayama, Tad T <tad.t.nakayama@hawaii.gov>  
**Sent:** Friday, May 13, 2022 11:31 AM  
**To:** Makena White  
**Cc:** Ishii, Wade T  
**Subject:** Draft EA and Anticipated Finding of No Significant Impact, Paullin Residence, TMK (1) 5-7-003:057

Mr. White,

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

Should there be any questions, please contact me at 808-369-3490 or [tad.t.nakayama@hawaii.gov](mailto:tad.t.nakayama@hawaii.gov).

Thank you,

Tad T. Nakayama  
Project Manager  
State of Hawaii  
Department of Defense – Engineering Office  
3949 Diamond Head Road  
Honolulu, HI 96816-4495  
Phone: 808-369-3490



August 8, 2022

Tad T. Nakayama, Project Manager  
Department of Defense – Engineering Office  
State of Hawai‘i  
Via Email: [tad.t.nakayama@hawaii.gov](mailto:tad.t.nakayama@hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi‘ālua Street Project**

Dear Mr. Nakayama:

Thank you for your May 13, 2022 email concerning the Paullin Family’s *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi‘ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that your Department has no comments on the proposed project. You may download a copy of the Final Environmental Assessment at the Environment Review Program’s website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

# BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843  
www.boardofwatersupply.com



May 12, 2022

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair  
KAPUA SPROAT, Vice Chair  
RAY C. SOON  
MAX J. SWORD  
NA'ALEHU ANTHONY

JADE T. BUTAY, Ex-Officio  
DAWN B. SZEWCZYK, P.E., Ex-Officio

ERNEST Y. W. LAU, P.E.  
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.  
Deputy Manager and Chief Engineer *elle*

Mr. Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Your Letter Dated April 23, 2022 Requesting Comments on the Environmental Assessment for the Paullin Residence at 57-321 Pahipahialua Street  
Tax Map Key: 5-7-003: 057

Thank you for the opportunity to comment on the proposed project.

The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.

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 on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.

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



August 8, 2022

Ernie Y.W. Lau, Manager and Chief Engineer  
Board of Water Supply  
City and County of Honolulu  
630 South Beretania Street  
Honolulu, Hawai'i 96843

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Lau:

Thank you for your May 12, 2022, letter concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impact for the 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. To simplify your review, we have reproduced your comments in italics, followed by our response.

**Comment 1:**

*The existing water system is adequate to accommodate the proposed development. However, please be advised that this information is based upon current data, and therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of the building permit application. The final decision on the availability of water will be confirmed when the building permit application is submitted for approval.*

**Response:**

Thank you for confirming that the water system is currently adequate to accommodate the proposed project. The Paullin Family acknowledges that the final decision on the availability of water will be confirmed when the building permit application is submitted for review.

**Comment 2:**

*When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission, and daily storage.*

**Response:**

The Paullin Family understands that it will be required to pay the Board of Water Supply's water system facilities charges for development, transmission, and daily storage.



**Comment 3:**

*Water conservation measures are required for all proposed developments. These measures include utilization of non-potable 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.*

**Response:**

Thank you for providing this information, required conservation measures will be incorporated into the proposed action.

**Comment 4:**

*The on-site fire protection requirements should be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department.*

**Response:**

The Paullin Family is corresponding with the Fire Prevention Bureau and will continue to coordinate with them to ensure that the proposed project meets all fire protection requirements.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,



Mākena White, AICP  
Planner

DAVID Y. IGE  
GOVERNOR



CATHY BETTS  
DIRECTOR

JOSEPH CAMPOS II  
DEPUTY DIRECTOR

STATE OF HAWAII  
**DEPARTMENT OF HUMAN SERVICES**  
BENEFIT, EMPLOYMENT AND SUPPORT SERVICES DIVISION  
1010 Richards Street, Suite 512  
Honolulu, Hawaii 96813

Re: 22-0149  
BESSD 22.C0501

May 12, 2022

Mr. Makena White  
AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment and Anticipated Finding of No Significant Impact;  
Paullin Residence 57-321 Pahipahialua Street, Koolauloa District, Island of Oahu;  
Tax Map Key: (1) 5-7 003: 057

This is in response to your letter dated April 23, 2022 requesting the Department of Human Services (DHS) to comment on the above-named project.

The DHS has reviewed the Paullin Residence project and the map of the area. At this time, DHS has no comments.

If you should have any questions regarding this matter, please contact Ms. Lisa Galino, Child Care Program Specialist at (808) 586-5712.

Sincerely,

Scott Nakasone  
Assistant Division Administrator

c: Cathy Betts, Director

AN EQUAL OPPORTUNITY AGENCY



August 8, 2022

Scott Nakasone, Assistant Division Administrator  
Department of Human Services  
State of Hawai'i  
1010 Richards Street, Suite 512  
Honolulu, Hawaii 96813

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Nakasone:

Thank you for your May 12, 2022, letter (Ref. No. 22-0149 BESSD 22.C0501) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that your Department has no comments on the proposed action at this time. You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner



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

In reply, please refer to:  
File:

May 11, 2022

Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, HI 96813  
[makena@psi-hi.com](mailto:makena@psi-hi.com)

Dear Mr. White:

Thank you for your submittal requesting comments to the Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) for the Paullin Residence at 57-321 Pahipahialua Street, Koolaupoko District, Island of Oahu.

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

- Chapter 11-39      Air Conditioning & Ventilating
- Chapter 11-41      Lead-based Paint Activities
- Chapter 11-45      Radiation Control
- Chapter 11-46      Community Noise Control
- Chapter 11-501     Asbestos Requirements
- Chapter 11-504     Asbestos Abatement Certification Program

Information pertaining to other health and environmental issues may be addressed by other programs within our department.

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

Sincerely,

A handwritten signature in blue ink, appearing to read "Thomas G. Lileikis".

Thomas G. Lileikis  
Program Manager  
Indoor and Radiological Health Branch



August 8, 2022

Thomas G. Lileikis, Program Manager  
Indoor and Radiological Health Branch  
Department of Health, State of Hawai'i  
P.O. Box 3378  
Honolulu, Hawai'i 96801-3378

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Lileikis:

Thank you for your May 11, 2022, letter concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

The Paullin Family acknowledges that it is responsible for complying with all the administrative rules relating to air conditioning, lead-based paint, radioactive materials, community noise, and asbestos you identify in your comments throughout implementation of the proposed action, as well as all other applicable regulations and rules.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

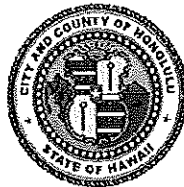
Sincerely,

Mākena White, AICP  
Planner

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



SHELDON K. HAO  
FIRE CHIEF

JASON SAMALA  
DEPUTY FIRE CHIEF

May 18, 2022

Mr. Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

Subject: Draft Environmental Assessment Request for Comments  
Paullin Residence  
57-321 Pahipahialua Street  
Kahuku, Hawaii 96731  
Tax Map Key: 5-7-003: 057

In response to your letter received on April 23, 2022, 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 supplying 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

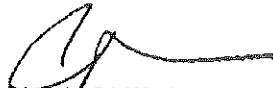
Mr. Makena White, AICP  
Page 2  
May 18, 2022

moved into the jurisdiction. The approved water supply shall be in accordance with NFPA 1; 2018 Edition, Section 18.3 and 18.4.

3. The fire department access roads shall be in accordance with 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 Acting Battalion Chief Kendall Ching of our Fire Prevention Bureau at 808-723-7154 or [kching3@honolulu.gov](mailto:kching3@honolulu.gov).

Sincerely,



CRAIG UCHIMURA  
Acting Assistant Chief

CU/DM:bh



August 8, 2022

Acting Assistant Chief Craig Uchimura  
Honolulu Fire Department  
City and County of Honolulu  
By Electronic Mail: [kching3@honolulu.gov](mailto:kching3@honolulu.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi‘ālua Street Project**

Dear Assistant Chief Uchimura:

Thank you for your May 18, 2022, letter concerning the Paullin Family’s *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi‘ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. To simplify your review, we have reproduced your substantive comments below in italics, followed by our response:

**Comment 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 [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.)*

**Response:**

Thank you for this information. The proposed design for the single-family residence, as characterized in Chapter 2 of the DEA/AFONSI, conforms to all applicable requirements of the NFPA, including those related to fire prevention and access. The entirety of the proposed structure is within 50 feet of Pahipahi‘ālua Street, which is considered the “fire department access road.” Despite being a private road, the Honolulu Fire Department (HFD) regularly accesses and tests the fire hydrants on Pahipahi‘ālua Street.

**Comment 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 NFPA 1;2018 Edition,  
Section 18.3 and 18.4.*

**Response:**

Adequate firefighting water, from an approved source and meeting the requirements of all applicable provisions of the NFPA is available. As discussed in Section 3.6 of the DEA, fire hydrants are present along Pahipahi‘ālua Street, including at the intersection of Pahipahi‘ālua Street and Pahipahi‘ālua Place, approximately 125 feet from the subject parcel.

**Comment 3:**

*The fire department access roads shall be in accordance with NFPA 1; 2018 Edition, Section 18.2.3.*

**Response:**

It is believed that Pahipahi‘ālua Street complies with NFPA provisions since it has an ample turn around area at its terminus and is routinely utilized by HFD to test the hydrants, including the hydrant roughly 125 feet from the subject parcel.

**Comment 4:**

*Submit civil drawings to the HFD for review and approval.*

**Response:**

All civil drawings for the proposed single-family residence will be submitted to HFD for review and approval once they are finalized. This will be done coincident with the project seeking building permits.

You may download a copy of the Final Environmental Assessment at the Environment Review Program’s website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,



Mākena White, AICP  
Planner

DAVID Y. IGE  
GOVERNOR OF HAWAII



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

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

May 23, 2022

LD 0417

Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, HI 996813

*Via email: makena@psi-hi.com*

Dear Ms. White:

SUBJECT: Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA/AFONSI) for Paullin Residence  
57-321 Pahipahi'alua Street, Ko'olaupua District, Island of Oahu  
TMK: (1) 5-7-003:057

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 DLNR's various divisions for their review and comment.

Enclosed are comments received from our Engineering Division. Should you have any questions, please feel free to contact Barbara Lee via email at [barbara.j.lee@hawaii.gov](mailto:barbara.j.lee@hawaii.gov). Thank you.

Sincerely,

*Russell Tsuji*

Russell Y. Tsuji  
Land Administrator

Enclosures  
cc: Central Files



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

April 28, 2022

LD 0417

**MEMORANDUM**

FROM: ~~TO:~~ **DLNR Agencies:**  
 Div. of Aquatic Resources (via email: kendall.l.tucker@hawaii.gov)  
 Div. of Boating & Ocean Recreation  
 **Engineering Division** (via email: DLNR.Engr@hawaii.gov)  
 Div. of Forestry & Wildlife (via email: rubyrosa.t.terrago@hawaii.gov)  
 Div. of State Parks  
 Commission on Water Resource Management (via email: DLNR.CWRM@hawaii.gov)  
 Office of Conservation & Coastal Lands (via email: sharleen.k.kuba@hawaii.gov)  
 Land Division - Oahu District (via email: barry.w.cheung@hawaii.gov)

TO: ~~FROM:~~ Russell Y. Tsuji, Land Administrator *Russell Tsuji*  
 SUBJECT: **Draft Environmental Assessment (DEA) and Anticipated Finding of No Significant Impact (AFNSI) for Paullin Residence Project**  
 LOCATION: 57-321 Pahipahi'alu Street, Kawela Beach Lots, Koolauloa District, Island of Oahu  
 TMK: (1) 5-7-003:057  
 APPLICANT: **PLANNING SOLUTIONS on behalf of the Paullin Family and the Department of Planning and Permitting, City and County of Honolulu**

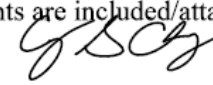
Transmitted for your review and comment is information on the above-referenced subject. The [DEA](#) was published on April 23, 2022 by the State Environmental Review Program (formerly the Office of Environmental Quality Control) at the Office of Planning and Sustainable Development in the periodic bulletin, [The Environmental Notice](#), available at the following link:

[https://files.hawaii.gov/dbedt/erp/The\\_Environmental\\_Notice/2022-04-23-TEN.pdf](https://files.hawaii.gov/dbedt/erp/The_Environmental_Notice/2022-04-23-TEN.pdf)

Please submit any comments by **May 19, 2022**, to [barbara.j.lee@hawaii.gov](mailto:barbara.j.lee@hawaii.gov) at Land Division. If no response is received by this date, we will assume your agency has no comments. If you have any questions, please contact Barbara Lee directly via email at the above email address. Thank you.

BRIEF COMMENTS:

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

Signed:   
 Print Name: Carty S. Chang, Chief Engineer  
 Division: Engineering Division  
 Date: May 12, 2022

Attachments  
Cc: Central Files

**DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION**

**LD/Russell Y. Tsuji**

**Ref: Draft Environmental Assessment (DEA) and Anticipated Finding of No Significant Impact (AFNSI) for Paullin Residence Project**

**Location: 57-321 Pahipahi'alu Street, Kawela Beach Lots, Koolauloa District, Island of Oahu**

**TMK(s): (1) 5-7-003:057**

**Applicant: PLANNING SOLUTIONS on behalf of the Paullin Family and the Department of Planning and Permitting, City and County of Honolulu**

**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](http://msc.fema.gov)). Our Flood Hazard Assessment Tool (FHAT) (<http://gis.hawaiiinfip.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: May 12, 2022



August 8, 2022

Carty S. Chang, Chief Engineer  
Engineering Division  
Department of Land and Natural Resources  
State of Hawai'i  
Via Email: DLNR.Engr@hawaii.gov

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Chang:

Thank you for your April 28, 2022, memorandum concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for providing the information concerning the National Flood Insurance Program and the local agencies, which may stipulate higher standards. The project is working with the City and County of Honolulu, Department of Planning and Permitting, and as stated in Section 3.1.9 of the Environmental Assessment, will comply, "with all development standards of ROH, §21-9.10 *Flood Hazard Districts* applicable to the coastal high hazard district."

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner



**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/>

DTS202204280959NA

Coastal Zone  
Management  
Program

May 16, 2022

Environmental  
Review Program

Land Use  
Commission

Land Use Division

Special Plans  
Branch

State Transit-  
Oriented  
Development

Statewide  
Geographic  
Information System

Statewide  
Sustainability Branch

Mr. Mākena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, HI 96813

Dear Mr. White:

Subject: Chapter 25, Revised Ordinance of Honolulu, Draft Environmental Assessment for the Proposed Paullin Residence Project at 57-321 Pahipahialua Street, Kawela Bay, Oahu; Tax Map Key: (1) 5-7-003: 057

The Office of Planning and Sustainable Development (OPSD) is in receipt of your review request, received April 27, 2022, on the Draft Environmental Assessment (Draft EA), on the proposed residence development project, located at 57-321 Pahipahialua Street, Kawela Bay, Oahu.

According to the Draft EA, the proposed residence project consists of the following actions: (a) removal of the existing single-story residence structure, and (b) construction of a two-story, single-family residence on a 18,992 square-foot shoreline parcel. The property is located within R-5 Residential District, and within the county designated special management area (SMA), under the Hawaii Coastal Zone Management (CZM) Law, Hawaii Revised Statutes (HRS) Chapter 205A.

The subject EA is triggered by Revised Ordinances of Honolulu (ROH) Chapter 25 that any proposed development requiring a SMA use permit shall be subject to an assessment by the agency in accordance with the procedural steps set forth in HRS Chapter 343.

The proposed residence project would cost approximately \$1.7 million with an anticipated construction duration from May 2023 to June 2024.

The OPSD has reviewed the Draft EA, and has the following comments to offer:

1. According to the Draft EA, approximately 35 percent of the parcel area is seaward of the certified shoreline, and the project parcel is entirely in the VE



zone, which indicates a 100-year coastal flood zone that has additional velocity hazards associated with waves. For the proposed residence development situated on such a shoreline parcel, the OPSD suggests that the Final EA consider site-specific mitigation measures to mitigate the impacts of these coastal hazards for the proposed residence and associated utilities, including setbacks from the shoreline (e.g., erosion line under 2.0-foot or 3.2-foot sea level rise) during the life of the proposed structure. The OPSD acknowledges that an appropriate action would be abandonment of the subject parcel to provide for an orderly retreat from the shoreline by the end of the life of the residence structure.

2. There are no seawalls, revetments, retaining walls, or other shoreline hardening structures along the shoreline at the subject parcel. Considering the shoreline erosion at the property, the applicant should consult with the City and County of Honolulu to determine the shoreline setback line as set forth in HRS § 205A-41. Please note that construction of private shoreline hardening structures in areas with beaches is prohibited by HRS Chapter 205A, as amended, enacted by Act 16, Session Laws of Hawaii (SLH) 2020.
3. Pursuant to HRS § 205A-2(c)(9), as amended, enacted by Act 160, SLH 2010 and Act 120, SLH 2013, the Final EA should discuss the current situation of vegetation along the shoreline, with site-specific measures as to how to prevent a public nuisance from inducing or cultivating vegetation along the beach transit corridor, and maintain vegetation at the property site to avoid interference or encroachment upon the beach transit corridor for public shoreline access.
4. Excavation and construction will disturb onsite soils that could then run into the ocean if not contained. The OPSD suggests that an Erosion and Sediment Control Plan shall be prepared to ensure that site-specific best management practices with erosion and sediment control measures, including silt fences, berms and other erosion control devices, will be implemented to confine the proposed excavation and construction activities, and prevent potential soil, construction debris and polluted runoff from adversely impacting the coastal ecosystem, and State waters as specified in Hawaii Administrative Rules Chapter 11-54.
5. In enacting Act 224, SLH 2005, the legislature found that light pollution in Hawaii's coastal areas and artificial lighting illuminating the shoreline and ocean waters can be disruptive to avian and marine life. The exterior lighting and lamp posts associated with the proposed residence project shall be cut-off luminaries to provide the necessary shielding to mitigate potential light pollution in the coastal areas, and lessen possible seabird strikes. No artificial light, except as provided in HRS §§ 205A-30.5(b) and 205A-71(b), shall be directed to travel across property boundaries toward the shoreline and ocean.

Mr. Mākena White  
May 16, 2022  
Page 3

6. Page 4-8, **4.1.4.9 Beach protection** should refer to HRS §§ 205A-2(b)(9) and 205A-2(c)(9), as amended, for the objective and policies of beach and coastal dune protection.

If you have any questions regarding this comment letter, please contact Shichao Li of our office at (808) 587-2841, or by email at [shichao.li@hawaii.gov](mailto:shichao.li@hawaii.gov).

Sincerely,



Mary Alice Evans  
Director





August 8, 2022

Mary Alice Evans, Director  
State Office of Planning and Sustainable Development  
Department of Business, Economic Development and Tourism  
235 South Beretania Street, 6<sup>th</sup> Floor  
Honolulu, Hawai'i 96804

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Director Evans:

Thank you for your May 16, 2022, letter (Ref No. DTS202204280959NA) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. To simplify your review, we have reproduced your substantive comments below in italics, followed by our response:

**Comment 1:**

*According to the Draft EA, approximately 35 percent of the parcel area is seaward of the certified shoreline, and the project parcel is entirely in the VE zone, which indicates a 100-year coastal flood zone that has additional velocity hazards associated with waves. For the proposed residence development situated on such a shoreline parcel, the OPSD suggests that the Final EA consider site-specific mitigation measures to mitigate the impacts of these coastal hazards for the proposed residence and associated utilities, including setbacks from the shoreline (e.g., erosion line under 2.0-foot or 3.2-foot sea level rise) during the life of the proposed structure. The OPSD acknowledges that an appropriate action would be abandonment of the subject parcel to provide for an orderly retreat from the shoreline by the end of the life of the residence structure.*

**Response:**

Section 3.1 of the DEA addresses coastal hazards including flooding, high wave hazards, and sea level rise. Specifically, Section 3.1.8 acknowledges that the subject parcel may experience increasing coastal hazards prior to the year 2100. While it is premature to commit to any specific course of action at this time, the DEA states that, "By 2100, the project proponents will no longer be present, and the proposed residence would be reaching the end of its design life. At that time, the existing level of sea level rise and coastal erosion plus the prevailing coastal zone policy will dictate the appropriate actions. The appropriate action may well be

demolition of the residence and abandonment of the subject parcel to provide for an orderly retreat from the shoreline.”

**Comment 2:**

*There are no seawalls, revetments, retaining walls, or other shoreline hardening structures along the shoreline at the subject parcel. Considering the shoreline erosion at the property, the applicant should consult with the City and County of Honolulu to determine the shoreline setback line as set forth in HRS § 205A-41. Please note that construction of private shoreline hardening structures in areas with beaches is prohibited by HRS Chapter 205A, as amended, enacted by Act 16, Session Laws of Hawaii (SLH) 2020.*

**Response:**

As discussed in Section 4.2.4 of the DEA, all new construction included as part of the proposed action is outside of the City and County of Honolulu’s (CCH) shoreline setback. The Paullin Family has, and will continue to, coordinate with the CCH’s Department of Planning and Permitting to ensure that all aspects of the project comply with applicable statutes, regulations, and design standards, including the shoreline setback.

**Comment 3:**

*Pursuant to HRS § 205A-2(c)(9), as amended, enacted by Act 160, SLH 2010 and Act 120, SLH 2013, the Final EA should discuss the current situation of vegetation along the shoreline, with site-specific measures as to how to prevent a public nuisance from inducing or cultivating vegetation along the beach transit corridor, and maintain vegetation at the property site to avoid interference or encroachment upon the beach transit corridor for public shoreline access.*

**Response:**

As stated in Section 4.2.5.1 of the DEA, the proposed action would take place entirely within TMK No. 5-7-003:057, which is not accessible to the public. Because there is no public shoreline access via the site, and because no work will take place in any off-site public shoreline access, no impacts related to public access are anticipated. The improvements to the parcel will not affect the shoreline, and would not impair off-site public access to beaches, recreation areas, or reserves. In addition, the following has been added to Section 2.3.2 of the FEA, “Landscaping and irrigation will be installed and operated in a manner that confines new plantings and irrigation water to the area mauka of the certified shoreline and does not create a public nuisance by inducing vegetation makai of the certified shoreline in a beach transit corridor.” Thus, the public will continue to have unfettered lateral access along the shoreline fronting the project parcel.

**Comment 4:**

*Excavation and construction will disturb onsite soils that could then run into the ocean if not contained. The OPSD suggests that an Erosion and Sediment Control Plan shall be prepared to ensure that site-specific best management practices with erosion and sediment control measures, including silt fences, berms and other erosion control devices, will be implemented to confine the proposed excavation and construction activities, and prevent potential soil, construction debris and polluted runoff from adversely impacting the coastal ecosystem, and State waters as specified in Hawaii Administrative Rules Chapter 11-54.*

**Response:**

The applicant will prepare an Erosion and Sediment Control Plan and submit it to the Department of Planning and Permitting as part of its building permit application package.

**Comment 5:**

*In enacting Act 224, SLH 2005, the legislature found that light pollution in Hawaii's coastal areas and artificial lighting illuminating the shoreline and ocean waters can be disruptive to avian and marine life. The exterior lighting and lamp posts associated with the proposed residence project shall be cut-off luminaries to provide the necessary shielding to mitigate potential light pollution in the coastal areas, and lessen possible seabird strikes. No artificial light, except as provided in HRS §§ 205A-30.5(b) and 205A-71(b), shall be directed to travel across property boundaries toward the shoreline and ocean.*

**Response:**

To avoid and/or minimize potential impacts to protected species of seabirds and sea turtles, the Paullin Family will, as discussed in Section 3.4.3 of the Environmental Assessment, only utilize exterior lighting that is identified as “acceptable” by the Department of Land and Natural Resources, Division of Forestry and Wildlife’s Wildlife Lighting guidelines. The current guidelines are identified at <https://dlnr.hawaii.gov/wildlife/files/2016/03/DOC439.pdf>. Thus, all exterior lighting will be fully shielded. In addition, the Paullin Family will design all exterior lighting to avoid light trespass beyond the relatively level area on the project parcel so the light sources—bulbs and diodes—are not visible from the beach or waterline.

**Comment 6:**

*Page 4-8, 4.1.4.9 Beach protection should refer to HRS §§ 205A-2(b)(9) and 205A-2(c)(9), as amended, for the objective and policies of beach and coastal dune protection.*

**Response:**

Thank you for this information. Section 4.1.4.9 of the Final Environmental Assessment has been amended to include this information.

Page 2  
Mary Alice Evans  
August 8, 2022

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

A handwritten signature in blue ink that reads "Makena". The signature is written in a cursive, flowing style.

Mākena White, AICP  
Planner



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

OFFICE OF FACILITIES AND OPERATIONS

May 23, 2022

Makena White, AICP  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment for the Paullin Residence  
Koolauloa, Oahu, TMK: (1)5-7-003:057

Dear Mr. White:

Thank you for your letter dated April 23, 2022. The Hawaii State Department of Education (Department) has the following comments on the Draft Environmental Assessment for the Paullin Residence.

Based upon the information provided, the proposed Project will not impact Department facilities.

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

Sincerely,

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

Roy Ikeda  
Interim Public Works Manager  
Planning Section

RI:rl

c: Facilities Development Branch



August 8, 2022

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

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Mr. Ikeda:

Thank you for your May 23, 2022, letter concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for confirming that the proposed action will not impact your Department's facilities. You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

In the meantime, if you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**OFFICE OF CONSERVATION AND COASTAL LANDS**  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

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

REF: OCCL: TF

RE: COR: OA 22-94

Makena White  
Planning Solutions  
Pacific Park Plaza, Suite 950  
711 Kapiolani Boulevard  
Honolulu, HI 96813

May 18, 2022

**SUBJECT:** Comments Regarding Draft Environmental Assessment for the Proposed Paullin Residence Project.  
Located at 57-329 Pahipahialua Street  
Kawela Beach Lots, Koolauloa, Oahu  
Tax Map Key (TMK): (1) 5-7-003:057

Dear Mr. White:

The Office of Conservation and Coastal Lands (OCCL) has reviewed your letter and Draft Environmental Assessment (DEA) regarding the subject matter. According to your letter, the City and County of Honolulu Department of Planning and Permitting and Planning Solutions, Inc. (PSI) have published the DEA and the Anticipated Finding of No Significant Impact (AFONSI) for the Paullin Residence Project. On behalf of the landowners of the subject property, PSI is seeking comments on the DEA and its AFONSI.

The OCCL regulates land uses in the State Land Use Conservation District through the issuance of Conservation District Use Permits (CDUPs) and Site Plan Approvals (SPAs) to help conserve, protect, and preserve important natural and cultural resources. Based on the information you have provided, it appears that TMK: (1) 5-7-003:057 lies in the State Land Use Urban District. The OCCL does not have any direct regulatory authority over land uses outside of the State Land Use Conservation District. In this context, the OCCL offers the following comments on the DEA and its AFONSI.

The DEA states that the subject parcel is currently occupied by a single-story residence with an open lanai on the dwellings' makai side. The DEA notes that the residence appears to have been constructed in 1943 and has an approximate living area of 656 sq ft with one (1) bedroom and one (1) bathroom. The DEA also notes that the condition of the dwelling that currently occupies that parcel is "...aged but serviceable."

The primary proposed project components consist of:

- Demolishing and removing the:
  - 656 sq. ft primary dwelling
  - Existing Individual Wastewater System (IWS)
  - Nuisance vegetation present on undeveloped portions of the lot.
- Constructing and utilizing a:
  - Two-story, single-family residence. The ground level is proposed to have break-away walls, not be considered living space, and consist of lanai area, 2-vehicle garage, and storage space. The second level will consist of approximately 1,712 sq. ft of interior space including two (2) bedrooms and two and a half (2.5) baths, a small lanai facing the road, and a larger lanai facing the ocean.
  - New IWS near the parcel's boundary with Pahipahialua Street
  - Driveway connecting the garage with Pahipahialua Street

The DEA notes that proposed Accessory Components include parking under and for the residence, gravel driveway, a new 6-foot-tall fence/gate, a Department of Health approved IWS consisting of a new septic tank and leach field, a stormwater system including a drywell connected to downspouts, and landscaping with a sprinkler system. The OCCL requests that you site all of the primary proposed project components as well as all of the Accessory Components in the proposed plans.

Under section **2.3.3 DESCRIPTION OF PROPOSED CONSTRUCTION**, the DEA states that some trenching and excavation will be required for (ii) breakaway parking slabs on the ground level. Please clarify and explain what breakaway parking slabs are.

Under section **3.1.3 HIGH WAVES HAZARD**, the DEA notes "... it [the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its annual high wave flooding model] does not consider changes in shoreline location due to coastal erosion." However, it does appear that the State of Hawaii Sea Level Rise Viewer does model coastal erosion and the shoreline based historical data consisting of historical shoreline positions, erosion rates, and the vegetation line. The modeled simulations for coastal erosion have been attached. Additionally, they can be overlaid onto the Annual High Wave Flooding layer in the viewer to see the combination of these layers.

Under section **3.1.5 EROSION HAZARD**, the DEA states "The causes of coastal erosion and beach loss in Hawaii are numerous but poorly understood and rarely quantified." This statement appears to be inaccurate. The Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its Coastal Erosion section contains a discussion and citations of researchers understanding of coastal erosion of Hawaii. The University of Hawaii Coastal Geology Group's website (<https://www.soest.hawaii.edu/coasts/index.php/publications/>) also contains a number of published articles on coastal erosion and quantification of erosion rates in Hawaii for the islands of Maui, Kauai, and Oahu. The OCCL requests you review and revise this section



REF: OCCL: TF  
Makena White  
Planning Solutions

RE: COR: OA 22-94

accordingly. The OCCL also requests that the Final EA include the State of Hawaii Sea Level Rise Viewer's modeled erosion simulations for 1.1, 2.0, and 3.2 ft of sea level rise.

The DEA contains **Figure 3.12: U.S. Geological Survey Geology** which appears to be based on an overlay layer from the State of Hawaii Sea Level Rise Viewer. The OCCL requests that the Final EA include the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) "Beaches and Sand USDA" overlay as well as a discussion of how the underlying geology and its susceptibility to erosion may impact the proposed uses. Additionally, aerial photos of the parcel as well as photos contained in the DEA appear to indicate that the parcel's geology, at least in part, consists of sand.

Under section **3.1.5 EROSION HAZARD**, the DEA also states "...it is critical to note that (i) evidence presented in this section suggests that, because the UH study assumptions do not match the subject parcel's condition, the parcel is not as vulnerable to coastal erosion as the study indicates, and (ii) the most extreme future coastal erosion projections are for scenarios some 80 years in the future." The OCCL also notes that there are at various points in the DEA statements such as "the subject parcel is not experiencing shoreline erosion". Please provide any underlying studies that the landowners had conducted to support these statements. The OCCL notes that One day's observation does not equate to the methodologies and peer-review scrutiny that the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its underlying studies underwent. While the parcel may be experiencing a low rate of erosion currently, the models and research suggest that it will increase with sea level rise and its associated impacts. Given that the current dwelling on the parcel is 80 years old and still serviceable, it is not unreasonable to assume that the proposed dwelling may last as long as the current structure and may be impacted by coastal erosion and high wave flooding with accelerated sea level rise prior to 2100.

Under section **3.1.8 POTENTIAL IMPACTS**, the DEA describes the shoreline adjacent to the parcel as "... rocky shoreline with a fringing reef", but Figure 2.4 describes the area as a beach. Based on Figure 2.4 a. and b., it appears the shoreline fronting the subject parcel is a sandy beach with rocky outcrops and shallow reef. In section **3.6 OTHER RESOURCES AND TOPICS** and the bullet Topography, geology, and soils, the DEA states that the soil is mapped as Jaucas Series (JaC) which is more generally referred to as Jaucas sand or sand. Please clarify and include the geotechnical study noted in section **3.2 ARCHAEOLOGICAL AND CULTURAL RESOURCES** of the DEA. Additionally, the OCCL also requests that a more thorough analysis and discussion be included in the Final EA regarding the impacts and mitigation for modeled coastal erosion and annual high wave flooding with expected sea level rise (1.1ft, 2.0ft, and 3.2ft). Please include in your analysis and discussion the potential impacts to the proposed uses for the first floor of the proposed residence as well as to the Accessory Components or infrastructure that will support the new dwelling such as (but not limited to) water, electrical, the IWS, the drywells, and landscaping irrigation. Please also discuss how the proposed landscaping and its irrigation shall not impact lateral shoreline access pursuant to HRS, §115-9.

REF: OCCL: TF  
Makena White  
Planning Solutions

RE: COR: OA 22-94

Thank you for the opportunity to review and comment on the DEA. We look forward to reviewing the Final EA and responses to submitted comments.

Should you have any questions, contact Trevor Fitzpatrick of the Office of Conservation and Coastal Lands at (808) 798-6660 or [trevor.i.fitzpatrick@hawaii.gov](mailto:trevor.i.fitzpatrick@hawaii.gov).

Sincerely,



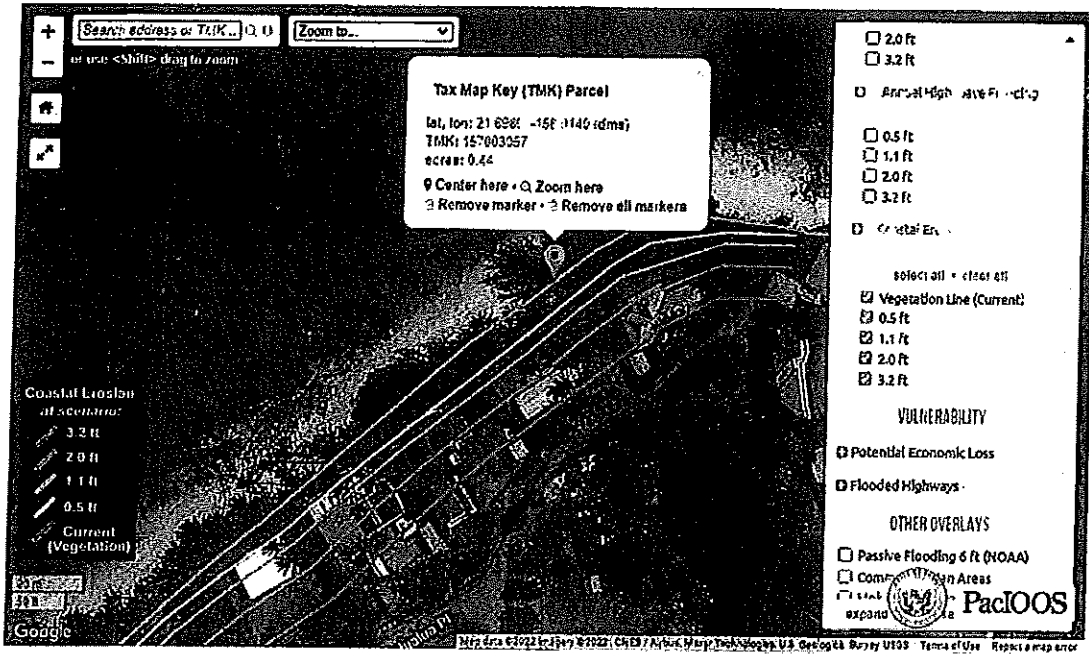
K. Tiger Mills, Acting Administrator  
Office of Conservation and Coastal Lands

CC: *Oahu District Land Division Office  
City and County of Honolulu, Department of Planning and Permitting*

# Sea Level Rise : State of Hawai'i Sea Level Rise Viewer

An Interactive Mapping Tool In Support of the State of Hawai'i Sea Level Rise Vulnerability and Adaptation Report

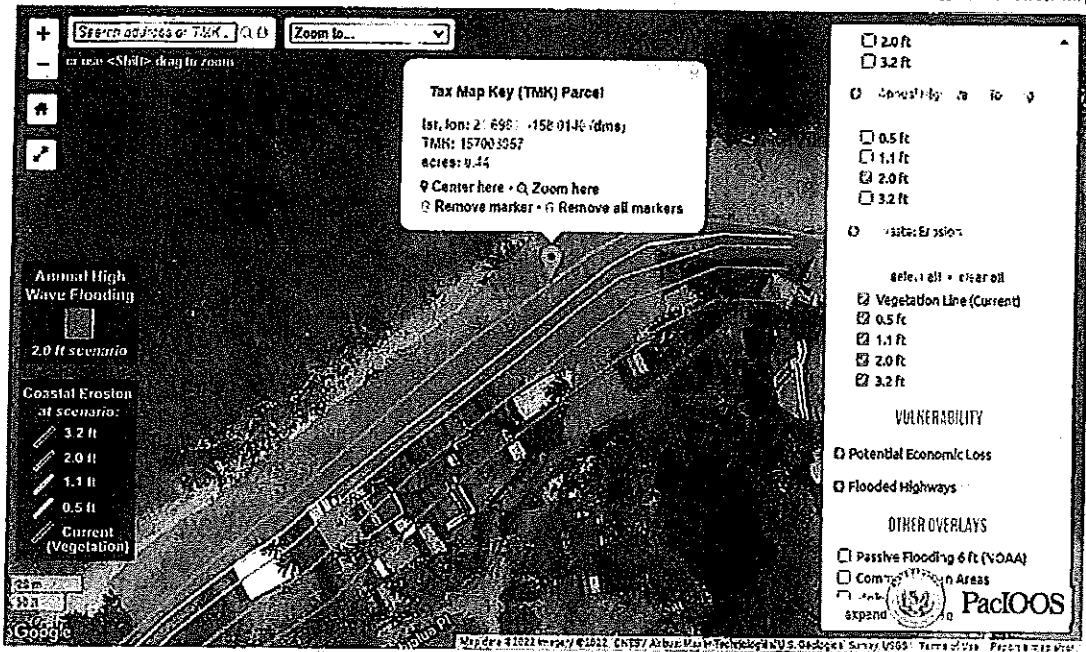
[View full-screen map](#)



# Sea Level Rise : State of Hawai'i Sea Level Rise Viewer

An Interactive Mapping Tool In Support of the State of Hawai'i Sea Level Rise Vulnerability and Adaptation Report

[View full-screen map](#)



## Sea Level Rise Projections For Modeling

Sea level rise exposure mapping in the 2017 Hawai'i Sea Level Rise Report is based on an upper-end projection of 3.2 feet of sea level rise by 2100 in the 5th Assessment Report (AR5) of the Intergovernmental Panel on Climate Change (IPCC), the United Nations body of leading climate scientists and governmental representatives. The IPCC AR5 identified four sea level rise scenarios based on Representative Concentration Pathways (RCPs) for Greenhouse Gas (GHG) emissions (IPCC 2014). The IPCC AR5 "business-as-usual" GHG emissions scenario, RCP8.5, was used to model exposure to sea level rise. This scenario assumes GHG emissions continue to increase at their current rate and predicts as much as 3.2 feet of Global Mean Sea Level (GMSL) rise by the year 2100 (Figure 1).

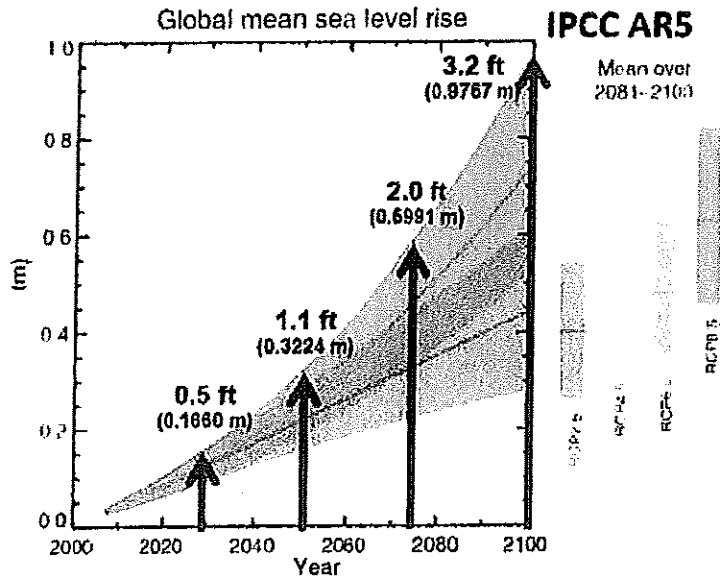


Figure 1. Projected Global Mean Sea Level Rise (m) for IPCC AR5 scenarios (IPCC AR5 Report).

As expected, the science on sea level rise observations and forecasts have continued to advance. Since completion of the 2017 Report, peer-reviewed scientific literature as well as government and multinational reports increasingly point to about 3 feet of sea level rise by 2100 as a mid-range, rather than high-end, scenario and show that sea level rise greater than 3 feet in this century is physically possible (Figure 2, Sweet et al. 2017). These increasing projections of sea level rise are based on greenhouse gas emissions, which continue to increase, and observations of accelerating ice mass loss to the oceans, particularly from Greenland and West Antarctica. The projections are often provided to 2100, though sea level rise will not stop at that time but will likely continue for centuries.

## NOAA Global Mean Sea Level (GMSL) Scenarios for 2100

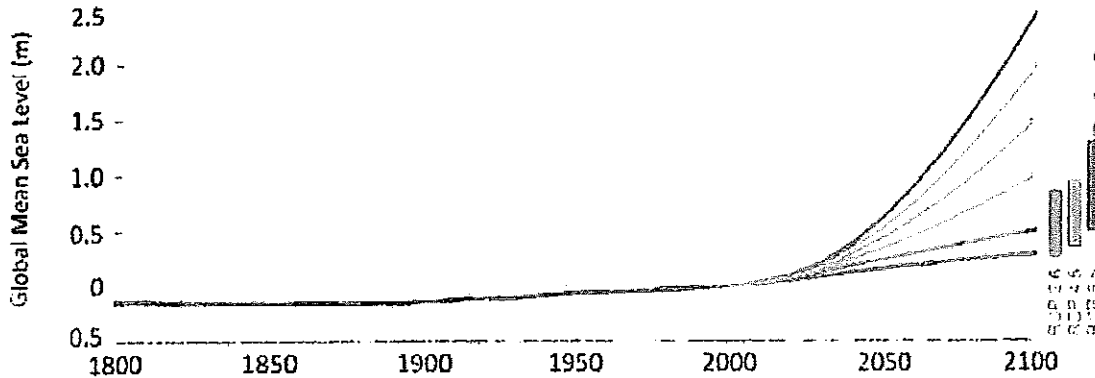


Figure 2. Observed and projected Global Mean Sea Level (GMSL) scenarios from the IPCC AR5 Report. The scenarios are the same as in Figure 1. The scenarios are the same as in Figure 1. The scenarios are the same as in Figure 1.



August 8, 2022

Ms. K. Tiger Mills, Acting Administrator  
Attn: Trevor Fitzpatrick  
Office of Conservation and Coastal Lands  
Department of Land and Natural Resources  
State of Hawai'i  
By Electronic Mail: [trevor.j.fitzpatrick@hawaii.gov](mailto:trevor.j.fitzpatrick@hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Ms. Mills:

Thank you for your May 18, 2022, letter (Reference No. RE: COR: OA 22-94) concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. To simplify your review, we have reproduced your substantive comments below in italics, followed by our response:

**Comment 1:**

*The OCCL requests that you site all of the primary proposed project components as well as all of the Accessory Components in the proposed plans.*

**Response:**

The site plan for the proposed action will be updated to label all the primary and accessory project components and will appear in updated form in the forthcoming Final Environmental Assessment (FEA).

**Comment 2:**

*Under section 2.3.3 DESCRIPTION OF PROPOSED CONSTRUCTION, the DEA states that some trenching and excavation will be required for (ii) breakaway parking slabs on the ground level. Please clarify and explain what breakaway parking slabs are.*

**Response:**

The Federal Emergency Management Agency defines a break away wall as a wall that is not part of the structural support of the building where it is located. It is intended, through its design and construction, to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or supporting foundation system.

The Department of Planning and Permitting (DPP) had previously indicated that slabs not integral to the structure's foundation should be "breakaway slabs." A concrete slab used as a parking surface that is not an element of the building's foundation would need to be a breakaway slab. Our understanding is that such a slab would not be tied to the structure's foundation via rebar or other methods. Given its size and weight, it would not be capable of "breaking away" the way a wall would. The project will work with DPP regarding this so that the design complies with applicable building codes.

**Comment 3:**

*Under section 3.1.3 HIGH WAVES HAZARD, the DEA notes "... it [the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its annual high wave flooding model] does not consider changes in shoreline location due to coastal erosion." However, it does appear that the State of Hawaii Sea Level Rise Viewer does model coastal erosion and the shoreline based historical data consisting of historical shoreline positions, erosion rates, and the vegetation line. The modeled simulations for coastal erosion have been attached. Additionally, they can be overlaid onto the Annual High Wave Flooding layer in the viewer to see the combination of these layers.*

**Response:**

We believe the DEA encompasses all the data noted in this comment. Figures 3.5, 3.6, and 3.7 in the DEA depict outputs from the State of Hawai'i Sea Level Rise Viewer, showing the annual high wave flooding in the project area under 0.5-, 1.1-, 2.0-, and 3.2-foot sea level rise scenarios. Figure 3.9 depicts the future shoreline erosion vulnerability for the project site, available from the Hawai'i Shoreline Study Web Map maintained by the University of Hawai'i's School of Ocean Engineering, Science, and Technology. However, we note that while these two data sets may be overlaid, they were developed separately and do not consider the environmental changes occurring over time due to the interaction of the two factors (i.e., sea level rise and coastal erosion through the year 2100.)

**Comment 4:**

*Under section 3.1.5 EROSION HAZARD, the DEA states "The causes of coastal erosion and beach loss in Hawaii are numerous but poorly understood and rarely quantified." This statement appears to be inaccurate. The Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its Coastal Erosion section contains a discussion and citations of researchers understanding of coastal erosion of Hawaii. The University of Hawaii Coastal Geology Group's website (<https://www.soest.hawaii.edu/coasts/index.php/publications/>) also contains a number of published articles on coastal erosion and quantification of erosion rates in Hawaii for the islands of Maui, Kauai, and Oahu. The OCCL requests you review and revise this section accordingly. The OCCL also requests that the Final EA include the State of Hawaii Sea Level Rise Viewer's modeled erosion simulations for 1.1, 2.0, and 3.2 ft of sea level rise.*

**Response:**

The statement specifically referred to in the comments appears on a U.S. Geological Survey (USGS) website associated with their Hawai'i Beach Monitoring Program. As that statement may now be dated, it has been removed from the FEA. As noted in our prior response, the State of Hawai'i Sea Level Rise Viewer's modeled erosion simulations for 0.5-, 1.1-, 2.0-, and 3.2-foot sea level rise are shown in Figure 3.9 of the DEA.

**Comment 5:**

*The DEA contains Figure 3.12: U.S. Geological Survey Geology which appears to be based on an overlay layer from the State of Hawaii Sea Level Rise Viewer. The OCCL requests that the Final EA include the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) "Beaches and Sand USDA" overlay as well as a discussion of how the underlying geology and its susceptibility to erosion may impact the proposed uses. Additionally, aerial photos of the parcel as well as photos contained in the DEA appear to indicate that the parcel's geology, at least in part, consists of sand.*

**Response:**

The USDA NRCS "Beaches and Sand" overlay has been added as Figure 3.13. The discussion in Section 3.1.5 (a part of the coastal hazards discussion) has been expanded to discuss that figure and other details regarding the parcel's geology. In addition, a new Section 3.6 Sand Dunes has been added to the FEA to include a discussion of the presence, potential impacts to, and proposed measures to avoid and minimize impacts to sand dunes on the subject property.

**Comment 6:**

*Under section 3.1.5 EROSION HAZARD, the DEA also states "... it is critical to note that (i) evidence presented in this section suggests that, because the UH study assumptions do not match the subject parcel's condition, the parcel is not as vulnerable to coastal erosion as the study indicates, and (ii) the most extreme future coastal erosion projections are for scenarios some 80 years in the future." The OCCL also notes that there are at various points in the DEA statements such as "the subject parcel is not experiencing shoreline erosion". Please provide any underlying studies that the landowners had conducted to support these statements. The OCCL notes that One day's observation does not equate to the methodologies and peer-review scrutiny that the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) and its underlying studies underwent. While the parcel may be experiencing a low rate of erosion currently, the models and research suggest that it will increase with sea level rise and its associated impacts. Given that the current dwelling on the parcel is 80 years old and still serviceable, it is not unreasonable to assume that the proposed dwelling may last as long as the current structure and may be*

*impacted by coastal erosion and high wave flooding with accelerated sea level rise prior to 2100.*

**Response:**

The statements made in the DEA regarding coastal erosion reflect the observations made at the time of the site visit noted therein and upon review of available aerial photography, maps, and personal photographs, as well as interviews with adjacent landowners. As such, some of this information does contradict statements made in the *Hawai'i Sea Level Rise Vulnerability and Adaptation Report*. The representations made in the DEA remain truthful and accurate reports of information obtained from these sources. In addition, there have been three shoreline certifications for this parcel in the past four years which indicate no changes to the shoreline. However, to avoid any inaccuracy, the statement that you identify has been modified to read, "the subject parcel is not experiencing shoreline erosion at the present time."

Regarding the service lifetime of the proposed residence vis-à-vis the existing residence's 80-year service life, we concur that it is reasonable to plan for a similar 80-year timeframe. To the extent practicable, we believe the proposed plan does so, by placing the foundation of the new residence on coral rather than sand dune, elevated on reinforced concrete piers rather than wooden posts, and set back further from the shoreline. This design is intended to result in a stronger, higher, and safer home than the existing structure can provide.

The discussion regarding the erosion hazard (Section 3.1.5) and the impacts of the coastal hazards (Section 3.1.8) in the FEA have been expanded to provide clarity and detail to address this and other comments.

**Comment 7:**

*Under section 3.1.8 POTENTIAL IMPACTS, the DEA describes the shoreline adjacent to the parcel as" ... rocky shoreline with a fringing reef," but Figure 2.4 describes the area as a beach. Based on Figure 2.4 a. and b., it appears the shoreline fronting the subject parcel is a sandy beach with rocky outcrops and shallow reef. In section 3.6 OTHER RESOURCES AND TOPICS and the bullet Topography, geology, and soils, the DEA states that the soil is mapped as Jaucas Series (JaC) which is more generally referred to as Jaucas sand or sand. Please clarify and include the geotechnical study noted in section 3.2 ARCHAEOLOGICAL AND CULTURAL RESOURCES of the DEA.*

**Response:**

The description of the shoreline in Section 3.1.8 and Figure 2.4 have been reconciled to comport with the description contained in the *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. The geotechnical report prepared by JPB Engineering, Inc. will be included as an appendix to the FEA.



**Comment 8:**

*Additionally, the OCCL also requests that a more thorough analysis and discussion be included in the Final EA regarding the impacts and mitigation for modeled coastal erosion and annual high wave flooding with expected sea level rise (1.1ft, 2.0ft, and 3.2ft). Please include in your analysis and discussion the potential impacts to the proposed uses for the first floor of the proposed residence as well as to the Accessory Components or infrastructure that will support the new dwelling such as (but not limited to) water, electrical, the IWS, the drywells, and landscaping irrigation.*

**Response:**

As noted above, the modeled coastal erosion and annual high wave flooding with expected sea level rise levels of 0.5-, 1.1-, 2.0-, and 3.2-ft.) are shown in Figures 3.5, 3.6, and 3.7 of the DEA. In addition, language has been added to Section 3.1.8 of the FEA to address the potential impacts to the proposed uses for the first floor of the proposed residence that could result from a combination of annual high wave flooding and anticipated sea level rise.

**Comment 9:**

*Please also discuss how the proposed landscaping and its irrigation shall not impact lateral shoreline access pursuant to HRS, §115-9.*

**Response:**

Sections 2.3.2 and 4.2.5.1 of the FEA has been revised to clarify that the proposed landscaping and its irrigation will not impact lateral shoreline access.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

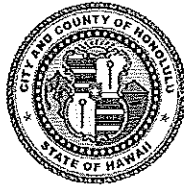


Mākena White, AICP  
Planner

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

RICK BLANGIARDI  
MAYOR



DEAN UCHIDA  
DIRECTOR

DAWN TAKEUCHI APUNA  
DEPUTY DIRECTOR

May 24, 2022

2022/ED-5(AB)

Mr. James Hayes  
Planning Solutions Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. Hayes:

SUBJECT: Department of Planning and Permitting Comments  
Environmental Assessment (EA)  
57-321 Pahipahialua Street - Kawela Beach Lots, Koolauloa  
Tax Map Key 5-7-003: 057

This is in response to the above-referenced EA, which is required under Chapter 25, Revised Ordinances of Honolulu. Our comments are as follows:

1. Because the entire site is expected to be exposed to sea level rise hazards, the Final EA must include and analyze an alternative that involves locating all development as far mauka and on the highest area of elevation as is reasonable.
2. The Draft EA does not adequately address the possible impacts to dunes on the site. The pictures appear to show a mix of sand and coral deposits, and the topography of the site reflects a dune structure. As such, the Final EA must include site-specific avoidance or mitigation measures to avoid impacts to the dune and beach environment.

Thank you for the opportunity to comment on this proposal. Should you have any questions, please contact Alex Beatty, of our staff, at (808) 768-8032 or via email at [abeatty@honolulu.gov](mailto:abeatty@honolulu.gov).

Very truly yours,

A handwritten signature in black ink, appearing to read "Dean Uchida", is written over a horizontal line.

FOR: Dean Uchida  
Director



August 8, 2022

Mr. Dean Uchida, Director  
Attn: Alex Beatty, Planner  
Department of Planning and Permitting  
City and County of Honolulu  
By Electronic Mail: [abeatty@hawaii.gov](mailto:abeatty@hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi‘ālua Street Project**

Dear Mr. Uchida:

Thank you for your May 24, 2022, letter (Ref. No. 2022/ED-5(AB)) concerning the Paullin Family’s *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi‘ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response. To simplify your review, we have reproduced your substantive comments below in italics, followed by our response:

**Comment 1:**

*Because the entire site is expected to be exposed to sea level rise hazards, the Final EA must include and analyze an alternative that involves locating all development as far mauka and on the highest area of elevation as is reasonable.*

**Response:**

In response to your comment, Section 2.4.3.4 of the Final Environmental Assessment has been revised to include a discussion of a higher, further inland location within the project parcel as an alternative considered during preliminary planning for the proposed action. It states, in part, that when considering, “shifting the proposed development further from the shore to the far southwest corner of the property, the lot offers limited space for such a shift; the structure could only be shifted approximately 5.25 feet inland and 7 feet to the west of its proposed location shown in Figure 2 1. The Paullin Family considered this possibility vis-à-vis the coastal hazards discussed in Chapter 3 and concluded that such a move would not substantially reduce the project’s susceptibility to tsunami, flooding, high wave, sea level rise, erosion, volcanic, or seismic hazards. Such a location’s impacts on all resources and from the various hazards would be nearly identical to the Proposed Action and they would be less than significant.”

**Comment 2:**

*The Draft EA does not adequately address the possible impacts to dunes on the site. The pictures appear to show a mix of sand and coral deposits, and the topography of the site reflects a dune structure. As such, the Final EA must*

*include site-specific avoidance or mitigation measures to avoid impacts to the dune and beach environment.*

**Response:**

A discussion of dunes, potential impacts to them, and proposed avoidance and minimization measures has been added to Chapter 3 of the Final Environmental Assessment (see Section 3.6). The avoidance and minimization include, but are not limited to:

- All native sand excavated during construction will be reused on site and no imported aggregate will be used to backfill excavations.
- Landscaping between the dwelling and shoreline will consist of vegetation that is naturally hardy or endemic to the dune or shoreline area and managed in a manner that maintains its ability to hold sand.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,



Mākena White, AICP  
Planner

**From:** Cab General <[Cab.General@doh.hawaii.gov](mailto:Cab.General@doh.hawaii.gov)>  
**Sent:** Thursday, May 26, 2022 1:27 PM  
**To:** [abeatty@honolulu.gov](mailto:abeatty@honolulu.gov); Jim Hayes <[jim@psi-hi.com](mailto:jim@psi-hi.com)>  
**Subject:** Paullin Residence -- Draft EA

Aloha,

Thank you for the opportunity to provide comments on the subject project. Based on review of the *Paullin Residence* Draft EA, CAB would like to make the following comment:

- Asbestos and lead may be present in the building materials. Prior to demolition of existing structures, you must contact the Asbestos Abatement Office in the Indoor and Radiological Health Branch.
- For DOH Noise Permits and/or Variances and for more information on the Indoor and Radiological Health Branch, please visit: <https://health.hawaii.gov/irhb/>
- Department of Health, Administrative Rule: Title 11, Chapter 26, Vector Control, Section 11-26-35, Rodents; Demolition of Structures and Clearing of Sites and Vacant Lots, requires that:
  - No person, firm or corporation shall demolish or clear any structure, site, or vacant lot without first ascertaining the presence or absence of rodents which may endanger the public health by dispersal from such premises.
  - Should such inspection reveal the presence of rodents, the person, firm, or corporation shall eradicate the rodents before demolishing or clearing the structure, site, or vacant lot.
  - The Department may conduct an independent inspection to monitor compliance, or request a written report.
- Utilize best practices to reduce the potential of fugitive dust during demolition and construction activities, such as dust fences, water, etc.

Please see our standard comments at:

<https://health.hawaii.gov/cab/files/2022/05/Standard-Comments-for-Land-Use-Reviews-Clean-Air-Branch-2022-1.pdf>

Please let me know if you have any questions or concerns.

--

Kristen Caskey, EHS  
[Kristen.caskey@doh.hawaii.gov](mailto:Kristen.caskey@doh.hawaii.gov)  
Clean Air Branch  
Hawaii State Department of Health



August 8, 2022

Ms. Kristen Caskey, EHS  
Clean Air Branch  
Department of Health  
State of Hawai'i  
By Electronic Mail: [Kristen.caskey@doh.hawaii.gov](mailto:Kristen.caskey@doh.hawaii.gov)

**Subject: Response to Comment on Draft Environmental Assessment for the  
Paullin Residence 57-321 Pahipahi'ālua Street Project**

Dear Ms. Caskey:

Thank you for your May 18, 2022 email concerning the Paullin Family's *Draft Environmental Assessment and Anticipated Finding of No Significant Impacts for the Paullin Residence 57-321 Pahipahi'ālua Street Project* (DEA/AFONSI). We appreciate the time you and your staff spent reviewing the DEA and preparing your response.

Thank you for providing the information regarding air pollution control and noise permits, asbestos, rodent inspection, and fugitive dust. The applicant understands that they must comply with all applicable rules, regulations, and statutes and will implement best management practices (BMPs) to minimize fugitive dust.

You may download a copy of the Final Environmental Assessment at the Environment Review Program's website (<https://planning.hawaii.gov/erp/>) once its availability is announced in *The Environmental Notice*.

If you have any questions or concerns in the future regarding this project, please contact me at (808) 550-4538.

Sincerely,

Mākena White, AICP  
Planner

## 7 REFERENCES

- City and County of Honolulu, 1992, amended 2002. *General Plan for the City and County of Honolulu*. Amended October 3, 2002 by CCH Resolution 02-205, CD1.
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- CSH, 2016. *Final Archaeological Inventory Survey Report for the Ho‘olapa Stream-Nanahu Bridge Replacement Project, Kahuku Ahupua‘a, Ko‘olauloa District, O‘ahu, Federal Highway Administration/Central Federal Lands Highway Division (FHWA/CFLHD) Contract DTFH68-13-R-00027, TMKs: [1] 5-6-003:044 por., [1] 5-6-005:013 por., and [1] 5-6-005 Kamehameha Highway Right-of-Way*. Prepared for CH2M Hill, Honolulu, Hawai‘i.
- CSH, 2016. *Final Archaeological Inventory Survey Report for the Kawela Stream Bridge Replacement Project, ‘Ōpana, Kawela, and Pahipahi‘ālua Ahupua‘a, Ko‘olauloa District, O‘ahu, Federal Highway Administration/Central Federal Lands Highway Division (FHWA/CFLHD) Contract DTFH68-13-R-00027, TMKs: [1] 5-7-001:021 por., 5-7-006:022 por., and 5-7-001 Kamehameha Highway Right-of-Way*. Prepared for CH2M Hill, Honolulu, Hawai‘i.
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State of Hawai‘i Department of Transportation, 2017. *Final Environmental Assessment for Kawela Bridge and Nanahu Bridge Replacement Project, Kamehameha Highway, Route 83, Island of O‘ahu*. Prepared by CH2M Hill, Honolulu,

USGS, 2002. *Atlas of Natural Hazards in the Hawaiian Coastal Zone*. By: Charles H. Fletcher III, Eric E. Grossman, Bruce M. Richmond, and Ann E. Gibbs. Series I-2761. <https://pubs.usgs.gov/imap/i2761/>



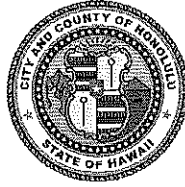
**Appendix A. Early Consultation Letters and Responses**

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DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 768-6041  
DEPT. WEB SITE: [www.honoluluodpp.org](http://www.honoluluodpp.org) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

RICK BLANGIARDI  
MAYOR



DEAN UCHIDA  
DIRECTOR

DAWN TAKEUCHI APUNA  
DEPUTY DIRECTOR

EUGENE H. TAKAHASHI  
DEPUTY DIRECTOR

January 20, 2022

2021/ELOG-2664(AB)

Mr. Makena White, AICP  
Planning Solutions  
711 Kapiolani Boulevard, Suite 950  
Honolulu, Hawaii 96813

Dear Mr. White:

**SUBJECT:** Request for Pre-Consultation Comments  
Environmental Assessment (EA) for Residence on Shoreline Lot  
57-329 Pahipahialua Street - Kawela Beach Lots  
Tax Map Key 5-7-003: 057

This is in response to your letter, dated December 20, 2021, requesting comments on the scope and content to be addressed in a Draft EA, as required under Chapter 343, Hawaii Revised Statutes (HRS), for the demolition of an existing single-family dwelling, and construction of a new single-family dwelling on an 18,992-square-foot shoreline lot. The following items should be addressed in the Draft EA:

1. Long-term Planning Policies and Objectives: The Draft EA should address the proposed Project's consistency with the relevant policies of the General Plan and the Koolauloa Sustainable Communities Plan.
2. Land Use Ordinance (LUO) 21, Revised Ordinances of Honolulu (ROH): Based on a review of our records, the Project site consists of an 18,992-square-foot shoreline zoning lot located in the R-5 Residential District. Therefore, proposed development activities must comply with the development standards applicable to the R-5 Residential District. Please note that the lot area for development purposes may be different if the lot has been impacted by erosion. Project compliance with these standards should be presented and evaluated in the Draft EA. The LUO is available on our website at:  
[www.honoluluodpp.org/ApplicationsForms/ZoningandLandUsePermits](http://www.honoluluodpp.org/ApplicationsForms/ZoningandLandUsePermits)
- 3.

4. Onsite Structures: The Draft EA should describe all existing and proposed structures and improvements on the site, including residences, garages, swimming pools, lanais, pavement, fences, walls, stairways, shoreline hardening structures, irrigation, individual wastewater systems, etc. If any existing structures or improvements are proposed to remain in place, the Draft EA should describe what and where they are located, whether they were lawfully established (permitted), and whether they are located within any required setback areas. Such structures and improvements should be included in the Draft EA's analysis of compliance with the applicable development standards in the LUO.
5. Special Management Area (SMA): On September 15, 2020, Governor Ige signed Act 16 (2020) into law. The stated purpose of Act 16 (2020) is to strengthen the State's coastal zone management policy by amending Chapter 205A, HRS, to protect state beaches and dunes, and to reduce residential exposure to coastal hazards.

The Draft EA should include in its analysis all of the required components for an SMA Use Permit under both Chapter 205A, HRS, as revised, and Chapter 25, ROH. The revised text of Chapter 205A, HRS, as amended by Act 16 (2020) is available online at:

[https://www.capitol.hawaii.gov/session2020/bills/SB2060\\_HD2\\_.htm](https://www.capitol.hawaii.gov/session2020/bills/SB2060_HD2_.htm)

Chapter 25, ROH, is available online at:  
[www.honolulu.gov/rep/site/ocs/roh/ROH\\_Chapter\\_25\\_article\\_1\\_12.pdf](http://www.honolulu.gov/rep/site/ocs/roh/ROH_Chapter_25_article_1_12.pdf)

6. Shoreline Setback: 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 shoreline survey is subject to the discretion of the Director of the Department of Planning and Permitting (DPP).

Chapter 23, ROH, is available online at:  
[www.honolulu.gov/rep/site/ocs/roh/ROH\\_Chapter\\_23\\_.pdf](http://www.honolulu.gov/rep/site/ocs/roh/ROH_Chapter_23_.pdf)

The DPP Rules Relating to Shoreline Setbacks and the Special Management Area are available online at:

[www.honoluludpp.org/Portals/0/AboutDPP/administrativerules/DppRules03Shoreline.pdf](http://www.honoluludpp.org/Portals/0/AboutDPP/administrativerules/DppRules03Shoreline.pdf)

The DPP and City Council are currently considering modifications to Chapters 23 and 25, ROH. The proposal can be found at:

<http://www.honoluludpp.org/Portals/0/LandUsePermitsDivision/Final%20Draft%20ROH%20Chapter%2023%2012-17-21.pdf>

7. Flood Zone: The Draft EA should identify the subject property's Flood Zone, as mapped by the Federal Emergency Management Agency, and evaluate the proposed Project's compliance with the City's Flood Hazard Areas Ordinance (Chapter 21A, ROH), which is available online at:

[https://www.honolulu.gov/rep/site/ocs/roh/ROH\\_Chapter\\_21A\\_.pdf](https://www.honolulu.gov/rep/site/ocs/roh/ROH_Chapter_21A_.pdf)

8. Coastal Hazards: The Project site is susceptible to Sea Level Rise (SLR), tsunamis, and storm surge. Mayor's Directive 18-2, issued on July 16, 2018, requires all City departments and agencies to use the Hawaii *SRL Vulnerability and Adaptation Report*, the *Sea Level Rise 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, and storm surge.

The recent amendments to Chapter 205A, HRS, under Act 16 (2020), further reiterate the need to evaluate potential impacts related to coastal hazards and SLR. As such, the following items need to be evaluated in a site-specific coastal hazards analysis and evaluated in both the Draft EA and SMA Use Permit application prepared for the Project. This analysis should evaluate the site's

existing topographic, geologic, and shoreline environment, and show whether and how a proposed development can safely be located outside of the 3.2-foot SLR Exposure Area and avoid impacts associated with other coastal hazards. This study should include analysis of potential impacts and mitigation measures associated with implementation of the Project related to, but not limited to, the following.

- SLR - Potential impacts relating to SLR at the subject property, based on review of the State's SLR Exposure Area Mapping Tool, of 3.2 feet of SLR.
- Storm Surge - Potential impacts and hurricane storm surge inundation levels at the subject property during Category 1 through 4 hurricane events, based on review of the National Oceanic and Atmospheric Administration's (NOAA) National Hurricane Storm Surge Hazard Maps.
- Potential cumulative impacts of coastal hazards and property inundation should SLR exacerbate existing flooding, coastal erosion, wave-action, or other coastal hazards that may occur at the subject property.

The Draft EA should also explore project alternatives, site design (siting and configuring the proposed dwelling as far from the shoreline as possible), project design features (elevated structures, alternative foundations, etc.), Best Management Practices, and appropriate mitigation measures to reduce potential impacts related to coastal hazards to the extent possible. Relevant sources of information are available online at the following links:

- Mayor's Directive No. 18-2 (2018) regarding climate change and SLR:  
[www.honolulu.gov/rep/site/dpptod/climate\\_docs/MAYORS\\_DIRECTIVE\\_18-2.pdf](http://www.honolulu.gov/rep/site/dpptod/climate_docs/MAYORS_DIRECTIVE_18-2.pdf)
- SLR Vulnerability and Adaptation Report:  
[http://climate.hawaii.gov/wp-content/uploads/2019/02/SLR-Report\\_Dec2017-with-updated-disclaimer.pdf](http://climate.hawaii.gov/wp-content/uploads/2019/02/SLR-Report_Dec2017-with-updated-disclaimer.pdf)
- State SLR Exposure Area Mapping Tool:  
[www.pacioos.hawaii.edu/shoreline/slr-hawaii/](http://www.pacioos.hawaii.edu/shoreline/slr-hawaii/)
- Guidance for Using the SLR Exposure Area Map:  
<https://climate.hawaii.gov/wp-content/uploads/2020/12/Guidance-for-Using-the-Sea-Level-Rise-Exposure-Area.pdf>

- Honolulu Office of Climate Change, Sustainability and Resiliency Climate Ready Oahu Web Explorer:  
[www.resilientoahu.org/water](http://www.resilientoahu.org/water)
- NOAA Storm Surge Mapping tool:  
<https://www.nhc.noaa.gov/nationalsurge/>

9. Wetlands and Sensitive Species:

The Draft EA should identify the presence or potential presence of any protected wetlands, sensitive habitat, flora species, and fauna species. The DPP recommends reaching out the U.S. Fish and Wildlife Service (USFWS) to obtain a list of species that are known to occur, or may potentially occur, in the Project vicinity. Known, mapped wetlands can be viewed on the USFWS National Wetlands Inventory *Wetlands Mapper*. The Draft EA must evaluate potential impacts to each identified sensitive species, and provide standard Agency-required mitigation measures as well as any applicable site-specific mitigation measures to avoid or minimize potential impacts to each identified species, critical habitat and habitat applicable to the site. The Wetlands Mapper is available online at: <https://www.fws.gov/wetlands/data/mapper.html>.

9. Dunes and Beaches: The entire site appears to consist of beach sands or dunes. In accordance with Chapter 205A, HRS, as amended by Act 16 (2020), the objectives related to coastal ecosystems and beaches were expanded to include stronger protection of beaches and dunes, including inland deposits of sand. The Draft EA must evaluate potential impacts to the beaches and dunes on the site. The Draft EA must include site-specific mitigation measures to avoid or minimize impacts to these resources. Additionally, the Draft EA should include a landscape plan that identifies any proposed landscape elements, like plants or irrigation.

10. Please be advised that in December 2020, the State Historic Preservation Division (SHPD) began using a new online system to better track consultation requests:

<https://shpd.hawaii.gov/hicris/landing>.

Because the new tracking system requires agency-to-agency requests, the DPP has created a generic request letter that consultant's/property owners may use for projects that will eventually require DPP approval. This letter may be completed by a consultant or property owner and submitted to SHPD directly via their online system to initiate requests before permit applications are submitted to the DPP. The letter includes a general DPP contact number and email, as well

Mr. Makena White  
January 20, 2021  
Page 6

as blank fields where the property owner or their consultant can enter their contact information. The generic request letter is available online at: <https://tinyurl.com/h7yvc7vp>.

Finally, please contact the appropriate Neighborhood Board (NB) and any relevant neighborhood associations or commissions to request an opportunity to present the Project proposal at the next available NB meeting and/or association meeting(s).

Thank you for the opportunity to comment on this proposal. Should you have any questions, please contact Alex Beatty, of our staff, at (808) 768-8032 or via email at [abeatty@honolulu.gov](mailto:abeatty@honolulu.gov).

Very truly yours,



For: Dean Uchida  
Director

DAVID Y. IGE  
GOVERNOR OF HAWAII



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

January 26, 2022

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

Log no. 3476

Mākena White, Planner  
Planning Solutions, Inc.  
711 Kapiolani Boulevard  
Suite 950  
Honolulu, HI 96813

Dear Mr. White,

The Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has received your request for comments as part of the pre-assessment consultation for the proposed Paullin Residence project located at 57-329 Pahipahi'ālua Street at Kawela Bay on the Island of O'ahu, TMK: (1) 5-7-003:057. The proposed project consists of demolishing the existing structures at the site and constructing a new single-family residence.

The State listed Hawaiian Hoary Bat or 'Ōpe'ape'a (*Lasiurus cinereus semotus*) could potentially occur in the vicinity of the project area and may roost in nearby trees. Any required site clearing should be timed to avoid disturbance to bats during their birthing and pup rearing season (June 1 through September 15). During this period woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed. Barbed wire should also be avoided for any construction because bats can become ensnared and killed by such fencing during flight.

Artificial lighting can adversely impact seabirds that may pass through the area at night by causing them to become disoriented. This disorientation can result in a collision with manmade structures or the grounding of birds. For nighttime work that might be required, DOFAW recommends that all lights used to 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. Permanent lighting from lights also poses a risk of seabird attraction, and as such should be minimized or eliminated. 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>.

State listed waterbirds such as the Hawaiian Duck (*Anas wyvilliana*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), Hawaiian Coot (*Fulica alai*), and Hawaiian Common Gallinule (*Gallinula chloropus sandvicensis*) could potentially occur in the vicinity of the proposed project site. It is against State law to harm or harass these species. If any of these species are present during



construction activities, then all activities within 100 feet (30 meters) should cease, and the bird should not be approached. Work may continue after the bird leaves the area of its own accord. If a nest is discovered at any point, please contact the O'ahu Branch DOFAW Office at (808) 973-9781.

The State endangered Hawaiian Monk Seal (*Monachus schauinslandi*) and threatened Green Sea Turtle (*Chelonia mydas*) may potentially occur or haul out onshore within the vicinity of the proposed project site. If either species is detected within 100 meters of the project area all nearby construction operations should cease and not continue until the focal animal has departed the area on its own accord.

Coastal plants such as naupaka (*Scaevola sericea*) and pa'uohi'iaka (*Jacquemontia ovalifolia* ssp. *sandwicensis*) are likely present in the project area and are host to the State endangered Yellow-faced Bee (*Hylaeus* sp.). These listed bees have been noted at other shoreline areas near the project area. DOFAW recommends surveys done by an entomologist be conducted before work occurs in the vicinity. Yellow-faced bee surveys should occur between the months of April to November.

DOFAW recommends minimizing the movement of plant or soil material between worksites. Soil and plant material may contain invasive fungal pathogens (e.g., Rapid 'Ōhi'a Death), vertebrate and invertebrate pests (e.g., Little Fire Ants, Coconut Rhinoceros Beetle), or invasive plant parts that could harm our native species and ecosystems. We recommend consulting the O'ahu Invasive Species Committee (OISC) at (808) 266-7994 in planning, design, and construction of the project to learn of any high-risk invasive species in the area and ways to mitigate spread. All equipment, materials, and personnel should be cleaned of excess soil and debris to minimize the risk of spreading invasive species.

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

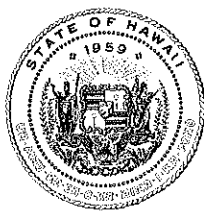
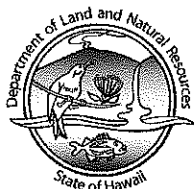
We appreciate your efforts to work with our office for the conservation of our native species. Should the scope of the project change significantly, or should it become apparent that threatened or endangered species may be impacted, please contact our staff as soon as possible. If you have any questions,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

Sincerely,



DAVID G. SMITH  
Administrator

DAVID Y. IGE  
GOVERNOR OF  
HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**  
**OFFICE OF CONSERVATION AND COASTAL LANDS**  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

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

ROBERT K. MASUDA  
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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

REF: OCCL: TF

COR: OA 22-94

Makena White  
Planning Solutions  
Pacific Park Plaza, Suite 950  
711 Kapiolani Boulevard  
Honolulu, HI 96813

Jan 20, 2022

**SUBJECT:** Scoping Request for Proposed Paullin Residence.  
Located at 57-329 Pahipahialua Street  
Kawela Beach Lots, Koolauloa, Oahu  
Tax Map Key (TMK): (1) 5-7-003:057

Dear Mr. White:

The Office of Conservation and Coastal Lands (OCCL) has reviewed your letter and attachments regarding the subject matter. According to your letter, the landowners of TMK: (1) 5-7-003:057 are proposing to demolish the existing single-family residence and construct a new larger single-family residence on the property. Your letter notes that the project intends to comply with the shoreline setback, yard requirements, height limits, and other applicable development standards and required approvals.

Your letter states that the project site is located in the City and County of Honolulu's (CCH) Special Management Area (SMA) and will require a SMA Major Permit. As part of the SMA application process, an Environmental Assessment (EA) is being prepared. On behalf of your clients, you are seeking early review and comments regarding the proposed project in development of the EA.

The OCCL regulates land uses in the State Land Use Conservation District through the issuance of Conservation District Use Permits (CDUPs) and Site Plan Approvals (SPAs) to help conserve, protect, and preserve important natural and cultural resources. Based on the information you have provided, it appears that TMK: (1) 5-7-003:057 lies in the State Land Use Urban District. The OCCL does not have any direct regulatory authority over land uses outside of the State Land Use Conservation District. In this context, the OCCL offers the following comments on the proposed project and the preparation of its EA.

REF: OCCL: TF  
Makena White  
Planning Solutions

COR: OA 22-94

According to the State of Hawaii Flood Hazard Assessment Tool (FHAT - <http://gis.hawaiiinfip.org/FHAT/>), it appears that TMK: (1) 5-7-003:057 lies entirely in Special Flood Hazard Area Zone VE. Additionally, a cursory review of the Hawaii State Sea Level Rise Viewer (<https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/>) indicates that the subject parcel lies within the sea level rise exposure area (SLR-XA). We suggest that you include a thorough discussion of coastal hazards, climate change, sea level rise, and associated impacts in the development of the EA. The landowners and their agent may want to consider reviewing the Hawaii Sea Level Rise Vulnerability and Adaptation Report (2017) in preparing the EA. A copy of the report can be obtained at [https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report\\_Dec2017.pdf](https://climateadaptation.hawaii.gov/wp-content/uploads/2017/12/SLR-Report_Dec2017.pdf) . The OCCL also suggests the Draft EA disclose any potential impacts to lateral shoreline access that the project may pose as well as how the landowner intends to support access along this stretch of coast.

Should you have any questions, contact Trevor Fitzpatrick of the Office of Conservation and Coastal Lands at (808) 798-6660 or [trevor.j.fitzpatrick@hawaii.gov](mailto:trevor.j.fitzpatrick@hawaii.gov) .

Sincerely,

*S Michael Cain*

Michael Cain, Acting Administrator  
Office of Conservation and Coastal Lands

CC: *Oahu District Land Division Office  
City and County of Honolulu, Department of Planning and Permitting*



**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

DTS202112270842NA

Environmental  
Review Program

January 20, 2022

Land Use  
Commission

Mr. Mākena White  
Planning Solutions, Inc.  
711 Kapiolani Boulevard, Suite 950  
Honolulu, HI 96813

Land Use Division

Special Plans  
Branch

Dear Mr. White:

State Transit-  
Oriented  
Development

Subject: Scoping Request for Proposed Paullin Residence at 57-329  
Pahipahialua Street, Kawela Bay, Oahu; Tax Map Key: (1) 5-7-003:  
057

Statewide  
Geographic  
Information System

The Office of Planning and Sustainable Development (OPSD) is in receipt of your Environmental Assessment (EA) early consultation request, received December 23, 2021, for the proposed single-family residence project located at 57-329 Pahipahialua Street, Kawela Bay, Oahu, Hawaii.

Statewide  
Sustainability  
Program

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). The site is also located within the county designated Special Management Area (SMA) under the Hawaii Coastal Zone Management (CZM) Law, Hawaii Revised Statutes (HRS) Chapter 205A.

An EA is being prepared in accordance with the content and procedures under HRS Chapter 343, as required by Revised Ordinances of Honolulu (ROH) Chapter 25, in support of a SMA Use Permit application.

The Paullin Family proposes to demolish the existing structures and construct a new single-family residence on the subject shoreline parcel.

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 SMA. The EA should discuss the trigger(s) of preparation of an EA under HRS Chapter 343 and/or ROH Chapter 25 SMA Ordinance.

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 their supporting policies set forth in HRS § 205A-2, as amended.
3. Given that 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 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 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 residential structure, to respond to the potential impacts of 3.2-foot sea level rise on the proposed development.
5. 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:

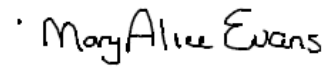
Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area.

Mr. Mākena White  
January 20, 2022  
Page 3

[https://files.hawaii.gov/dbedt/op/czm/initiative/stomwater\\_imapct/final\\_stormwater\\_impact\\_assessments\\_guidance.pdf](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 by email at [shichao.li@hawaii.gov](mailto:shichao.li@hawaii.gov).

Sincerely,

A handwritten signature in black ink that reads "Mary Alice Evans". The signature is written in a cursive, slightly slanted style.

Mary Alice Evans  
Director

**From:** Nick Marck <#####@###.###>

**Sent:** Tuesday, December 28, 2021 1:15 PM

**To:** Makena White <[makena@psi-hi.com](mailto:makena@psi-hi.com)>

**Subject:** Re: Scoping Request for Proposed Paullin Residence 57-329 Pahipahi'ālua Street

Dear Ms. White,

We are the neighbors on the kahuku side of the site. What is the setback to our shared property line of the proposed new structure? What is the plan for screening and privacy on this side of structure.? What is location of septic system? What is the height of the structure?

Thank you,

Nick Marck and Linda Lichter

**Appendix B. Construction Drawings (11" x 17")**

---





# WELCH & WEEKS

LLC  
ARCHITECTS

## 4th FLOOR OF THE HISTORIC ALOHA TOWER

MAILING ADDRESS  
P.O. BOX 4557  
HONOLULU  
HAWAII 96812

tel 808-585-8522  
fax 808-585-8622

welchandweeks@hawaii.rr.com

website:  
www.welchandweeks.com

### project

PAULLIN PRELIM  
3.00

60 SETBACK

tmk; 5-7-003:057

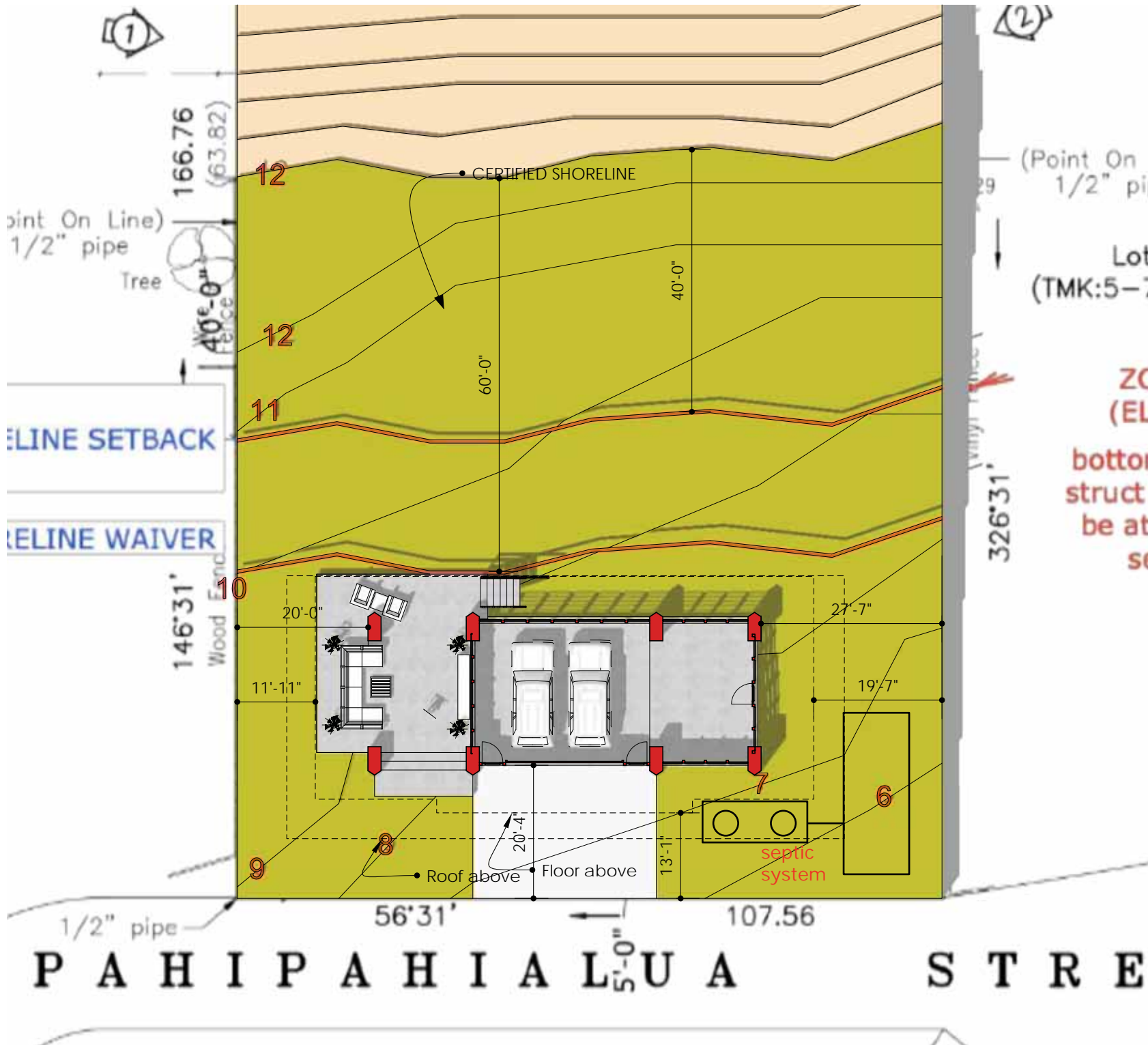
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kahuku hawaii

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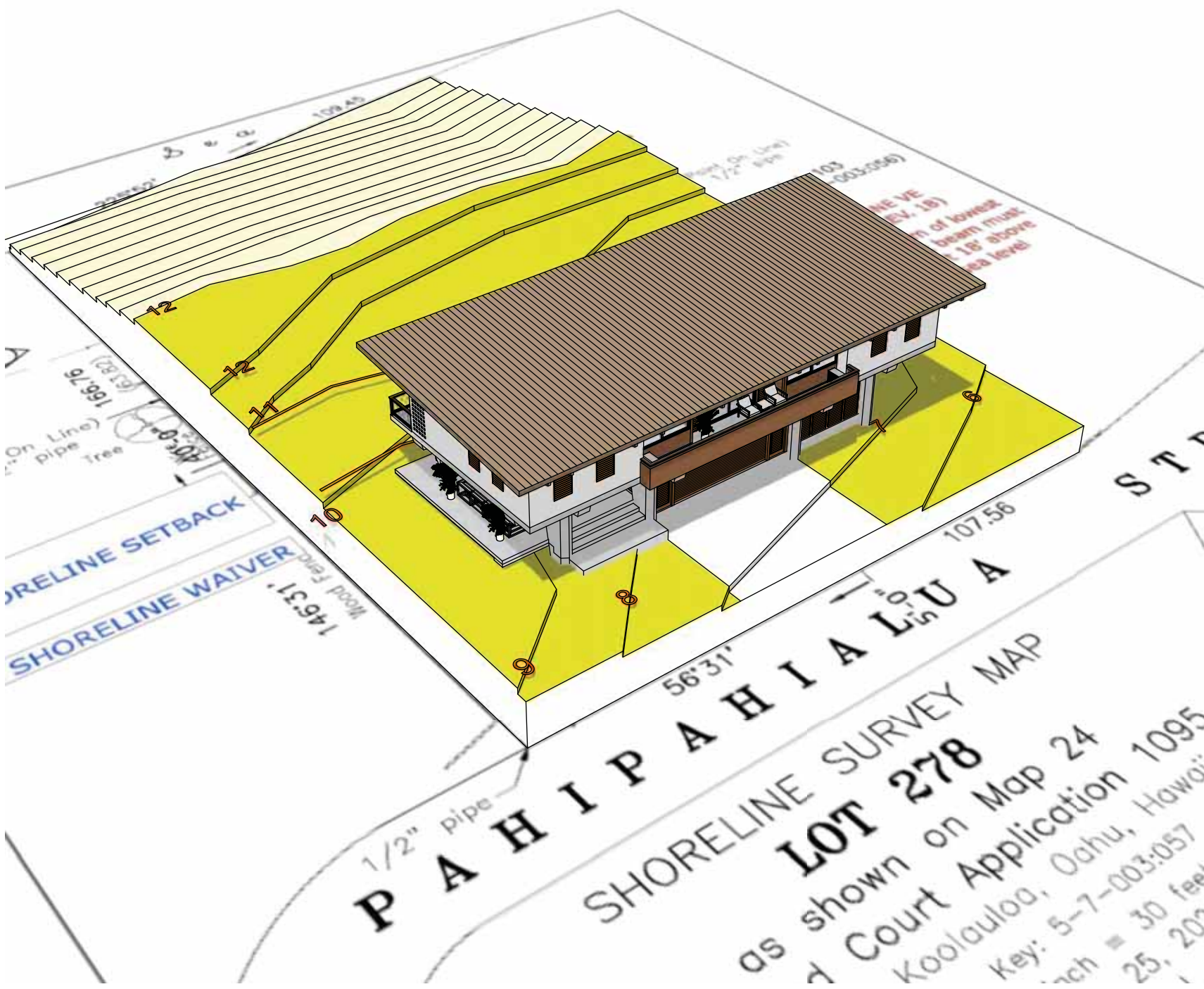
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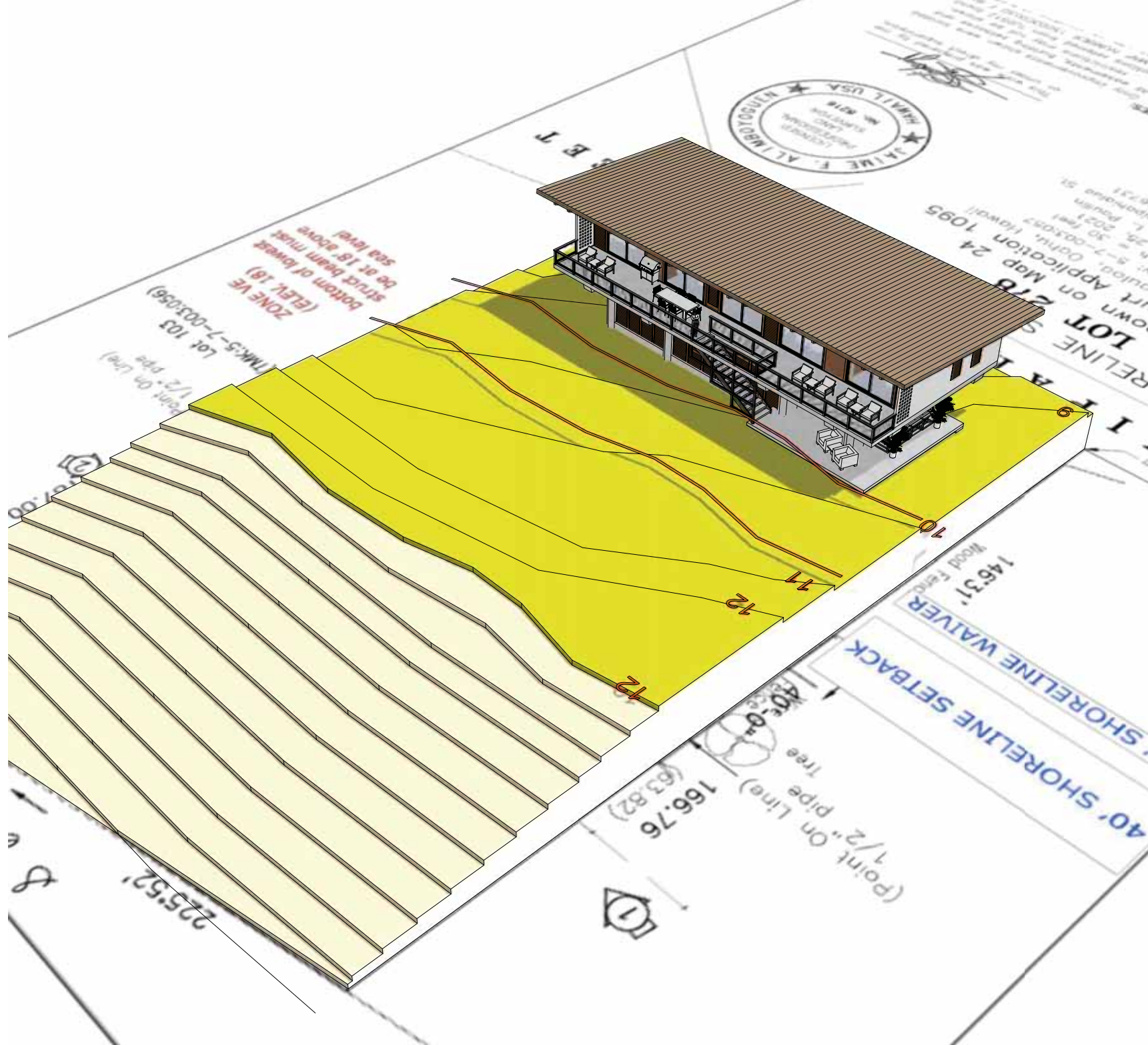
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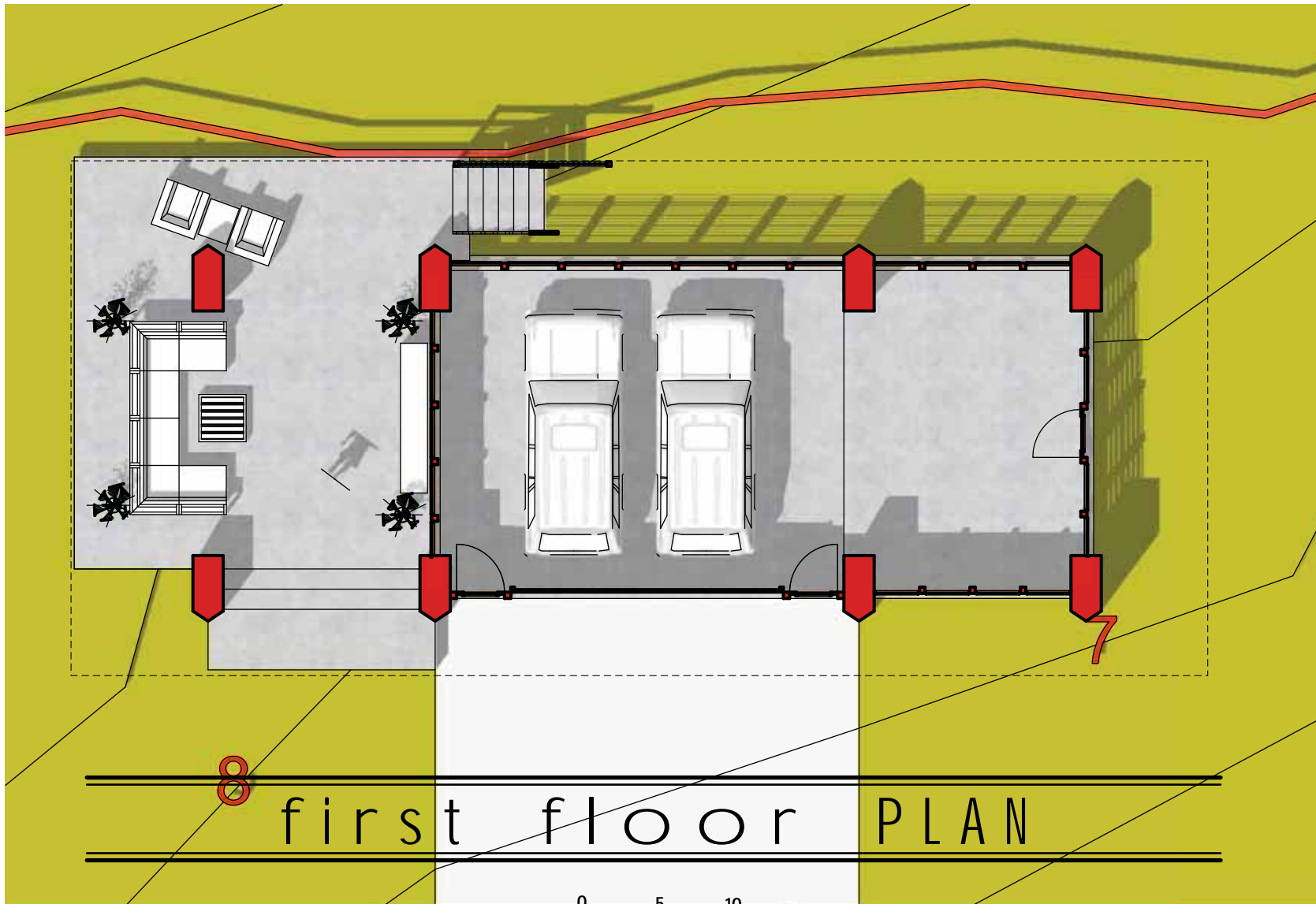
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kahuku hawaii

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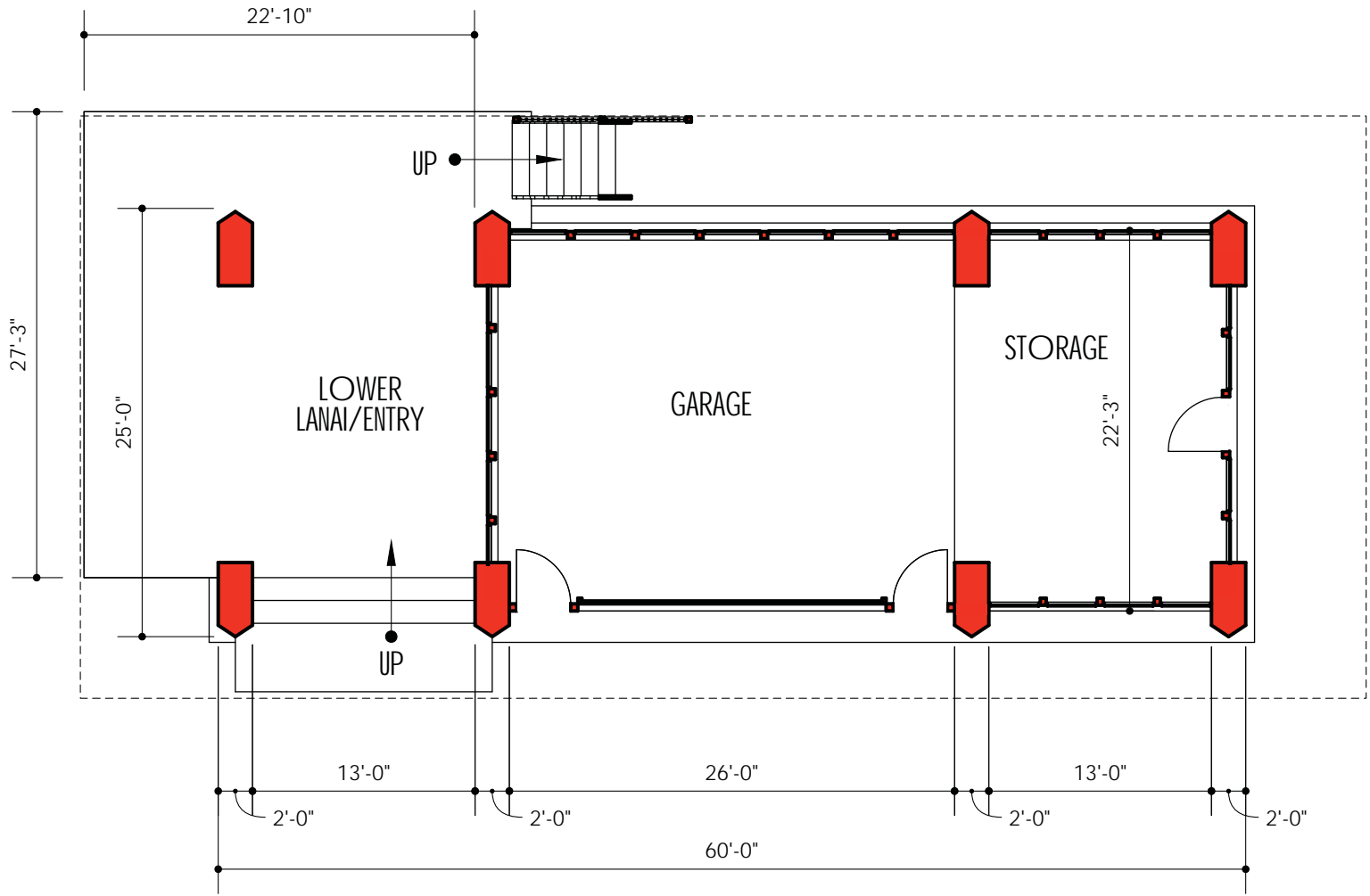
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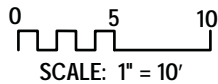
first floor PLAN

PAHIPAHIALUA





first floor PLAN



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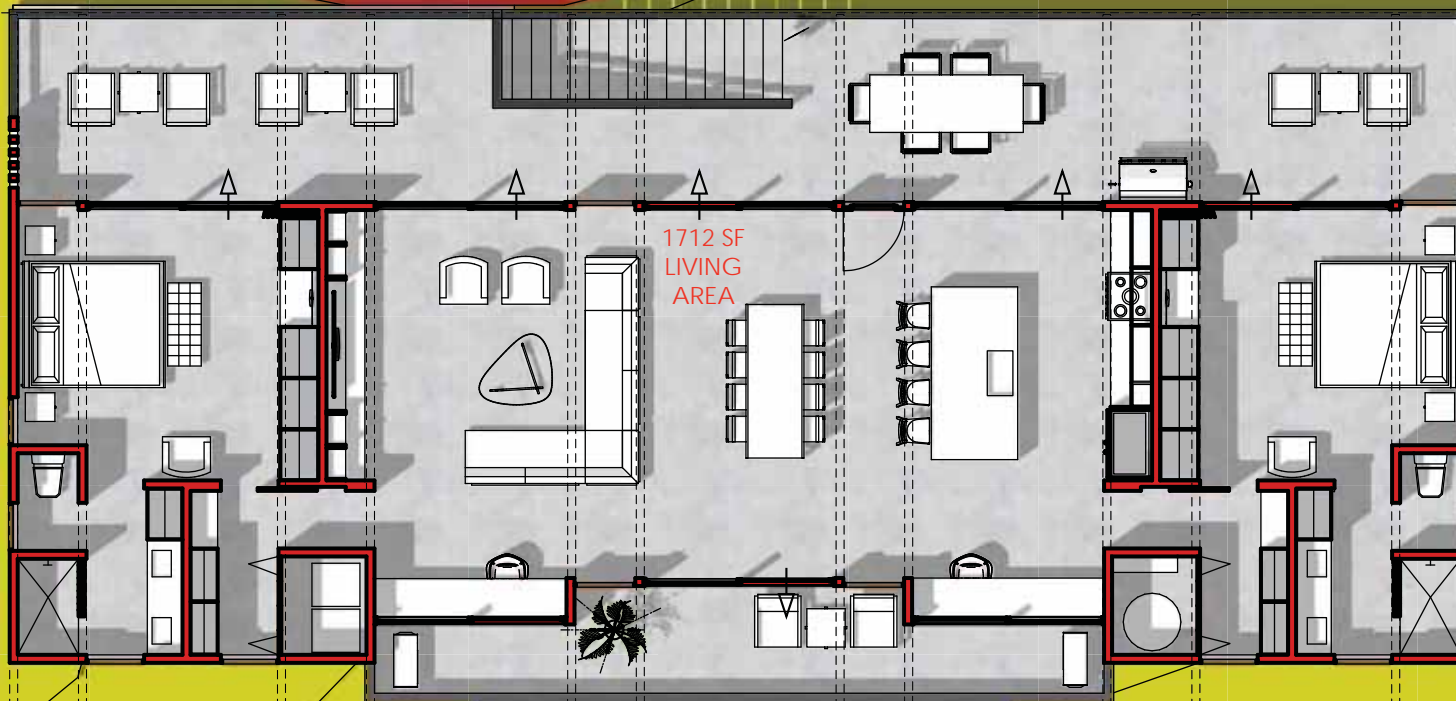
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kahuku hawaii

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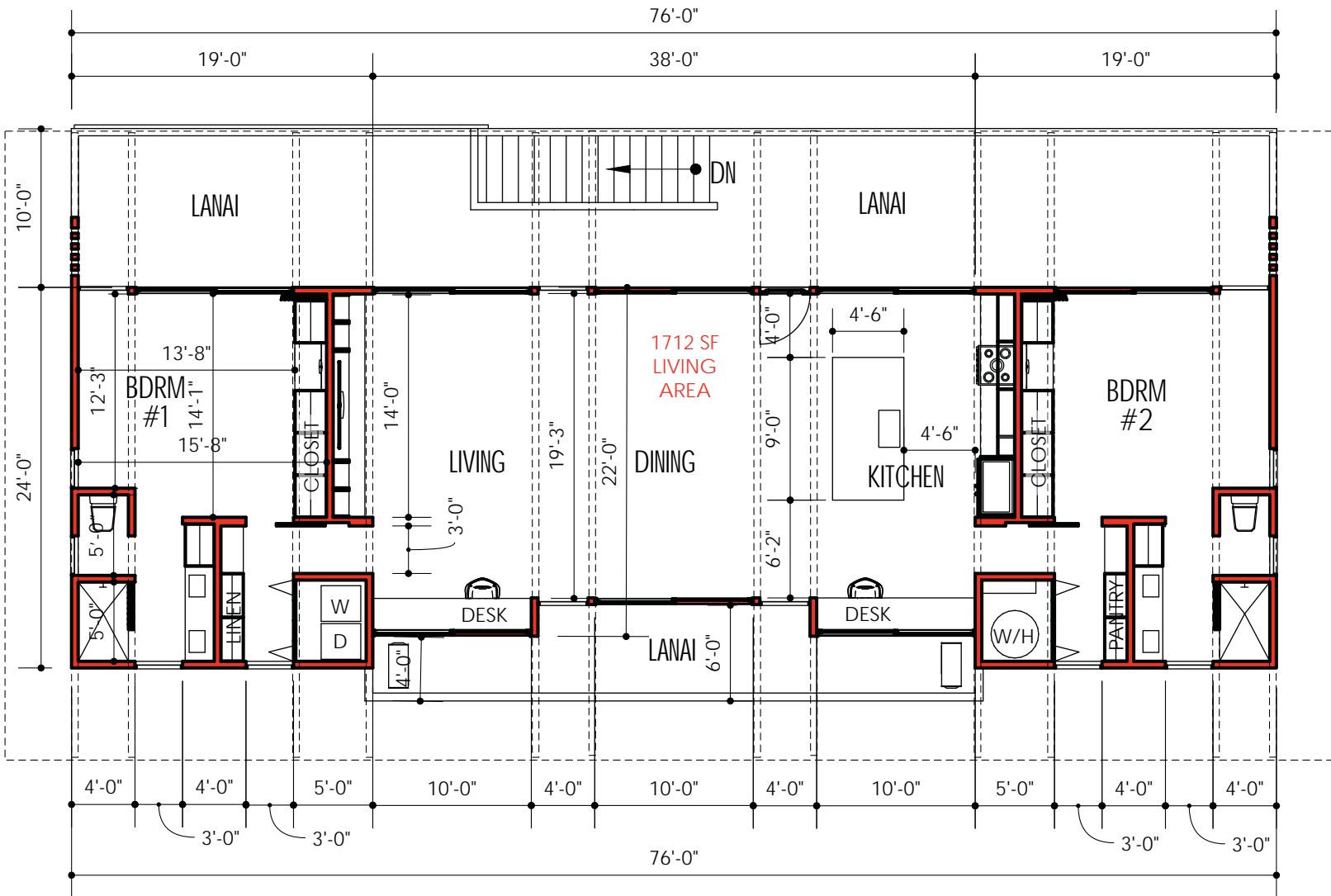
second floor PLAN

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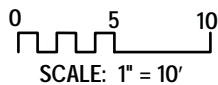
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P A H I A L O H U A



# second floor PLAN



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EXT. ELEV.S

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EXT. ELEV. S

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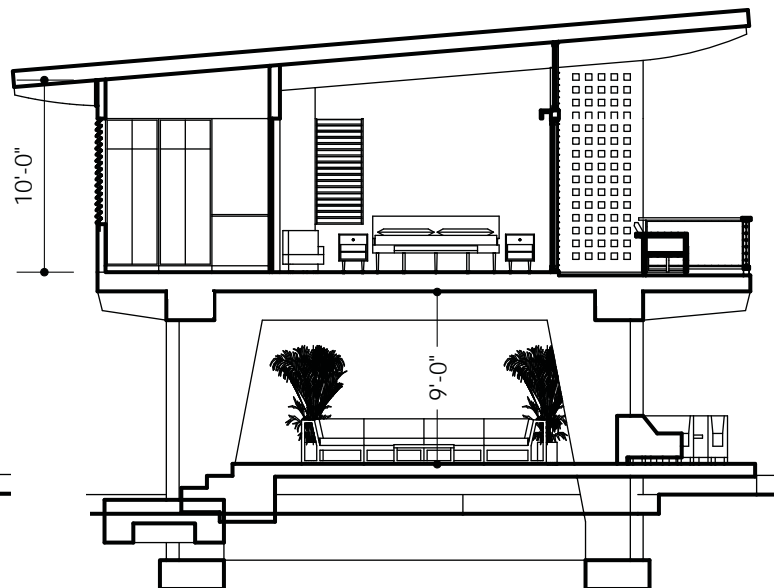
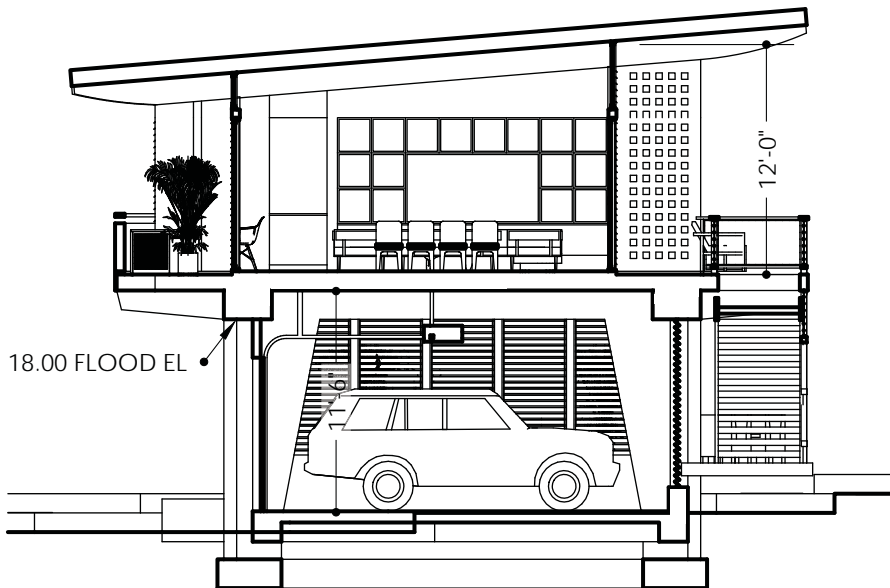
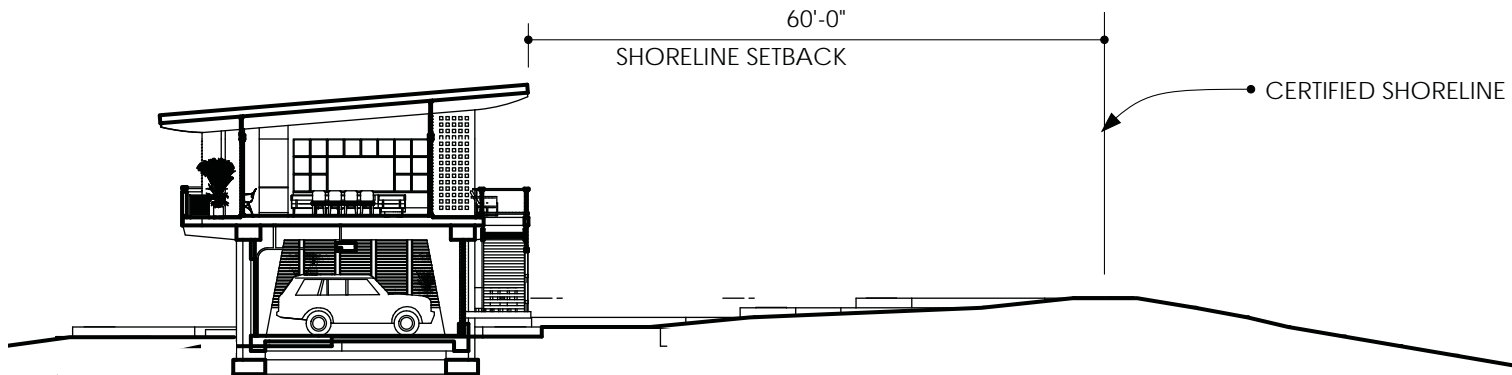
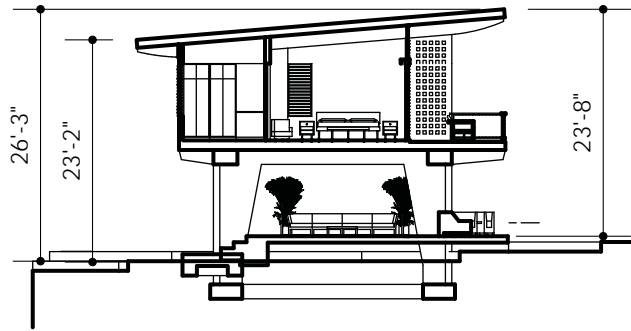
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# SECTIONS



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kahuku hawaii

date

Mar 3, 2022

sheet number

14

**Appendix C. Certified Shoreline**

---

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**

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 17, 2021

File No.: OA-1959

Jaime F. Alimboyoguen  
92-324 Kewai Place  
Kapolei, Hawaii 96707

Dear Applicant:

Subject: Transmittal of Signed Shoreline Certification Maps  
Owner(s): Barbara Paullin  
Tax Map Key: (1) 5-7-003:057

Enclosed please find three (3) copies of the certified shoreline survey maps for the subject property.

If you have any questions, please feel free to call us at (808) 587-0424. Thank you.

Sincerely,

A handwritten signature in black ink that reads "Cal Miyahara".

Cal Miyahara  
Shoreline Disposition Specialist

Enclosures

cc: DAGS





**Appendix D. Geotechnical Report, Paullin Residence**

---

# **GEOTECHNICAL REPORT**

**PAULLIN RESIDENCE  
57-329 Pahipahi'ālua Street  
Kahuku, O'ahu, Hawai'i**

**JPB Engineering Project No. 22022.01G**



**GEOTECHNICAL REPORT  
PAULLIN RESIDENCE  
57-329 PAHIPAHI'ĀLUA STREET  
KAHUKU, O'AHU, HAWAI'I**

**Project No:** 22022.01G

**Date:** March 11, 2022

**Prepared for:**

Mark Paullin  
57-329 Pahipahi'ālua Street  
Kahuku, Hawai'i 96731

**Prepared by:**

JPB Engineering, Inc.  
47-388 Hui 'Iwa Street, Suite 16  
Kāne'ohe, Hawai'i 96744

**Authored by:**



Brian T. Tabuso  
Licensed Professional Engineer No. 18,027-C



This work was prepared  
by me or under my  
supervision.

04/30/2022





JPB ENGINEERING, INC.  
*Structural & Geotechnical Engineering*

March 11, 2022

Project No. 22022.01G

To: Mark Paullin  
57-329 Pahipahi'ālua Street  
Kahuku, Hawai'i 96731

Subject: Geotechnical Report  
Paullin Residence  
57-329 Pahipahi'ālua Street  
Kahuku, O'ahu, Hawai'i

Attached is our report of the geotechnical investigation we conducted for your new residence in Kahuku. The principal conclusions and recommendations are as follow:

- ◆ The test borings revealed surficial soils consisting of very loose to compact sand to a maximum depth of about 10.5 feet below existing ground surface. Below the surficial layer, coral was discovered to the maximum depth explored, about 20 feet. The northmost boring encountered a layer of very soft organic clay from 10 to 13 feet below ground surface. Coral was exposed on the ground surface near the southmost boring.
- ◆ We have concluded that the proposed home foundations should be supported on a deep foundation system consisting of permanently cased micropiles that extend through the surficial sand and acquire competent bearing in the coral formation. Specific recommendations are presented below. Specific recommendations are presented in the report.
- ◆ JPB Engineering, Inc. must be retained to review the final construction plans and specifications to determine whether the recommendations contained in this report are adequately reflected in those documents. The results of our review would be described in writing. JPB Engineering, Inc. also must be retained to observe the micropile installations.

If you have any questions regarding this report, or if we can be of assistance to you in any other way, please do not hesitate to call. Mahalo for this opportunity to be of service.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Brian T. Tabuso', is written over a faint grid background.

Brian T. Tabuso  
Project Engineer

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DISTRIBUTION



## INTRODUCTION

### Purpose

A geotechnical investigation has been conducted for a new residence to be constructed on the Paullin property situated at 57-329 Pahipahi'ālua Street in Kahuku. The purposes of this study have been to gather information on the nature, distribution and characteristics of the subsurface earth materials and ground water conditions at the site, and to prepare specific recommendations for use in design and construction.

### Scope

The scope of this investigation is described in our proposal of January 3, 2022. On February 7 through 9, 2022, our field engineer conducted a reconnaissance of the site, and mapped the locations of six test borings that were drilled and sampled to a maximum depth of about 20 feet. Our field representatives logged, classified and recovered relatively undisturbed samples of the earth materials drawn from selected vertical intervals in each boring. The borings were backfilled with tamped soil following exploration.

The samples recovered from the test borings were transported to our office for laboratory testing and further classification. The laboratory testing program comprised determinations of natural moisture content, dry unit weight, plasticity, gradation and direct shear strength properties.

This report contains our findings regarding site soil, ground water and other geologic conditions; conclusions pertaining to expansive soils, soil strength, settlement, scour susceptibility and foundation conditions; and recommendations for site preparation, foundations, floor support, drainage and erosion control.

In Appendix A, the location of the project site is shown in relationship to surrounding landmarks and cultural features on Plate No. A1, Vicinity Map. The approximate locations of the test borings are depicted in relationship to the proposed construction, existing ground surface contours and the property boundaries on Plate No. A2, Site Plan. Geotechnical descriptions and related data recorded during the field exploration phase of our study are displayed on Plates No. A3 through A8, Logs of Borings. A key to the soil symbols and identification criteria used on the logs is presented on Plate No. A9, Unified Soil Classification System.

The results of the natural moisture content and dry unit weight tests are posted on the Logs of Borings, on which are also indicated the types of other laboratory tests conducted on corresponding samples. The remaining laboratory test data are contained in Appendix B. The results of the plasticity tests are shown on Plate No. B1, Atterberg Limits Test Data. The results of the gradation tests are illustrated on Plates No. B2 and B3, Mechanical Sieve Analysis Test Data. Summaries of the strength tests appear on Plates No. B4 through B7, Direct Shear Test Data.

References consulted during our investigation are listed in Appendix C.



## **Project Description**

The existing home will be demolished to make way for the new residence. According to preliminary architectural plans (Welch & Weeks, 2021), the proposed home will be a two-story building and will have a total footprint of about 1,800 square feet. The lower floor will comprise a two-stall carport, storage room and an outdoor patio. The upper floor will house the kitchen and dining room, living room, and two master bedroom suites. Two lānais will be located at the front and rear sides. Additional improvements will include a new septic system and a concrete driveway.

The lower floor patio and carport will be concrete slabs on grade. The upper floor will be supported by reinforced concrete columns. No structural loading information was available during the time of writing this report.

## **FINDINGS**

### **Site Description**

As shown on Plates No. A1 and A2, the subject property is a trapezoidal parcel encompassing approximately 18,992 square feet on the makai side of Pahipahi'ālua Street, about 160 feet from its intersection with Pahipahi'ālua Place (State of Hawai'i, 1996). Ground surface on open areas rises from elevation 6.0 feet near the east corner of the property to about elevation 12 feet near the top of bank towards mauka. At the time of our exploration, the subject site sustained a short cover of grass and dotted with trees.

### **Geologic Setting**

The property lies on a coastal cove created by longshore deposition of beach and dune sands, the northerly migration of which is controlled by coral reefs (Stearns, 1985). These deposits are assigned to the Jaucas series, consisting of coralline sand with fine shell fragments. Jaucas soils have low shrink-swell and corrosion potentials but are susceptible to severe erosion by both wind and surface runoff (Foote, *et al.*, 1972).

### **Earth Materials**

The test borings revealed surficial soils consisting of brown, light-brown and gray-brown, humid, very loose to compact, fine to coarse, poorly-graded sand (Unified Soil Classification: SP) to a maximum depth of about 10.5 feet below existing ground surface.

Below the surficial layer of sand, white to light-brown and brown coral was discovered to the maximum depth explored, about 20 feet. The northmost boring encountered a layer of black, saturated, very soft organic clay (OH) from 10 to 13 feet below ground surface. Coral was exposed on the ground surface near the southmost boring. Further subsurface details are depicted on Plates No. A3 through A9.





### **Groundwater**

The test borings were checked for the presence of groundwater during drilling and sampling. Stabilized groundwater levels could not be determined during the exploration.

## **CONCLUSIONS**

### **Expansive Soils**

The results of the Atterberg limits tests, shown on Plate No. B1, indicate that the underlying organic soil has low plasticity characteristics (plasticity index = 5 percent) but high water retention properties (liquid limit = 55 percent). The plasticity index is the maximum range of water contents which a soil can assume under natural conditions. It represents the difference between the liquid and plastic limits. The liquid limit is the maximum amount of water that a soil is capable of absorbing without becoming fluid. The plastic limit is the minimum amount of water a soil can hold without crumbling.

The Atterberg limits test results indicate that the native soil has low expansive tendencies. Expansive soils swell or heave when they absorb water and shrink or contract when they dry.

The gradation test results, depicted on Plates No. B2 and B3, indicate the surficial sand is composed of an average about 99 percent sand and 1 percent silt or clay. Similar tests completed on samples of the underlying granular material suggest that its average composition is nearly 23 percent gravel, 74 percent sand and 3 percent silt or clay.

These test results demonstrate that the surficial and underlying granular soils are nonexpansive.

### **Soil Strength**

The results of laboratory direct shear tests performed on selected samples of the native sand indicate that it is cohesionless and is characterized by an average internal friction angle of nearly 31°, as shown on Plates No. B4 through B6.

These results indicate that the granular surficial soils are capable of sustaining vertical structural loads of high intensity.

### **Settlement**

Foundation settlement magnitudes can be estimated by the modulus of vertical subgrade reaction, which is fixed for a particular range of loading conditions. Laboratory test data indicate that the minimum modulus for the native surficial soil is approximately 149 pounds per cubic inch, implying that it can be expected to compress about one inch under a uniform load of about 21,500 pounds per square foot.



If the new foundations are designed and constructed as recommended below, we anticipate a maximum foundation settlement not exceeding 0.50 inch and a maximum differential foundation settlement not exceeding 0.25 inch between any two adjacent foundations. All settlements are expected to occur "instantaneously," upon application of full static loads, with no residual or long-term settlements.

### **Scour Susceptibility**

The subject lies within a flood zone designated as VE per Federal Emergency Management Agency). The anticipated maximum flood level is elevation 18 feet while the average ground elevation is about 9 feet. Our calculations indicate that the soils extending to an average depth of about 7.2 feet below existing grade are vulnerable to scour.

### **Foundation Conditions**

We have concluded that the proposed home foundations should be supported on a deep foundation system consisting of permanently cased micropiles that extend through the surficial sand and acquire competent bearing in the coral formation. Specific recommendations are presented below.

## **RECOMMENDATIONS**

### **Site Preparation and Grading**

Demolition, Clearing and Grubbing – Following the demolition of the existing structure and all structural elements in the proposed building location, all remaining foundations, slabs, and the like should be broken down into manageable sizes. All loose surficial soils, vegetation, rubbish, rubble and rock fragments exceeding four inches in diameter in largest dimension should be removed from the proposed construction areas. All debris generated from the demolition, clearing and grubbing operations should be disposed to an approved site, in accordance to City and County ordinances.

Excavations and depressions resulting from clearing and grubbing operations should be dug out and backfilled with suitable materials in accordance with the following recommendations.

Subgrade Preparation – Soils exposed at subgrade level within the building pad and pavement areas should be scarified to a depth of six inches, brought to at least the optimum moisture content, and compacted to not less than 95 percent relative density per ASTM Designation D 1557-12.

Fill Material – Prior to use, all soil intended for use as fill should be approved by the project geotechnical engineer. On-site soils may be reused as such fill, if they are processed to remove rubble, rubbish, vegetation, stones or irreducible hard lumps exceeding four inches in largest dimension, and other unsuitable or perishable substances.



All imported soils, if required, should have a plasticity index not exceeding 15, when tested in accordance with ASTM Designation D 4318-10, and a maximum of 20 percent of the particles should pass the No. 100 sieve, when tested in accordance with ASTM Designation D 422-07.

Fill Placement and Compaction – All fill material should be placed in horizontal lifts not exceeding eight inches in loose thickness. Each lift within the proposed building and walkway areas should be brought to at least the optimum moisture content and compacted to not less than 95 percent relative compaction, per ASTM Designation D 1557-12.

All earthwork operations should be observed and the soils tested by the project geotechnical engineer or his representative. The further recommendations of this report are contingent upon adherence to this and the previous recommendations.

### **Foundations**

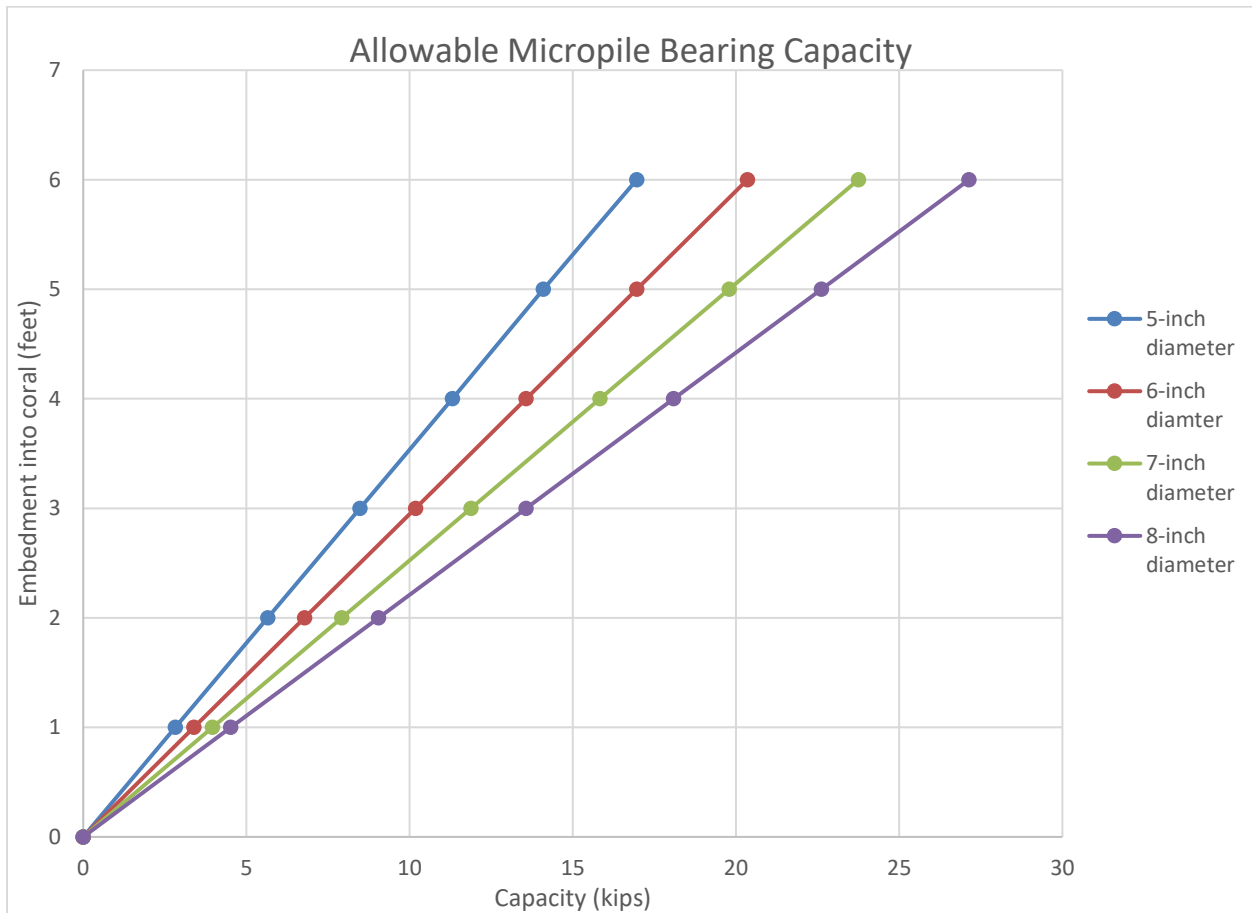
New house foundations should consist of permanently cased micropiles designed to acquire bearing in the coral formation below the surficial soils.

Micropiles should be at least seven inches in diameter, should be permanently cased and should be reinforced with a threaded, centralized and galvanized, minimum No. 8 steel bar. The casings should have a minimum thickness of 0.356 inches and should be advanced to achieve one foot of embedment into the coral formation. The grout mix should be designed to attain a minimum ultimate compressive strength of 4,000 pounds per square inch.

The allowable vertical capacity of each micropile can be designed in accordance with the following chart. The vertical values represent dead plus live loads carry a safety factory of 2.0 and may be increased by one third for consideration of seismic or wind loads, provided that a micropile head deflection of 0.25 inch is permitted at ground line.

Micropile installation involve highly specialized techniques that require experienced and knowledgeable contractors. Any such endeavors should be undertaken only by a contractor with at least five years of experience in micropiles installation, and a demonstrably successful record of at least five installations comparable in scope and value as this project.





### Concrete Slabs

Floor Slabs – Building slab-on-grade floors should be at least 4.0 inches thick. The recommended minimum slab thickness is critical and must be stringently controlled. Each slab should be underlain by a capillary break consisting of a blanket of crushed rock at least six inches thick. This material should consist of “3B fine” crushed rock conforming to ASTM C33-13, No. 67 gradation. An impervious membrane at least ten mils thick should be installed above the capillary break zone beneath each floor slab.

All floor slabs sections should be reinforced with minimum No. 4 reinforcing bars spaced on maximum 18-inch centers in each direction, or galvanized, welded steel wire mesh conforming to 6" x 6"/WF1.4 x WF1.4 gauge or higher. All reinforcing should be positioned at slab middepth. The carport slab should be quartered with construction joints to control the effects of thermal expansion.

Exterior Flatwork – The driveway and walkway slabs should be at least 4.0 inches thick. As stated above, the minimum recommended slab thickness is critical and must be stringently controlled. Each slab should be underlain by at least six inches of aggregate base or “3B fine” material conforming to ASTM C33-13, No. 67 gradation.



These slabs also should be reinforced with minimum No. 4 reinforcing bars spaced on maximum 18-inch centers in each direction, or galvanized, welded steel wire mesh conforming to 6" x 6" / WF1.4 x WF1.4 gauge or higher. All reinforcing should be positioned at slab middepth. Construction joints consisting of ruled notches spaced on maximum five-foot centers and ten-foot centers are recommended for walkway and driveway slabs, respectively.

### **Drainage and Erosion Control**

Discharge from the building roof lines as well as runoff from the exterior flatwork areas must be directed away from the foundation lines. All drainage systems should be maintained on a routine basis.

### **Supplemental Services**

JPB Engineering, Inc. must be retained to review the final construction plans and specifications to determine whether the recommendations contained in this report are adequately reflected in those documents. The results of our review would be described in writing. JPB Engineering, Inc. also must be retained to observe the micropile installations.

### **LIMITATIONS**

This report has been prepared for the exclusive use of Mark Paullin and his designated agents. The information contained in this report is intended for the project described. If any part of the project concept is altered or if subsurface conditions different from those described in this report are discovered during construction, then the information presented herein shall be considered invalid, unless the changes are reviewed, and any supplemental or revised recommendations issued in writing by JPB Engineering, Inc. If more than one year passes between the date of this report and initiation of construction, the contents of this report must be reviewed and, if necessary, modified in light of intervening changed conditions.

Site conditions and cultural features described in the text are those existing at the time of our field reconnaissance and exploration on February 7 to 9, 2022, and may not necessarily be representative of such conditions at other places and times. Similarly, the test borings represent subsurface conditions at the times and locations indicated; it is not warranted that they are representative of such conditions at other locations and times. The boring locations and elevations are to be considered approximate only.

Services performed by JPB Engineering, Inc. conform to generally accepted practices of other consultants who undertake similar studies at the same time and in the same geographical area as does our firm. No other warranty is expressed or implied.



**APPENDIX A**

Field Exploration



## **APPENDIX A**

### Field Exploration

On February 7 to 9, 2022, our field engineer conducted a reconnaissance of the site, and the surrounding vicinity. The location of the project is shown in relationship to surrounding landmarks and cultural features on Plate No. A1, Vicinity Map.

Our geotechnical exploration program was conducted under the supervision of our field representative who logged, classified, and recovered relatively undisturbed samples of the earth materials drawn from selected vertical intervals in each of four test borings. The approximate locations of the test borings are depicted in relationship to the existing home, proposed building and the property boundaries on Plate No. A2, Site Plan.

The borings were advanced to a maximum depth of approximately 20 feet below existing grade, using a Mobile B-59 drill rig equipped with 6.0-inch-O.D., continuous, helical flight, hollow-stem augers. At selected vertical intervals in each of the borings, relatively undisturbed samples of the earth materials were obtained by means of a 3.0-inch-O.D. (2.5-inch-I.D.) split-barrel sampler containing stacks of thin-walled, brass rings, each one inch thick. The sampler was advanced by hammer blows produced by a 140-pound hammer freely falling 30 inches, in accordance with ASTM Designation D 1586-11. The number of blows required to drive the sampler a total distance of 18 inches was recorded, and the sum of the hammer blows for the second and third six-inch increments, or blow count, was recorded for each drive. The blow counts recorded for the split-barrel sampler are approximately twice those of the corresponding "Standard Penetration" blow counts. The rock core samples were obtained using an NQ (2.98 inch-O.D.; 1.84-inch-I.D.) carbide-tipped core barrel continuously advanced in 5.0-foot coring intervals, using water as drill fluid. The rock cores were retained in partitioned boxes and rock quality indices were measured for each coring interval. The rock quality index is defined as the ratio of the combined length of intact core segments greater than four inches to the entire length of coring interval attempted and is expressed as a percentage. All of the samples were sealed in moisture-proof containers and transported in shock-resistant cases to our laboratory for further classification and testing.

The earth materials were classified by color, texture, consistency, tactile moisture, and other relevant characteristics. The field classifications were recorded on the field logs, which were edited for final presentation. The borings were backfilled with tamped soil following exploration.

Geotechnical descriptions and related data recorded during the field exploration phase of our study are displayed on Plates No. A3 through A8, Logs of Borings. A key to the soil symbols and identification criteria used on the logs is presented on Plate No. A9, Unified Soil Classification System.





Base: United States Geological Survey, 1998, *Kahuku Quadrangle, Hawai'i - Honolulu Co., Island of O'ahu, 7.5 Minute Series (Topographic)*

VICINITY MAP



**JPB ENGINEERING, INC.**  
*Structural & Geotechnical Engineering*

**PAULLIN RESIDENCE**  
 57-329 Pahipahi'ālua Street  
 Kahuku, O'ahu, Hawai'i

DATE: March, 2022

PROJECT NO. 22022.01G




|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-1</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 7, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |

| OTHER LAB TESTS                                                            | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                           |
|----------------------------------------------------------------------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|----------------|-----------------------------|--------------------------------------------------------------------|
| SA                                                                         | 76                    | 8.4                  |                           |                        | 18                          | SB-1                   | 0-1           |                | SP                          | SAND, light-brown, dry, loose, poorly-graded, fine to coarse       |
| DS                                                                         | 73                    | 24.3                 |                           |                        | 6                           | SB-2                   | 1-5           |                | SP                          | SAND, gray-brown, moist, very loose, poorly-graded, fine to coarse |
| SA                                                                         | 73                    | 31.8                 |                           |                        | 24                          | SB-3                   | 5-10          |                |                             | semicompact                                                        |
|                                                                            | 68                    | 38.3                 |                           |                        | 100/0.5                     | SB-4                   | 10-15         |                |                             | very dense                                                         |
|                                                                            |                       |                      |                           | 0                      |                             | NQ-1                   | 15-20         |                |                             | CORAL, light-brown                                                 |
|                                                                            |                       |                      |                           | 0                      |                             | NQ-2                   | 20-25         |                |                             |                                                                    |
| Bottom of Boring No. B-1 @ 20.0 ft.<br>No stabilized groundwater measured. |                       |                      |                           |                        |                             |                        |               |                |                             |                                                                    |

|                                                                                                                                                   |                                                                                   |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SAMPLE TYPE</b><br>BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler<br>SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | <b>DIAMOND CORE TYPE</b><br>NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D. | <b>OTHER LABORATORY TESTS</b><br>AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength<br>SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**LOG OF BORING**


|                                                                                                                                                                        |                                                                                   |                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|
| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'āhu, Hawai'i |                       |
|                                                                                                                                                                        | DATE: March, 2022                                                                 | PROJECT NO. 22022.01G |

|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-2</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 7, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |

| OTHER LAB TESTS | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL         | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                                   |
|-----------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|------------------------|-----------------------------|----------------------------------------------------------------------------|
| DS              | 97                    | 2.1                  |                           |                        | 19                          | SB-1                   | 0             | [Symbol: Sand]         | SP                          | SAND, light-brown, dry, loose, poorly-graded, fine to coarse               |
|                 | 81                    | 7.6                  |                           |                        | 20                          | SB-2                   | 5             | [Symbol: Sand]         |                             |                                                                            |
|                 | 78                    | 25.4                 |                           |                        | 6                           | SB-3                   | 10            | [Symbol: Sand]         |                             | moist, very loose                                                          |
| AL              | 20                    | 226.5                |                           |                        | 3                           | SB-4                   | 10            | [Symbol: Organic Clay] | OH                          | ORGANIC CLAY, black, saturated, very soft                                  |
| SA              | 47                    | 80.6                 |                           |                        | 50/0.4'                     | SB-5                   | 15            | [Symbol: Sand]         | SP                          | SAND, gray, saturated, very dense, with corraline gravel, poorly-graded    |
|                 |                       |                      |                           | 0                      |                             | NQ-2                   | 20            | [Symbol: Coral]        |                             | CORAL, brown and light-brown                                               |
|                 |                       |                      |                           |                        |                             |                        | 20            |                        |                             | Bottom of Boring No. B-2 @ 20.0 ft.<br>No stabilized groundwater measured. |
|                 |                       |                      |                           |                        |                             |                        | 25            |                        |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 30            |                        |                             |                                                                            |

|                                                       |                                                                    |                                                                           |
|-------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------------------------------|
| <b>SAMPLE TYPE</b>                                    | <b>DIAMOND CORE TYPE</b>                                           | <b>OTHER LABORATORY TESTS</b>                                             |
| BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler | SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D.                     |
|                                                       |                                                                    | AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength |
|                                                       |                                                                    | SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression   |

**LOG OF BORING**


|                                                                                                                                                                        |                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'ahu, Hawai'i |
| DATE: March, 2022                                                                                                                                                      | PROJECT NO. 22022.01G                                                             |

|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-3</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 7, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |

| OTHER LAB TESTS | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                                   |
|-----------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|----------------|-----------------------------|----------------------------------------------------------------------------|
|                 | 97                    | 2.1                  |                           |                        | 19                          | SB-1                   |               |                | SP                          | SAND, light-brown, dry, loose, poorly-graded, fine to coarse               |
| SA              | 81                    | 7.6                  |                           |                        | 20                          | SB-2                   | 5             |                |                             |                                                                            |
| DS              | 78                    | 25.4                 |                           |                        | 6                           | SB-3                   |               |                |                             | very loose                                                                 |
|                 |                       |                      |                           |                        |                             |                        | 10            |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-1                   |               |                |                             | CORAL, white to brown and gray-brown                                       |
|                 |                       |                      |                           |                        |                             |                        | 15            |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-2                   |               |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 20            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 25            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 30            |                |                             | Bottom of Boring No. B-3 @ 20.0 ft.<br>No stabilized groundwater measured. |

|                                                                                                                                                   |                                                                                   |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SAMPLE TYPE</b><br>BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler<br>SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | <b>DIAMOND CORE TYPE</b><br>NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D. | <b>OTHER LABORATORY TESTS</b><br>AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength<br>SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**LOG OF BORING**


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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------|
| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'āhu, Hawai'i |                       |
|                                                                                                                                                                        | DATE: March, 2022                                                                 | PROJECT NO. 22022.01G |

|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-4</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 7, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |

| OTHER LAB TESTS | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                                   |
|-----------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|----------------|-----------------------------|----------------------------------------------------------------------------|
| DS              | 75                    | 34.7                 |                           |                        | 22                          | SB-1                   | 0             |                | SP                          | SAND, light-brown, dry, loose, poorly-graded, fine to coarse               |
|                 | 67                    | 24.0                 |                           |                        | 53                          | SB-2                   | 5             |                |                             | compact, with coralline gravel                                             |
|                 |                       |                      |                           | 0                      |                             | NQ-1                   | 10            |                |                             | CORAL, brown                                                               |
|                 |                       |                      |                           | 0                      |                             | NQ-2                   | 15            |                |                             | white and light-brown                                                      |
|                 |                       |                      |                           | 0                      |                             | NQ-3                   | 20            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 25            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 30            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        |               |                |                             | Bottom of Boring No. B-4 @ 20.0 ft.<br>No stabilized groundwater measured. |

|                                                                                                                                                   |                                                                                   |                                                                                                                                                                                       |
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| <b>SAMPLE TYPE</b><br>BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler<br>SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | <b>DIAMOND CORE TYPE</b><br>NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D. | <b>OTHER LABORATORY TESTS</b><br>AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength<br>SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression |
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**LOG OF BORING**


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| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'āhu, Hawai'i |                       |
|                                                                                                                                                                        | DATE: March, 2022                                                                 | PROJECT NO. 22022.01G |

|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-5</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 8, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |

| OTHER LAB TESTS | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                                   |
|-----------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|----------------|-----------------------------|----------------------------------------------------------------------------|
|                 |                       |                      |                           | 0                      |                             | NQ-1                   | 0             | * * * * *      |                             | CORAL, brown and light-brown                                               |
|                 |                       |                      |                           | 0                      |                             | NQ-2                   | 5             |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-3                   | 10            |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-4                   | 15            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 20            |                |                             | Bottom of Boring No. B-5 @ 20.0 ft.<br>No stabilized groundwater measured. |
|                 |                       |                      |                           |                        |                             |                        | 25            |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 30            |                |                             |                                                                            |

|                                                                                                                                                   |                                                                                   |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SAMPLE TYPE</b><br>BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler<br>SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | <b>DIAMOND CORE TYPE</b><br>NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D. | <b>OTHER LABORATORY TESTS</b><br>AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength<br>SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression |
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**LOG OF BORING**


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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'āhu, Hawai'i |
|                                                                                                                                                                        | DATE: March, 2022                                                                 |

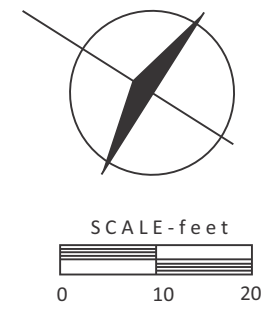
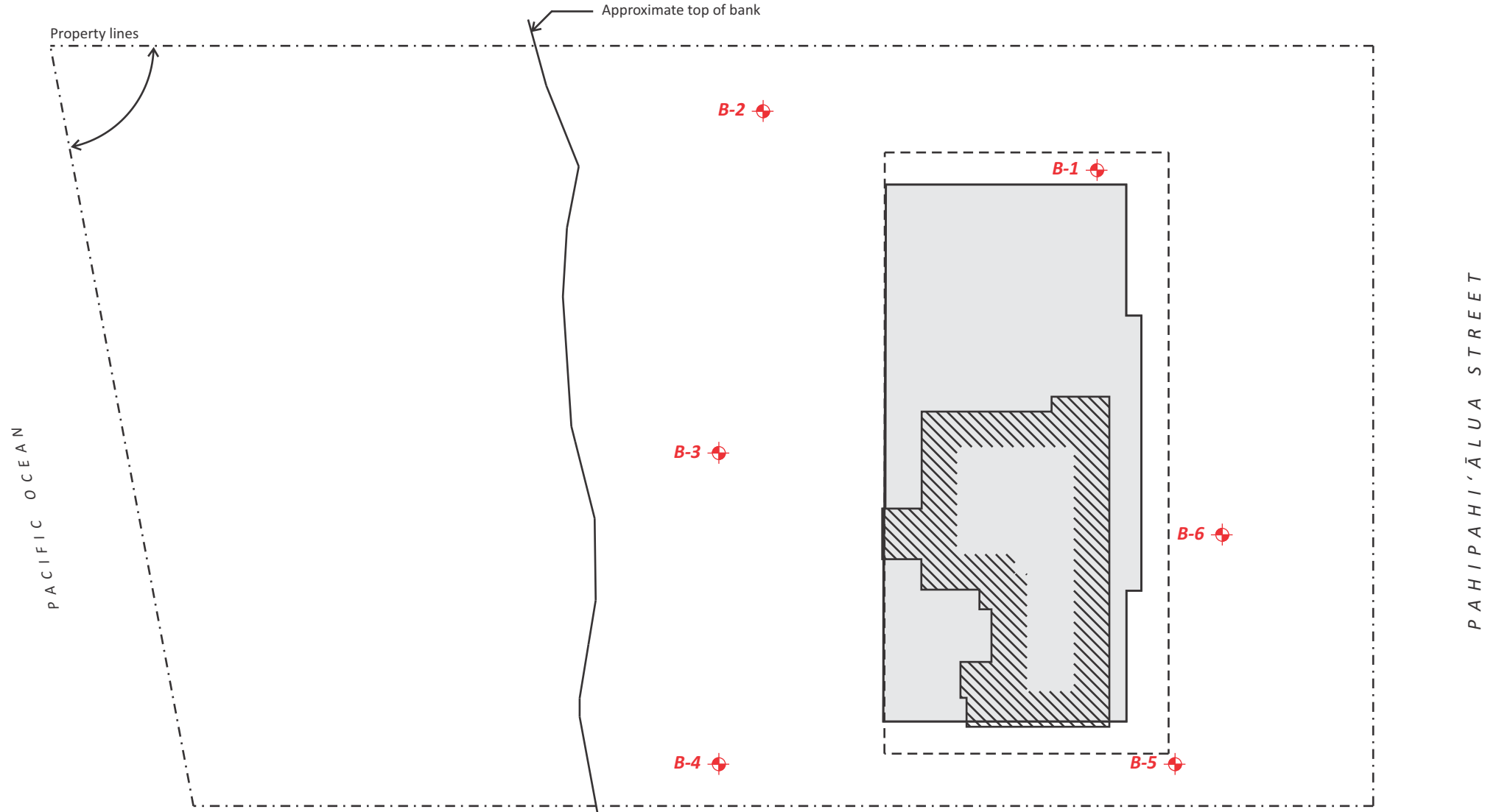
|                                       |                                                              |                       |
|---------------------------------------|--------------------------------------------------------------|-----------------------|
| <b>BORING LOCATION:</b> See Site Plan | <b>DRILLER:</b> Valley Well Drilling                         | <b>BORING NO. B-6</b> |
| <b>BORING ELEVATION:</b>              | <b>LOGGED BY:</b> Moku Hopkins                               |                       |
| <b>DATE DRILLED:</b> February 9, 2022 | <b>TYPE DRILL RIG:</b> Mobile B59/6" hollow augers/NQ barrel |                       |




| OTHER LAB TESTS | DRY UNIT WEIGHT (pcf) | MOISTURE CONTENT (%) | UNCONFINED STRENGTH (ksf) | ROCK QUALITY INDEX (%) | BLOW COUNT (Blows per foot) | SAMPLE TYPE AND NUMBER | DEPTH IN FEET | GRAPHIC SYMBOL | UNIFIED SOIL CLASSIFICATION | GEOTECHNICAL DESCRIPTION                                                   |
|-----------------|-----------------------|----------------------|---------------------------|------------------------|-----------------------------|------------------------|---------------|----------------|-----------------------------|----------------------------------------------------------------------------|
|                 | 83                    | 7.7                  |                           |                        | 96                          | SB-1                   | 0-5           |                | SP                          | SAND, brown, dry, dense, poorly-graded, with light-brown, coralline gravel |
|                 |                       |                      |                           | 0                      |                             | NQ-1                   | 5-6           |                |                             | CORAL, brown and light-brown                                               |
|                 |                       |                      |                           | 0                      |                             | NQ-2                   | 6-10          |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-3                   | 10-15         |                |                             |                                                                            |
|                 |                       |                      |                           | 0                      |                             | NQ-4                   | 15-20         |                |                             |                                                                            |
|                 |                       |                      |                           |                        |                             |                        | 20-30         |                |                             | Bottom of Boring No. B-5 @ 20.0 ft.<br>No stabilized groundwater measured. |

|                                                                                                                                                   |                                                                                   |                                                                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SAMPLE TYPE</b><br>BK - Bulk<br>CB - Core Barrel<br>DN - Denison Sampler<br>SB - Split Barrel<br>SP - Standard Penetration<br>ST - Shelby Tube | <b>DIAMOND CORE TYPE</b><br>NX - 2.98" O.D.<br>NQ - 3.00" O.D.<br>HQ - 3.79" O.D. | <b>OTHER LABORATORY TESTS</b><br>AL - Atterberg Limits<br>CN - Consolidation<br>DS - Direct Shear Strength<br>SA - Sieve Analysis<br>SS - Shrink/Swell<br>UC - Unconfined Compression |
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**LOG OF BORING**

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|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <br><b>JPB ENGINEERING, INC</b><br><i>Structural &amp; Geotechnical Engineering</i> | <b>PAULLIN RESIDENCE</b><br>57-329 Pahipahi'ālua Street<br>Kahuku, O'āhu, Hawai'i |
|                                                                                                                                                                        | DATE: March, 2022                                                                 |



- L E G E N D -
-  **B-6** Approximate location of test boring
  -  Proposed home
  -  Existing residence



**JPB ENGINEERING, INC.**  
Structural & Geotechnical Engineering

Base: Welch & Weeks, 2022, Paullin Prelim 3.00, 57-329 Pahipahi'ālua Street, Kahuku, Hawaii, TMK: 5-7-003:057 (no scale), Sheet 1 of 14 sheets, dated October 4, 2021.

**SITE PLAN**

**PAULLIN RESIDENCE**  
57-329 Pahipahi'ālua Street  
Kahuku, O'ahu, Hawai'i

DATE: March, 2022

PROJECT NO. 22022.01G

| MAJOR DIVISIONS                                                                           |                                                                                             |                                                                                          | SYMBOLS |                                                    | TYPICAL DESCRIPTIONS                                                                                         |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|---------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|                                                                                           |                                                                                             |                                                                                          | ICON    | CODE                                               |                                                                                                              |
| <b>COARSE-GRAINED SOILS</b><br>More than 50% of material is larger than the No. 200 Sieve | <b>GRAVEL AND GRAVELLY SOILS</b><br>Less than 50% of coarse fraction passes the No. 4 Sieve | <b>CLEAN GRAVELS</b><br>Less than 12% of fine fraction passes the No. 200 Sieve          |         | GW                                                 | Well-graded gravels, gravel-sand mixtures, little or no fines                                                |
|                                                                                           |                                                                                             |                                                                                          |         | GP                                                 | Poorly-graded gravels, gravel-sand mixtures, little or no fines                                              |
|                                                                                           |                                                                                             | <b>SILTY OR CLAYEY GRAVELS</b><br>At least 12% of fine fraction passes the No. 200 Sieve |         | GM                                                 | Silty gravels, gravel-sand-silt mixtures                                                                     |
|                                                                                           |                                                                                             |                                                                                          |         | GC                                                 | Clayey gravels, gravel-sand-clay mixtures                                                                    |
|                                                                                           | <b>SAND AND SANDY SOILS</b><br>At least 50% of coarse fraction passes the No. 4 Sieve       | <b>CLEAN SANDS</b><br>Less than 12% of fine fraction passes the No. 200 Sieve            |         | SW                                                 | Well-graded sands, gravelly sands, little or no fines                                                        |
|                                                                                           |                                                                                             |                                                                                          |         |                                                    | SP                                                                                                           |
|                                                                                           |                                                                                             | <b>SILTY OR CLAYEY SANDS</b><br>At least 12% of fine fraction passes the No. 200 Sieve   |         | SM                                                 | Silty sands, sand-silt mixtures                                                                              |
|                                                                                           |                                                                                             |                                                                                          |         | SC                                                 | Clayey sands, sand-clay mixtures                                                                             |
| <b>FINE-GRAINED SOILS</b><br>More than 50% of material is smaller than the No. 200 Sieve  | <b>SILTS AND CLAYS</b><br>Liquid Limit is less than 50                                      | Plasticity index is above "A" Line                                                       |         | CL                                                 | Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays            |
|                                                                                           |                                                                                             | Plasticity index is below "A" Line                                                       |         | ML                                                 | Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or slightly plastic clayey silts |
|                                                                                           |                                                                                             |                                                                                          |         | OL                                                 | Organic silts and organic silty clays of low plasticity                                                      |
|                                                                                           | <b>SILTS AND CLAYS</b><br>Liquid Limit is greater than 50                                   | Plasticity index is above "A" Line                                                       |         | CH                                                 | Inorganic clays of high plasticity                                                                           |
|                                                                                           |                                                                                             | Plasticity index is below "A" Line                                                       |         | MH                                                 | Inorganic silts, micaceous or diatomaceous fine sands or silty soils                                         |
|                                                                                           |                                                                                             |                                                                                          |         | OH                                                 | Organic clays of medium to high plasticity, organic silts                                                    |
|                                                                                           |                                                                                             |                                                                                          | Pt      | Peat, humus, marsh soils with high organic content |                                                                                                              |

**UNIFIED SOIL CLASSIFICATION SYSTEM**



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**APPENDIX B**

Laboratory Testing



## **APPENDIX B**

### Laboratory Testing

The laboratory testing program included natural moisture content, dry unit weight, plasticity, gradation and direct shear strength determinations.

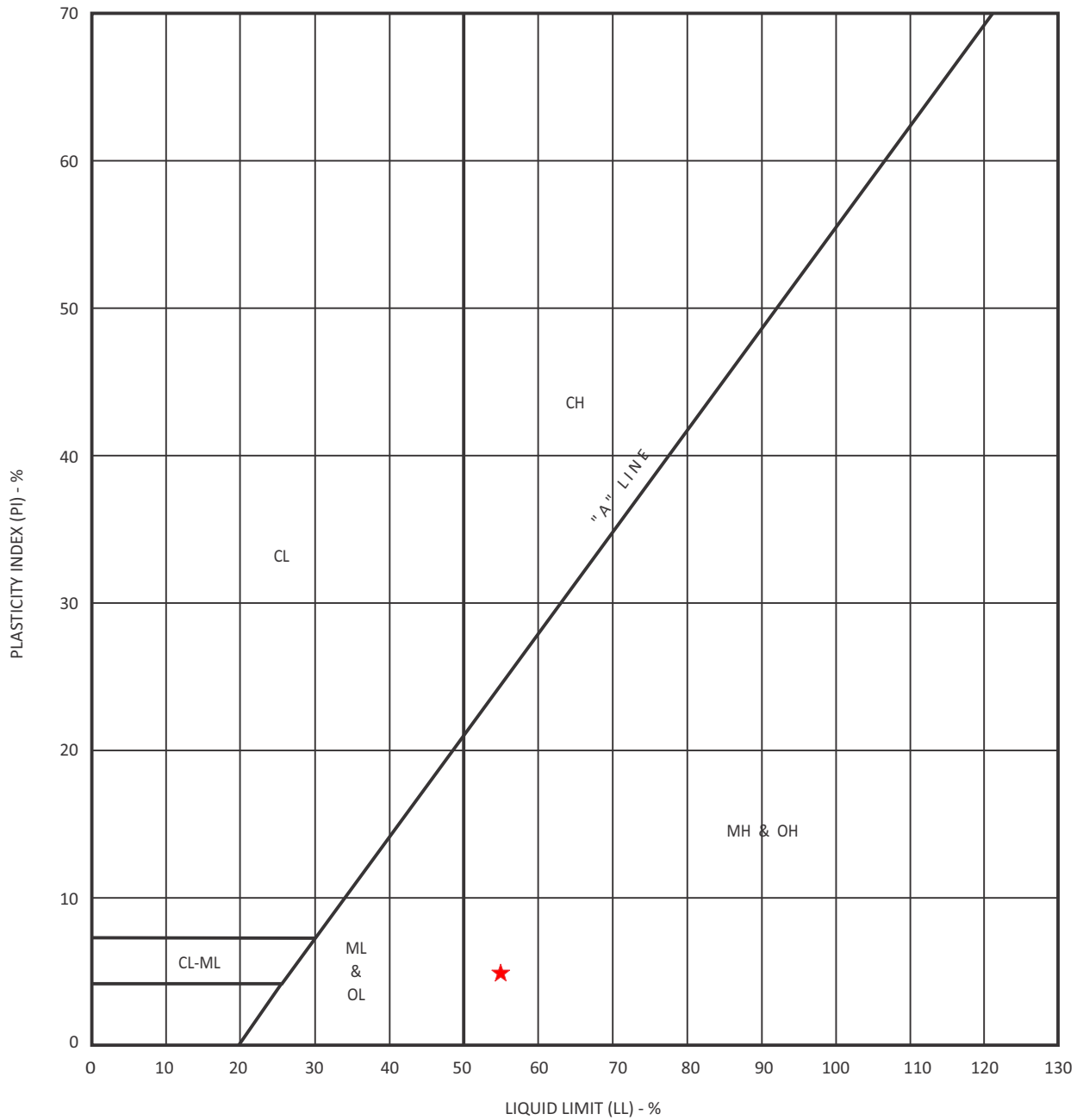
Natural moisture content tests (ASTM Designation D 2216-06) and dry unit weight tests (ASTM Designation D 2937-10) were conducted on selected samples of the earth materials recovered from each test boring. The results are posted on the Logs of Borings, opposite the depth appropriate to each sample.

Atterberg limits tests (ASTM Designation D 4318-05) were performed on a selected sample of the underlying organic deposits to evaluate its plasticity characteristics. The results are depicted on Plate No. B1, Atterberg Limits Test Data.

Gradation tests (ASTM Designation D 422-11) were completed on selected samples of the surficial soil and underlying granular materials to assess their particle size distributions. The results are illustrated on Plates No. B2 and B3, Mechanical Sieve Analysis Test Data.

Consolidated, drained direct shear tests (ASTM Designation D 3080-11) were conducted at normal pressures of 500, 1,000 and 1,500 pounds per square foot on selected samples of the surficial and underlying soils to evaluate their internal strength characteristics. The results are summarized on Plates No. B4 through B7, Direct Shear Test Data.





| Point Code | Boring No. | Sample No. | Depth (ft) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Unified Soil Classification |
|------------|------------|------------|------------|------------------|-------------------|----------------------|-----------------------------|
| ★          | B-2        | SB-4       | 10.0       | 55               | 50                | 5                    | OH                          |
|            |            |            |            |                  |                   |                      |                             |
|            |            |            |            |                  |                   |                      |                             |

**ATTERBERG LIMITS TEST DATA**

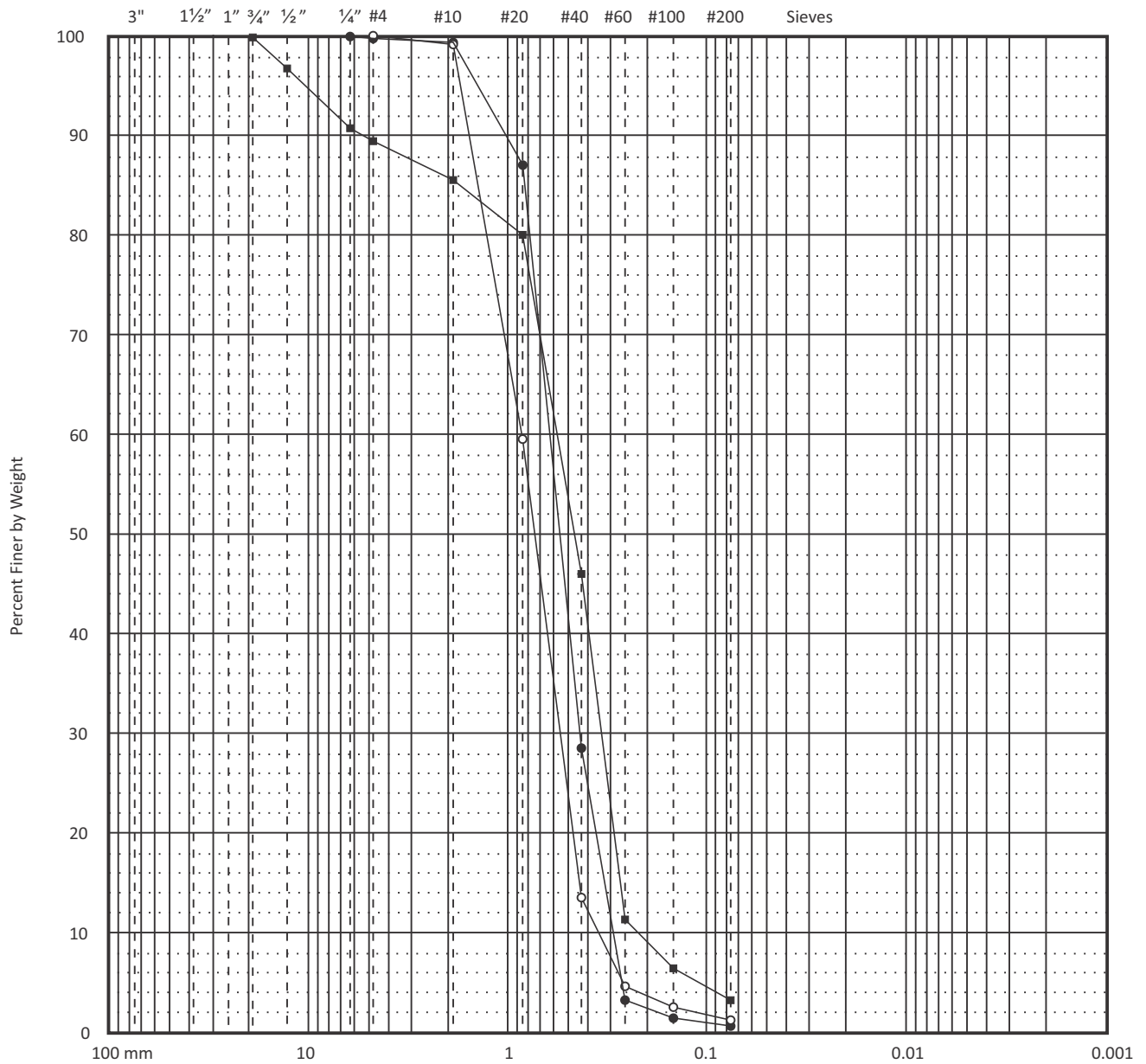


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| GRAVEL |      | SAND   |        |      | SILT | CLAY |
|--------|------|--------|--------|------|------|------|
| Coarse | Fine | Coarse | Medium | Fine |      |      |

| Point Code | Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Gravel (%) | Sand (%) | Silt / Clay (%) | Unified Soil Classification |
|------------|------------|------------|------------|-----------------------|----------------------|------------|----------|-----------------|-----------------------------|
| ●          | B-1        | SB-1       | 1.0        | 76                    | 8.4                  | 0.2        | 99.1     | 0.7             | SP                          |
| ○          | B-3        | SB-2       | 4.0        | 81                    | 9.9                  | 0.0        | 98.7     | 1.3             | SP                          |
| ■          | B-1        | SB-3       | 7.0        | 73                    | 31.8                 | 10.5       | 86.2     | 3.3             | SP                          |

**MECHANICAL SIEVE ANALYSIS TEST DATA**

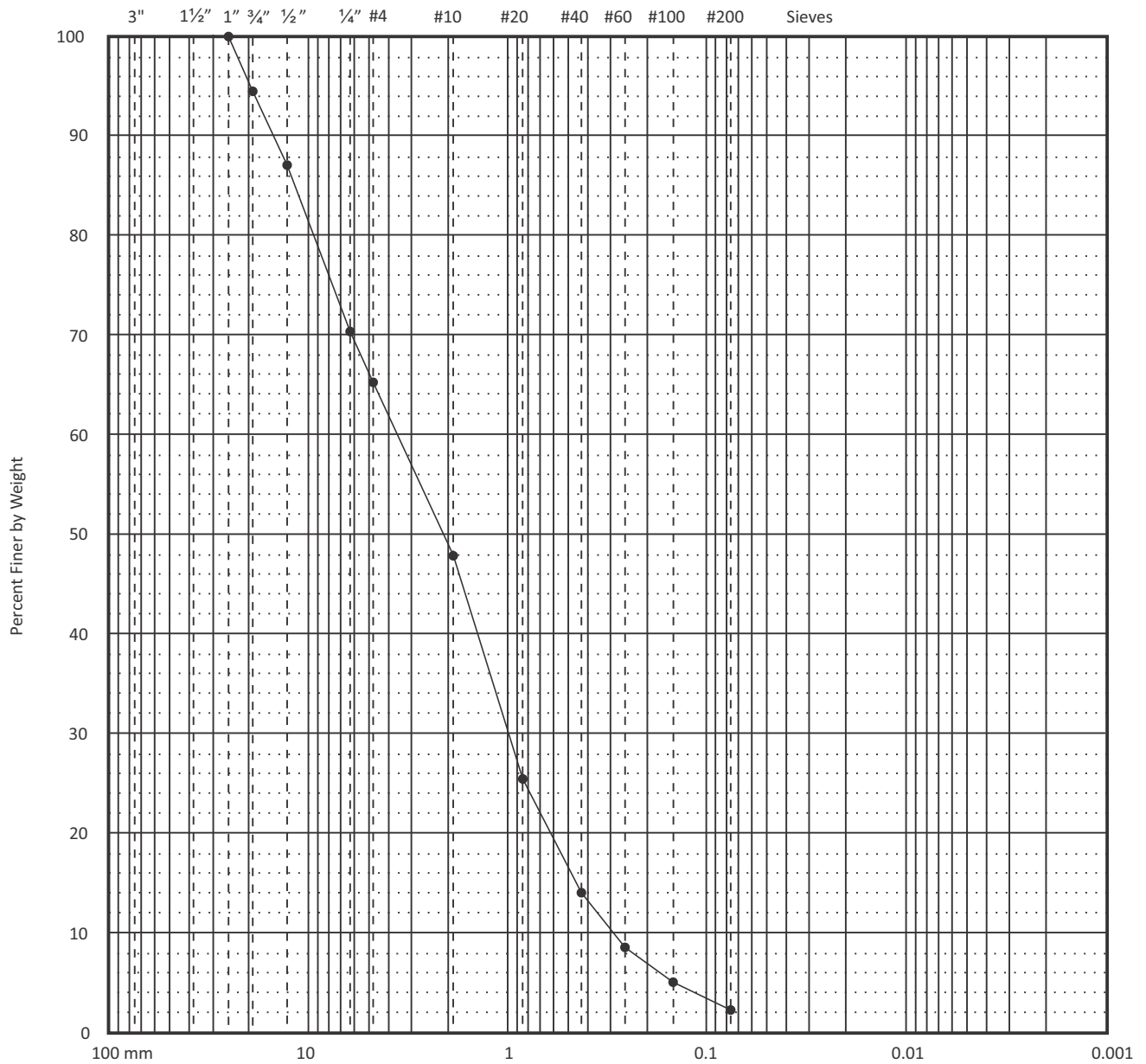


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| GRAVEL |      | SAND   |        |      | SILT | CLAY |
|--------|------|--------|--------|------|------|------|
| Coarse | Fine | Coarse | Medium | Fine |      |      |

| Point Code | Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Gravel (%) | Sand (%) | Silt / Clay (%) | Unified Soil Classification |
|------------|------------|------------|------------|-----------------------|----------------------|------------|----------|-----------------|-----------------------------|
| ●          | B-2        | SB-5       | 13.0       | 47                    | 80.6                 | 34.7       | 63.0     | 2.3             | SP                          |
|            |            |            |            |                       |                      |            |          |                 |                             |
|            |            |            |            |                       |                      |            |          |                 |                             |

**MECHANICAL SIEVE ANALYSIS TEST DATA**

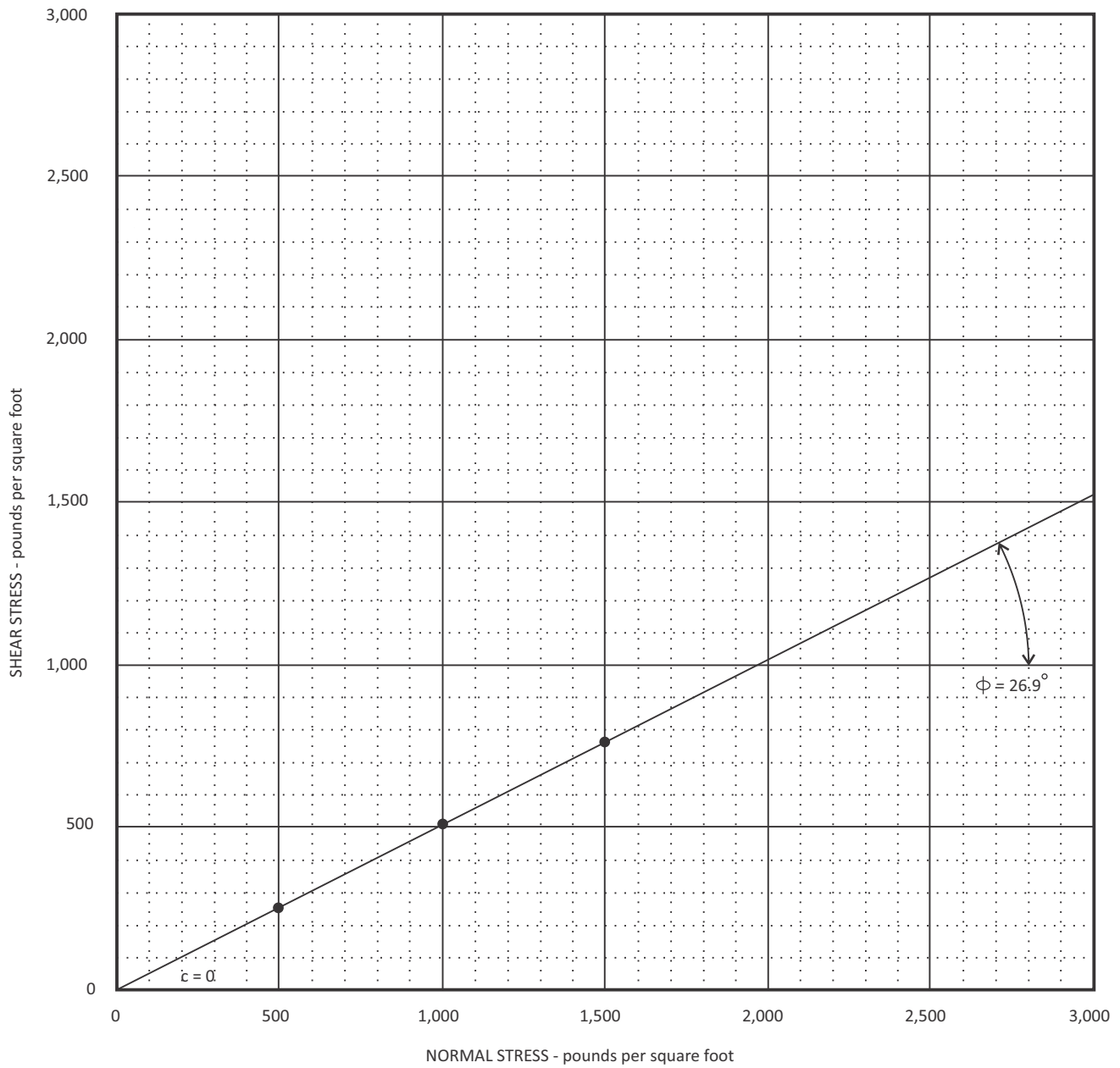


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| Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Normal Stress (psf) | Shear Stress (psf) |
|------------|------------|------------|-----------------------|----------------------|---------------------|--------------------|
| B-2        | SB-1       | 1.0        | 82                    | 28.9                 | 500                 | 255                |
| B-2        | SB-1       | 1.0        | 82                    | 28.5                 | 1,000               | 505                |
| B-2        | SB-1       | 1.0        | 80                    | 32.4                 | 1,500               | 760                |

**DIRECT SHEAR TEST DATA**

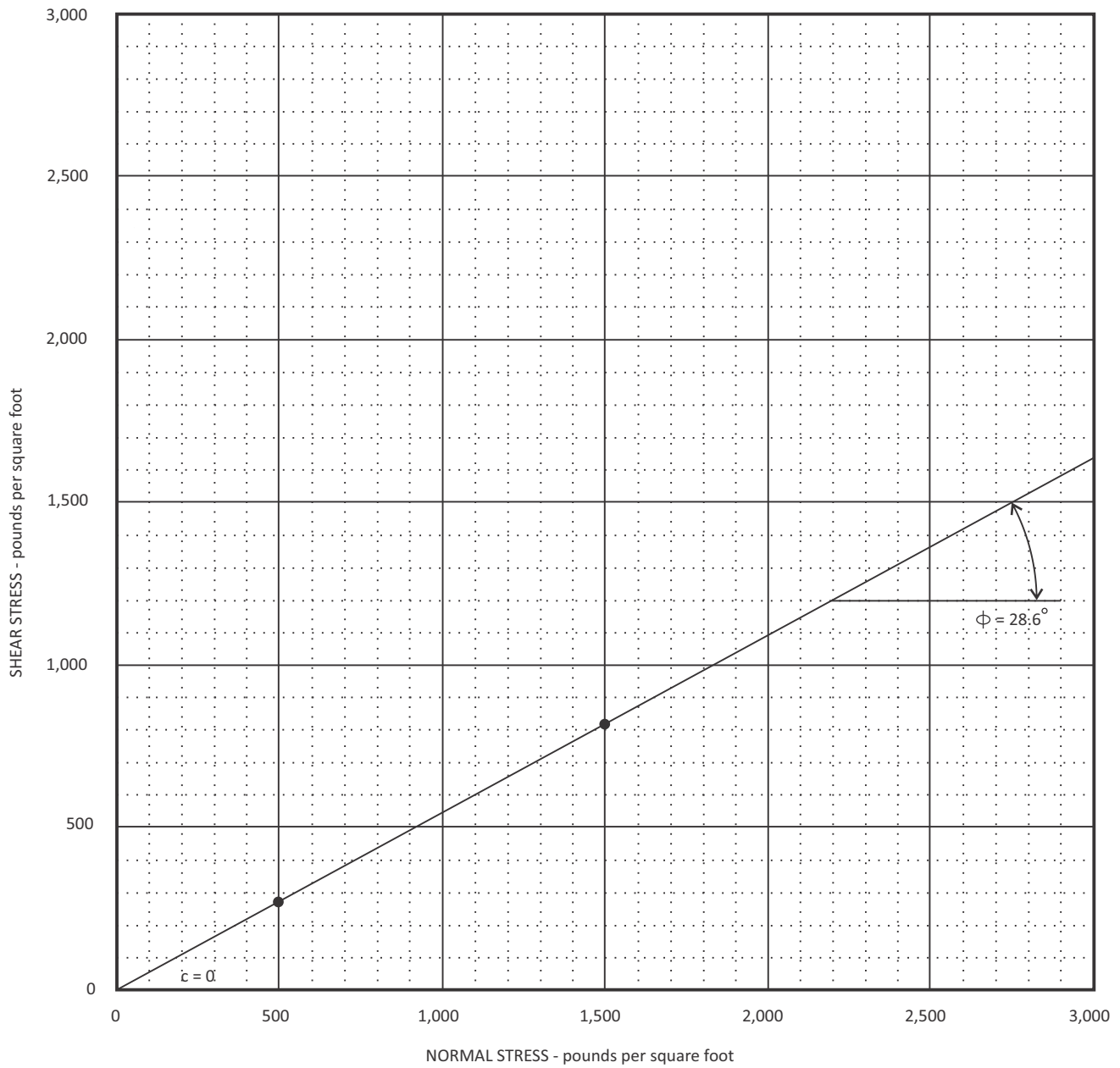


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| Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Normal Stress (psf) | Shear Stress (psf) |
|------------|------------|------------|-----------------------|----------------------|---------------------|--------------------|
| B-4        | SB-1       | 1.0        | 62                    | 34.2                 | 500                 | 275                |
| B-4        | SB-1       | 1.0        | 59                    | 40.6                 | 1,500               | 820                |
|            |            |            |                       |                      |                     |                    |

**DIRECT SHEAR TEST DATA**

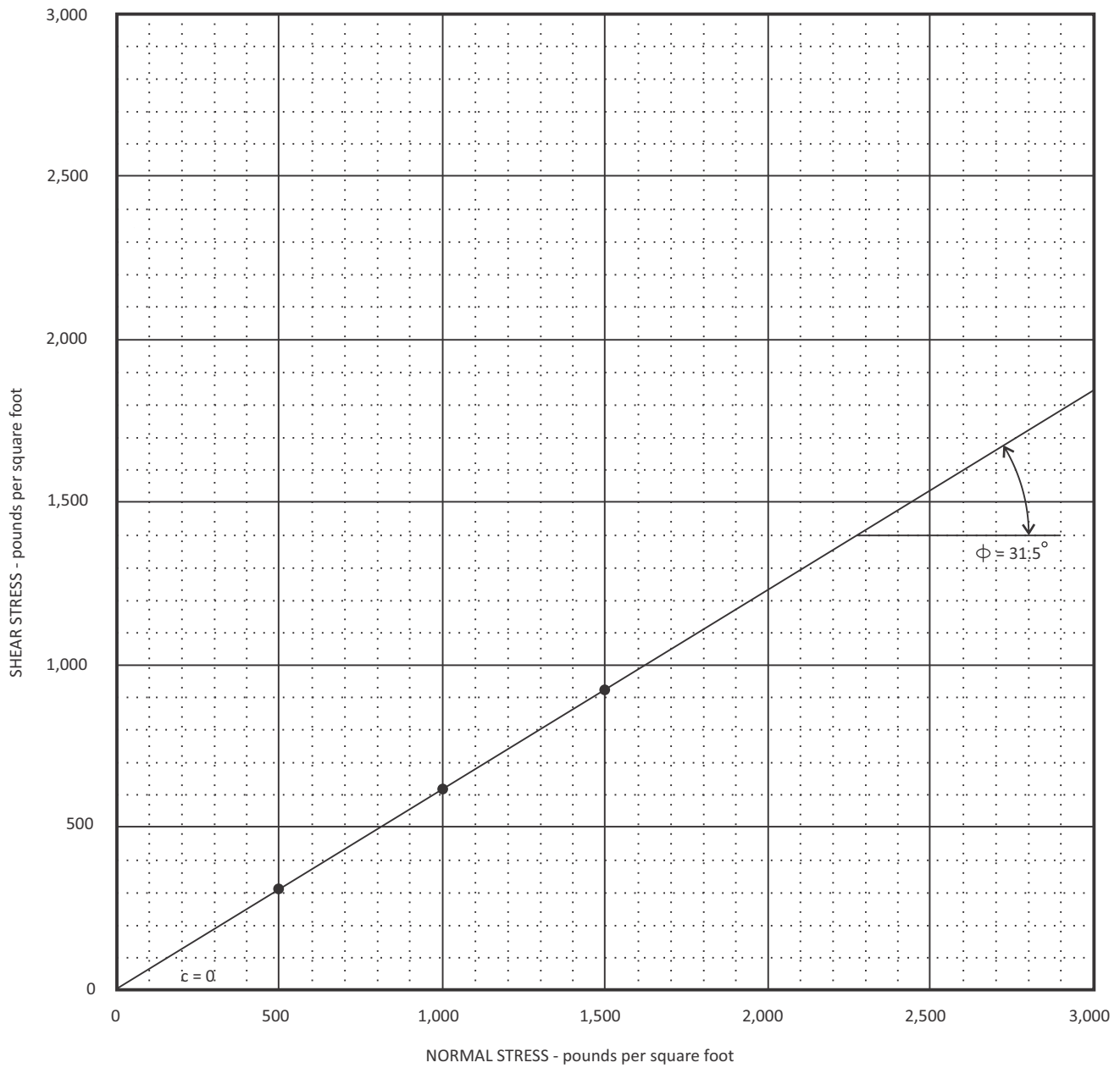


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| Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Normal Stress (psf) | Shear Stress (psf) |
|------------|------------|------------|-----------------------|----------------------|---------------------|--------------------|
| B-1        | SB-2       | 4.0        | 80                    | 30.8                 | 500                 | 275                |
| B-1        | SB-2       | 4.0        | 80                    | 30.7                 | 1,000               | 820                |
| B-1        | SB-2       | 4.0        | 79                    | 31.1                 | 1,500               | 820                |

**DIRECT SHEAR TEST DATA**



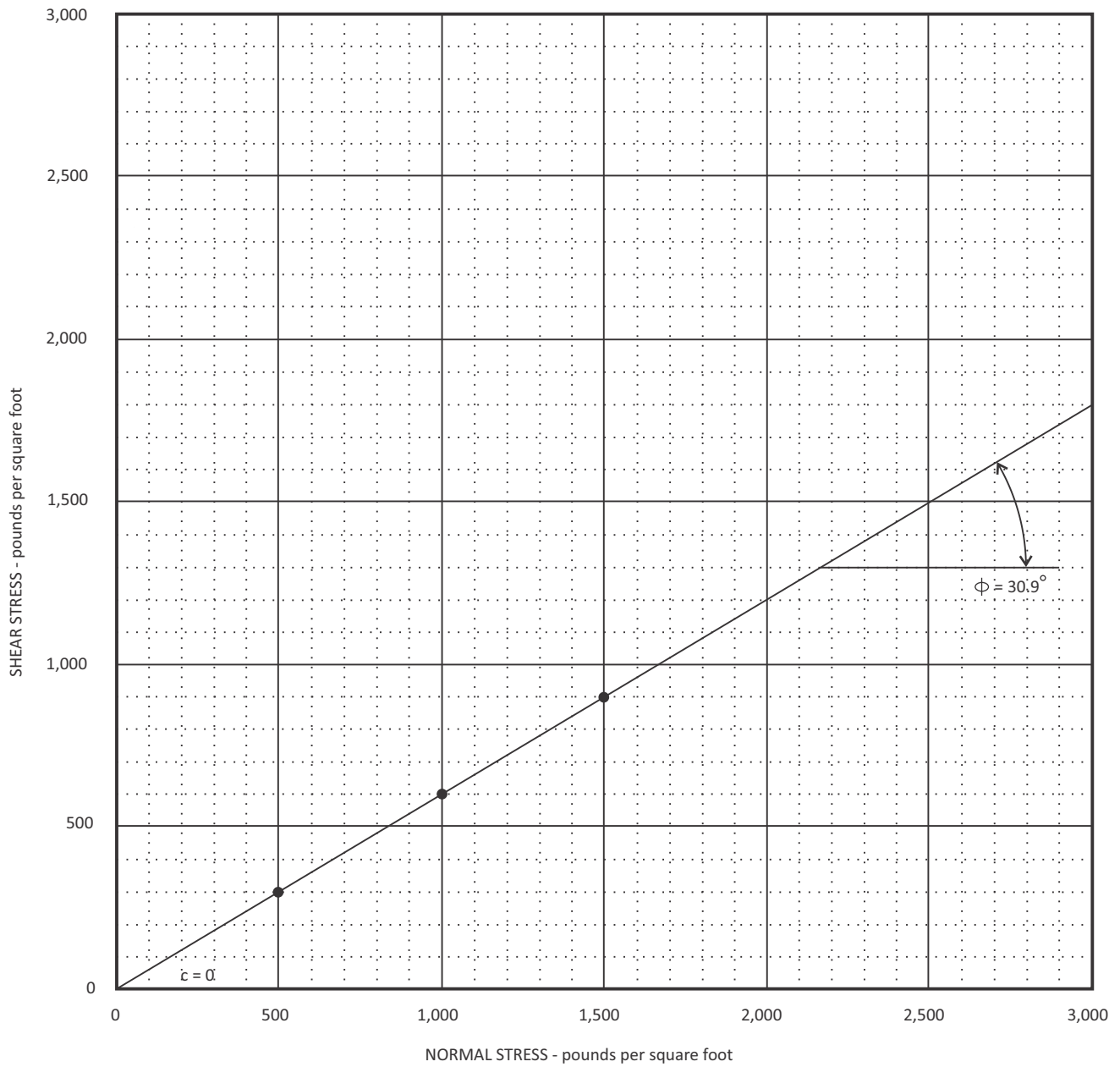
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| Boring No. | Sample No. | Depth (ft) | Dry Unit Weight (pcf) | Moisture Content (%) | Normal Stress (psf) | Shear Stress (psf) |
|------------|------------|------------|-----------------------|----------------------|---------------------|--------------------|
| B-3        | SB-3       | 7.0        | 64                    | 34.3                 | 500                 | 275                |
| B-3        | SB-3       | 7.0        | 65                    | 32.0                 | 1,000               | 820                |
| B-3        | SB-3       | 7.0        | 65                    | 32.8                 | 1,500               | 820                |

**DIRECT SHEAR TEST DATA**



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**APPENDIX C**

References



## **APPENDIX C**

### References

1. Foote, D.; Hill, E. L.; Nakamura, S.; and Stephens, F., 1972, *Soil Survey of the Islands of Kaua'i, O'ahu, Maui, Moloka'i and Lāna'i, State of Hawai'i*, United States Department of Agriculture.
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3. Stearns, H. T., 1985, *Geology of the State of Hawai'i*, Pacific Books, Palo Alto, California.
4. United States Geological Survey, 1998, *Kahuku Quadrangle, Hawai'i – Honolulu Co., Island of O'ahu, 7.5-Minute Series (Topographic)* (scale: 1:24,000).
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Mark Paullin  
57-329 Pahipahi'ālua Street  
Kahuku, Hawai'i 96731  
[mark.paullin@gmail.com](mailto:mark.paullin@gmail.com)

