



Reconnaissance Level Survey for the Royal Kunia II Development Project

AHUPUA'A OF HŌ'AE'AE, 'EWA DISTRICT, ISLAND OF O'AHU
CITY AND COUNTY OF HONOLULU TAX MAP KEY PARCELS
(1) 9-4-002:070, (1) 9-4-002:071, AND (1) 9-4-002:078

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PREPARED FOR
Haseko Development, Inc.

PREPARED BY
SWCA Environmental Consultants

RECONNAISSANCE LEVEL SURVEY FOR THE ROYAL KUNIA II DEVELOPMENT PROJECT

Ahupua'a of Hō'ae'ae,
'Ewa District, Island of O'ahu
City and County of Honolulu Tax Map Key Parcels
(1) 9-4-002:070, (1) 9-4-002:071, and (1) 9-4-002:078

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EXECUTIVE SUMMARY

At the request of Haseko Development, Inc. (Haseko), SWCA Environmental Consultants (SWCA) conducted a reconnaissance level survey (RLS) for the Royal Kunia II Development project located within Hō‘ae‘ae Ahupua‘a in the *moku* (district) of ‘Ewa on the island of O‘ahu. Haseko proposes to develop the property for single-family and/or multi-family townhome-style structures. This RLS report includes the results of archival background research and reconnaissance level survey fieldwork, a listing and photographs of each historic property identified within the project area, maps showing the location of historic properties and their relationship to each other, significance evaluations, an assessment of the project’s effects on significant historic properties, and mitigation commitments.

Background archival research and the reconnaissance level survey fieldwork have demonstrated that the Oahu Sugar Company constructed a number of plantation-related features within the project area. These extant features include a dam, a railway alignment and cane haul roads, irrigation ditches, a reservoir, and a former plantation camp (now a historic artifact scatter). As these features are over fifty years in age, they qualify as “historic properties” as defined under HAR §13-284-2. Of these, one (SIHP Site 50-80-08-07671) qualifies as a significant historic property pursuant to HAR §13-284-6. Implementation of the proposed project would remove the features associated with SIHP Site 50-80-08-07671, resulting in a harmful effect to the significant historic property. In consultation with the Hawai‘i State Historic Preservation Division (SHPD), the following determination for the project is established: “Effect, with agreed upon mitigation commitments.” The following analysis includes mitigation measures developed in consultation with SHPD, which consist of the development of HAER-like documentation for SIHP Site 50-80-08-07671 and interpretive signage to be installed within the project area.

An Archaeological Inventory Survey meeting the standards set forth in Hawai‘i Administrative Rules 13-276 will be conducted to further investigate the project area for subsurface archaeological sites and/or features, with a particular focus on recording baseline soils data and determining the presence, boundaries, integrity, and significance of the SWCA-65875-007 former plantation camp/historic artifact scatter.

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1 INTRODUCTION

At the request of Haseko Development, Inc. (Haseko), SWCA Environmental Consultants (SWCA) conducted a reconnaissance level survey (RLS) for the Royal Kunia II Development project located within Hō‘ae‘ae Ahupua‘a in the *moku* (district) of ‘Ewa on the island of O‘ahu (Figure 1 and Figure 2). Haseko proposes to develop the 211-acre property for single-family and/or multi-family townhome-style structures. This RLS report includes the results of archival background research and reconnaissance level survey fieldwork, a listing and photographs of each historic property identified within the project area, maps showing the location of historic properties and their relationship to each other, significance evaluations which have agreement from the SHPD, a finding of effect, and mitigation commitments.

1.1 Project Name

The RLS for the project was conducted by SWCA Architectural Historian Garret Root, M.A., who meets the Secretary of the Interior’s Professional Qualifications Standards for Architectural History and the qualifications set forth in Hawai‘i Administrative Rules (HAR) 13-281. SWCA Principal Investigator and Cultural Resources Program Lead Rowland Reeve, M.A., and Cultural Resources Project Manager Ryan Gross, M.A., RPA, provided project support.

1.2 Project Objectives

This report has been prepared to assist Haseko in fulfilling its historic preservation obligations under Hawaii Revised Statutes (HRS) 6E-42, *Review of Proposed Projects*, and Hawaii Administrative Rules Chapter 13-284 (HAR §13-284), *Rules Governing Procedures for Historic Preservation Review to Comment on Section 6E-42, HRS, Projects*. The purpose of the RLS is to identify, document, and report historic resources within the 211-acre project area so as to provide local government agencies, the Hawai‘i State Historic Preservation Division (SHPD), and the public with a baseline of data concerning historic and non-historic resources within the project area (SHPD 2018).

1.2.1 Background of Historic Preservation Review

In 2021, SWCA conducted an Archaeological Literature Review and Field Inspection (LRFI) (Gerrish et al. 2021) of the project area. The purpose of the LRFI was to support Haseko’s request for historic preservation review of the project by determining whether historic properties were present within the project area. The LRFI fieldwork also included an unmanned aerial vehicle (UAV) survey, which was used to create a high-resolution orthomosaic image of the entire project area (Figure 3) and to collect aerial images of several of the historic properties identified during the field inspection.

In their review letter responding to Haseko’s request for historic preservation review (Project No. 2021PR01090, Doc No. 2303MA01), a copy of which is included in Appendix A of this report, the SHPD noted that:

The **SHPD agrees** that potentially significant historic properties were identified and preliminarily recorded within the Royal Kunia II Development Project area during research and fieldwork for this LRFI. The **SHPD further agrees** that additional identification and documentation efforts are needed across this project area in advance of the proposed development, to more fully identify, document, and assess these historic properties and the impact the proposed project will have on them.

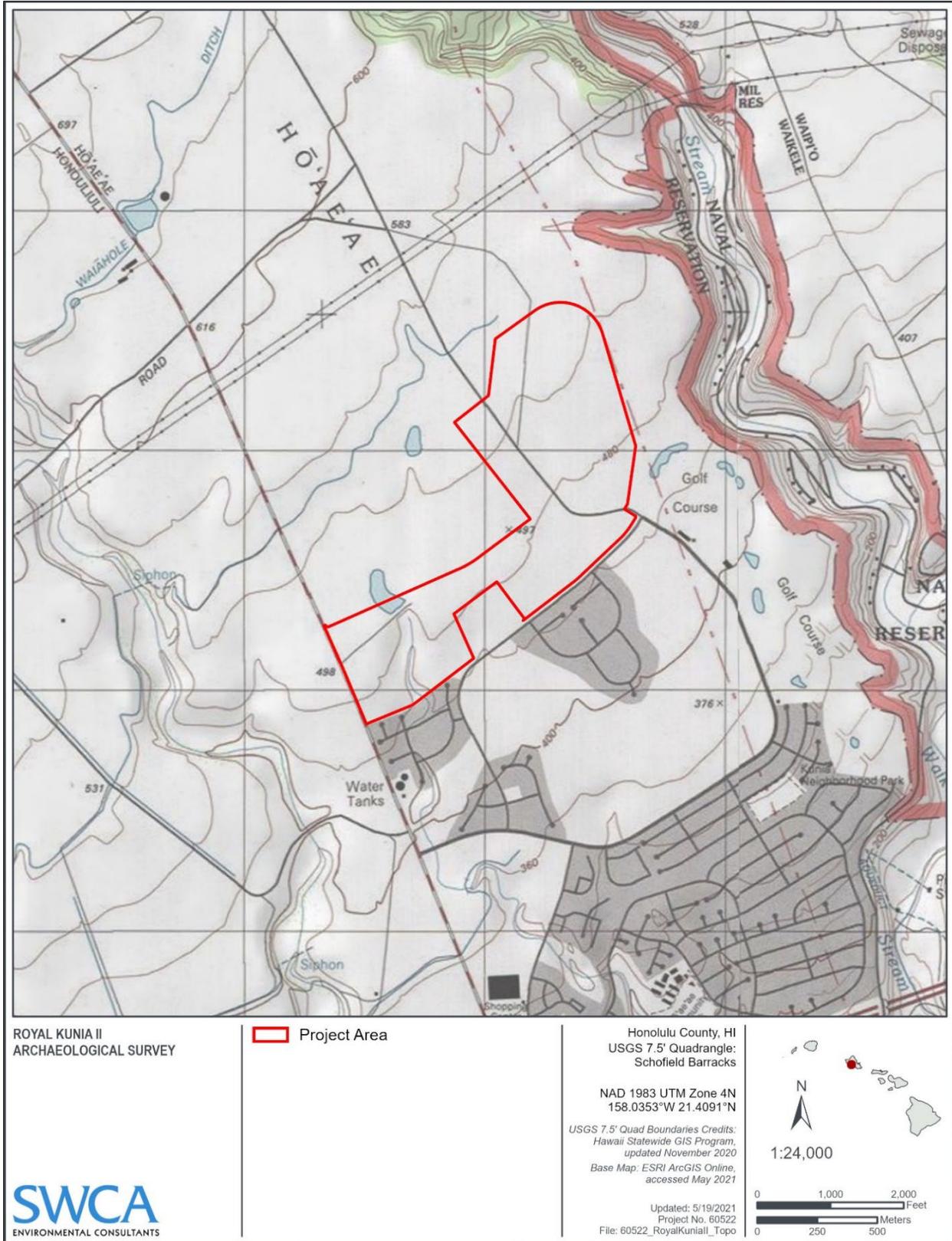


Figure 1. Project area depicted on U.S. Geological Survey 7.5-minute Schofield Barracks quadrangle (2021).

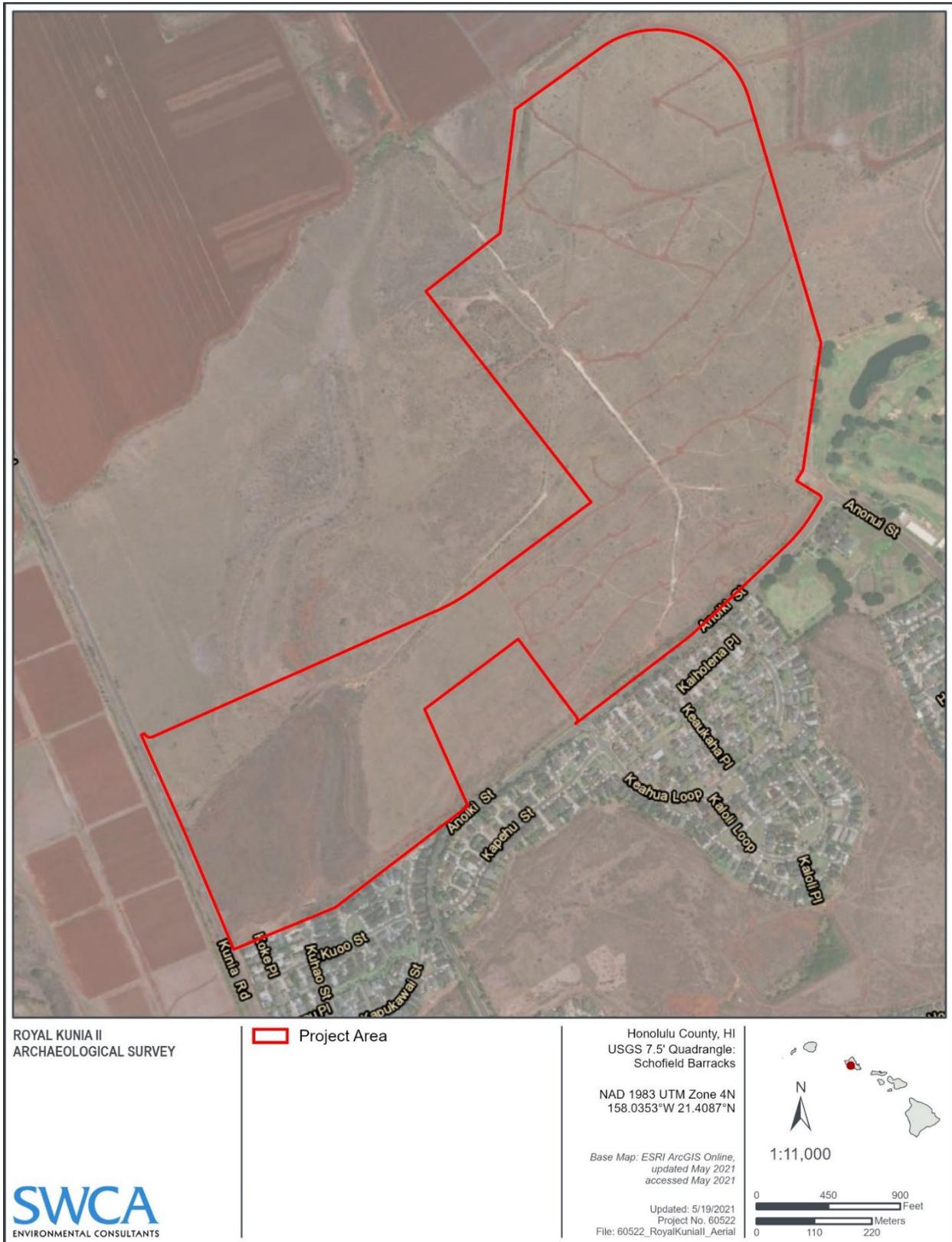


Figure 2. Project area depicted on satellite imagery.

Based upon the findings of the LRFI report, SHPD requested that:

...a Reconnaissance Level Survey (RLS) report be completed for the full Royal Kunia II Development Project area, given the presence of landscape-engineering historic properties within that project area. The information needed for completing an RLS report may be found at https://dlnr.hawaii.gov/shpd/files/2020/11/02-2018_SHPD_ARCHITECTURE-SURVEY-GUIDELINES.pdf on page 8. The RLS Report must be completed by a Secretary of the Interior (SOI) qualified architect, architectural historian, or historic architect. Additionally, the report must include an assessment of the seven aspects of integrity and site significance for each historic property in accordance with Criteria a-e, as specified in HAR §13-284-6.

The following RLS report has been prepared to satisfy the SHPD's request and to support the continued HRS 6E-42 historic preservation review for the project.

1.3 Methodology

The methods employed during the current study are described below. These methods relate to delineating and justifying the boundary for the RLS, conducting archival research on historic properties identified within the project area, and conducting historic architectural survey fieldwork, including methods used during remote sensing and an architectural historic resources survey of the project area.

1.3.1 Project Area Boundary Explanation and Justification

The project area boundary established for this RLS is based on the full horizontal extent of the project, which encompasses 211 acres of residentially zoned land situated east of Kunia Road and north of the existing Royal Kunia I community and the Royal Kunia Country Club. The project area comprises City and County of Honolulu Tax Map Key (TMK) parcels (1) 9-4-002:070 (13 acres), (1) 9-4-002:071 (161 acres), and (1) 9-4-002:078 (37 acres) (Figure 4). These parcels would be developed in multiple phases, with the first phase occurring in the southeast corner of TMK parcel (1) 9-4-002:071, adjacent to the existing Royal Kunia Country Club. Future construction phases that will include the entire project area are proposed.

1.3.2 Archival Research

A range of archival sources was consulted for the current study. Historic documents and reference volumes were consulted from the Hawai'i State Archives, the Hawai'i State Library system, the University of Hawai'i Mānoa, as well as SWCA's own reference library. Historic maps from the collection of the Hawai'i State Survey Division were obtained through their website, as were maps held at the University of Mānoa Library. Relevant cultural resources reports were obtained from the SHPD library in Kapolei.

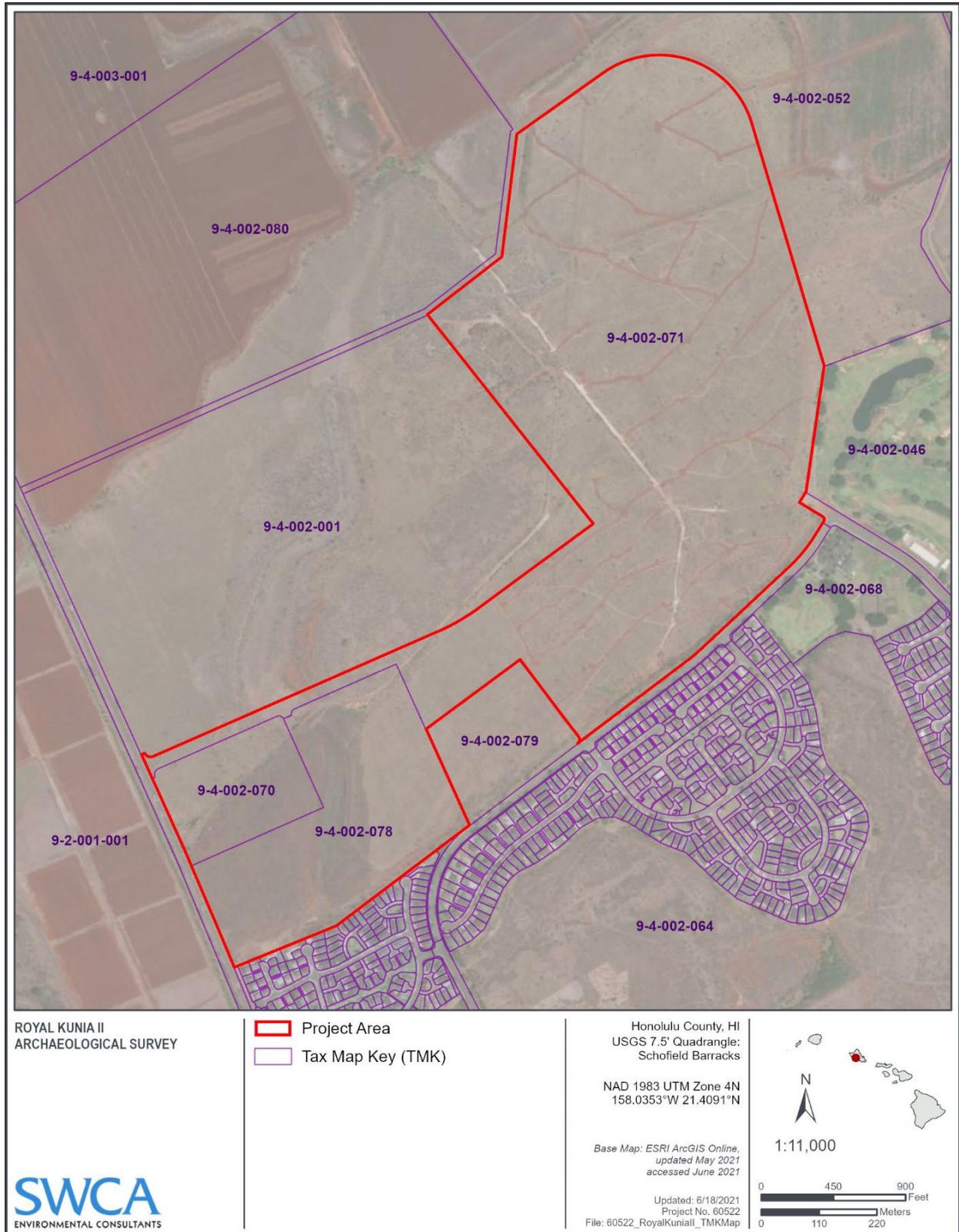


Figure 4. Project area depicted on satellite imagery with TMK parcel data (base image from Esri ArcGIS, TMK data from the City and County of Honolulu).

1.3.3 Remote Sensing

Before starting fieldwork, SWCA cultural resources staff conducted a detailed review of a high-resolution georeferenced orthomosaic image of the project area that was originally created using UAV imagery as part of the Gerrish et al. (2021) LRFI. This orthomosaic image was converted to XYZ tiles datasets and visualized on a web map interface using ArcGIS Enterprise. This map enabled the data to be explored interactively by panning and zooming. The ArcGIS Enterprise map also contained a survey grid layer to guide exploration and was used to identify any visible features that might represent historic properties.

SWCA also utilized publicly available Light Detection and Ranging (LiDAR) imagery, which was imported into the ArcGIS Enterprise system. Digital Surface Model (DSM) data, available through the Hawai'i State Office of Planning, Hawai'i State-wide GIS Program, was imported into ArcGIS Enterprise as a background layer. The DSM layer provided a representation of the ground surface beneath vegetation cover, including both natural and artificial features. SWCA project staff toggled between this layer and the georeferenced orthomosaic to examine the project area for potential surface historic features.

1.3.4 Historic Architectural Survey Fieldwork

The RLS fieldwork included a historic architectural survey of the entire project area using a combination of pedestrian and UAV surveys. The RLS focused on obtaining additional documentation of historic properties known to be present within the project area.

1.4 Setting

The project area is situated within the broad central plain that lies between the Wai'anae and Ko'olau mountain ranges on the Island of O'ahu. It is located approximately 4 kilometers (km) (2.5 miles) inland of Pearl Harbor's West Loch and ranges in elevation from approximately 480 to 520 feet above mean sea level (see Figure 1). Located in the rain shadow of the Ko'olau mountains, the region receives an average of approximately 18 inches of rainfall annually (Juvik and Juvik 1998:56). Temperatures range between 60 and 90 degrees Fahrenheit through the year, with the highest temperatures in August and September (Armstrong 1973).

At present, the project area is undeveloped and is comprised of former sugar cane fields. The terrain of the project area is relatively level, though sloping to the south. The primary exception is a gully that trends roughly north to south, cutting through the western end of the project area (see Figure 1). This natural gully holds an ephemeral stream, which was formerly manipulated to support a standing reservoir of water, now dry (a more detailed description of this artificial reservoir is provided in Section 3.3.4). The project area is located within 0.37 km (0.25 mile) of the watershed for the perennial Waikele Stream.

1.4.1 Natural Environment

The natural vegetation and topography within the project area have been heavily altered by at least 100 years of intensive sugar cane agriculture. The vegetation observed within the project area is comprised of invasive species, including small groves of koa haole (*Leucaena leucocephala*), dense stands of California grass (*Brachiaria mutica*), and vines such as *Passiflora foetida* and *Neonotonia wightii* (Figure 5 and Figure 6).



Figure 5. Vegetation alongside a dirt road within the project area; view to the west.



Figure 6. Overview of the project area showing density of vegetation; view to the south.

1.4.2 Built Environment

Since the abandonment of sugar cane cultivation in 1995, the project area has remained undeveloped, and the land fallow. The few extant built environment features within the project area that were identified during the Gerrish et al. (2021) study consist of remnant infrastructural elements related to its plantation-era use. These features include road and former railway alignments, irrigation ditches, a dam, and an associated reservoir. Near the dam location is an area that had previously served as the site of worker housing (SWCA-65875-007). Following the abandonment of sugar cane cultivation, all of the structures within the plantation camp were razed, and no surface evidence of them remains other than bulldozer push and scatters of glass, ceramic, and other artifact fragments. As its surface structures are no longer present, the camp is not subject to examination as part of the present built environment study (see Section 2.3 below).

2 HISTORICAL CONTEXT

The project area is situated within the traditional ahupua‘a of Hō‘ae‘ae, in the moku of ‘Ewa (see Figure 1). The ‘Ewa District covers much of the southwest corner of the Island of O‘ahu as well as its central plain.

2.1 Traditional Hawaiian Period

Traditional Hawaiian habitation and agriculture in Hō‘ae‘ae Ahupua‘a was focused on the spring-fed floodplains adjacent to Pu‘uloa (Pearl Harbor). The lands further inland of Pu‘uloa were dry pili grasslands that were not intensively settled or cultivated, likely due to a lack of water. The project area is located inland of Pu‘uloa and adjacent to one of the main traditional routes of travel across O‘ahu’s central plain, aligning roughly with the contemporary Kunia Road (see Figure 2 and Figure 3).

2.2 Historic Period

Following Western contact, the landscape of ‘Ewa was adversely affected by the removal of the sandalwood forest and the introduction of domesticated animals and ranching. During the late 1800s, the project area consisted of dry scrublands, which may have been used for cattle grazing. By the close of the nineteenth century, the project area and most of the surrounding region had been converted to commercial sugar cane cultivation under the control of the Oahu Sugar Company (Figure 7).

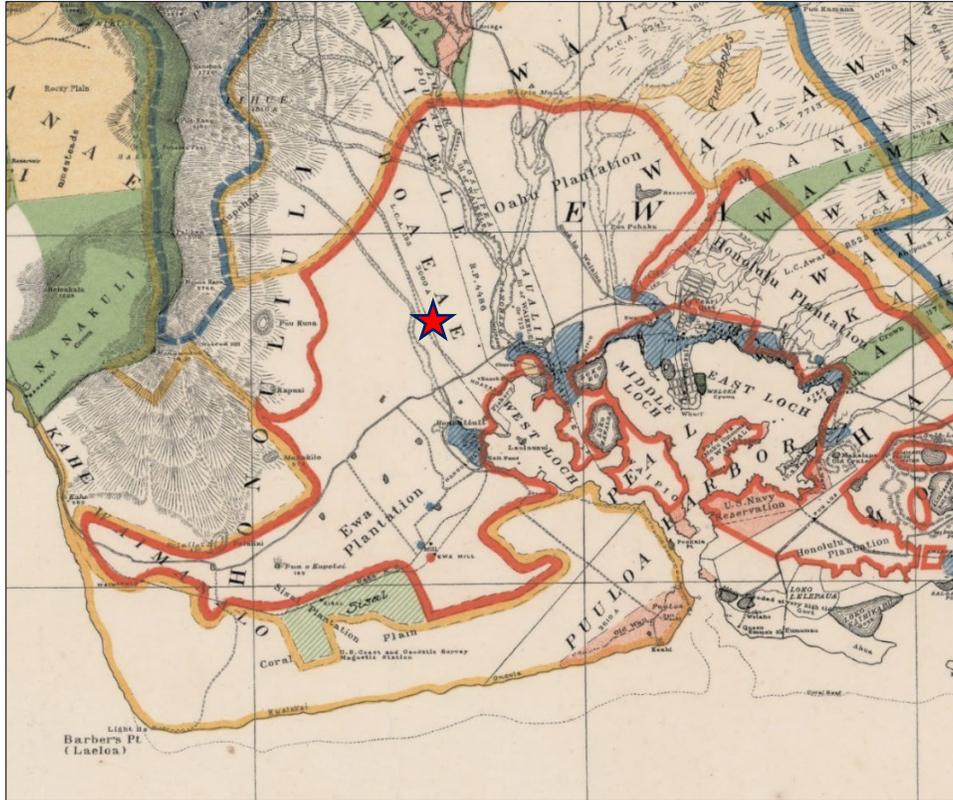


Figure 7. Project area location (denoted with a red star) and vicinity as depicted on a 1902 map of O‘ahu, with red outline delineating “Approximate Area of Sugarcane Plantations” (Wall 1902).

2.2.1 The Oahu Sugar Company

Established in 1894 for the commercial cultivation of sugar cane, the Oahu Sugar Company harvested its first crop in 1899. At its height, the plantation owned or leased approximately 14,000 acres of land, of which approximately 12,000 acres were planted in sugar cane; the remainder was used for roads, ditches, buildings, athletic fields, and waste and pasture lands (Saito 1984:1). The owners of the Oahu Sugar Company had financial and engineering connections with the mainland United States. The owners retained offices in San Francisco and New York and the company employed the best civil engineering minds of the late 1800s and early 1900s. The crowning achievement of the company, the Waiāhole Ditch System, allowed for the successful irrigation of the company lands (Saito 1984: 1). The company employed Jorgen Jorgensen, one of the preeminent water engineers in the United States, who is best known for his design of the concrete arch dam (later in 1914). Jorgensen designed several water systems across the western United States in the 1890s through 1920s (*Western Pipe and Steel News* 1928).

The primary obstacle to the cultivation of sugar cane on O‘ahu’s arid central plain was the lack of a dependable source of water. The Oahu Sugar Company initially drilled wells for its irrigation water, which contributed to the renaming of the nearby village of Auali‘i (where the company’s operations were based) as Waipahu, “bursting water” in Hawaiian (Pukui et al. 1974:227). Later, irrigation ditches were constructed to bring water down from the mountains. The largest of these ditches was the Waiāhole Ditch, which brought water from the Ko‘olau Range through a combination of tunnels, ditches, and pipelines. Completed around 1916, the Waiāhole Ditch carried upwards of 100 million gallons of water per day (Saito 1984:2).

In 1925, the plantation workforce included approximately 10,000 individuals consisting of a mix of German, Portuguese, Filipino, Japanese, Chinese, and Norwegian people. The company's infrastructure consisted of roads, railway lines, plantation camps for its workers, irrigation ditches, pipelines, and flumes, and a mill for refining the raw cane into sugar (Saito 1984:1).

In 1947, the Oahu Sugar Company absorbed the Honolulu Plantation Company, expanding its acreage. In 1970, the Oahu Sugar Company merged with the Ewa Plantation Company. The plantation, under various names, existed for a century, closing its mill in 1995.

2.3 Historic Maps and Aerial Photographs

The story of sugar cultivation within the project area from the early to mid-twentieth century can be traced through a series of historical maps of the area. The earliest of these, a 1913 map drafted by the U.S. Army of the Schofield Barracks quadrangle, shows the project area almost completely planted in sugar cane (Figure 8). It is not clear when the Oahu Sugar Company extended its cane fields to include the current project area, but it must not have been more than a decade after the company's first harvest.

Several plantation-related features can be seen on the 1913 map, including a rail line and roadway entering the project area from the north near the northeast corner and extending south before splitting in two. One branch trended southwest and terminated at Kunia Road, while the other generally trended to the south before exiting the project area. The northern terminus of the rail line is located just beyond the northernmost portion of the project area at what appears to have then been the edge of the cane fields because the stylized pattern of sugar cane fields is replaced a short distance further to the north by a pattern of trees and brush.

The 1913 map also shows three other road segments extending into the project area, one trending northwest-southeast (and crossing the rail line) and another extending south off of the rail line/road near the southern edge of the project area. The third road extended southwest from the rail line, exiting the project area and trending north before terminating at a reservoir. In the northwest corner of the project area are two structures of unknown function just north of the rail line. These features continue to appear in subsequent historical maps and aerial photographs that include the project area.

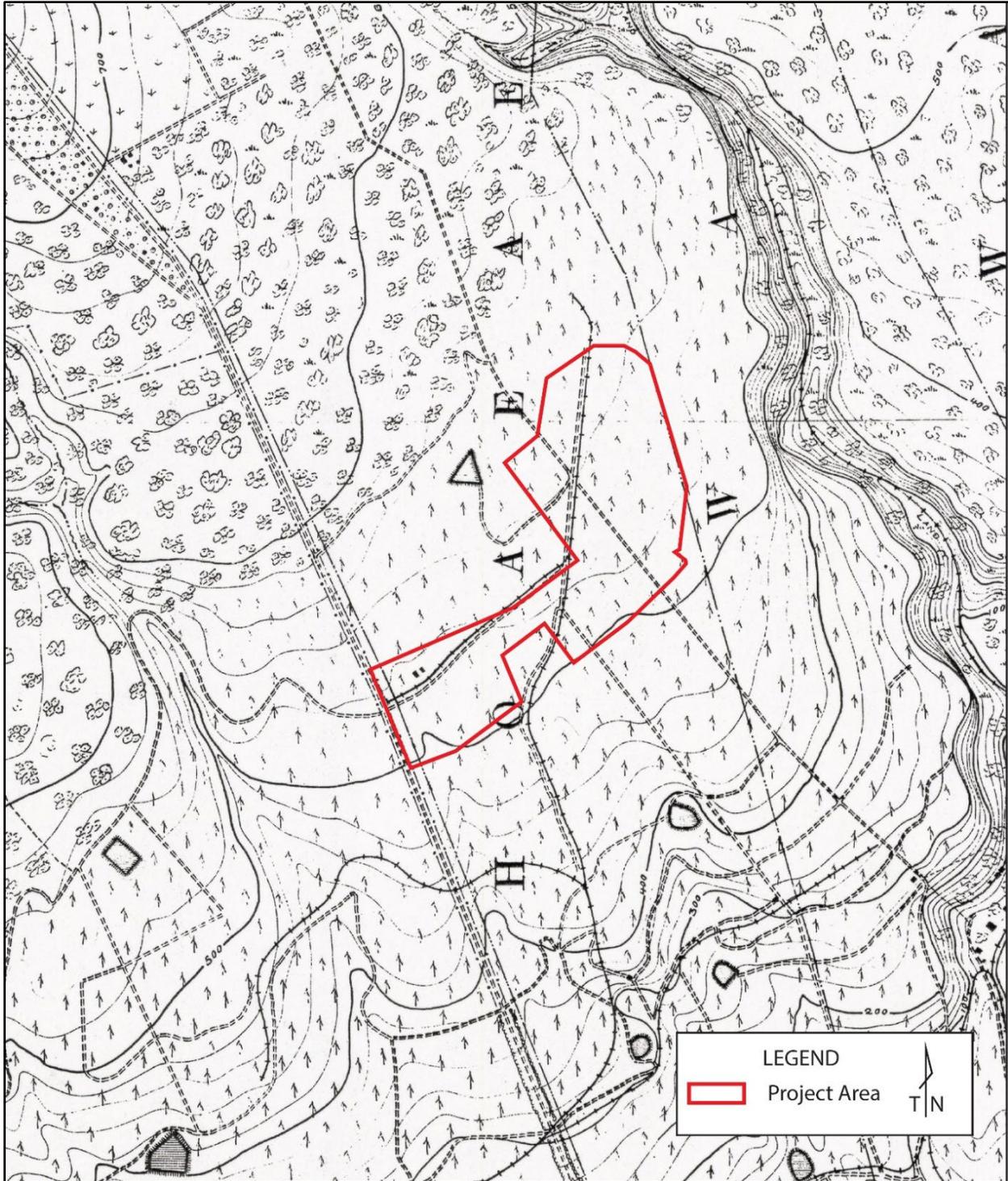


Figure 8. Detail of the 1913 U.S. Army Schofield Barracks quadrangle depicting plantation-related features within the project area (U.S. Army 1913).

Two other War Department topographic maps of the Waipahu quadrangle dating from 1935 (U.S. Army 1935) (Figure 9) and 1943 (U.S. Army 1943) (Figure 10) include the rail line, now labeled “OAHU SUGAR CO,” which had been extended to the north and west outside of the project area.

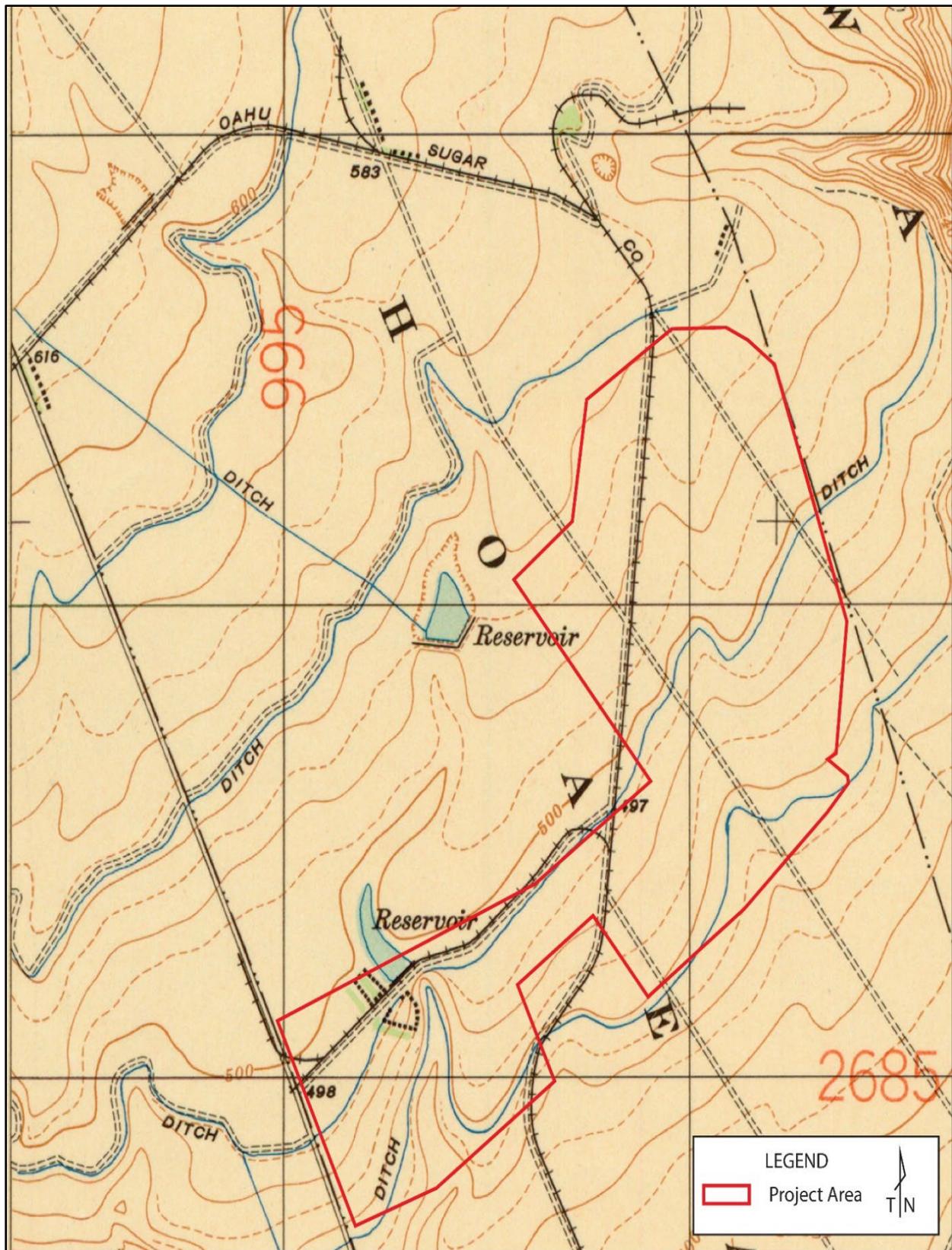


Figure 9. Detail of the 1935 War Department Waipahu quadrangle depicting plantation features within the project area (U.S. Army 1935).

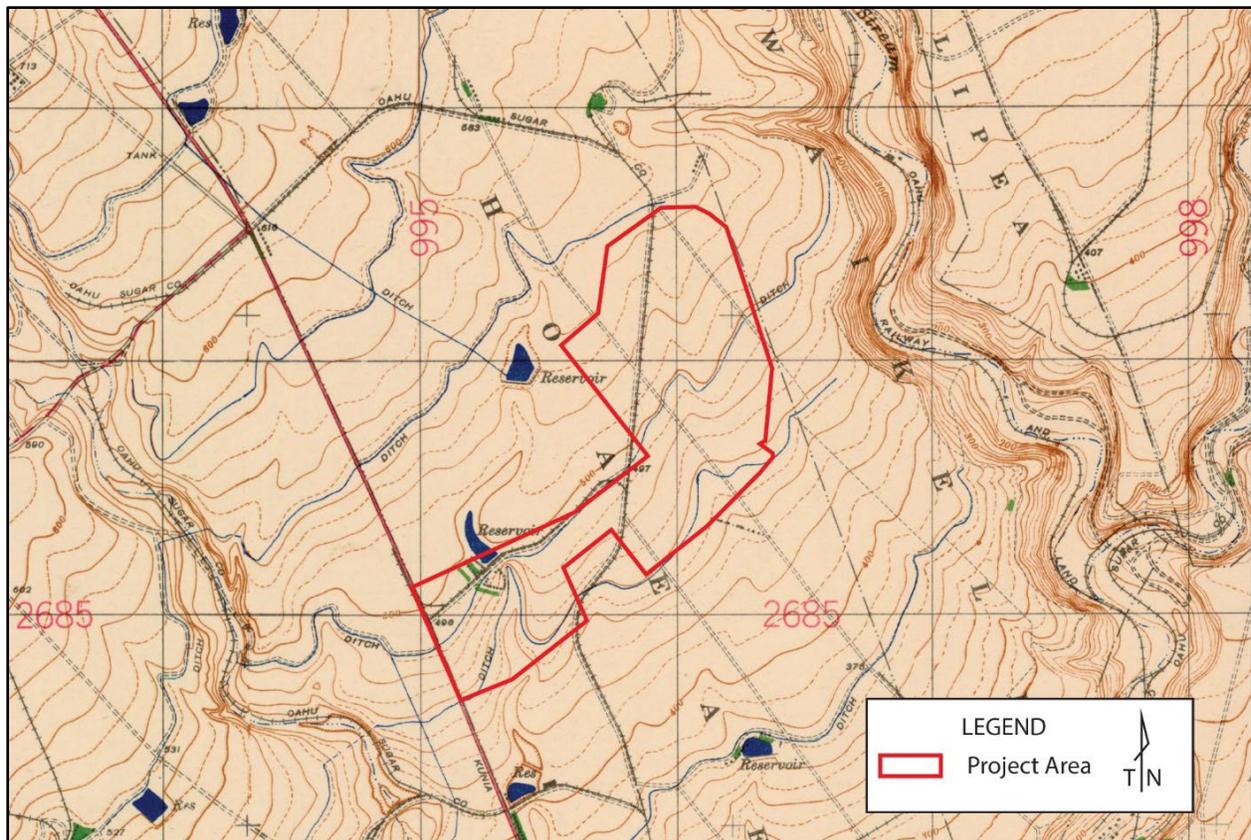


Figure 10. Detail of the 1943 War Department Waipahu quadrangle depicting plantation features within the project area (U.S. Army 1943).

Another new roadway is also depicted trending northwest-southeast along the eastern boundary of the project area. Both the 1935 and 1943 maps also depict two irrigation ditches following along topographic contours crossing through the project area. One is situated just south of the rail line/road alignment and trends northeast through the central portion of the east half of the project area. The second ditch extends in and out of the project area along the southern boundary. The 1935 and 1943 maps also depict a new reservoir that extends into the project area near Kunia Road and a cluster of structures and green space representing a camp for plantation workers situated on the northern and southern sides of the rail line.

A 1953 U.S. Geological Survey (USGS) quadrangle also depicts many of the plantation features (Figure 11), though the rail line depicted on earlier maps appears to have been abandoned, and only the roadways remain. The main road that paralleled the rail line looks to possibly have been improved, as it is now depicted as a solid, rather than a broken, line. This map also shows an apparent contraction of the plantation camp between 1943 and 1953, as the grouping of structures situated to the south of the rail line no longer appears. The remaining structures on the north side of the former rail line alignment are labeled "CAMP." Additional irrigation ditches are also visible, appearing as laterals connecting the two original ditches depicted on earlier maps.

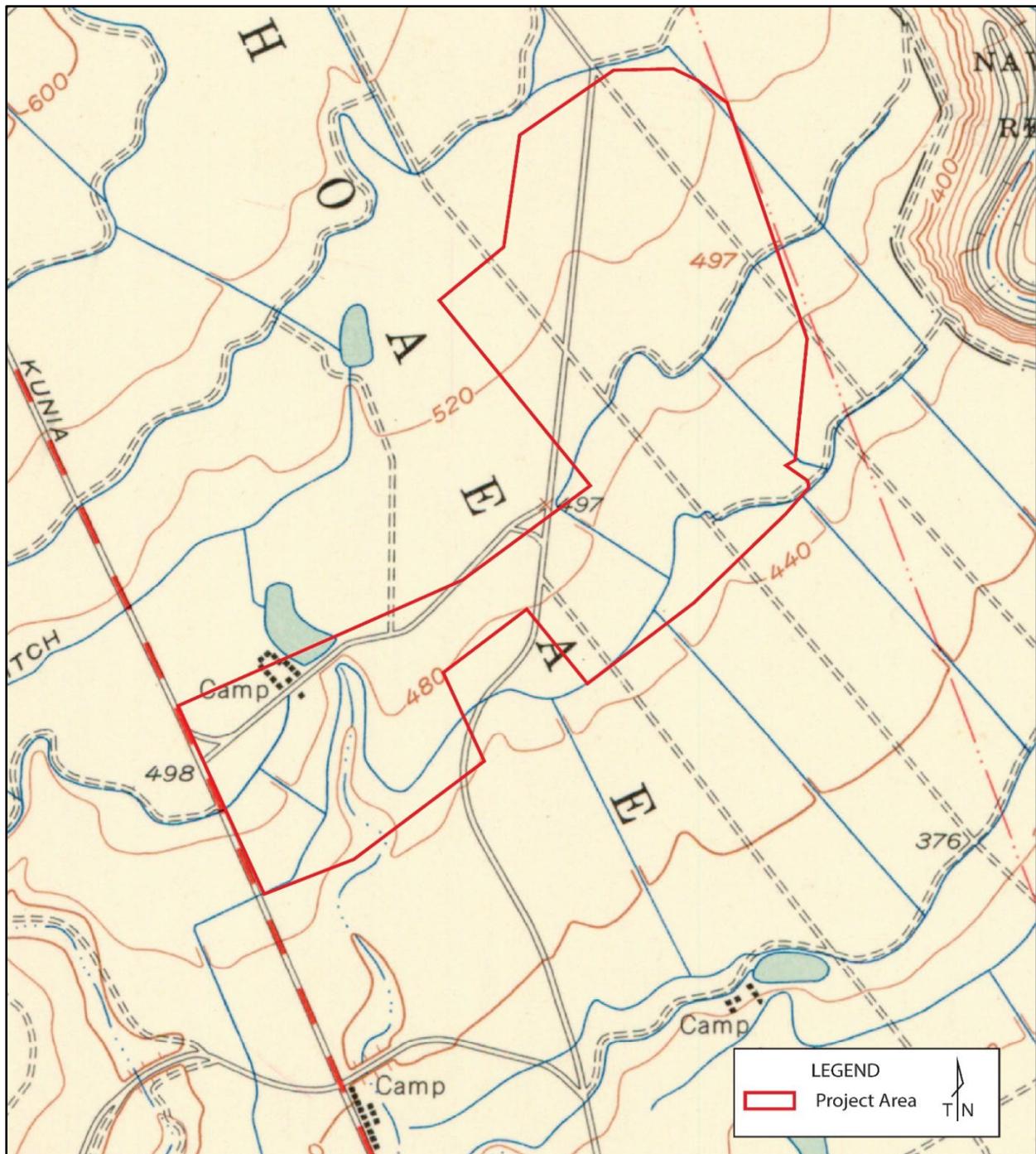


Figure 11. Detail of the 1953 USGS Schofield Barracks quadrangle depicting plantation features within the project area (USGS 1953).

A 1950 Oahu Sugar Company General Field Map (Sueo 1950) also depicts the project area (Figure 12). While it does not show as much detail as the U.S. Army and USGS maps, this map indicates the project area is situated within portions of agricultural fields labeled 218, 220, and 221. The 1950 map also shows a “PUMP 4 PIPELINE” label along one of the roadways trending through the project area. An “AIR STRIP” is also depicted along the northern boundary of the project area, likely used by small, crop-dusting aircraft.

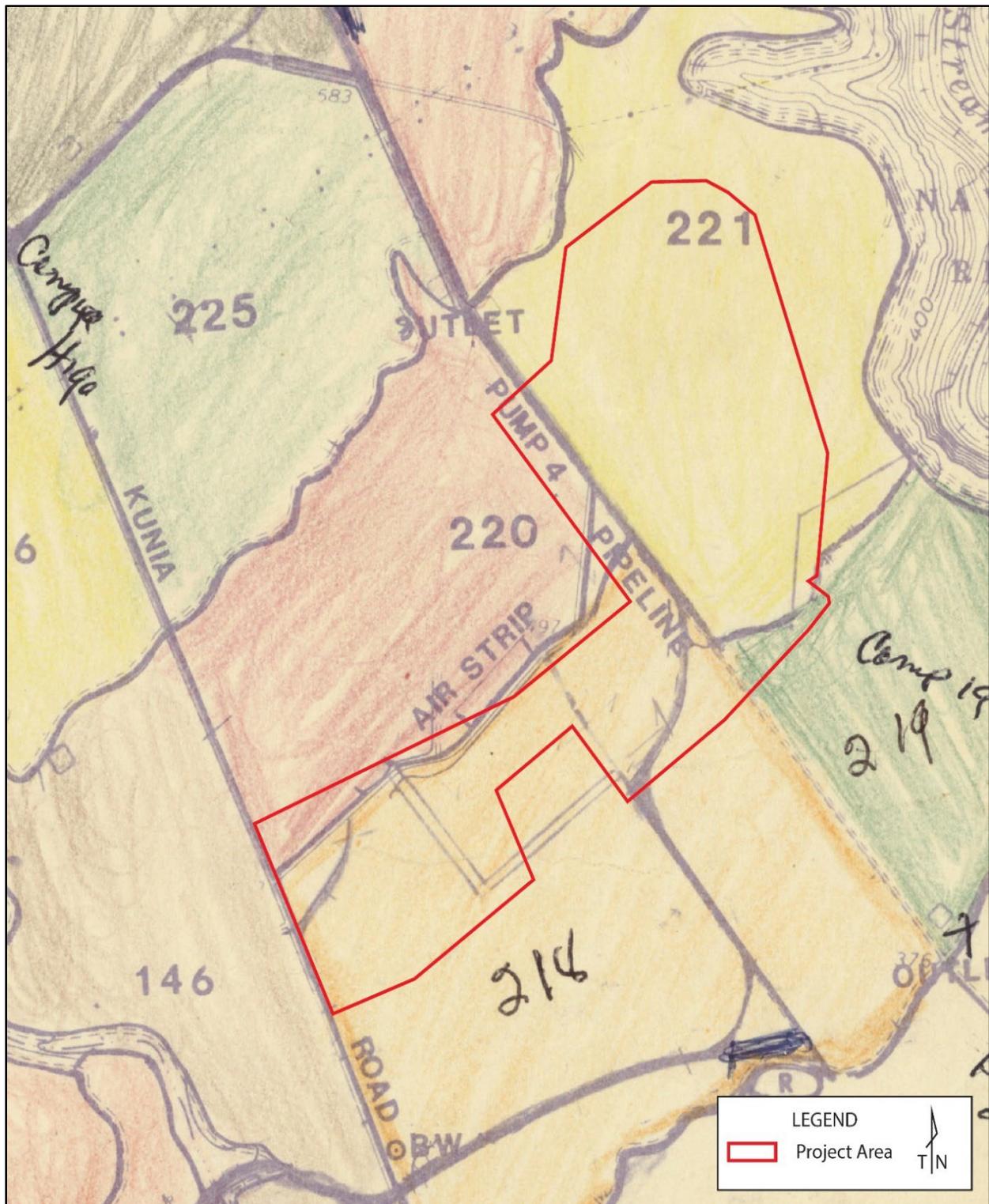


Figure 12. Detail of the 1950 Oahu Sugar Company General Field Map showing plantation features within the project area (Sueo 1950).

While the features on these twentieth-century maps form part of the plantation-era development of the project area, not all of them have survived more recent impacts to the project area.

3 DATA SUMMARY

This chapter describes the results of the current study and includes a summary of relevant archival research conducted for the project area and the results of the remote sensing and pedestrian surveys.

3.1 Archival Research Results

Archival research identified three historic properties that were documented during previous archaeological investigations in adjacent/nearby parcels (Table 1). Three of these investigations (Goodman and Nees 1991, Stark et al. 2015, and Wong and Spear 2015/Wu 2016) identified linear plantation-era features that extended into the project area. These included roadways (SIHP Site 50-80-08-07758), a former railway line (SIHP Site 50-80-08-07671), and irrigation ditch segments (SIHP Site 50-80-09-02268) related to the Oahu Sugar Company’s former use of the property for sugar cane cultivation (Table 2).

A fourth study (Gerrish et al. 2021) encompassed the current project area and confirmed that the historic properties identified during previous studies extended into the study area (Figure 13). Gerrish et al. (2021) also identified additional features associated with the previously identified historic properties (SIHP Sites 50-80-08-07671, Features 3 and 4; 50-80-08-07758, Feature 6; and 50-80-09-02268, Features RK-1 and RK-2) (see Table 2).

SIHP Site 50-80-08-09385 (reservoir) and SWCA-65875-007 (historic artifact scatter) represent potential historic properties also identified by Gerrish et al. (2021). All features identified by Gerrish et al. (2021) were assigned temporary numbers (see Table 2). SWCA-65875-007 is a historic artifact scatter representing residential refuse (e.g., broken glass bottles, ceramic tile and tableware fragments) and structural debris (e.g., bulldozer push piles containing concrete debris, sheet metal, window glass) associated with a plantation camp that was probably demolished in the 1960s (Gerrish et al. 2021:89). While this artifact scatter is a potential historic property that was subjected to a cursory inspection during fieldwork, it represents an archaeological site as opposed to an architectural resource. As such, it will be further investigated during an SHPD-requested Archaeological Inventory Survey of the project area that will be conducted as part of the project (see Appendix A).

Table 1. Previous Studies That Identified Historic Properties in the Project Area.

Author, Year	Title	Historic Properties Identified
Goodman and Nees, 1991	<i>Archaeological Reconnaissance and Inventory Surveys of 3,600 Acres in Waiawa Ahupua’a, ‘Ewa, O’ahu.</i> Applied Research Group, Bishop Museum, Honolulu.	SIHP Site 50-80-09-02268
Stark et al., 2015 and Wu, 2016	<i>Archaeological Inventory Survey Report for the Kunia Agricultural Park Project, Ho’ae’ae Ahupua’a, ‘Ewa District, O’ahu, TMK: [1] 9-4-002:080.</i> Prepared for R. M. Towill Corporation. Cultural Surveys, Kailua, Hawai’i.	SIHP Site 50-80-08-07758
Wong and Spear, 2015	<i>An Archaeological Inventory Survey Report for the Ho’ohana Solar Farm Project in Kunia, Waikele Ahupua’a, ‘Ewa District, Island of O’ahu, Hawai’i, TMK: (1) 9-4-002:052.</i> Prepared for Group 70 International, Inc. Scientific Consulting Services, Inc., Honolulu, Hawai’i.	SIHP Site 50-80-08-07671

Author, Year	Title	Historic Properties Identified
Gerrish et al., 2021	Archival Research and Field Inspection for the Royal Kunia II Residential Development Property, Ahupua'a of Hō'ae'ae, 'Ewa District, Island of O'ahu City and County Tax Map Key Parcels (1) 9-4-002:070, (1) 9-4-002:071, and (1) 9-4-002:078.	Identified Features RK-1 and RK-2 associated with SIHP Site 50-80-09-02268, Features 3 and 4 associated with SIHP Site 50-80-08-07671, Feature 6 associated with SIHP Site 50-80-08-07758, and new sites SWCA-65875-007 and SIHP Site 50-80-08-09385.

Table 2. Historic Properties Identified in the Project Area.

SIHP Site Number	Temporary Number	Feature Designation	Feature Type	Probable Feature Age	Possible Feature Function
50-80-08-07671	SWCA-65875-001	3	Road/railway alignment	Post-Contact	Travel
50-80-08-07671	SWCA-65875-002	4	Dam	Post-Contact	Travel/water control
50-80-08-07758	SWCA-65875-003	6	Road	Post-Contact	Travel
50-80-09-02268	SWCA-65875-004	RK-1	Ditch	Post-Contact	Agriculture
50-80-09-02268	SWCA-65875-005	RK-2	Ditch	Post-Contact	Agriculture
50-80-08-09385	SWCA-65875-006	-	Reservoir	Post-Contact	Agriculture
N/A	SWCA-65875-007	-	Artifact scatter	Post-Contact	Habitation

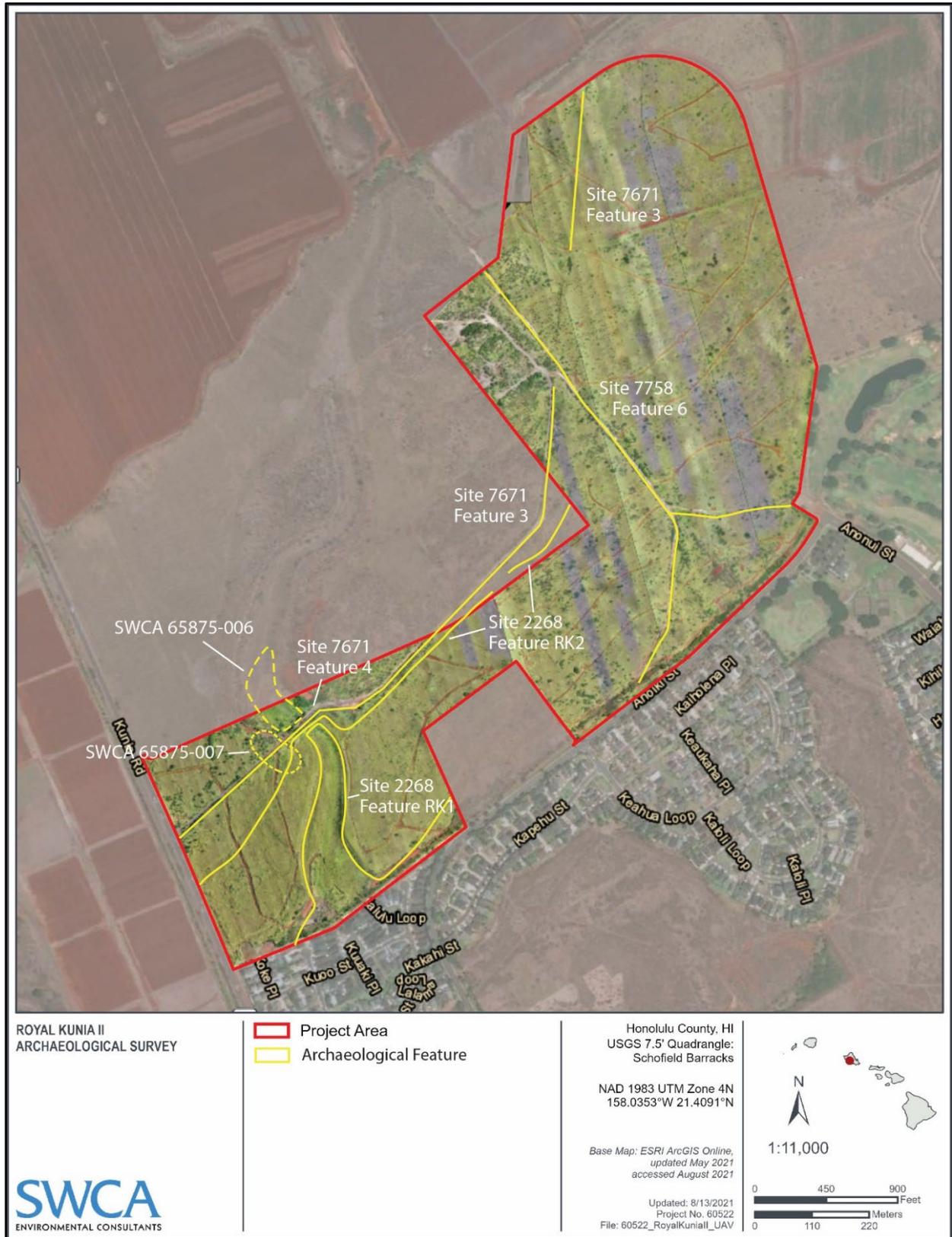


Figure 13. Historic properties identified in the project area.

3.2 Remote Sensing Analysis Results

During the Gerrish et al. (2021) study, a detailed orthomosaic image of the entire project area was created using images taken by a UAV (Figure 14). The UAV flew predetermined transects at an elevation of 150 feet to create a georeferenced orthomosaic with a resolution of 0.5 inch. The Gerrish et al. (2021) study also used a DSM image created using publicly available LiDAR, to identify potential surface features beneath the vegetation cover. The DSM layer clearly shows the course of roads and irrigation ditches dating from the plantation era (Figure 15).

During the current study, both these images were examined in detail (as described in Section 1.3.3). This examination allowed for accurate mapping of the historic properties identified during archival research. No other historic properties were identified during this remote sensing survey.

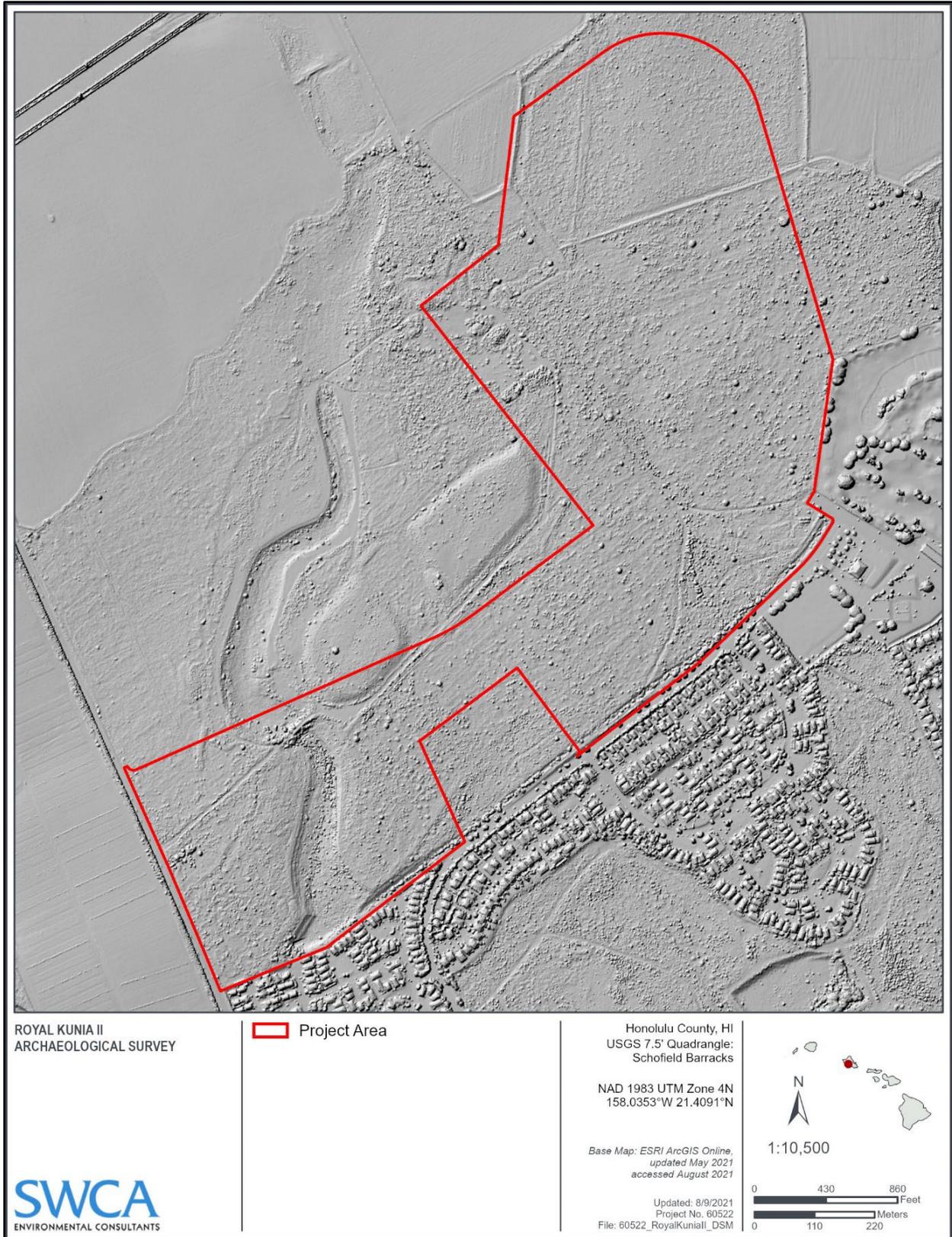


Figure 15. DSM of the project area (data from the Hawai'i Statewide GIS Program), from Gerrish et al. (2021:52).

3.3 Fieldwork Results

Fieldwork for the current project was conducted over a period of three days between June 20 and June 23, 2023, by Ryan Gross, M.A., Sarah Halpern, M.S., and Renée Whitehouse, M.A., under the supervision of Garret Root, M.A., and Rowland Reeve, M.A. All previously identified and potential historic properties within the project area were revisited during the current study to collect additional photographic documentation and GIS locational data, and to obtain additional details on their construction. The primary built environment components of the project area focus on the former transportation elements (SIHP Site 50-80-08-07671 and 50-80-08-07758) and water conveyance elements (SIHP Site 50-80-09-02268) used in sugar cane cultivation. No new features were identified during fieldwork. Architectural descriptions for each identified and potential historic property are provided below.

3.3.1 *The Waiāhole Ditch (SIHP Site 50-80-09-02268)*

As the irrigation features located within the current project area appear to be ancillary elements associated with the Waiāhole Ditch Irrigation System, they were assigned to SIHP Site 50-80-09-02268 as Features RK1 and RK2 (Goodman and Nees 1991; Gerrish et al. 2021). As discussed in Section 2.2.1, the lands cultivated by the Oahu Sugar Company were irrigated by a combination of artesian wells and water carried from the Waiāhole Ditch, which drew water from windward O‘ahu and channeled it through the Trans-Ko‘olau tunnel to the ‘Ewa plain (Figure 16). From there, the water was channeled through ditches to a series of reservoirs at the foothills of the Wai‘anae Range. The water from these reservoirs was then carried by smaller irrigation ditches to feed the lands planted in sugar cane. Those areas crosshatched in pink in Figure 16 indicate the extent of the lands irrigated by the ancillary ditch network, which includes the project area.

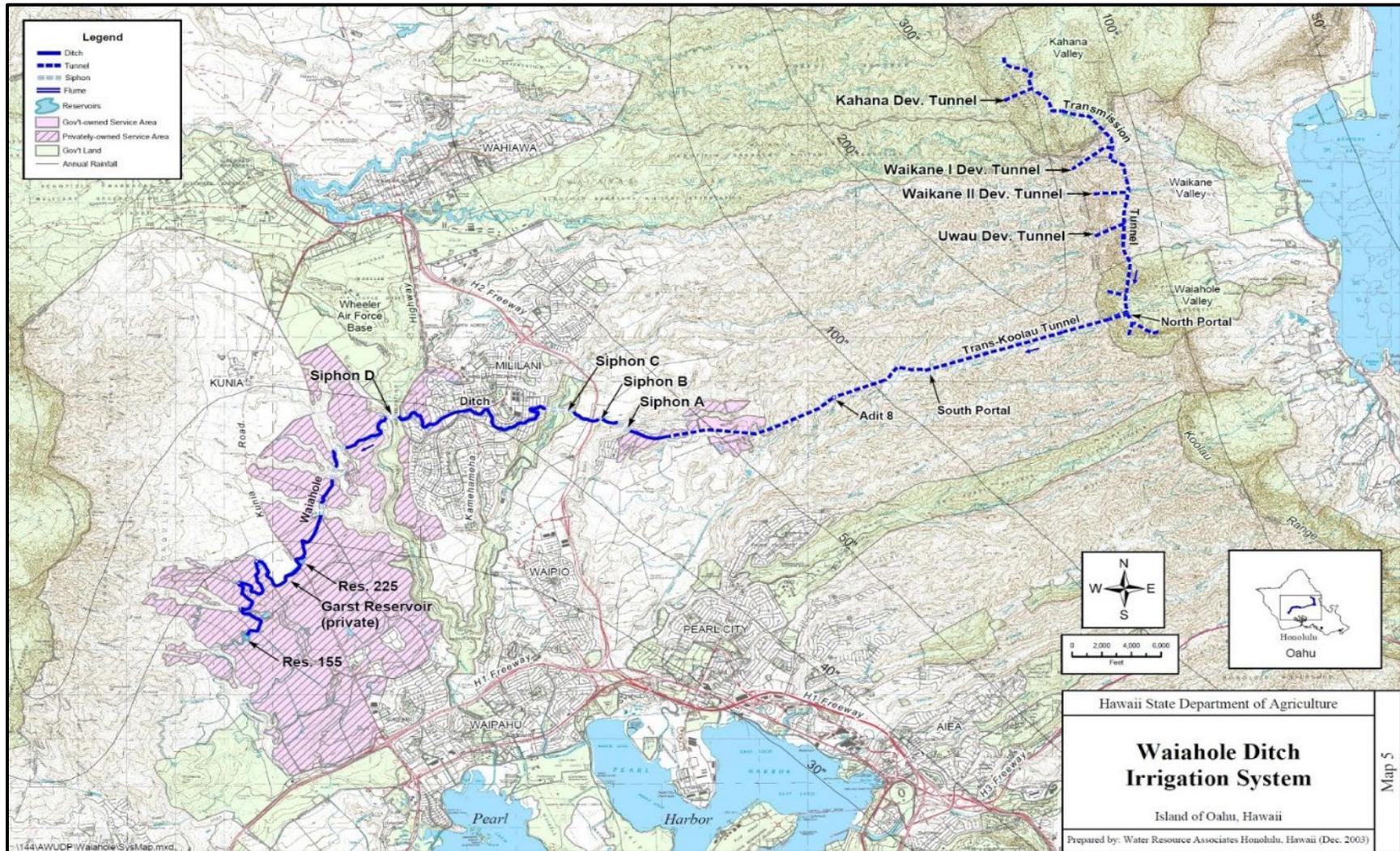


Figure 16. Waiāhole Ditch Irrigation System depicted on Hawai'i State Department of Agriculture (2003) map. The ditches identified within the project area are located south of the blue ditches depicted on this map.

The Waiāhole Ditch was designed by engineer Jorgen Jorgensen. Upon its completion in 1916, the Waiāhole Ditch measured 21.9 miles (35 km) in length and cost \$2.3 million (Wilcox 1996). The water carried by the ditch enabled the Oahu Sugar Company to significantly expand its cane cultivations into previously barren fields.

Construction of the ditch began in February 1913, and the first water was delivered to the Oahu Sugar Company on May 27, 1916. The ditch began in Kahana Valley at an elevation of 790 feet (240 m) above mean sea level and ran almost entirely through tunnels in the Waikāne and Waiāhole Valleys and through the Ko'olau Range to central O'ahu where the water was carried through concrete-lined ditches and across gulches by inverted siphons to Reservoir 155 (see Figure 16) at an elevation of 600 feet (Wilcox 1996:59). Another series of tunnels, siphons, and lined ditches on the leeward side then conveyed the water to reservoirs and ditches of Oahu Sugar Company (Herschler 1966:1–2).

The irrigation ditches in the project area are secondary laterals, which carried water originating from the main Waiāhole Ditch, located outside and north of the project area. The system appears to be gravity-fed, transporting water from the main canal and passing it to the cane fields through ditches, which have not been maintained and are no longer evident. These secondary laterals run from east to west through the project area (see Figure 13). The irrigation canals are U-shaped with flat bottoms and low sloping side walls. The canal segments are lined with the same locally harvested stone as used in the dam (see Section 3.3.2 below) and secured by mortar. The canal base appears to consist of small, rough aggregate stone set in concrete. Most of the canals are now obscured by heavy vegetation (Figure 17). The canal base width measures 2.8 feet, and the top width measures 4.9 feet. The depth of the canals varies but is generally 2 feet deep. The canals include box culverts at road crossings (Figure 18).

The design and use of these irrigation features is reflective of the system as a whole, and research does not suggest that they were built concurrent with the main Waiāhole Ditch, but was an extension added as more sugar cane fields came into cultivation. Their design, use, and function represent this expanded system.

Different types of concrete were observed in the ditch segments within the project area. Some contained aggregate, while others appeared to be more modern mortar mixes. This appears to indicate maintenance and repair over a long period as concrete mixes improved through the twentieth century. Overall, the ditch segments are in good condition, having fallen into disuse recently in the mid-1990s.



Figure 17. Abandoned ditch segment obscured by dense vegetation.



Figure 18. Irrigation ditch segment detail showing rock-lined canal with box culvert in the background; view to the north-northeast.

3.3.2 Railway Alignment and Dam (SIHP Site 50-80-08-07671)

For much of its operation, the Oahu Sugar Company relied upon a narrow-gauge railway to transport cane from the fields to the mill (Figure 19). In 1939, the Oahu Sugar Company railway covered 60 miles of 3-foot-gauge track plus an unspecified amount of portable track. In total, 939 plantation cars (860 4-ton cane cars, 50 flat cars, and 29 other cars) were in operation. In the late 1950s, the railway system was removed, and the rail alignment was converted to use by large cane haul trucks (Kalis 2017).

SIHP Site 50-80-08-07671, Features 3 and 4 represent the remains of former plantation-era routes of travel that were used to transport the harvested cane to the mill. SIHP Site 50-80-08-07671 was assessed during a previous archaeological survey in an adjacent property (see Section 1.3) as significant under Criterion (d) of HAR §13-284-6 for having yielded information about prior historical land use, particularly in association with former plantation agriculture in the area (Wong and Spear 2015:54). No further work was recommended, as the features had been adequately documented by the survey (Wong and Spear 2015:55).

3.3.2.1 FEATURE 3 (RAILWAY ALIGNMENT)

Feature 3 (railway alignment) of SIHP Site 50-80-08-07671 extends into the northernmost portion of the project area and trends south before exiting and re-entering the project area in the central portion (see Figure 13). The alignment then continues to the southwest as a roughly 230-foot-long dam (Feature 4) in the western half of the project area before terminating at a junction at Kunia Road on the western boundary of the project area. The total length of the railway alignment segment within the project area is approximately 1.1 mile and ranges in width from 12 to 20 feet. GIS was collected on all accessible segments of the alignment, but the feature was impassable in the northern project area, and as such, the mapped segment is based on georeferenced aerial images (see Figure 13).

At an unknown date (historic maps suggest sometime between 1943 and 1953), the rails, ballast, ties, and track were removed from the rail line segments within the project area. Since then, the former railway bed has primarily been used as a dirt cane haul road, though remnant, deteriorated sections of paving are still present. These surface segments are irregularly paved with more modern asphalt surfacing, compacted crushed coral aggregate and/or gravel, and macadam, indicating a long period of use, maintenance, and repair. There are no other improvements, such as shoulder, grading, drainage, or formal engineering (Figure 20 through Figure 22).



Figure 19. Oahu Sugar Company narrow-gauge railway locomotive (Kalis 2017).



Figure 20. Railway alignment trending towards the terminus at Kunia Road, showing dam segment in foreground, view to the west.



Figure 21. Typical overview of the unpaved railway alignment segments within the project area, view to the west.



Figure 22. Overview depicting deteriorating paved segment of railway alignment, view to the southwest.

3.3.2.2 FEATURE 4 (DAM)

Located in the western portion of the project area is an earth-filled and stone-faced dam (Feature 4 of SIHP Site 50-80-08-07671). The crest of the dam also supported the rail line, which has subsequently been converted to a road (see Section 3.3.2.1 above). Feature 4 extends approximately 230 feet in total length, blocking a shallow gully that runs from north to south through the project area. During the plantation era, the dam impounded a reservoir (SIHP Site 50-80-08-09385) on the northern side of the structure that was used as part of the plantation's irrigation system. The dam is slightly curved and is roughly 25 feet tall from the base to the crest. The length along the bottom width of the dam could not be determined because dense vegetation prevented measurement. The dam's width at its crest measures 22 feet. Both the north and south sides of the dam are faced with locally sourced, dry-laid stone (Figure 23). The dam crest features a low, dry stacked stone wall on the south side, topped by sharp stone fragments facing upward and set in concrete (Figure 24). The make-up of the core is unknown but appears to be earth fill (Figure 25). The other elements of the dam include a sluice gate which was controlled by a wheel-operated screw valve located at the base of the dam's downstream side (Figure 26). The valve connects to a pipe, which passes through the structure connecting to a pipe inlet on the north (reservoir-facing) side.

Earth fill–rock wall dams like Feature 4 were commonly constructed in the United States and territories during the second half of the nineteenth and into the twentieth century. Earliest examples include primitive rockfill dams associated with gold mining starting in the 1850s, which were composed of granite in timber cribbing. Construction of such dams was largely predicated by the isolation of the development site, as little material was readily available except for locally sourced materials. Starting in the 1880s, the rockfill for these dams was often faced with an impervious surface, including masonry, concrete, asphalt, and steel. The stacked rock wall facing used in Feature 4 is one such example of this evolution in earth fill–rock wall dam development (Sowers 1962:248).



Figure 23. Aerial view of SIHP Site 50-80-08-07671 showing the dam with the former rail line crossing (Feature 4) and reservoir (SIHP Site 50-80-08-09385) in upper right of frame; view to the west.



Figure 24. Dam crest detail showing dry-stacked rock wall topped by rock deterrents embedded in mortar; view to the southeast.



Figure 25. Dam overview showing non-water-facing (south-facing) side; view to the northeast.



Figure 26. Wheel-operated sluice valve located at the dam base; view to the northwest.

3.3.3 Historic Road (SIHP Site 50-80-08-07758)

The cane haul road (Feature 6 of SIHP Site 50-80-08-07758) within the project area was identified by Gerrish et al. (2021) as a continuation of the feature originally documented by Stark et al. in 2015. SIHP Site 50-80-08-07758 was assessed by Stark et al. as significant under Criterion (d) (HAR §13-284-6) for having yielded information important to the plantation-era history of the area (Stark et al. 2015:120). No further archaeological work was recommended as the documentation of the site during the inventory was deemed adequate to mitigate any impacts to it (Stark et al. 2015:122).

Feature 6 enters the project area from the northern boundary (see Figure 13) and trends southeast before forking to the east and south (Figure 27). The southern fork terminates at the southern project area boundary where it trends parallel to Anoiki Street, while the eastern fork ends in the southeastern corner of the project area, aligning with Anonui Street. The feature represents additional remnant plantation-era routes of travel that were used to transport harvested cane. The road is irregularly paved with more modern asphalt surfacing, crushed coral aggregate, and macadam, indicating a long period of use, maintenance, and repair. Several utility poles were observed along the alignment (Figure 28).

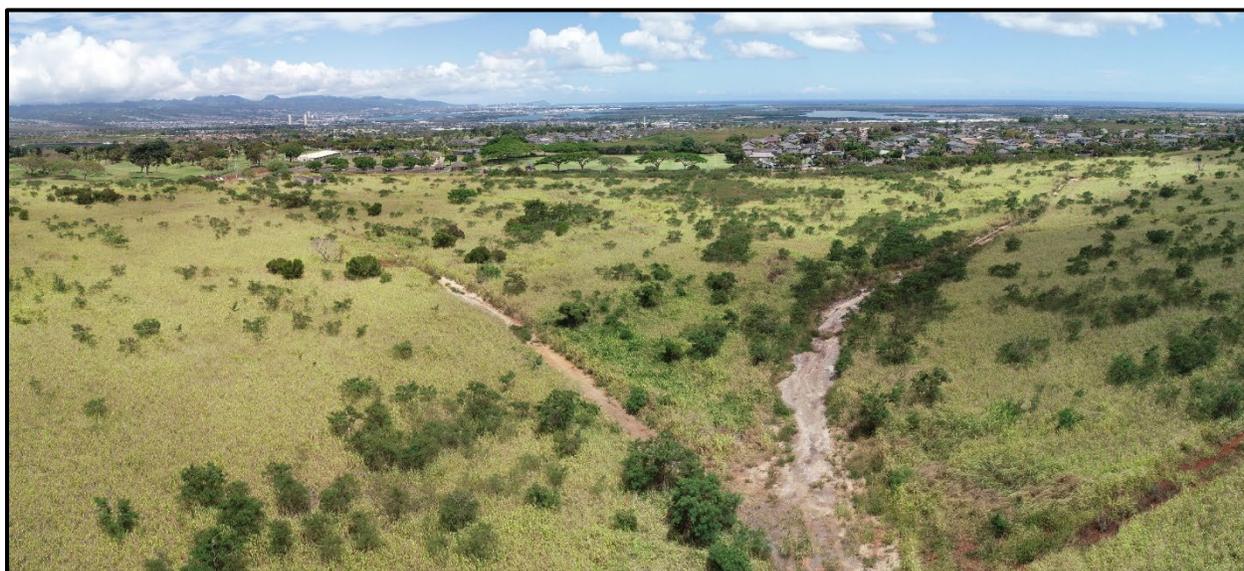


Figure 27. Southern segment of SIHP Site 50-80-08-07758 showing fork, view to the southeast.



Figure 28. Paved segment of SIHP Site 50-80-08-07758 showing overgrown and abandoned condition with a utility pole in the far background, view to the south.

3.3.4 Reservoir (SIHP Site 50-80-08-09385)

SIHP Site 50-80-08-09385 represents the site of a former plantation-era water reservoir (see Figure 13) initially identified by Gerrish et al. (2021) (Figure 29). The reservoir is clearly delineated on historic maps and aerials and was photo documented in the field. Due to the high density of vegetation within the feature, however, access during the pedestrian survey was not possible. The reservoir was not formally constructed but utilized a natural gully on the landscape, similar to other plantation-era reservoirs in the region (see Figure 9 to Figure 11). The surface acreage and capacity of the reservoir would have been dependent on the amount of water impounded behind the dam (Feature 4 of SIHP Site 50-80-08-07671). As depicted on the historic maps in Section 2.3, most of the reservoir is situated outside the northern project area boundary.



Figure 29. Aerial image of SIHP Site 50-80-08-09385 (reservoir) with the ends of the dam indicated by white arrows, view to the southeast from outside the northern project area boundary.

3.3.5 Artifact Scatter (SWCA-65875-007)

SWCA-65875-007 (historic artifact scatter) is a potential historic property identified during the Gerrish et al. (2021) study. It is not a surviving architectural resource. SWCA-65875-007 represents remnant features associated with a plantation era workers' camp that was identified through historic maps. The camp appears to have been dismantled and bulldozed sometime after 1953. All that remains of the site are several rubble piles containing structural elements (e.g., reinforced concrete foundation pads, painted/burned milled lumber fragments, and metal sheeting) interspersed within a low-density historic artifact scatter documented along a dirt road extending west of Feature 4 (dam) of SIHP Site 50-80-08-07671.

Since SWCA-65875-007 represents a potential archaeological site, this resource is outside the scope of the current architectural study. SWCA-65875-007 will be further investigated and subjected to a significance evaluation during an Archaeological Inventory Survey that will be conducted as part of the historic preservation review for the current project in accordance with SHPD request (see Appendix A).

4 INTEGRITY AND SIGNIFICANCE EVALUATIONS

Assessments of integrity and significance evaluations (as per HAR §13-284-6 (b)) for each historic property and potential historic property identified during the reconnaissance level architectural survey are presented in the following sections.

4.1 Site Integrity

The following table (Table 3) provides an assessment of the integrity of each of the five sites assessed during the current study.

Table 3. Integrity Assessment for the Historic Properties Identified in the Project Area

SIHP Number	Aspects of Integrity						
	Location	Design	Setting	Materials	Workmanship	Feeling	Association
50-80-09-02268	Present	Present	Present	Present	Present	Absent	Absent
50-80-08-07671 (Feature 4, dam)	Present	Present	Present	Present	Present	Absent	Absent
50-80-08-07671 (Feature 3, rail alignment)	Present	Absent	Present	Absent	Absent	Absent	Absent
50-80-08-07758	Present	Present	Present	Present	Present	Absent	Absent
50-80-08-09385	Present	Present	Present	Present	Present	Absent	Absent
N/A	Present	Absent	Absent	Absent	Absent	Absent	Absent

4.2 Site Significance

4.2.1 The Waiāhole Ditch (SIHP Site 50-80-09-02268)

The Waiāhole Ditch (SIHP Site 50-80-09-02268) segments documented within the project area are secondary and limited in their ability to convey their historic character and do not meet any of the significance criteria of HAR §13-284-6(b):

- Under HAR §13-284-6 (b)(1), Significance Criterion (a), none of the irrigation features within the current project area associated with the Waiāhole Ditch are significant, having no direct association with events that have made an important contribution to the broad patterns of our history. While the Waiāhole Ditch itself, located north outside the project area, is historically significant for its association with the sugar cane industry and its engineering, the ditches in the project area are representative of secondary irrigation ditches that come off the main ditch. The infrastructural elements documented as part of this study fall outside the period of significance of the main ditch. With all large-scale agricultural operations, the size of the fields will change based on demand; the sections within this project area are representative of a later-stage expansion. The secondary laterals are merely extensions of the main system and are not representative of the broad contributions of the main ditch. The O‘ahu Sugar Company’s sugar cane production within the project area was a relatively small operation compared to the numerous commercial sugar cane companies operating on O‘ahu and throughout Hawai‘i during the same time period. Further, their operation was only built upon the groundwork laid by the

earlier efforts by which historical significance and association with the Waiāhole Ditch is more prominent.

- Under HAR §13-284-6 (b)(2) Significance Criterion (b), none of the features within the project area associated with the Waiāhole Ditch are significant, having no known direct association with the lives of persons important in our past.
- Under HAR §13-284-6 (b)(3) Significance Criterion (c), none of the features within the project area associated with the Waiāhole Ditch are significant, as they all lack distinct or exceptional architectural or engineering design. Rather, they are representative of a continued use. Their design is emblematic of the earlier engineering achievements, namely with the Waiāhole Ditch. Further, the system in this location is just an expansion, one which extends beyond the early construction of Waiāhole and outside its period of significance. It is for these reasons that the ditch elements in the project area are not significant under Criterion (c).
- Under HAR §13-284-6 (b)(4) Significance Criterion (d), none of the features within the project area associated with the Waiāhole Ditch are significant, as the information obtained during previous archival and field research has exhausted their research potential.
- Under HAR §13-284-6 (b)(5) Significance Criterion (e), none of the features associated with the Waiāhole Ditch are significant, as research did not reveal significant associations to the Hawaiian people or another ethnic group.

4.2.2 Railway Alignment and Dam (SIHP Site 50-80-08-07671)

The railway alignment and dam (Feature 3 and Feature 4, respectively, of SIHP Site 50-80-08-07671) appear to meet the significance requirements of HAR §13-284-6 (b) under Criteria (d). Additionally, the dam (Feature 4) appears significant under Criteria (c):

- Under HAR §13-284-6 (b)(1) Significance Criterion (a), none of the features associated with SIHP Site 50-80-08-7671 are significant, having no known association with events that have made an important contribution to the broad patterns of our history. The O‘ahu Sugar Company’s sugar cane production within the project area was a relatively small operation compared to the numerous commercial sugar cane companies operating on O‘ahu and throughout Hawai‘i during the same time period. The railway alignment and subsequent use as a road are representative of the expansion of a previously well-established sugar industry. The dam was part of a larger irrigation system. It impounded water into a small reservoir, and the dam crest served as a connection for the rail line and road system.
- Under HAR §13-284-6 (b)(2) Significance Criterion (b), none of the features associated with SIHP Site 50-80-08-07671 are significant, having no known association with the lives of persons important in our past.
- Under HAR §13-284-6 (b)(3) Significance Criterion (c), the dry-stack rock dam (Feature 4) appears to be eligible for its method of construction, which served a dual purpose – as a primary component of a water retention system for irrigation, as well as a substructure for transportation routes. Both of the structure’s functions supported the property’s past plantation agriculture use. As described above in Table 3, the dam (Feature 4) retains sufficient integrity to convey its significance.

The railway alignment, Feature 3 associated with SIHP Site 50-80-08-07671, is not significant under Significance Criterion (c) as it lacks distinct or exceptional architectural or engineering design. The former railway’s rails, ballast, ties, and track were removed in approximately the

mid-nineteenth century, and the alignment was converted into a road. Only deteriorated remnants of paving are present in portions of the road.

- Under HAR §13-284-6 (b)(4) Significance Criterion (d), SIHP Site 50-80-08-07671 qualifies as significant as it has yielded information about prior historic land use, particularly in association with former plantation agriculture in the area.
- Under HAR 13-284-6 Significance Criterion (e), none of the features associated with SIHP 50-80-08-07671 are significant, as they do not have important value to the Hawaiian people or another ethnic group.

4.2.3 Historic Road Segments (SIHP Site 50-80-08-07758)

The historic road segments (SIHP Site 50-80-08-07758) do not meet the significance requirements of HAR §13-284-6 (b):

- Under HAR §13-284-6 (b)(1) Significance Criterion (a), none of the features associated with SIHP Site 50-80-08-07758 are significant, having no known association with events that have made an important contribution to the broad patterns of our history. The O‘ahu Sugar Company’s sugar cane production within the project area was a relatively small operation compared to the numerous commercial sugar cane companies operating on O‘ahu and throughout Hawai‘i during the same time period.
- Under HAR §13-284-6 (b)(2) Significance Criterion (b), none of the features associated with SIHP Site 50-80-08-07758 are significant, having no known association with the lives of persons important in our past.
- Under HAR §13-284-6 (b)(3) Significance Criterion (c), none of the features associated with SIHP Site 50-80-08-07758 are significant, as they all lack distinct or exceptional architectural or engineering design.
- Under HAR §13-284-6 (b)(4) Significance Criterion (d), none of the features associated with SIHP Site 50-80-08-07758 are significant, as the information obtained during previous archival and field research has exhausted their research potential.
- Under HAR 13-284-6 Significance Criterion (e), none of the features associated with SIHP Site 50-80-08-07758 are significant, as they do not have important value to the Hawaiian people or another ethnic group.

4.2.4 Reservoir (SIHP Site 50-80-08-09385)

The reservoir (SIHP Site 50-80-08-09385) does not meet the significance requirements of HAR §13-284-6 (b):

- Under HAR §13-284-6 (b)(1) Significance Criterion (a), the reservoir is not significant, having no known association with events that have made an important contribution to the broad patterns of our history. The O‘ahu Sugar Company’s sugar cane production within the project area was a relatively small operation compared to the numerous commercial sugar cane companies operating on O‘ahu and throughout Hawai‘i during the same time period.
- Under HAR §13-284-6 (b)(2) Significance Criterion (b), the reservoir is not significant, having no known association with the lives of persons important in our past.
- Under HAR §13-284-6 (b)(3) Significance Criterion (c), the reservoir is not significant, as it lacks distinct or exceptional architectural or engineering design.

- Under HAR §13-284-6 (b)(4) Significance Criterion (d), the reservoir is not significant, as the information obtained during previous archival and field research has exhausted its research potential.
- Under HAR §13-284-6 (b)(5) Significance Criterion (e), the reservoir is not significant, as it does not have important value to the Hawaiian people or another ethnic group.

4.2.5 Artifact Scatter (SWCA-65875-007)

The historic artifact scatter (SWCA-65875-007) associated with the former workers' camp is not evaluated for significance as part of this study. An Archaeological Inventory Survey meeting the standards set forth in HAR 13-276 will be conducted to further investigate the project area for the presence of archaeological sites and/or features, with a particular focus on recording baseline soils data and determining the presence, site boundary, and conducting an evaluation of significance for SWCA-65875-007.

5 DETERMINATION OF EFFECTS TO SIGNIFICANT HISTORIC PROPERTIES

As previously discussed, SIHP Site 50-80-08-07671, which includes the railroad alignment and the dam, is significant under Criterion (d), whereas the rock dam (Feature 4 of SIHP Site 50-80-08-07671) is also significant under Criterion (c). Therefore, SIHP Site 50-80-08-07671 qualifies as a significant historic property pursuant to HAR §13-284-6. Below, an analysis is provided to determine the effects to the significant historic property as a result of the implementation of the project.

As described in HAR §13-284-7, “Effects include, but are not limited to, partial or total destruction or alteration of the historic property, detrimental alteration of the properties' surrounding environment, detrimental visual, spatial, noise or atmospheric impingement, increasing access with the chances of resulting damage, and neglect resulting in deterioration or destruction. These effects are potentially harmful.”

The proposed project intends to develop the property for single-family and/or multi-family residences, which would include the removal of SIHP Site 50-80-08-07671. The partial or total destruction of the site and the two associated features constitutes a harmful effect on a significant historic property. In consultation with the SHPD, the following determination for the project is established: “Effect, with agreed upon mitigation commitments.” These Mitigation Commitments – which are in accordance with architectural recordation, an approved mitigation measure per HAR §13-284-8 – are described below.

5.1 Mitigation Commitments

The railway alignment and dry-stacked rock dam (Feature 3 and Feature 4, respectively, of SIHP Site 50-80-08-07671) are not candidates for preservation, conservation, reconstruction, or rehabilitation as part of the residential development proposed for the project site. As noted in Table 4, architectural recordation is considered to be the most appropriate mitigation for the project’s effect on SIHP Site 50-80-08-07671. Plans for the mitigation measures are described in further detail below.

Table 4. Significant Historic Properties in the Project Area for which Mitigation is Proposed

SIHP Number	Description	Mitigation Proposed
50-80-08-07671	Feature 3 – rail alignment, and Feature 4 – dam	Architectural documentation through HAER-like report and interpretive signage

5.1.1 *Historic American Engineering Record (HAER)-like Documentation*

Prior to the authorization of demolition of construction activities, a historian or architectural historian who meets the Secretary of the Interior’s Professional Qualifications Standards in History and/or Architectural History shall be retained by the project applicant to prepare Historic American Engineering Record (HAER)-like documentation for SIHP Site 50-80-08-07671 that shall be developed in accordance with the National Park Service (NPS)’s HAER Guidelines for Historical Reports. Following the Short-Form Report format, the documentation shall include a descriptive and historic narrative for SIHP Site 50-80-08-07671. Digital photographic documentation previously obtained during project fieldwork shall be utilized to document the contributing features of SIHP Site 50-80-08-07671 that are proposed for

removal. Overview photographs of the adjacent setting shall be included for context. The photographic documentation shall not be required to meet HAER photographic specifications and guidelines, nor shall it be required of the project applicant to submit the HAER-like documentation report to the NPS or Library of Congress. One hard copy and one digital copy of the HAER-like documentation shall be prepared and submitted to the SHPD.

5.1.2 Interpretive Signage

Prior to the authorization of demolition of construction activities, a historian or architectural historian who meets the Secretary of the Interior's Professional Qualifications Standards in History and/or Architectural History shall be retained by the project applicant to prepare a narrative and graphics for the development of an interpretive sign to be installed at a future location within the project area. The qualified historian or architectural historian shall also coordinate with the project applicant and their design/planning team to identify a future location where the interpretative signage shall be installed. This future location shall be publicly accessible, provide interpretive value, and fit within the landscape plan of the proposed Royal Kunia II residential development.

The interpretive narrative and graphics shall draw from the historic context, information, and photographs completed as part of this RLS report and shall include supplemental information as necessary. The interpretive narrative and graphics shall highlight the significance of the sugar industry in the region, the significance of SIHP Site 50-80-08-07671, and the workers who labored in the agricultural fields. The interpretive narrative, graphics, and layout shall be prepared in order for the project applicant to commission the construction of the interpretive sign, which shall be installed within the project area in a publicly accessible area with some interpretive value. The interpretative signage shall be installed within one (1) year of the issuance of the Certificate of Occupancy for the project elements in the vicinity of the identified signage location.

6 SUMMARY AND CONCLUSION

Background archival research and reconnaissance level survey fieldwork undertaken as part of this study have demonstrated that the Oahu Sugar Company constructed a number of plantation-related features within the project area. These extant features include irrigation ditches (SIHP Site 50-80-09-02268), a railway alignment and dam (SIHP Site 50-80-08-07671), cane haul roads (SIHP Site 50-80-08-07758), and a reservoir (SIHP Site 50-80-08-09385). One archaeological resource, a former plantation workers' camp that is now a historic artifact scatter (SWCA-65875-007), will be further investigated and evaluated for significance during an Archaeological Inventory Survey (AIS) being conducted for the project.

As these features are over fifty years in age, they qualify as "historic properties" as defined under HAR §13-284-2. Of these, one (SIHP Site 50-80-08-07671) qualifies as a significant historic property pursuant to HAR §13-284-6. Implementation of the proposed project would remove the features associated with SIHP Site 50-80-08-07671, resulting in a harmful effect to the significant historic property. In consultation with SHPD, the following determination for the project is established: "Effect, with agreed upon mitigation commitments." The mitigation delineated above was developed in consultation with SHPD and consists of the development of HAER-like documentation for SIHP Site 50-80-08-07671 and interpretive signage to be installed within the project area.

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APPENDIX A

Hawai'i State Historic Preservation Division Correspondence

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA
SYLVA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



**STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA**

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

March 14, 2023

Dawn Takeuchi-Apuna, Director
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IN REPLY REFER TO:
Project No. 2021PR01090
Doc. No. 2303MA01
Archaeology, Architecture

Dear Ms. Takeuchi-Apuna and Ms. Simeon:

**SUBJECT: HRS Chapter 6E-42 Historic Preservation Review –
Permit Application – Cluster Development 2022/CL-2
Royal Kunia II Development Project
Hō'ae'ae Ahupua'a, 'Ewa District, Island of O'ahu
TMK(s): (1) 9-4-002:070, 071, and 078**

This letter provides the State Historic Preservation Division's (SHPD's) review of the subject permit and proposed project titled *Royal Kunia II Development Project*. The initial submission for this project was received via HICRIS on September 2, 2021, with a second submission made on June 22, 2022; see HICRIS Project No. 2021PR01090 for submission documents.

Haseko Royal Kunia, LLC proposes a 15-year Master Plan for the phased residential development of single and multifamily units covering the approximately 211-acre Royal Kunia II Development Project area on former sugar plantation land just north of Royal Kunia Country Club and the Royal Kunia I community. Ground-disturbing activities for this proposed Master Plan development will involve mass property grading, as well as excavations for infrastructure including underground drainage culverts, water mains, sewer lines, and telecommunication/electrical conduits. This phased work is scheduled to begin with Parcels D and A in 2026, followed by Parcel B in 2029, Parcel E in 2030, and Parcel C in 2032. To date, Haseko has only applied to the City and County of Honolulu Department of

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Planning and Permitting for a Cluster Housing Permit (Cluster Development 2022/CL-2) that covers all three TMKs of the Master Plan project area [TMK: (1) 9-4-002:070, 071, 078]. However, this permit application only included detailed plan drawings (site, grading, roadway, etc.) for the 37.4-acre Parcel D [TMK: (1) 9-4-002:071 por.].

The Master Plan project area—currently owned by Haseko Royal Kunia, LLC, a Hawai‘i limited liability company by Haseko Development, Inc.—is situated north of the H-1 freeway on O‘ahu’s broad central plain, between Kunia Road and Waikele Stream. The project area has remained undeveloped since the Oahu Sugar Company ceased commercial sugar production in the area in 1995, despite development on adjacent properties and unrealized plans dating back to the early 1990s to develop these parcels as well. The area is currently covered in dense stands of California grass, tangled vines, and *koa haole*.

In support of the project, Haseko contracted SWCA Environmental Consultants to produce a Literature Review and Field Inspection (LRFI) report titled *Archival Research and Field Inspection for the Royal Kunia II Residential Development Property, Ahupua‘a of Hō‘ae‘ae, ‘Ewa District, Island of O‘ahu, City and County Tax Map Key Parcels (1) 9-4-002:070, (1) 9-4-002:071, and (1) 9-4-002:078* (Gerrish et al. 2021). SWCA conducted field inspections for this LRFI, involving staff archaeologists and architectural historians, in May and June 2021 to determine the current condition of the project area and locate potential historic properties identified through archival research. Densely overgrown vegetation (California grass and vines) covering most of the project area reduced ground visibility to nearly zero and precluded 100% coverage of the area with pedestrian transects. Existing roadways within the project area were instead used to access and document possible historic properties. An unmanned aerial vehicle (UAV) conducted a 100% photographic survey along predetermined transects at a 150-foot elevation that was processed into a georeferenced orthomosaic with 0.5-inch resolution. This was supplemented with the use of publically-available Hawai‘i State-wide LiDAR imagery that provided a Digital Surface Model (DSM) of the area stripped of vegetation. The UAV was also used to document identified historic properties in a more targeted way.

Background research for the LRFI (Gerrish et al. 2021) concluded that the project area, as part of O‘ahu’s arid inland plain, was likely not intensively inhabited or cultivated in the pre-Contact period. Important traditional Hawaiian resources were likely harvested from this plain, which an extensive network of pre-Contact trails crisscrossed, however. In the post-Contact era, the area was first used for cattle grazing, with sugar cane cultivation taking over in the final decade of the 19th century. Grubbing and chain dragging to prepare fields for sugar cane planting likely destroyed any surface traces of pre-Contact activity in the area outside of protective gulches. Previous archaeological studies in the vicinity of the current project area identified remnant historic properties related to the plantation era, however. Field inspections and remote sensing data collected for the LRFI confirmed these expectations, encountering no traditional Hawaiian sites or materials during the inspection, but identifying a number of plantation-era features, including some associated with previously identified historic properties.

SWCA documented further sections of a railway line/road and a stone-faced causeway/dam that tied into the former railway line/road to the north (SIHP # 50-80-08-07671); a cane haul road associated with assorted plantation period features to the northwest (SIHP # 50-80-08-07758); and two ditches that were part of the Waiāhole Ditch Irrigation System (SIHP #50-80-09-02268). They also identified two previously unrecorded historic properties: a historic reservoir (SWCA-65875-006) and a sugar plantation worker’s camp (SWCA-65875-007). Both were identified through archival research, with only scant surface evidence indicating their presence on the ground due to low surface visibility and impassible vegetation. The LRFI presents no assessments of integrity or significance for any of these historic properties but does note that such work would need to be done in the future. Due to field conditions precluding full pedestrian survey coverage of the project area, SWCA recommends that the data collected for the LRFI be used to identify areas requiring additional identification and documentation efforts ahead of development. They specifically recommend subsurface testing of the worker’s camp area (Gerrish et al. 2021). Haseko indicates, in their letter requesting SHPD consultation, a willingness to possibly preserve significant historic properties within the project area by modifying development designs.

The **SHPD agrees** that potentially significant historic properties were identified and preliminarily recorded within the Royal Kunia II Development Project area during research and fieldwork for this LRFI. The **SHPD further agrees** that additional identification and documentation efforts are needed across this project area in advance of the proposed development, to more fully identify, document, and assess these historic properties and the impact the proposed project will have on them. Based on the information provided, the **SHPD has insufficient information** to determine the potential impacts of the project on significant historic properties.

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Therefore, the **SHPD requests** a Reconnaissance Level Survey (RLS) report be completed for the full Royal Kunia II Development Project area, given the presence of landscape-engineering historic properties within that project area. The information needed for completing an RLS report may be found at https://dlnr.hawaii.gov/shpd/files/2020/11/02-2018_SHPD_ARCHITECTURE-SURVEY-GUIDELINES.pdf on page 8. The RLS Report must be completed by a Secretary of the Interior (SOI) qualified architect, architectural historian, or historic architect. Additionally, the report must include an assessment of the seven aspects of integrity and site significance each historic property in accordance with Criteria a-e, as specified in HAR §13-284-6. The RLS is considered an architectural survey report and thus subject to filing fees (\$450) per HAR §13-284-4(3). The survey must be accompanied by a completed SIHP Requests for each architectural historic property, to generate new files or modify the existing file with new information on each.

In addition to this, the **SHPD requests** that an Archaeological Inventory Survey (AIS) be conducted for the entirety of the Master Plan project area. For all parcels this will entail incorporating the research and results of the LRFI (Gerrish et al. 2021) into an AIS that meets the standards set forth in HAR §13-276, including: consultation with knowledgeable individuals, significance assessments, and recommendations. The findings of this AIS and the requested RLS should correspond. The AIS will need to involve limited subsurface testing across the entire project area, to record baseline soils. General subsurface testing to record soils will extend into Parcel E, while a more focused testing strategy needs to be developed here to determine the presence, boundaries, integrity, and significance of the former plantation camp (SWCA-65875-007). The dry gulch in this parcel also needs to be subject to a 100% pedestrian survey with limited testing. The AIS report is subject to filing fees (\$450) per HAR §13-284-4(3). SIHP Request(s) will need to be submitted for any archaeological historic properties identified or further documented in this AIS report.

The **SHPD requests** that an AIS Testing Strategy be submitted for both the general and more targeted subsurface testing described in this letter. Once this AIS testing strategy is approved by SHPD, the AIS will need to be conducted and a report produced and accepted by SHPD.

The SHPD looks forward to receiving a draft RLS, SIHP Requests, and AIS Testing Strategy in order to move forward the HRS 6E-42 Historic Preservation Review for Royal Kunia II Development Project. Please submit any forthcoming information and correspondence related to the subject project to SHPD via HICRIS to Project No. 2021PR01090 using the Project Supplement option.

Note: U.S. Army Corps of Engineers (USACE) has yet to determine whether the subject project will require federal permitting under the Clean Water Act Section 404. Should such permitting be required, USACE will need to initiate the NHPA Section 106 Historic Preservation Review process with SHPD for the project.

Please contact Jessica Puff, Architecture Branch Chief, at Jessica.Puff@hawaii.gov for matters regarding architectural resources and Megan E. Alvarez, O'ahu Island Lead Archaeologist, at megan.alvarez@hawaii.gov for any matters concerning archaeological resources.

Aloha,
Susan A. Lebo
Signed For
Alan S. Downer, PhD
Administrator, State Historic Preservation Division
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