

BEFORE THE LAND USE COMMISSION

LAND USE COMMISSION
STATE OF HAWAII

OF THE STATE OF HAWAII

2016 DEC -2 A 8:42

In the Matter of the Petition of)	DOCKET NO. A16-800
)	
ISLAND SCHOOL)	ISLAND SCHOOL
)	
To Amend the Agricultural Land Use)	
District Boundary into the Urban District for)	
approximately 38.448 acres at Puhi, Lihu`e,)	
Island of Kauai, State of Hawai`i,)	
TMK: (4) 3-8-002: 016)	
_____)	

PETITION FOR LAND USE
DISTRICT BOUNDARY AMENDMENT

VERIFICATION

EXHIBITS "1" THROUGH "8"

AFFIDAVIT OF SERVICE OF PETITION
FOR LAND USE DISTRICT BOUNDARY AMENDMENT

AFFIDAVIT OF SENDING OF NOTIFICATION OF PETITION FILING

AND

CERTIFICATE OF SERVICE

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ISLAND SCHOOL

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PETITION FOR LAND USE
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TO THE HONORABLE LAND USE COMMISSION OF THE STATE OF HAWAII:

ISLAND SCHOOL ("Petitioner") by and through its attorneys, MATSUBARA, KOTAKE & TABATA, respectfully petitions the Land Use Commission of the State of Hawai`i ("Commission") to amend the land use district boundary of approximately 38.448 acres of land at Puhi, Lihu`e, Kaua`i, Hawai`i, ("Property" or "Petition Area") more particularly described below, from the State Land Use Agricultural District to the State Land Use Urban District to update its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students ("Project"). In support of this Petition, Petitioner respectfully presents the following:

1. Background. Petitioner was founded in 1977 by a group of Kaua'i parents and teachers concerned with providing quality education for Kaua'i's children. It is one of Kaua'i's oldest and largest private, non-sectarian, independent school accommodating Grades Pre-Kindergarten (Pre-K) through 12, and has a current enrollment of approximately 370 students.

The Petition Area is comprised of approximately 38.448 acres of land in the Agricultural District. Petitioner's existing campus resides upon approximately 30 acres and consists of classrooms, administration and various other facility buildings; athletic/recreational fields; open space; school parking; and, road access. Approximately 12 acres of the 30 acres is utilized for the buildings and structures of the school.

Since relocating from the school's original location in Kealia on the east side of Kaua'i, the school has been operating in Puhi on agricultural lands under a Special Permit, Use Permit, Variance Permit, and Class IV Zoning Permit that was issued by the County Planning Commission on August 23, 1990 which was subsequently updated. The current Special Permit, Use Permit and Class IV Zoning Permit was issued on April 26, 2005 by the County Planning Commission.

Petitioner is now seeking to reclassify the Petition Area to the urban district to be consistent with the existing use and to provide for future expansion.

2. Standing. The fee simple ownership of TMK: (4) 3-8-002: 016, comprising of approximately 38.448 acres of land, is vested in Petitioner, a Hawai'i non-profit corporation, whose principal place of business is 3-1875 Kaumuali'i Highway Līhu'e, Kaua'i, Hawai'i 96766-9597. Petitioner possesses the requisite standing to file this Petition pursuant to HRS § 205-4(a) and Hawai'i Administrative Rules ("HAR") § 15-15-46(3).

3. Authorized Representatives. Mr. Benjamin M. Matsubara and the law firm of Matsubara, Kotake & Tabata have been appointed to represent the Petitioner pursuant to HAR § 15-15-35(b). All correspondence and communications in regard to this Petition shall be addressed to, and served upon, Mr. Benjamin M. Matsubara, Matsubara, Kotake & Tabata, 888 Mililani Street, Suite 308, Honolulu, Hawai'i 96813 and Mr. David Pratt, Island School, 3-1875 Kaumuali'i Highway Līhu'e, Kaua'i, Hawai'i 96766-9597.

4. Relief Sought. Petitioner desires to amend the land use district boundary to reclassify approximately 38.448 acres of land at Puhi, Lihu'e, Kaua'i, Hawai'i, from the State Land Use Agricultural District to the State Land Use Urban District.

5. Authority for Relief Sought. Petitioner files this Petition pursuant to HRS § 205-4 and the Land Use Commission Rules of the State of Hawai'i, HAR, Title 15, Subtitle 3, Chapter 15.

6. Description of the Property. The Petition Area is located adjacent to and north/northeast of the University of Hawai`i's Kaua`i Community College campus and approximately two miles west of Līhu`e town in Puhi, Līhu`e District, Island of Kaua`i

A map identifying the location of the Property is attached as Exhibit "1". A survey map and metes and bounds description of the Property is attached as Exhibit "2". Tax maps showing the Property are attached as Exhibit "3".

7. Petitioner's Property Interest. The fee simple ownership of Petition Area is owned by Petitioner. Attached to this Petition as Exhibit "4" are documents evidencing Petitioner's ownership of the Petition Area.

8. Description of Easements on the Subject Property. Easements for building, constructing, repairing, maintaining and operating pole and wire lines for the transmission of electricity located on the Petition Area are held by Kauai Electric Company and Citizens Utilities Company, whose interest is now held by Kauai Island Utility Co-Op and GTE Hawaiian Telephone Company Incorporated, now known as Hawaiian Telcom, Inc. The Petition Area is also subject to an Access Agreement held by The Lihue Plantation Company. The Title Guaranty Status Report describing the easements and access agreement is attached as a part of Exhibit "2".

9. Petitioner's Financial Condition. Petitioner's financial statements are attached as Exhibit "5". Development of the Project is intended to be financed through tuition, grants, donations, and in-kind contributions.

10. Reclassification Sought, Proposed Use of Property and Conformity to Urban District Standards. The Property is presently classified within the State Land Use Agricultural District. Petitioner seeks to reclassify the Property to the State Land Use Urban District to develop the Project. Petitioner is proposing an update of its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 full time equivalent (“FTE”) faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment.

The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, dormitory, faculty and employee housing, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, baseball field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces. The project is described at page 2-1 and Figure 2-1 of the Final Environmental Assessment/Finding of No

Significant Impact, Island School Updated Master Plan dated January 2013, attached hereto and incorporated herein by reference as Exhibit "6".

The Project is consistent with the standards for urban districts pursuant to HAR § 15-15-18. The Project will have "city-like" concentrations of people, structures, streets and urban level of services, and the Project is proximately located to centers of trading and employment, accessible to basic services, has satisfactory topography, reasonably free from adverse environmental effects, contiguous with proposed urban areas, and Petitioner has also filed a Petition for County General Plan Amendment dated November 2, 2012 to amend the Petition Area from the County General Plan Agriculture designation to the Urban Center designation which was approved on March 13, 2013.

11. Projected Number of Lots, Lot Size, Number of Units, Densities, Selling Price, Intended Market and Development Timetables. The Project does not include any marketable units or lots. Petitioner anticipates completion of the Project by 2027.

12. Environmental Impact. Exhibit "6" to this Petition is the Final Environmental Assessment/Finding of No Significant Impact, Island School Updated Master Plan dated January 2013 ("EA") prepared for Petitioner's Petition for County General Plan Amendment and accepted by the Kaua'i County Planning Department upon a finding of no significant impact.

13. Description of the Property, Surrounding Area and Use of Land. The Petition Area was previously in sugar cane cultivation by the Lihu'e Plantation Company, Ltd. until the late 1980s. Since the 1990's, the majority of the Petition Area of approximately 30 acres encompassing the western and central portions of the site, has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; open space; school parking; and, road access. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas.

Land uses bordering the Petition Area include the University of Hawai'i's Kaua'i Community College campus to the southwest/south; a reservoir to the south; undeveloped, vegetated lands owned by Grove Farm Company, Inc. to the north; and, an agro-tourism venture operated by Kaua'i Kilohana Partners, dba Kilohana Plantation, to the east on property owned by Grove Farm Company, Inc.

Other surrounding land uses in the nearby vicinity include Kilohana Plantation to the southeast; Kaumuali'i Highway to the south; two Hawaiian Language Immersion schools, including Punana Leo o Kaua'i Preschool and Kawaikini New Century Public Charter School, located to the south within the Kaua'i Community College property; a water storage tank located to the southwest; and, undeveloped,

vegetated lands owned by Grove Farm Company, Inc. to the west, north and east. See page 1-6 of Exhibit "6".

Across Kaumuali'i Highway from Kauai Community College to the south is the town of Puhi, with retail businesses, residences and light industrial uses. Further east along the highway, opposite the access road to Kauai Community College and Island School, is Chiefess Kamakahelei Middle School and the YMCA at the intersection of Nuhou Street. About a half-mile further east along the highway, on the south side, are Kukui Grove Shopping Center, Home Depot, Costco and K-Mart. Lihue is about another half-mile further east along the highway.

14. Soils Classification, Agricultural Lands of Importance to the State of Hawaii, and Productivity Rating. The U.S. Department of Agriculture Natural Resources Conservation Service classifies the soils within the Petition Area as the Puhi series and rough broken land.

The predominant soil type within the Petition Area is classified as Puhi silty clay loam, 3 to 8 percent slopes (PnB), with a sliver along the southwestern boundary classified as Puhi silty clay loam, 8 to 15 percent slopes (PnC). This soil type is well-drained, developed in material derived from basic igneous rock, and occurs on broad interfluves on the uplands. The representative profile of the surface layer is brown silty clay loam, about 12 inches thick. The subsoil, about 48 inches thick, is reddish-brown and dark reddish brown silty clay loam and silty clay that has

subangular blocky structure. The substratum is silty clay. Runoff is slow and erosion hazard is slight.

A sliver within the northeastern portion of the Petition Area is classified as rough broken land (rRR). This soil type consists of very steep land broken by numerous intermittent drainage channels. It occurs in gulches and on mountainsides, and in most places it is not stony. These soils are variable, and are 20 to more than 60 inches deep over soft, weathered rock. In most places, some weathered rock fragments are mixed with the soil material. Small areas of rock outcrop, stones, and soil slips are common. Runoff is rapid, and geologic erosion is active.

The *Detailed Land Classification – Island of Kaua`i* published by the University of Hawai`i Land Study Bureau (LSB) evaluates the quality or productive capacity of certain lands on the Island for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established, with “A” representing the class of highest productivity and “E” the lowest. The Petition Area is classified as “B” rated soils which are considered to have good attributes for agricultural productivity.

The State Department of Agriculture’s *Agricultural Lands of Importance in the State of Hawai`i* (ALISH) established a classification system for identification of agriculturally important lands. Three classes of lands were established for the State, primarily, but not exclusively, on the basis of soil characteristics. The three classes of

ALISH lands are Prime Agricultural Land, Unique Agricultural Land, and Other Important Agricultural Land. Lands not included under this system are “unclassified”. The majority of the Petition Area is classified as Prime Agricultural Land, except for slivers of land within the northeast and southern portions which are unclassified. See page 3-1 through 3-2 of Exhibit “6”.

15. Topography. The topography of the Petition Area is gently sloping at approximately 3 percent, ranging in elevation from approximately 400 feet above mean sea level (msl) at the northwestern portion to about 350 feet above msl at the eastern portion. See page 3-1 of Exhibit “6”.

16. Assessment of the Impacts of the Proposed Development on the Environment. A discussion of the impacts of the Project on the environment is summarized herein and detailed in Petitioner’s EA.

a. Flora. A botanical survey of the Petition Area was conducted by AECOS Consultants in September 2010. The botanical survey report is included as Appendix A of Exhibit “6”. The vegetation within the undeveloped areas of the Petition Area consists of mixed areas of moderately open to closed forest, shrubland, and grassland. Forest tends to predominate, with mostly mature macaranga (*Macaranga tanarius*) and albizia (*Falcataria moluccana*) trees. Other species include Christmas berry (*Schinus terebinthifolius*), octopus plant (*Schefflera actinophylla*), and Java plum (*Syzygium cuminii*). Groundcover and understory shrubs and vines varied considerably from area

to area. No plant species currently listed as endangered, threatened, or proposed for listing under either the Federal or State of Hawai'i endangered species programs were recorded as growing naturally within the Petition Area. Several listed species observed were ornamentals in a Hawaiian native plant garden. See page 3-13 of Exhibit "6".

b. Fauna. A fauna survey of the Petition Area was conducted by Rana Biological Consulting, Inc. in September 2010. The fauna report is included as Appendix A of Exhibit "6". A total of 221 individual birds of 22 species, representing 16 separate families, were recorded during the survey. Three of the species recorded, the Hawaiian Goose or Nēnē (*Branta sandvicensis*), Common Moorhen (*Galinula chloropus sandvicensis*), and Hawaiian Coot (*Fulica alai*) are all native and listed as endangered species under both Federal and State of Hawai'i endangered species statutes. The Nēnē population on Kaua'i is increasing at a fairly rapid pace, and it is likely that if this increase continues, human interactions with Nēnē will continue to rise over time on the Island. The Common Moorhen and Hawaiian Coot are relatively abundant and widespread on the Island. One other species recorded, the Pacific Golden-Plover (*Pluvialis fulva*), is an indigenous migratory shorebird species that nests in the high Arctic during the late Spring and Summer months, returning to Hawai'i and the tropical Pacific to spend the Fall and Winter months each year. Another, the Black-crowned Night-Heron (*Nycticorax nycticorax hoactli*), is an indigenous resident breeding species. The remaining 17 species recorded are all considered to be alien to the

Hawaiian Islands. Avian diversity and densities were in keeping with the highly manicured nature of the majority of the Petition Area, and its location in the lowlands of Kauaʻi. Three species, the Chestnut Munia (*Lonchura atricapilla*), Zebra Dove (*Geopelia striata*), and Common Myna (*Acridotheris tristis*), accounted for slightly less than 52 percent of all birds recorded during the station counts. The most commonly recorded species was the Chestnut Munia, which accounted for slightly more than 21 percent of the total number of individual birds recorded. Although not detected during the survey, it is probable that the Hawaiian endemic sub-species of the Short-eared Owl, or Pueo (*Asio flammeus sandwichensis*) use resources in the general project area, as they are regularly seen foraging over open fields in the low- to mid-elevation areas on the Island. Two other species not detected during the survey, the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) have been recorded flying over the Petition Area between April and the end of November each year. Additionally, the Save Our Shearwaters Program has recovered both species from the general Petition Area on an annual basis over the past three decades. There are no nesting colonies or appropriate nesting habitat for either of these listed seabird species within or close to the Petition Area. By letter dated September 14, 2012, in response to the pre-assessment consultation conducted for this Draft EA, the USFWS stated that the Band-rumped Storm Petrel (*Oceanodroma castro*), a candidate for listing, may fly over the Petition Area.

In addition, the USFWS stated the federally endangered Hawaiian stilt (*Himantopus mexicanus*) and endangered Hawaiian duck (*Anas wyvilliana*) may also be present in the vicinity of the project site (letter dated December 26, 2012 in response to Draft EA, see Appendix F of Exhibit "6").

Mammalian species detected during the survey include a dead cat (*Felis c. catus*), and tracks and sign of both dog (*Canis f. familiaris*) and pig (*Sus s. scrofa*). The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or `ōpe`ape`a as it is known locally, was not detected during the survey, although bats have been recorded within the general Petition Area on a regular basis. Hawaiian hoary bats are widely distributed in the lowland areas on Kaua`i, and have been documented in and around almost all areas that still have some dense vegetation. Although no rodents were detected during the survey, it is likely that the four established alien muridae found on Kaua`i, the Roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), European house mouse (*Mus musculus domesticus*), and possibly Polynesian rat (*Rattus exulans hawaiiensis*) use various resources found within the general Petition Area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them. No mammalian species protected or proposed for protection under either the Federal or State of Hawai`i endangered species programs were detected within the Petition Area during the survey.

There is no Federally delineated Critical Habitat present within or adjacent to the Petition Area. See page 3-14 of Exhibit “6”.

c. Groundwater and Surface Water. The Petition Area is located within the Līhu`e Aquifer Sector Area. The Līhu`e Aquifer Sector Area is comprised of five Aquifer System Areas identified as the Kīlauea, Anahola, Wailua, Hanamaulu, and Kōloa Aquifer System Areas. The Petition Area is located within the Hanamaulu Aquifer System Area. The State Department of Land and Natural Resources (DLNR), Commission on Water Resource Management (CWRM) has adopted a sustainable yield of 36 million gallons per day (mgd) for this aquifer. The Petition Area is not within a Ground Water Management Area as designated by DLNR CWRM. No significant impacts on ground water are anticipated as a result of the construction and development of the proposed project. Construction and operational activities associated with the proposed project are not likely to introduce to, nor release from the soil, any materials which could adversely affect ground water sources. See page 3-10 of Exhibit “6”.

There are no streams within the Petition Area. Nāwiliwili Stream is the nearest perennial stream, located approximately 300 feet north of the Petition Area at its closest point. Nāwiliwili Stream generally flows in a northwesterly to easterly direction in the vicinity of the Petition Area, and continues in a southeasterly direction to Nāwiliwili Bay. Puhi Stream flows in a southerly direction approximately 0.2 mile

west of the Petition Area at its closest point. Puhī Stream converges with Hoinakaunalehu Stream south of the Petition Area, forming Papakōlea Stream. Further south, Papakōlea Stream flows through the Hulē`ia National Wildlife Area before discharging into Hulē`ia Stream, which flows east to Nāwiliwili Bay.

Construction of the proposed project improvements will involve grading and excavation of presently undeveloped and developed areas within the Petition Area. Potential impacts to the quality of nearby surface waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, as administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage

improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project. See page 3-6 of Exhibit "6".

d. Archaeological and Historical Resources. An Archaeological Inventory Survey (AIS) was prepared by Cultural Surveys Hawai'i, Inc. in May of 2013. The scope of work for the AIS included historic and archaeological background research, ground survey and subsurface testing.

One historic property was identified: SIHP # 50-30-11-2179, Features A through D. Feature A is a reservoir, Feature B is an earthen ditch, Feature C is an earthen ditch with running water, and Feature D is an earthen ditch.

SIHP # 50-30-11-2179 (historic agricultural infrastructure) is part of a large historic agricultural district that was once extant throughout much of Nawiliwili. Portions of the district are still farmed today, but the agricultural infrastructure has lost its integrity through repeated modification, disuse and ground disturbance and cannot convey its historic functional significance as part of this larger district.

SIHP # 50-30-11-2179, Features C and D will be adversely affected by the proposed project. An archaeological monitoring program for features C and D in accordance with HAR Chapter 13-279 is recommended to mitigate the impacts of the project.

The AIS was accepted by the State Historic Preservation Division, Department of Land and Natural Resources ("SHPD") by letter dated March 31, 2014. The AIS and SHPD letter are attached hereto and incorporated herein by reference as Exhibit "7".

e. Cultural Resources. A cultural impact assessment (CIA) was undertaken by Cultural Surveys Hawai'i, Inc. in April 2014. The Area of Potential Effect and Survey Acreage for the CIA was defined as the 38.448 acre petition area and also included the two ahupua`a of Nāwiliwili and Niumalu.

In Ka Pa`akai v. Land Use Commission, 94 Hawai'i 31, 74, 7 P.3d 1068, 1084 (2000), the Court held the following analysis be conducted:

(1) The identity and scope of valued cultural, historical, or natural resources in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;

(2) The extent to which those resources – including traditional and customary native Hawaiian rights – will be affected or impaired by the proposed action; and

(3) The feasible action, if any, to be taken by the LUC to reasonably protect native Hawaiian rights if they are found to exist.

The CIA found that there are no known traditional and customary native Hawaiian rights exercised in the petition area. Under the Ka Pa`akai Case, the required analysis therefore ends after the determination that there are no known traditional and customary native Hawaiian rights exercised in the petition area.

Should cultural or burial sites be identified during future ground disturbance in the project area, all work will immediately cease and the appropriate agencies will be notified pursuant to applicable law. The CIA is attached hereto and incorporated herein by reference as Exhibit "8".

f. Agriculture. The proposed project will not have a significant impact on the conversion of agricultural-designated land within the Petition Area. The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990. Further, no intensive agricultural activities presently occur within the Petition Area.

The project will not have a significant impact on adjoining or nearby agricultural lands as the proposed updated master plan improvements will occur entirely within the Petition Area, of which the majority of the site is currently developed as the Island School campus. See page 3-17 of Exhibit "6".

g. Air and Noise Quality. Air quality in the vicinity of the Petition Area is generally good, with prevalent northeasterly tradewinds during most of the year. Within the nearby vicinity of the Petition Area, air quality is primarily affected by vehicular-related emissions in the form of carbon monoxide (CO) generated from traffic traveling along Kaumuali'i Highway and other nearby roadways. In the short-term, there will be air quality impacts related to construction activities, including fugitive dust generated by soil disturbance, and emissions from construction vehicles and

equipment and commuting construction workers. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, "Air Pollution Control". The construction contractor(s) will be responsible for complying with the State DOH regulations that prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control fugitive dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. Exhaust emissions from construction vehicles are anticipated to have negligible impact on air quality in the vicinity of the Petition Area as the emissions would be relatively small and readily dissipated. In the long-term, no significant impacts on ambient air quality are anticipated with the development of the proposed project. The ambient air quality levels would be most affected by vehicular emissions in the form of CO generated by project-related traffic, although the elevated concentrations are anticipated to be nominal and dissipate.

Ambient noise in the vicinity of the Petition Area is predominantly attributed to vehicular traffic along Kaumuali'i Highway. Unavoidable short-term construction noise impacts will be mitigated to some degree by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations which require a noise permit if the noise levels from

construction activities are expected to exceed the allowable noise levels stated in the Rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the State DOH noise control regulations must be adhered to. In the long-term, no significant impacts on ambient noise levels are anticipated from the development of the proposed project. Ambient noise levels in the vicinity of the Petition Area will increase slightly as a result of the associated minimal increase in vehicular traffic generated by the proposed project. Operation of the proposed project will potentially generate slightly increased noise during school hours due to additional students, faculty, and school and service-related activities. See page 3-18 of Exhibit "6".

h. Scenic and Open Space Resources. The Petition Area is not visible from public vantage points due to its inland location and distance from Kaumuali'i Highway, the nearest public roadway. The Petition Area is located approximately 0.4-mile mauka of Kaumuali'i Highway at its closest point, and is visually buffered by vegetation and the adjacent Kaua'i Community College campus located between the southern boundary of the site and the Highway. The visual environment of the remaining areas surrounding the Petition Area is of expansive undeveloped, vegetated

lands, and agricultural cultivation. No significant visual or aesthetic impacts are anticipated as a result of the proposed project. See page 3-26 of Exhibit "6".

17. Availability or Adequacy of Public Services and Facilities.

a. Roadways and Public Transportation. A Traffic Impact Report (TIR) for the proposed project was prepared by Wilson Okamoto Corporation in December 2010. The purpose of the TIR is to assess the traffic impacts resulting from the implementation of the Island School's updated master plan, and to identify recommendations of improvements, if appropriate, that would mitigate the traffic impacts. The TIR is included as Appendix D to Exhibit "6".

Existing roadways within the vicinity of the Petition Area include Kaumuali'i Highway, Puhi Road, Nani Street, and Nuhou Street. At the time that the TIR was prepared, the ongoing widening of Kaumuali'i Highway from two to four lanes had not reached the segment fronting the Petition Area. Hence, the TIR is based on conditions at the intersections of Kaumuali'i Highway with Nuhou and Puhi Roads and Nani Street at the time it was conducted.

Traffic operations in the vicinity were evaluated in three scenarios: 1) existing; 2) year 2020 without Project; and 3) year 2020 with Project. Traffic operations in the vicinity in year 2020 without Project are expected to improve in comparison to the existing conditions, and the traffic operations in the vicinity in year 2020 with Project are expected to be substantially the same as year 2020 without Project.

Based on the analysis of the traffic data, the following are the recommendations of the TIR with the proposed project:

1. Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
2. Maintain adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Maintain adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on-site to avoid vehicle-reversing maneuvers onto public roadways.
4. Maintain sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. If the implementation of Island School's updated master plan is not completed by the Year 2020, prepare an updated Traffic Impact Report that incorporates a revised project completion year.

In addition to the above, both Island School and Kaua'i Community College funded the construction of the roadway extension creating a second connection to Kaumualii Highway for both campuses. Kaua'i Community College and Island School each contributed approximately \$500,000 towards the completion of the roadway extension.

To reduce the use of automobiles, ongoing sustainable transportation options by Island School include providing bus transportation between home and school for students residing within the North Shore and eastern areas of the Island; implementing car pooling for students and staff; and, encouraging bicycling and

walking by students residing near the campus by way of the sidewalks/pedestrian pathways along the existing loop road providing access to the school. See page 3-26 of Exhibit "6".

b. Water System. Potable water service for the Island School campus is provided by the County Department of Water's (DOW) Puhi 510-foot water system. A booster pump station located at the DOW's Puhi 393-foot water reservoir site provides source from the 393-foot water system to the 510-foot system. The Island School campus is currently served by a two-inch water meter, which has a maximum flow of 9,600 gallons per hour.

Island School currently has an agreement to utilize irrigation water from Grove Farm Company, Inc.'s irrigation ditch system which traverses within the Petition Area. Since rainfall is mostly sufficient for irrigation of landscaping within the campus, Island School has generally not utilized much irrigation water, except for a minimal amount for landscaping adjacent to the buildings over the past 20 years.

The projected average daily water demand for the proposed project is approximately 4,700 gpd. The Petitioner will consult with the County DOW on the adequacy of the existing water system to accommodate the proposed project improvements.

Island School will continue to have use of irrigation water from Grove Farm Company, Inc.'s irrigation ditch system, as needed. The projected average

demand for irrigation water for the Island School campus with the updated master plan improvements is approximately 65,000 gpd. As the average flow of the irrigation ditch within the Petition Area is approximately 1.0 mgd, the irrigation water system would be adequate to meet the irrigation demands of the proposed project. See page 3-38 of Exhibit "6".

c. Wastewater System. Wastewater service for the Island School campus is provided by Aqua Engineers' Puhi Wastewater Treatment Plant (WWTP) located southeast of the Petition Area and makai of Kaumuali'i Highway. The privately-owned and operated WWTP currently has a design capacity of 1.0 million gallons per day (mgd), and is expandable to 3.0 mgd. The WWTP currently operates at R-1 effluent quality standards, the highest level of effluent quality regulated by the State. The WWTP currently treats approximately 400,000 gallons per day (gpd) of wastewater. The treated effluent is used to irrigate the nearby Puakea Golf Course. The existing wastewater transmission system for the Island School campus includes a network of sewer lines varying in diameter from eight to 27 inches between the WWTP and Kaua'i Community College campus, from six to eight inches within the Kaua'i Community College campus, and six inches with the Island School campus.

The projected average wastewater flow for the proposed project is approximately 13,900 gpd, with a peak flow of approximately 88,400 gpd. The Puhi

WWTP has sufficient capacity to serve the proposed project. See page 3-37 of Exhibit "6".

d. Drainage. Currently, storm runoff from the Petition Area sheetflows to three existing plantation-era irrigation ditches located within the site, and one existing plantation-era irrigation ditch located adjacent to and south of the site, and is then directed to an existing adjacent reservoir. The ditches and reservoir are part of Grove Farm Company, Inc.'s (formerly Līhu`e Plantation Company, Ltd.'s) irrigation system. The ditch identified as CSH 2, located along the western and southwestern boundaries of the Petition Area, collects storm runoff from the western portion of the Island School campus. The ditch identified as CSH 3, located within the eastern portion of the Petition Area, is an active irrigation ditch that enters the Petition Area from the north and feeds into the reservoir adjacent to the south-central boundary of the Petition Area. The ditch identified as CSH 4, located along the southeastern boundary of the Petition Area, is fed by the adjacent reservoir. The irrigation ditch located south of the Petition Area flows out of the adjacent reservoir, and also collects storm runoff from the Island School campus.

Potential impacts to the quality of nearby surface waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction

Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project. See page 3-38 of Exhibit "6".

e. Electrical, Telephone, and Cable Television Services. Electrical service to the Island School campus is provided by Kaua'i Island Utility Cooperative (KIUC) via an underground duct system to a pad-mounted transformer. In addition, a 200 kW solar photovoltaic facility has been constructed, and is currently operational, on an approximately one-acre site within the northeast portion of the Petition Area. The solar photovoltaic facility includes more than 1,200 solar panels that will generate clean, renewable solar energy to meet the daytime needs of the Island School campus.

Data/telephone service to the Island School campus is provided by Hawaiian Telcom via an underground duct system to distribution equipment located within an electrical room. Fifty (50) pairs are provided to the distribution equipment, with 13 pairs currently in use.

Cable television (CATV) to the Island School campus is provided by Oceanic Time Warner Cable via an underground duct system to distribution equipment located within an electrical room. See page 3-39 of Exhibit "6".

f. Police and Fire Protection. Police protection service for the project area is provided by the County Police Department's Līhu`e Headquarters, Sectors 4 to 6, located approximately 2.7 miles east of the Petition Area at 3990 Kā`ana Street.

Fire protection service for the project area is provided by the County's Līhu`e Fire Station located at 4223 Rice Street, approximately 2.1 miles east of the Petition Area. See page 3-35 of Exhibit "6".

g. Educational Facilities. The Project does not include a market/commercial residential component and will not require educational facilities.

h. Recreational Facilities. The Project does not include a market/commercial residential component and will not require recreational facilities.

i. Solid Waste Disposal. The County Department of Public Works (DPW) maintains an Island-wide solid waste collection and disposal system. The existing Kekaha Landfill, located 1.3 miles northwest of the town of Kekaha on the

southwest side of the Island, is the primary disposal site for solid waste on the Island. The County is currently seeking a lateral and/or vertical expansion of the Kekaha Landfill which could extend its capacity by about 12 years. The County is also seeking another landfill site as part of its long-term planning objectives.

Currently, refuse generated at the Island School campus is collected by a private refuse collection company and transported to the Kekaha Landfill for disposal.

During construction of the project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the County's Kekaha Landfill.

Refuse generated by the Project will continue to be collected by a private refuse collection company and transported to the County Landfill (currently Kekaha Landfill) for disposal. During operation of the project, it is estimated that approximately 0.75 tons of solid waste will be generated per week for disposal at the County's landfill. See page 3-37 of Exhibit "6".

j. Medical Facilities. Emergency medical service is provided by American Medical Response, a private ambulance service contracted by the County to provide ambulance and paramedic services, located at 3277 Palai Street, approximately 2.3 miles northeast of the Petition Area.

Health care services are available at the Wilcox Memorial Hospital located at 3420 Kūhiō Highway, approximately 2.2 miles northeast of the Petition Area. Wilcox

Memorial Hospital consists of the main clinic and hospital that provides men's, women's, and children's health care services, specialty services, elderly care, family support, a long-term care units, and education and prevention services. See page 3-35 of Exhibit "6".

18. Location of the Proposed Development to in Relation to Adjacent Land Use Districts and Centers of Trading and Employment. The Petition Area is adjacent to lands in the Agricultural District, including the Kaua'i Community College which is currently seeking reclassification to the Urban District. Centers of trading and employment close to the Project include the urban communities of Puhi and Lihue containing residential, commercial and industrial centers. See page 1-6 of Exhibit "6".

19. Economic Impacts of the Proposed Development. In the short term, the proposed project will bring about positive benefits to the local economy. This would include increased expenditures for construction, construction-related jobs and tax revenue. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

In the long-term, the project will contribute toward positive economic benefits through the employment of labor associated with the increased faculty and staff associated with the updated master plan improvements. An increase of

approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in the student enrollment to approximately 500 students. See page 3-32 of Exhibit “6”.

20. Housing Needs of Low Income, Low-moderate Income and Gap Groups.

The Project does not include a market/commercial residential component and the County’s workforce housing ordinance is not applicable.

21. Need for the Reclassification. Petitioner’s updated Island School master plan is to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students projected over a ten-year period. Petitioner believes that the additional 130 students increase is sufficient to meet the projected future need. Reclassification is consistent with the adjacent Kaua’i Community College which is also seeking reclassification to the Urban District. See page 2-1 of Exhibit “6”.

22. Hawai’i State Plan. The proposed project is consistent with the following Hawai’i State Plan objectives and policies:

Section 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources.

(b)(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai’i.

The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell’s Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor

lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.

Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species

awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.

The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation, including woody plants greater than 15 feet, along the periphery of the Petition Area should not occur between June 1 to September 15, when bats may be carrying young and potentially could be at risk by such clearing activities.

Section 226-12 Objectives and policies for the physical environment—scenic, natural beauty, and historic resources.

(b)(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai`i's ethnic and cultural heritage.

During the field inspection survey conducted in conjunction with the archaeological literature review for the Petition Area, a total of four historic surface features related to the Lihu`e Plantation Company, Ltd.'s plantation-era infrastructure were observed. The surface features consist of a reservoir located on a separate parcel adjacent to the south-central portion of the Petition Area (CSH 1), and three irrigation

ditches (CSH 2, CSH 3, and CSH 4), two of which are associated with the adjacent reservoir. All of the surface features are currently in use. Based on an evaluation for significance according to the criteria established for the Hawai'i Register of Historic Places, no additional work appears to be necessary for the four features.

The proposed project improvements are not anticipated to have an adverse effect on the historic features related to plantation-era infrastructure. While no additional work appears to be necessary, consultation with the SHPD is being conducted to determine mitigation, if any, which may be appropriate for the plantation infrastructure features that have been recommended for no further work.

Should any previously unidentified burial, archaeological or historic sites be found during the course of construction of the proposed project, the Petitioner will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and, as necessary, the Kaua'i/Ni'ihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

Aside from the four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are

anticipated to be found within the Petition Area. Based on these findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices.

Section 226-13 Objectives and policies for the physical environment – land, air, and water quality.

(b)(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.

(b)(7) Encourage urban developments in close proximity to existing services and facilities.

Potential impacts to the quality of nearby surface and near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage

improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

The Petition Area is located within Puhī and in close proximity to Līhu`e, areas which provide existing urban levels of services and facilities, such as civic, schools, Kaua`i Community College, retail/commercial, light industrial, resort, and parks/recreational facilities.

Section 226-21 Objectives and policies for socio-cultural advancement—education.

(b)(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

(b)(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

Island School is Kaua`i's largest private, non-sectarian, independent school accommodating Grades Pre-K through 12, and has a current enrollment of approximately 370 students. Island School's mission is to prepare its students to live productive, fulfilling lives as confident, responsible life-long learners and contributing members of society; to express fully the talents of its faculty and administration through a challenging curriculum that prepares students for successful higher education; and, to provide a safe, nurturing environment that fosters creativity, critical thinking, initiative, and respect for self and others.

The proposed update of the Island School master plan will accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of

approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment. The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, baseball field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces.

Part III. Priority Guidelines

The purpose of establishing priority guidelines is to address areas of Statewide concern. The proposed project is consistent with the following priority guidelines:

Section 226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:

(1) Encouraging balanced economic, social, community, and environmental priorities.

(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.

The project proposes to incorporate Leadership in Energy and Environmental Design (LEED) standards and strategies, to the extent deemed economically feasible, to achieve sustainable site, utilities and building development. Green principles and strategies that are ongoing, or may be created for the proposed project, include those associated with sustainable sites, energy and water efficiency, building design, sustainable transport, and waste stream diversion as further discussed in Section 2.3 of this document.

In addition to these green principles and strategies, Island School will continue the following programs and activities toward achieving sustainability education, both within the campus and in the broader community.

- Kaua'i BOTS is an Island School robotics program that allows participation by students from Kaua'i's three public high schools. Approximately 40 percent of the participants in this cooperative program are public school students, thereby promoting efficient use of resources.
- Approximately 35 organizations currently utilize facilities at Island School, 27 of which do so on a recurring basis. This sharing of facilities reduces the demand for construction of new facilities to serve these organizations.
- Island School has a cooperative program with its neighboring Kaua'i Community College. In addition to receiving committee advisory assistance, the advanced students at Island School have the opportunity to take college level courses at the college. Such sharing of resources promotes sustainability.
- Island School is helping to establish a community garden within its campus through a private grant. The plan is to allow members of the Puhī community to participate in food production and share their gardening knowledge with Island School students.

See page 4-9 of Exhibit "6".

23. Hawai'i Coastal Zone Management ("CZM") Program. The National Coastal Zone Management (CZM) Program was created through passage of the Coastal Zone Management Act of 1972. Hawai'i's CZM Program, adopted as Chapter 205A, HRS, provides a basis for protecting, restoring and responsibly developing coastal communities and resources. The coastal zone management area is defined as all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the United States territorial sea (§ 205A-1, HRS). A discussion of the project's consistency with the objectives and policies under § 205A-2, HRS, of the CZM Program is provided at page 4-12 of Exhibit "6".

24. County of Kaua'i General Plan. The County of Kaua'i General Plan (2000) provides broad policy statements to guide land use regulations, new developments and facilities, and planning for County facilities and services.

On or about November 2, 2012, Petitioner filed its Petition for County General Plan Amendment to amend the County General Plan Land Use Map for the Petition Area from the Agriculture designation to the Urban Center designation.

The Council of the County of Kaua'i approved the petition and passed Ordinance No. PM-2013-404 on March 13, 2013 and changed the Petition Area from "Agriculture" to "Urban Center".

The amendment to the Urban Center designation is consistent with the existing Urban Center designation of the adjacent Kaua'i Community College campus,

as well as lands to the south, makai of Kaumuali'i Highway. Further, the amendment does not have a significant impact on adjoining or nearby agricultural lands as the proposed updated master plan improvements will occur entirely within the Petition Area, of which the majority of the site is currently developed as the Island School campus. See page 4-19 of Exhibit "6".

25. County of Kaua'i Lihu'e Development Plan. The County's Lihu'e Development Plan, adopted by County ordinance in 1976, provides physical, social and economic measures which relate specifically to these communities. The Lihu'e Development Plan was amended on June 3, 2015 and Petition Area is designated for urban use. See page 4-23 of Exhibit "6".

26. County of Kaua'i Comprehensive Zoning Ordinance. The County's Comprehensive Zoning Ordinance (CZO) establishes procedures for the division of the County into land use districts, and creates regulations for the types, size, placement, and control of structures within various zoning district classifications. The CZO also delineates the respective types of permitted uses and the development that can take place in those zoning districts.

The zoning designations for the Petition Area are Agriculture District (A) and Open District (O). A Use Permit will be required since the proposed school improvements are not generally permitted within the Agriculture District (A) and Open District (O). A Class IV Zoning Permit will be required because a Use Permit is being

sought. The application for Use Permit and Class IV Zoning Permit is processed by the County Planning Department and approved by the County Planning Commission. See page 4-24 of Exhibit "6".

27. County of Kaua`i Special Management Area. The Hawai`i Coastal Zone Management (CZM) Act (Chapter 205A, HRS) is the basis of the Hawai`i CZM Program as discussed in Section 4.3 of Exhibit "6". The Act establishes objectives, policies and guidelines upon which all counties within the State have structured specific legislation which designated Special Management Areas (SMA). Any development located within the SMA requires a County-issued SMA permit, which on Kaua`i is administered by the County Planning Department. The Petition Area is located outside of the SMA boundaries and, therefore, does not require a SMA Use Permit. See page 4-24 of Exhibit "6".

28. Development of the Property. Development of the Property will be substantially completed within ten (10) years after the date of the Commission's approval.

29. Hawaiian Customary and Traditional Rights. Petitioner is aware of and sensitive to the existence and practice of native Hawaiian customary and traditional rights that are protected by Article XII, Section 7 of the Hawai`i State Constitution. Based on research into the history of the area, there are no known traditional gathering

activities or cultural practices affecting the Property. A cultural impact assessment for the Property has been prepared and is included in Exhibit "6".

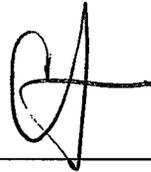
30. Written Comments from Agencies and Organizations. Written comments from agencies and organizations are included in Exhibit "6".

Based on the foregoing, Petitioner respectfully requests that the Commission finds that the Petition meets the standards for determining Urban District boundaries pursuant to HAR § 15-15-18, and amends the land use district boundary of the Property from the State Land Use Agricultural District to the State Land Use Urban District.

DATED: Honolulu, Hawai'i, December 2, 2016.

Of Counsel:

MATSUBARA, KOTAKE & TABATA
A Law Corporation



BENJAMIN M. MATSUBARA
CURTIS T. TABATA
Attorneys for Petitioner
ISLAND SCHOOL

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of) DOCKET NO. A16-800
)
ISLAND SCHOOL) ISLAND SCHOOL
)
To Amend the Agricultural Land Use)
District Boundary into the Urban District for)
approximately 38.448 acres at Puhi, Lihu`e,)
Island of Kauai, State of Hawai`i,)
TMK: (4) 3-8-002: 016)
_____)

VERIFICATION

STATE OF HAWAII)
) ss.:
COUNTY OF KAUAI)

David W. Pratt, being first duly sworn, on oath, deposes and says that:

1. I am the Vice President of ISLAND SCHOOL ("Petitioner"), and in this capacity I am familiar with matters relating to the land which is the subject of Docket No. A16-800 and knowledgeable to testify on behalf of the Petitioner.

2. I have personal knowledge of the matters set forth in the foregoing Petition in Docket No. A16-800 and am qualified and competent to make this verification.

3. I make this verification pursuant to HAR § 15-15-39, Land Use Commission Rules.

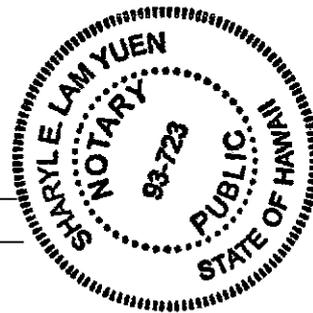
4. I have read the foregoing document and the contents therefore are true and correct to the best of my knowledge and belief.

Dated: Lihue, Kaua'i, Hawai'i, June 4, 2014.

David W Pratt
DAVID W. PRATT

Subscribed and sworn to me
this 4th day of JUNE 2014

Sharyl E. Lam Yuen
Name Sharyl E. Lam Yuen
Notary Public, State of Hawai'i
My commission expires: 12/16/2017



NOTARY CERTIFICATE (Hawai'i Administrative Rules § 5-11-8)

Document Identification or Description: Verification

Doc. Date: June 4, 2014 No. of Pages: 2

Jurisdiction: Fifth Circuit
(in which notarial act is performed)

Sharyl E. Lam Yuen 6/4/14
Signature of Notary Date of Certificate

Sharyl E. Lam Yuen
Printed Name of Notary

(Official Stamp or Seal)

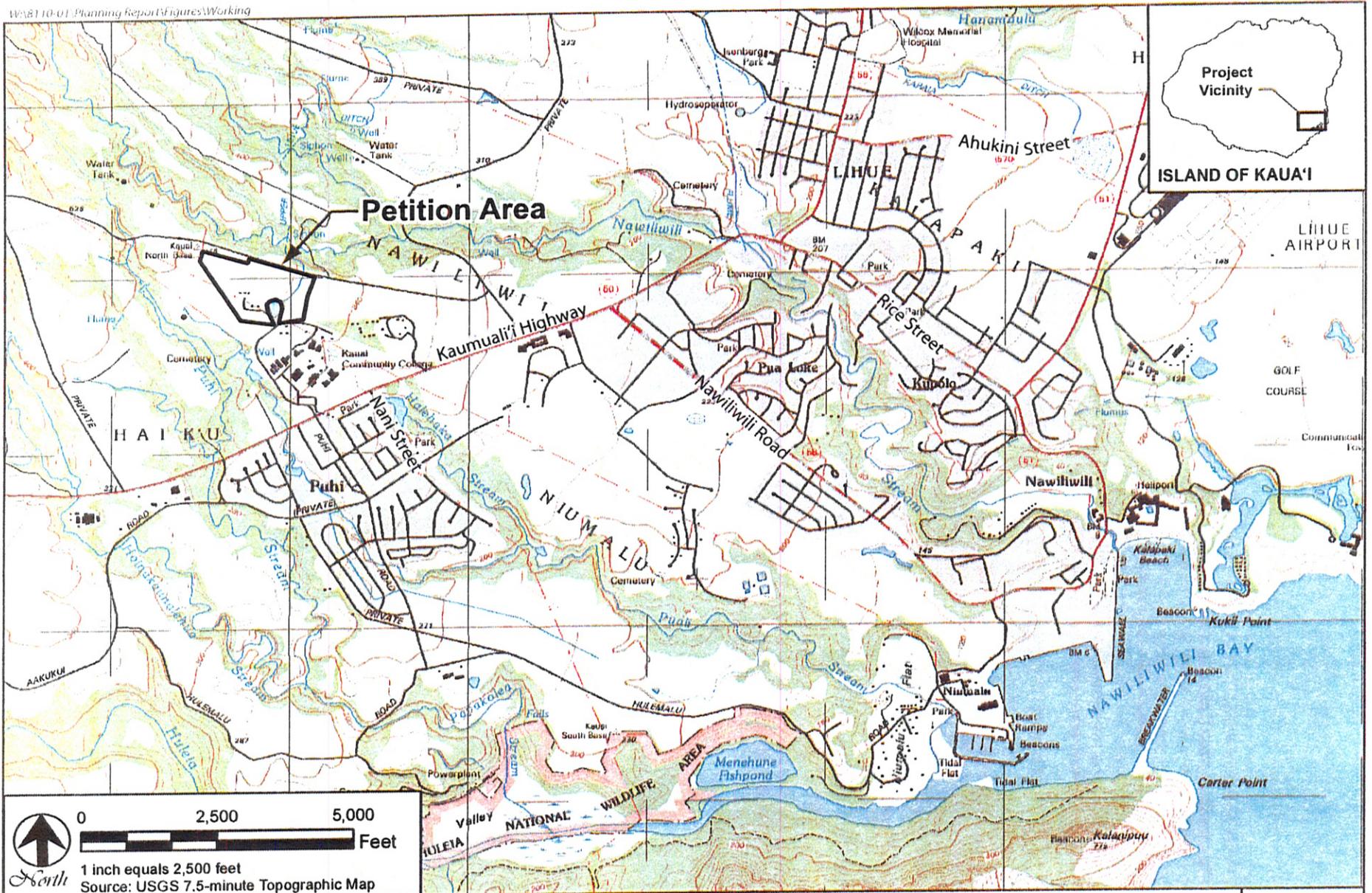


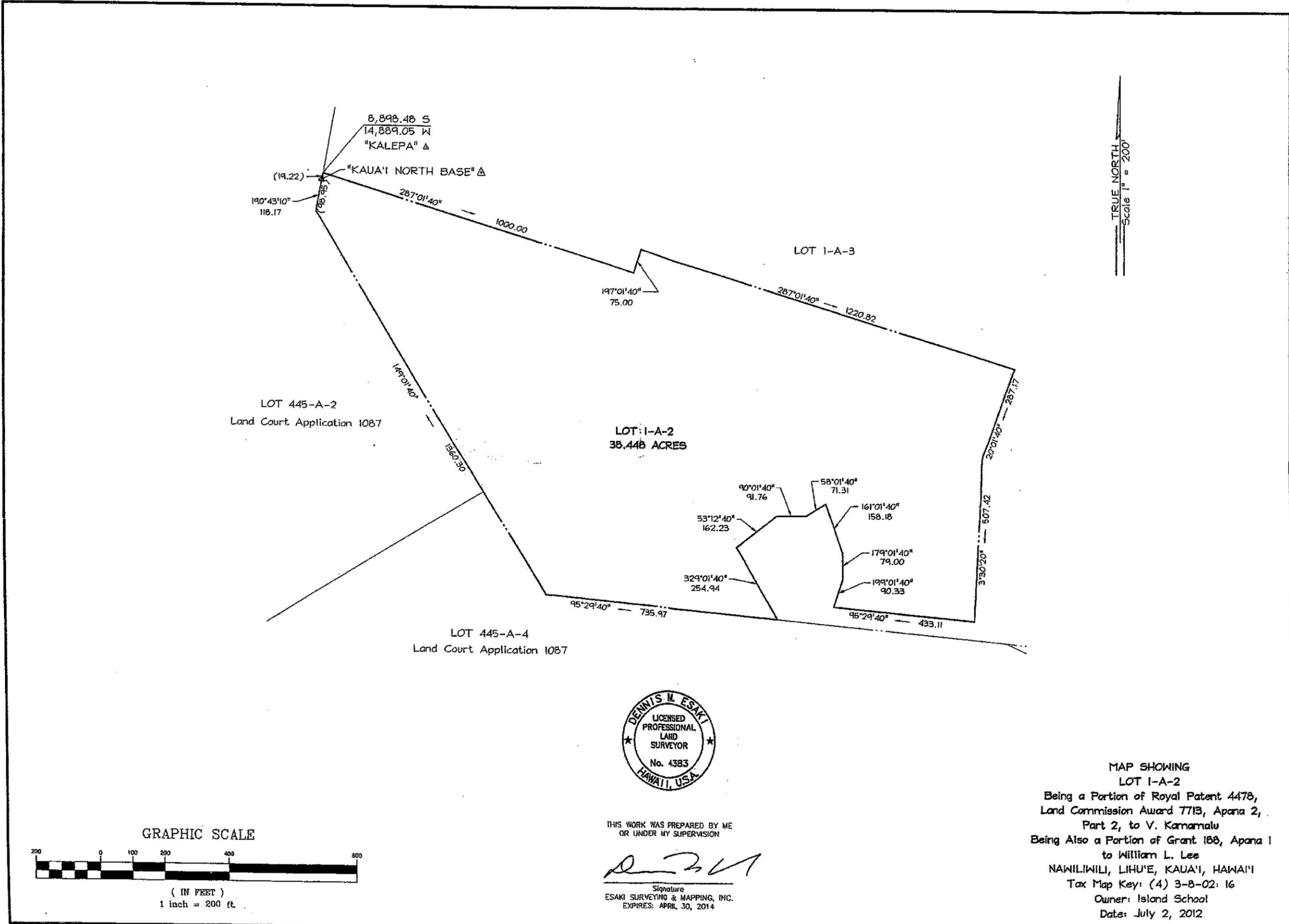
EXHIBIT "1"

Island School Updated Master Plan

LOCATION MAP

FIGURE

1



Job Number: 08-75 JH
 Drawing File: 08-75(boundary).dwg

ESKI SURVEYING & MAPPING, INC.
 Civil Engineers - Land Surveyors - Planners

1610 Haleukana Street
 Lihue, Kauai, Hawaii 96766

EXHIBIT "2"

LOT 1-A-2

LAND SITUATED AT NAWILIWILI, LIHUE, KAUAI, HAWAII

Being a Portion of L. C. Aw. 7713:2, Part 2 to V. Kamamalu
 Being Also a Portion of Grant 188:1

Beginning at the north corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KALEPA" being 8,898.35 feet South and 14,888.66 feet West, thence running by azimuths measured clockwise from true South:

1.	287° 00'	1000.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
2.	197° 00'	75.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
3.	287° 00'	1220.82	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
4.	20° 00'	287.17	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
5.	3° 28' 40"	507.42	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
6.	95° 28'	433.11	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
7.	199° 00'	90.33	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
8.	179° 00'	79.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
9.	161° 00'	158.18	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
10.	58° 00'	71.31	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
11.	90° 00'	91.76	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);

EXHIBIT "A"

Grantee Parcel

12.	53° 11'	162.23	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
13.	329° 00'	254.94	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
14.	95° 28'	735.97	feet along Land Court Application 1087;
15.	149° 00'	1360.30	feet along Land Court Application 1087;
16.	190° 41' 30"	118.17	feet along Land Court Application 1087, passing over North Base Triangulation Station at 98.95 feet, to the point of beginning and containing an area of 38.448 acres.



Lihue, Hawaii
December 2005

DESCRIPTION PREPARED BY:
ESAKI SURVEYING AND MAPPING, INC.

A handwritten signature in black ink, appearing to read "Dennis M. Esaki", written over a horizontal line.

Dennis M. Esaki
Licensed Professional Land Surveyor
Certificate Number 4383

All that certain parcel of land, situate at Lihue, Puna, Kauai, State of Hawaii, being Lot 445-A-1, area 98.749 acres, as shown on Map 51, Land Court Application No. 1087, said Lot being the premises described in Certificate of Title No. 157,535 issued to the grantor.

SUBJECT, HOWEVER, to:

1. Easement U as shown on Map 51 for roadway purposes in favor of the owner ~~of~~ owners of exclusion 1, as mentioned in Certificate of Title No. 157,535. *YH/18*
2. Easement 72 as shown on Map 51 designated for ditch purposes.
3. Easement 73 as shown on Map 51 designated for electrical and pipeline purposes.
4. Easement 74 as shown on Map 51 designated for ditch purposes.

EXHIBIT A

Grantor Parcel

EXHIBIT A

All that certain parcel of land, situate at Lihue, Puna, Kauai, State of Hawaii, being Lot 445-A-2, area 60.189 acres, as shown on Map 51, Land Court Application No. 1087, said lot being the premises described in Certificate of Title No. 157,536 issued to the Grantor.

SUBJECT, HOWEVER, to:

1. Easement U as shown on Map 51 for roadway purposes in favor of the owner or owners of Exclusion 1, as mentioned in Certificate of Title No. 157,536;
2. Easement 75 as shown on Map 51 designated for ditch purposes;
3. Easement 76 as shown on Map 51 designated for pipeline and electrical purposes;
4. Easement 77 as shown on Map 51 designated for pipeline purposes;
5. Easement 78 as shown on Map 51 designated for electrical purposes;
6. Easement 79 as shown on Map 51 designated for pipeline purposes;
7. Easement 80 as shown on Map 51 designated for ditch purposes;
8. Easement 90 as shown on Map 65 designated for roadway or farm utility purposes.

NOTE: Lot 445-A-2 will have access over Lot 445-A-3 to Kauai Belt Road (Kaunualii Highway), a public roadway, as set forth in Land Court Order No. 37170, filed March 29, 1973.

Grantor Parcel

EXHIBIT "A"

All of that certain parcel of land situate at Lihue, District of Lihue, Island and County of Kauai, State of Hawaii, described as follows:

LOT 445-A-3, area 39.939 acres, as shown on Map 51, filed in the Office of the Assistant Registrar of the Land Court of the State of Hawaii with Land Court Application No. 1087 of Grove Farm Company, Incorporated;

Being land(s) described in Transfer Certificate of Title No. 157,537 issued to Grove Farm Company, Incorporated, a Hawaii corporation.

SUBJECT, HOWEVER, to the following:

1. Designation of Easement "81," as shown on Map 51, as set forth by Land Court Order No. 37170, filed March 29, 1973.

2. Designation of Easement "82," as shown on Map 51, as set forth by Land Court Order No. 37170, filed March 29, 1973.

3. Unrecorded Lease dated January 31, 1992, by and between GROVE FARM COMPANY, INCORPORATED, a Hawaii corporation, Lessor," and 'AHA PUNANA LEO, a Hawaii corporation, "Lessee;" leasing and demising a portion of the land described herein being two former camp houses containing a combined floor area of approximately 1,840 square feet and an associated yard area of approximately 15,710 square feet, for a term of two years commencing on February 1, 1992.

Grantor Parcel

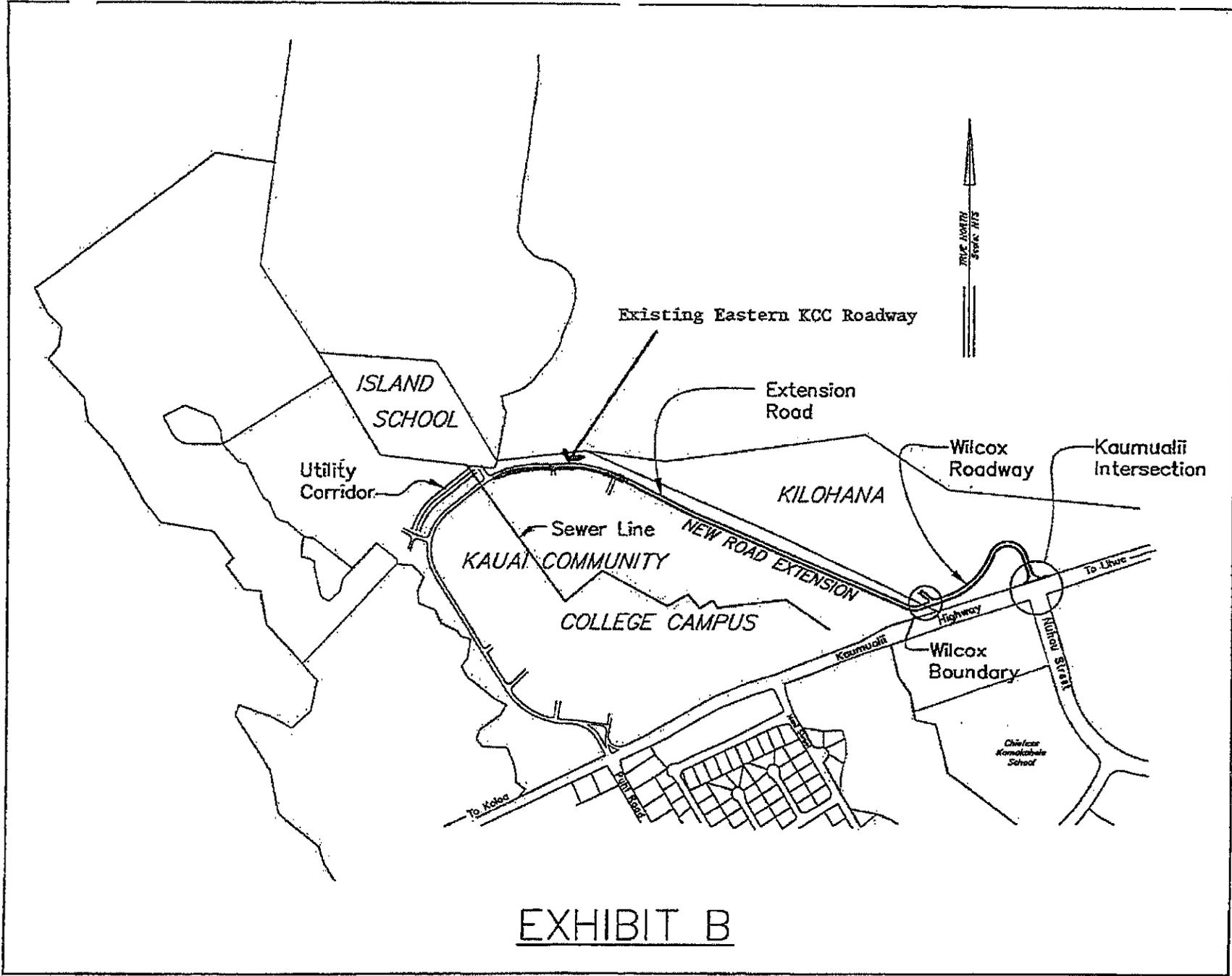


EXHIBIT B

STATUS REPORT

This Report (and any revisions thereto) is issued for the sole benefit of the Purchaser of this Report identified in the Order No. referenced below. Title Guaranty of Hawaii, Incorporated's responsibility for any actual loss incurred by reason of any incorrectness herein is limited to the greater of \$3,500 or two times the amount paid for this Report.

SCHEDULE A

Title Guaranty of Hawaii, Incorporated, hereby reports as follows as to the title of the Parties named in Schedule A in and to the title to land described in Schedule C, subject to the matters set forth in Schedule B, based solely upon an abstract and examination of the following Indices in the State of Hawaii: (a) the Office of the Clerks of the Circuit Court of the Judicial Circuit within which the land is located; (b) the Office of the Clerk of the District Court of the United States for the District of Hawaii; (c) the Office of the Registrar of Conveyances; and (d) the Office of the Real Property Tax Assessment Division of the County within which the land is located.

ISLAND SCHOOL,
a Hawaii non-profit corporation,
as Fee Owner

This report is subject to the Conditions and Stipulations set forth in Schedule D and is dated as of July 29, 2011 at 8:00 a.m.

Inquiries concerning this report
should be directed to
JUSTIN LEE.
Email jmlee@tghawaii.com
Fax (808) 521-0288
Telephone (808) 539-7743.
Refer to Order No. 201128537.

**SCHEDULE B
EXCEPTIONS**

1. Real Property Taxes, if any, that may be due and owing.

Tax Key: (4) 3-8-002-016 Area Assessed: 38.448 acres

Land Classification: AGRICULTURAL

Street Address: 3-1875 KAUMUALII HIGHWAY, LIHUE, HAWAII 96766

-Note:- Attention is invited to the fact that the premises covered herein may be subject to possible rollback or retroactive property taxes.

2. Mineral and water rights of any nature in favor of the State of Hawaii.
3. Any and all matters not shown in the Indices described in Schedule A.

4. . LICENSE

TO : MCBRYDE SUGAR COMPANY, LIMITED, a Hawaii corporation

DATED : April 28, 1950

RECORDED : Liber 6727 Page 420

GRANTING : a right-of-way 60 feet wide for electric powerline purposes, for a term of 50 years, beginning January 1, 1950, to and including, December 31, 1999

Said License was amended by instrument dated January 15, 1971, recorded in Liber 8214 at Page 141.

Said License, as amended, having been assigned to CITIZENS UTILITIES COMPANY, a Delaware corporation, by instrument dated August 12, 1992, recorded as Document No. 93-106356; consent given by THE LIHUE PLANTATION COMPANY, LIMITED, by instrument dated August 13, 1992, recorded as Document No. 93-106357.

SCHEDULE B CONTINUED

Said License, as assigned, was further amended by instrument dated August 13, 1992, recorded as Document No. 93-106358; re: term extended for an additional 50 year term commencing on January 1, 2000, and terminating on December 31, 2049.

5. GRANT

TO : KAUAI ELECTRIC COMPANY, a Division of Citizens Utilities Company, a Delaware corporation

DATED : November 18, 1971

RECORDED : Liber 8186 Page 231

GRANTING : a perpetual right and easement to build, construct, rebuild, reconstruct, maintain, operate and repair pole and wire line or lines, etc., for the transmission and distribution of electricity

6. SECURITY AGREEMENT AND FINANCING STATEMENT

DEBTOR : ISLAND SCHOOL, a Hawaii non-profit corporation

SECURED PARTY : FIRST HAWAIIAN BANK, a Hawaii corporation

DATED : September 12, 1991

RECORDED : Document No. 91-126784

AMOUNT : \$50,000.00

7. GRANT

TO : CITIZENS UTILITIES COMPANY, whose interest is now held by KAUAI ISLAND UTILITY CO-OP and GTE HAWAIIAN TELEPHONE COMPANY INCORPORATED, now known as HAWAIIAN TELCOM, INC.

DATED : September 13, 1991

RECORDED : Document No. 91-169197

GRANTING : a right-of-entry and easement for the purpose of building, constructing, repairing, maintaining and operating pole and wire lines, etc., for the transmission and distribution of electricity, etc.

SCHEDULE B CONTINUED

8. The terms and provisions contained in the following:

INSTRUMENT : ACCESS AGREEMENT

DATED : December 10, 1991

RECORDED : Document No. 92-014622

PARTIES : THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation, and ISLAND SCHOOL, a Hawaii non-profit corporation

9. The terms and provisions contained in the following:

INSTRUMENT : INDEMNITY AGREEMENT

DATED : September 13, 1991

RECORDED : Document No. 92-035481

PARTIES : ISLAND SCHOOL, a Hawaii non-profit corporation, and CITIZENS UTILITIES COMPANY, a Delaware corporation

10. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : August 26, 1992

RECORDED : Document No. 92-163157

11. The following Department of Water condition, as disclosed by survey dated December --, 1998, prepared by Dennis M. Esaki, Licensed Professional Land Surveyor with Esaki Surveying and Mapping Inc.:

"Water service for the newly created Lot 1-A-1 will be limited to the existing water meter presently serving previous Lot 1-A (Island School). Water service for the remainder lot (L.C. Aw. 7713;2, Part 2) will also be limited to the existing water meter serving the lot."

SCHEDULE B CONTINUED

12. Existing access roadway as shown on consolidation map dated December 30, 1998, prepared by Dennis M. Esaki, Licensed Professional Land Surveyor with Esaki Surveying and Mapping, Inc.

13. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : April 9, 1999

RECORDED : Document No. 99-054724

14. NOTICE OF DEDICATION

DATED : December 21, 2001

RECORDED : Document No. 2001-205822

BY : Visionary LLC

RE : dedication of land for Agriculture purposes

PERIOD : 10 years

15. NOTICE OF DEDICATION

DATED : December 21, 2001

RECORDED : Document No. 2001-205825

BY : Visionary LLC

RE : dedication of land for Agriculture purposes

PERIOD : 10 years

16. The terms and provisions contained in the following:

INSTRUMENT : WAIVER AND RELEASE AGREEMENT

DATED : July 1, 2003

RECORDED : Document No. 2003-196355

PARTIES : GROVE FARM PROPERTIES, INC., and VISIONARY LLC (dba Lihue Land Company)

SCHEDULE B CONTINUED

17. MORTGAGE; SECURITY AGREEMENT; ASSIGNMENT OF RENTALS FIXTURE FILING; AND FINANCING STATEMENT

LOAN/ACCOUNT NO. 8100312058

MORTGAGOR : GROVE FARM PROPERTIES INC, a Hawaii corporation

MORTGAGEE : CENTRAL PACIFIC BANK, a Hawaii corporation

DATED : April 19, 2004

RECORDED : Document No. 2004-136877

AMOUNT : \$8,000,000.00 - covers the land described herein, besides other land

18. RIGHT-OF-ENTRY

TO : KAUAI ISLAND UTILITY COOPERATIVE, a Hawaii cooperative association

DATED : October 6, 2004

RECORDED : Document No. 2004-230845

GRANTING : right of entry for electricity and communication purposes

19. The terms and provisions contained in the following:

INSTRUMENT : WAIVER AND RELEASE AGREEMENT

DATED : March 30, 2005

RECORDED : Document No. 2005-071200

PARTIES : VISIONARY LLC, a Virginia limited liability company (dba Lihue Land Company)

20. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF RESTRICTIVE COVENANTS

DATED : December 22, 2005

RECORDED : Document No. 2005-265793

SCHEDULE B CONTINUED

21. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : December 22, 2005

RECORDED : Document No. 2005-265794

22. Any claim or boundary dispute which may exist or arise by reason of the failure of the GRANT OF EASEMENT referred to in Schedule C to locate with certainty the boundaries of the thirty (30) year, non-exclusive right and easement, on, over, under, upon, across and through Tax Map Key (4) 3-4-005:001 for vehicular ingress and egress described in said instrument.
23. Claims arising out of customary and traditional rights and practices, including without limitation those exercised for subsistence, cultural, religious, access or gathering purposes, as provided for in the Hawaii Constitution or the Hawaii Revised Statutes.
24. Any unrecorded leases and matters arising from or affecting the same.

END OF SCHEDULE B

SCHEDULE C

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Royal Patent Grant No. 188 Apana 1, being also a portion of Land Commission Award Number 7713, Apana 2, Part 2) situate, lying and being at Nawiliwili, Lihue, Island and County of Kauai, State of Hawaii, being LOT 1-A-2 and thus bounded and described:

Beginning at the north corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KALEPA" being 8,898.35 feet south and 14,888.66 feet west, thence running by azimuths measured clockwise from true South:

1.	287° 00'	1000.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
2.	197° 00'	75.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
3.	287° 00'	1220.82	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
4.	20° 00'	287.17	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
5.	3° 28' 40"	507.42	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
6.	95° 28'	433.11	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
7.	199° 00'	90.33	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
8.	179° 00'	79.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);

SCHEDULE C CONTINUED

9.	161° 00'	158.18	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
10.	58° 00'	71.31	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
11.	90° 00'	91.76	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
12.	53° 11'	162.23	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
13.	329° 00'	254.94	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
14.	95° 28'	735.97	feet along Land court Application 1087;
15.	149° 00'	1360.30	feet along Land Court Application 1087;
16.	190° 41' 30"	118.17	feet along Land Court Application 1087, passing over North Base Triangulation Station at 98.95 feet, to the point of beginning and containing an area of 38.448 acres, more or less.

Together with that certain Easement B (44-feet wide) for access and utility purposes, situated at nawiliwili, Lihue, Island and County of Kauai, State of Hawaii, more particularly described as follows:

Being a portion of Land Patent Grant 188, Apana 1 to W. L. Lee, being also a portion of Land Commission Award No. 7713, Apana 2, Part 2 to V. Kamamalu.

SCHEDULE C CONTINUED

Beginning at the east corner of this parcel of land on the north side of Kaunualii Highway, Thence running along the north side of Grant 529, the remainder of Land Commission Award No. 7713, Apana 2, part 2, and Lot 445-A-1 of Land Court Application No. 1087 to the east corner of Lot 1-A.

Together also with a thirty (30) year, non-exclusive right and easement, on, over, under, upon, across and through Tax Map Key (4) 3-4-005:001 for vehicular ingress and egress dated July 3, 2007, recorded as Document No. 2010-169130; and subject to the terms and provisions contained therein, more particularly described therein.

Said above described parcel of land having been acquired by ISLAND SCHOOL, a Hawaii non-profit corporation by the following:

1. QUITCLAIM DEED OF TRUST of THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation dated August 26, 1992, recorded as Document No. 92-163157;
2. DEED AND RESERVATION OF RIGHTS AND EASEMENTS of THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation dated April 9, 1999, recorded as Document No. 99-054724; and
3. DEED of VISIONARY LLC, a Virginia limited liability company dated December 22, 2005, recorded as Document No. 2005-265794.

END OF SCHEDULE C

GENERAL NOTES

1. There is hereby omitted from any covenants, conditions and reservations contained herein any covenant or restriction based on race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law. Lawful restrictions under state or federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status.

SCHEDULE D

CONDITIONS AND STIPULATIONS

1. This Status Report (which term shall include any revisions thereto) is a report of the record title only, based solely upon an abstract and examination of the Indices described in Schedule A as of the date of the Report. No responsibility is assumed for (a) matters which may affect the title but either were not disclosed or were incorrectly disclosed in said indices at the date hereof; or (b) matters created, suffered, assumed, or agreed to by Purchaser; or (c) matters not shown herein but actually know to Purchaser. Title Guaranty of Hawaii, Incorporated (the "Company") makes no representation as to the legal effect, validity or priority of matters shown or referred to herein.
2. If the Report is incorrect in any respect, the responsibility of the Company shall be limited to the resulting actual loss, including any attorney's fees and legal costs, but in no event shall exceed the greater of \$3,500 or two times the amount paid for the Report. Upon payment of any loss hereunder, the Company shall be subrogated to all rights the Purchaser may have against any person or property as a result of such loss.
3. If the Purchaser of this Report shall suffer an actual loss by reason of the incorrectness of the Report, the Purchaser shall promptly notify the Company in writing. After receipt of such notice, the Company shall be allowed a reasonable time in which to investigate the claim. At its sole option, the Company may litigate the validity of the claim, negotiate a settlement or pay to Purchaser the amount the Company is obligated to pay under this Report. The Company's responsibility hereunder constitutes indemnity only and nothing herein shall obligate the Company to assume the defense of the Purchaser with respect to any claim made hereunder.
4. This report is the entire contract between the Purchaser and the Company and any claim by Purchaser against the Company, arising hereunder, shall be enforceable only in accordance with the provisions herein.
5. Notice required to be given the Company shall include the Order Number of this Report and shall be addressed to Title Guaranty of Hawaii, Inc., P.O. Box 3084, Honolulu, HI 96802, Attention: Legal Department.

DATE PRINTED: 8/02/2011

STATEMENT OF ASSESSED VALUES AND REAL PROPERTY TAXES DUE

NAME OF OWNER: ISLAND SCHOOL
LEASED TO :

TAX MAP KEY

DIVISION ZONE SECTION PLAT PARCEL HPR NO.
(4) 3 8 002 016 0000

CLASS: AGRICULTURAL AREA ASSESSED: 38.448 AC

ASSESSED VALUES FOR CURRENT YEAR TAXES: 2011

The records of this division show the assessed values and taxes on the property designated by Tax Key shown above are as follows:

BUILDING	\$	969,700	
EXEMPTION	\$	969,700	
NET VALUE	\$	0	
LAND	\$	942,600	FAIR MARKET VALUE
EXEMPTION	\$	942,600	
NET VALUE	\$	0	
TOTAL NET VALUE	\$	0	

Installment (1 - due 8/20; 2 - due 2/20) Tax Info As Of - 7/01/2011

Tax Year	Installment	Tax Amount	Penalty Amount	Interest Amount	Other Amount	Total Amount	
2011	2	12.50				12.50	PENDING
2011	1	12.50				12.50	PENDING
2010	2	12.50				12.50	PAID
2010	1	12.50				12.50	PAID
2009	2	12.50				12.50	PAID
2009	1	12.50				12.50	PAID

Total Amount Due: 25.00

Penalty and Interest Computed to: 7/01/2011

STATUS REPORT

This Report (and any revisions thereto) is issued for the sole benefit of the Purchaser of this Report identified in the Order No. referenced below. Title Guaranty of Hawaii, Incorporated's responsibility for any actual loss incurred by reason of any incorrectness herein is limited to the greater of \$3,500 or two times the amount paid for this Report.

SCHEDULE A

Title Guaranty of Hawaii, Incorporated, hereby reports as follows as to the title of the Parties named in Schedule A in and to the title to land described in Schedule C, subject to the matters set forth in Schedule B, based solely upon an abstract and examination of the following Indices in the State of Hawaii: (a) the Office of the Clerks of the Circuit Court of the Judicial Circuit within which the land is located; (b) the Office of the Clerk of the District Court of the United States for the District of Hawaii; (c) the Office of the Registrar of Conveyances; and (d) the Office of the Real Property Tax Assessment Division of the County within which the land is located.

ISLAND SCHOOL,
a Hawaii non-profit corporation,
as Fee Owner

This report is subject to the Conditions and Stipulations set forth in Schedule D and is dated as of July 29, 2011 at 8:00 a.m.

Inquiries concerning this report
should be directed to
JUSTIN LEE.
Email jmlee@tghawaii.com
Fax (808) 521-0288
Telephone (808) 539-7743.
Refer to Order No. 201128537.

**SCHEDULE B
EXCEPTIONS**

1. Real Property Taxes, if any, that may be due and owing.

Tax Key: (4) 3-8-002-016 Area Assessed: 38.448 acres

Land Classification: AGRICULTURAL

Street Address: 3-1875 KAUMUALII HIGHWAY, LIHUE, HAWAII 96766

-Note:- Attention is invited to the fact that the premises covered herein may be subject to possible rollback or retroactive property taxes.

2. Mineral and water rights of any nature in favor of the State of Hawaii.
3. Any and all matters not shown in the Indices described in Schedule A.

4. LICENSE

TO : MCBRYDE SUGAR COMPANY, LIMITED, a Hawaii corporation

DATED : April 28, 1950

RECORDED : Liber 6727 Page 420

GRANTING : a right-of-way 60 feet wide for electric powerline purposes, for a term of 50 years, beginning January 1, 1950, to and including, December 31, 1999

Said License was amended by instrument dated January 15, 1971, recorded in Liber 8214 at Page 141.

Said License, as amended, having been assigned to CITIZENS UTILITIES COMPANY, a Delaware corporation, by instrument dated August 12, 1992, recorded as Document No. 93-106356; consent given by THE LIHUE PLANTATION COMPANY, LIMITED, by instrument dated August 13, 1992, recorded as Document No. 93-106357.

SCHEDULE B CONTINUED

Said License, as assigned, was further amended by instrument dated August 13, 1992, recorded as Document No. 93-106358; re: term extended for an additional 50 year term commencing on January 1, 2000, and terminating on December 31, 2049.

5. GRANT

TO : KAUAI ELECTRIC COMPANY, a Division of Citizens Utilities Company, a Delaware corporation

DATED : November 18, 1971

RECORDED : Liber 8186 Page 231

GRANTING : a perpetual right and easement to build, construct, rebuild, reconstruct, maintain, operate and repair pole and wire line or lines, etc., for the transmission and distribution of electricity

6. SECURITY AGREEMENT AND FINANCING STATEMENT

DEBTOR : ISLAND SCHOOL, a Hawaii non-profit corporation

SECURED PARTY : FIRST HAWAIIAN BANK, a Hawaii corporation

DATED : September 12, 1991

RECORDED : Document No. 91-126784

AMOUNT : \$50,000.00

7. GRANT

TO : CITIZENS UTILITIES COMPANY, whose interest is now held by KAUAI ISLAND UTILITY CO-OP and GTE HAWAIIAN TELEPHONE COMPANY INCORPORATED, now known as HAWAIIAN TELCOM, INC.

DATED : September 13, 1991

RECORDED : Document No. 91-169197

GRANTING : a right-of-entry and easement for the purpose of building, constructing, repairing, maintaining and operating pole and wire lines, etc., for the transmission and distribution of electricity, etc.

SCHEDULE B CONTINUED

8. The terms and provisions contained in the following:

INSTRUMENT : ACCESS AGREEMENT

DATED : December 10, 1991

RECORDED : Document No. 92-014622

PARTIES : THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation, and ISLAND SCHOOL, a Hawaii non-profit corporation

9. The terms and provisions contained in the following:

INSTRUMENT : INDEMNITY AGREEMENT

DATED : September 13, 1991

RECORDED : Document No. 92-035481

PARTIES : ISLAND SCHOOL, a Hawaii non-profit corporation, and CITIZENS UTILITIES COMPANY, a Delaware corporation

10. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : August 26, 1992

RECORDED : Document No. 92-163157

11. The following Department of Water condition, as disclosed by survey dated December --, 1998, prepared by Dennis M. Esaki, Licensed Professional Land Surveyor with Esaki Surveying and Mapping Inc.:

"Water service for the newly created Lot 1-A-1 will be limited to the existing water meter presently serving previous Lot 1-A (Island School). Water service for the remainder lot (L.C. Aw. 7713;2, Part 2) will also be limited to the existing water meter serving the lot."

SCHEDULE B CONTINUED

12. Existing access roadway as shown on consolidation map dated December 30, 1998, prepared by Dennis M. Esaki, Licensed Professional Land Surveyor with Esaki Surveying and Mapping, Inc.

13. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : April 9, 1999

RECORDED : Document No. 99-054724

14. NOTICE OF DEDICATION

DATED : December 21, 2001

RECORDED : Document No. 2001-205822

BY : Visionary LLC

RE : dedication of land for Agriculture purposes

PERIOD : 10 years

15. NOTICE OF DEDICATION

DATED : December 21, 2001

RECORDED : Document No. 2001-205825

BY : Visionary LLC

RE : dedication of land for Agriculture purposes

PERIOD : 10 years

16. The terms and provisions contained in the following:

INSTRUMENT : WAIVER AND RELEASE AGREEMENT

DATED : July 1, 2003

RECORDED : Document No. 2003-196355

PARTIES : GROVE FARM PROPERTIES, INC., and VISIONARY LLC (dba Lihue Land Company)

SCHEDULE B CONTINUED

17. MORTGAGE; SECURITY AGREEMENT; ASSIGNMENT OF RENTALS FIXTURE
FILING; AND FINANCING STATEMENT

LOAN/ACCOUNT NO. 8100312058

MORTGAGOR : GROVE FARM PROPERTIES INC, a Hawaii corporation

MORTGAGEE : CENTRAL PACIFIC BANK, a Hawaii corporation

DATED : April 19, 2004

RECORDED : Document No. 2004-136877

AMOUNT : \$8,000,000.00 - covers the land described herein,
besides other land

18. RIGHT-OF-ENTRY

TO : KAUAI ISLAND UTILITY COOPERATIVE, a Hawaii
cooperative association

DATED : October 6, 2004

RECORDED : Document No. 2004-230845

GRANTING : right of entry for electricity and communication
purposes

19. The terms and provisions contained in the following:

INSTRUMENT : WAIVER AND RELEASE AGREEMENT

DATED : March 30, 2005

RECORDED : Document No. 2005-071200

PARTIES : VISIONARY LLC, a Virginia limited liability company
(dba Lihue Land Company)

20. The terms and provisions contained in the following:

INSTRUMENT : DECLARATION OF RESTRICTIVE COVENANTS

DATED : December 22, 2005

RECORDED : Document No. 2005-265793

SCHEDULE B CONTINUED

21. The terms and provisions contained in the following:

INSTRUMENT : DEED

DATED : December 22, 2005

RECORDED : Document No. 2005-265794

22. Any claim or boundary dispute which may exist or arise by reason of the failure of the GRANT OF EASEMENT referred to in Schedule C to locate with certainty the boundaries of the thirty (30) year, non-exclusive right and easement, on, over, under, upon, across and through Tax Map Key (4) 3-4-005:001 for vehicular ingress and egress described in said instrument.

23. Claims arising out of customary and traditional rights and practices, including without limitation those exercised for subsistence, cultural, religious, access or gathering purposes, as provided for in the Hawaii Constitution or the Hawaii Revised Statutes.

24. Any unrecorded leases and matters arising from or affecting the same.

END OF SCHEDULE B

SCHEDULE C

All of that certain parcel of land (being portion(s) of the land(s) described in and covered by Royal Patent Grant No. 188 Apana 1, being also a portion of Land Commission Award Number 7713, Apana 2, Part 2) situate, lying and being at Nawiliwili, Lihue, Island and County of Kauai, State of Hawaii, being LOT 1-A-2 and thus bounded and described:

Beginning at the north corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KALEPA" being 8,898.35 feet south and 14,888.66 feet west, thence running by azimuths measured clockwise from true South:

1.	287° 00'	1000.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
2.	197° 00'	75.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
3.	287° 00'	1220.82	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
4.	20° 00'	287.17	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
5.	3° 28' 40"	507.42	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
6.	95° 28'	433.11	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
7.	199° 00'	90.33	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
8.	179° 00'	79.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);

SCHEDULE C CONTINUED

9.	161° 00'	158.18	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
10.	58° 00'	71.31	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
11.	90° 00'	91.76	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
12.	53° 11'	162.23	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
13.	329° 00'	254.94	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
14.	95° 28'	735.97	feet along Land court Application 1087;
15.	149° 00'	1360.30	feet along Land Court Application 1087;
16.	190° 41' 30"	118.17	feet along Land Court Application 1087, passing over North Base Triangulation Station at 98.95 feet, to the point of beginning and containing an area of 38.448 acres, more or less.

Together with that certain Easement B (44-feet wide) for access and utility purposes, situated at nawiliwili, Lihue, Island and County of Kauai, State of Hawaii, more particularly described as follows:

Being a portion of Land Patent Grant 188, Apana 1 to W. L. Lee, being also a portion of Land Commission Award No. 7713, Apana 2, Part 2 to V. Kamamalu.

SCHEDULE C CONTINUED

Beginning at the east corner of this parcel of land on the north side of Kaunualii Highway, Thence running along the north side of Grant 529, the remainder of Land Commission Award No. 7713, Apana 2, part 2, and Lot 445-A-1 of Land Court Application No. 1087 to the east corner of Lot 1-A.

Together also with a thirty (30) year, non-exclusive right and easement, on, over, under, upon, across and through Tax Map Key (4) 3-4-005:001 for vehicular ingress and egress dated July 3, 2007, recorded as Document No. 2010-169130; and subject to the terms and provisions contained therein, more particularly described therein.

Said above described parcel of land having been acquired by ISLAND SCHOOL, a Hawaii non-profit corporation by the following:

1. QUITCLAIM DEED OF TRUST of THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation dated August 26, 1992, recorded as Document No. 92-163157;
2. DEED AND RESERVATION OF RIGHTS AND EASEMENTS of THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation dated April 9, 1999, recorded as Document No. 99-054724; and
3. DEED of VISIONARY LLC, a Virginia limited liability company dated December 22, 2005, recorded as Document No. 2005-265794.

END OF SCHEDULE C

GENERAL NOTES

1. There is hereby omitted from any covenants, conditions and reservations contained herein any covenant or restriction based on race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law. Lawful restrictions under state or federal law on the age of occupants in senior housing or housing for older persons shall not be construed as restrictions based on familial status.

SCHEDULE D

CONDITIONS AND STIPULATIONS

1. This Status Report (which term shall include any revisions thereto) is a report of the record title only, based solely upon an abstract and examination of the Indices described in Schedule A as of the date of the Report. No responsibility is assumed for (a) matters which may affect the title but either were not disclosed or were incorrectly disclosed in said indices at the date hereof; or (b) matters created, suffered, assumed, or agreed to by Purchaser; or (c) matters not shown herein but actually know to Purchaser. Title Guaranty of Hawaii, Incorporated (the "Company") makes no representation as to the legal effect, validity or priority of matters shown or referred to herein.
2. If the Report is incorrect in any respect, the responsibility of the Company shall be limited to the resulting actual loss, including any attorney's fees and legal costs, but in no event shall exceed the greater of \$3,500 or two times the amount paid for the Report. Upon payment of any loss hereunder, the Company shall be subrogated to all rights the Purchaser may have against any person or property as a result of such loss.
3. If the Purchaser of this Report shall suffer an actual loss by reason of the incorrectness of the Report, the Purchaser shall promptly notify the Company in writing. After receipt of such notice, the Company shall be allowed a reasonable time in which to investigate the claim. At its sole option, the Company may litigate the validity of the claim, negotiate a settlement or pay to Purchaser the amount the Company is obligated to pay under this Report. The Company's responsibility hereunder constitutes indemnity only and nothing herein shall obligate the Company to assume the defense of the Purchaser with respect to any claim made hereunder.
4. This report is the entire contract between the Purchaser and the Company and any claim by Purchaser against the Company, arising hereunder, shall be enforceable only in accordance with the provisions herein.
5. Notice required to be given the Company shall include the Order Number of this Report and shall be addressed to Title Guaranty of Hawaii, Inc., P.O. Box 3084, Honolulu, HI 96802, Attention: Legal Department.

DATE PRINTED: 8/02/2011

STATEMENT OF ASSESSED VALUES AND REAL PROPERTY TAXES DUE

NAME OF OWNER: ISLAND SCHOOL
LEASED TO :

TAX MAP KEY

DIVISION ZONE SECTION PLAT PARCEL HPR NO.
(4) 3 8 002 016 0000

CLASS: AGRICULTURAL AREA ASSESSED: 38.448 AC

ASSESSED VALUES FOR CURRENT YEAR TAXES: 2011

The records of this division show the assessed values and taxes on the property designated by Tax Key shown above are as follows:

BUILDING	\$	969,700	
EXEMPTION	\$	969,700	
NET VALUE	\$	0	
LAND	\$	942,600	FAIR MARKET VALUE
EXEMPTION	\$	942,600	
NET VALUE	\$	0	
TOTAL NET VALUE	\$	0	

Installment (1 - due 8/20; 2 - due 2/20) Tax Info As Of - 7/01/2011

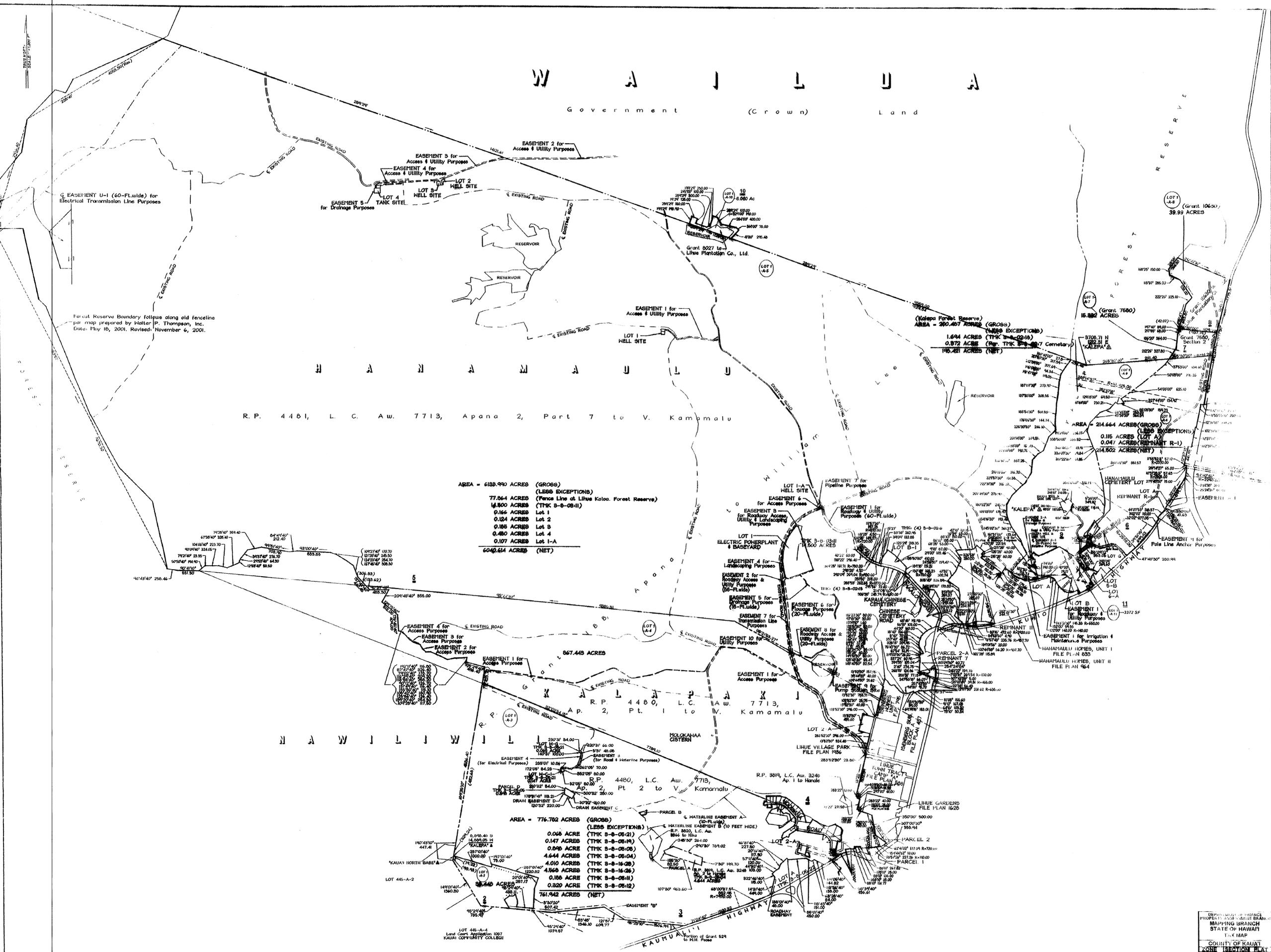
Tax Year	Installment	Tax Amount	Penalty Amount	Interest Amount	Other Amount	Total Amount	
2011	2	12.50				12.50	PENDING
2011	1	12.50				12.50	PENDING
2010	2	12.50				12.50	PAID
2010	1	12.50				12.50	PAID
2009	2	12.50				12.50	PAID
2009	1	12.50				12.50	PAID

Total Amount Due: 25.00

Penalty and Interest Computed to: 7/01/2011

W A I L U A

Government (Crown) Land



R. P. 4481, L. C. Aw. 7713, Apana 2, Part 7 to V. Kamamalu

AREA = 6188.990 ACRES (GROSS)
 (LESS EXCEPTIONS)
 77.864 ACRES (Pena Line at Lihue Koloa Forest Reserve)
 14,800 ACRES (THK B-8-0811)
 0.166 ACRES Lot 1
 0.124 ACRES Lot 2
 0.185 ACRES Lot 3
 0.480 ACRES Lot 4
 0.107 ACRES Lot 1-A
6040.614 ACRES (NET)

867.449 ACRES

AREA = 776.782 ACRES (GROSS)
 (LESS EXCEPTIONS)
 0.065 ACRES (THK B-8-0811)
 0.147 ACRES (THK B-8-0819)
 0.840 ACRES (THK B-8-0808)
 4.644 ACRES (THK B-8-0804)
 4.010 ACRES (THK B-8-1628)
 4.560 ACRES (THK B-8-1626)
 0.185 ACRES (THK B-8-0811)
 0.820 ACRES (THK B-8-0812)
761.942 ACRES (NET)

DEPARTMENT OF REVENUE	
PROPERTY TAX MAPS BRANCH	
MAPPING BRANCH	
STATE OF HAWAII	
TAX MAP	
COUNTY OF KAUAI	
ZONE	SECTION PLAT
3	8 17
SCALE 1" = 100' FT	
Sep 23 2008	

R-117

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED

OCT 08, 1992 08:01 AM

Doc No(s) 92-163157

/s/ S. FURUKAWA
REGISTRAR OF CONVEYANCES

CONVEYANCE TAX: \$0.00

SECTION
ATTACHED

LAND COURT SYSTEM

REGULAR SYSTEM

Return by Mail () Pickup () To:
Security Title Corporation
P. O. Box 1878
Honolulu, Hawaii 96805
(Case & Lynch - Kauai/CMC)

(12.21.92)

1460B

QUITCLAIM DEED OF GIFT

KNOW ALL MEN BY THESE PRESENTS:

THE LIHUE PLANTATION COMPANY, LIMITED, a Hawaii corporation, whose principal place of business is Lihue, Kauai, Hawaii, and whose post office address is P. O. Box 751, Lihue, Kauai, Hawaii, hereinafter called the "Grantor", in consideration of the sum of One Dollar (\$1.00) and other good consideration, to the Grantor paid by ISLAND SCHOOL, a Hawaii non-profit corporation, whose principal place of business and post office address is 3-1875 Kaunualii Highway, Lihue, Kauai, Hawaii 96766-9597, hereinafter referred to as "Grantee", the receipt of which is acknowledged, does hereby grant and convey unto the Grantee, as a tenant in severalty, its successors and assigns, the property described in Exhibit "A" attached hereto and incorporated herein by reference (the "property");

TOGETHER WITH the reversions, remainders, rents, issues, and profits thereof, and all of the estate, right, title, and interest of the Grantor, both at law and in equity, therein and thereto.

TO HAVE AND TO HOLD the same together with all buildings, improvements, tenements, rights, easements,

SECURITY TITLE CORPORATION HAS RECORDED THIS INSTRUMENT AS AN
ACCOMMODATION ONLY AND NO GUARANTEE HAS BEEN MADE AS TO
ITS EXECUTION AND EFFECT ON TITLE.

EXHIBIT "4"

privileges, and appurtenances thereon or thereunto belonging or appertaining or held and enjoyed therewith, unto Grantee, absolutely and in fee simple, as to said real property, and absolutely and forever, as to any said personal property, subject, however, to the following covenants and/or restrictions which shall be perpetual and run with title to the land:

1. Use of Site. Grantee's use of the property shall be limited to the construction, improvement, maintenance, and operation of an educational institution. Housing shall not be permitted on the property; provided, however, that one single family housing unit may be maintained on the property for security reasons. Grantee shall continuously maintain adequate fencing and use best efforts to prevent students and guests from entering adjacent lands belonging to or controlled by Grantor. If Grantee or a duly constituted and approved successor organization no longer continues to operate a school on the property for a continuous period of two (2) years, the entire property conveyed shall be reconveyed to another organization whose use of the property is consistent with the purpose of this Gift or another organization qualified for income tax exemption under Section 501(c)(3) or Section 501(c)(19) of the U.S. Internal Revenue Code of 1986, as amended.

2. Design Review. Grantee shall obtain the Grantor's review and approval on the aesthetics of building facilities, landscaping and above ground accessories prior to securing building permits, which approval shall not be unreasonably withheld.

3. Indemnity. Grantee shall indemnify, defend and hold harmless the Grantor; Amfac/JMB Hawaii, Inc.; Amfac, Inc.; Wisconsin & Southern Leasing Co.; Northbrook Corporation, their parents, partners, subsidiaries and affiliates, and any officer, director, representative, agent, employee, or any persons acting on their behalf (hereinafter, "Amfac-Related Party" or "Amfac-Related Parties," as the case may be), from and against any and all claims or demands for loss, liability or damage, including, but not limited to, claims for property damage, personal injury or death, by whomsoever brought, arising out of or connected with the Grantee's use or occupancy of the property or other lands controlled or owned by Grantor, Grantee's activities on or about the property or other lands controlled or owned by Grantor, or caused by failure on the part of the Grantee to comply with its obligations set forth herein or to maintain the property in a safe condition and will reimburse the indemnified parties for all costs and expenses,

including reasonable attorneys' fees, incurred in connection with the defense of such claims.

4. Condition of Premises. It is understood that Grantee has inspected the property or facilities and knows the conditions thereof and fully assumes all risks incident to its use. Grantee understands and agrees that Grantor is engaged in the operation of a sugar plantation and may, in the future, be involved in alternate energy projects, other agricultural activities or property development, within the areas adjacent to and surrounding the property and that the operations of burning sugar cane, milling and other activities incident to a sugar plantation, alternate energy projects, or other agricultural or development activities may result in the creation of smoke or soot or other nuisances and that Grantor's operations involve the discharge, emission, diffusion and infliction of noise, smoke, soot, dust, lights, noxious vapors, odors and other conditions of every description arising from activities related and incidental to the operation of a sugar plantation, alternate energy projects or other agricultural or development activities. Grantee hereby expressly agrees that it shall not hold or attempt to hold Grantor or any Amfac-Related Party, or their respective successors and assigns, responsible for the creation of such nuisances, arising out of or in connection with such lawful operations and activities and agrees to indemnify and hold Grantor, and each Amfac-Related Party and their respective successors and assigns, harmless from any liability or expenses, including attorneys' fees, resulting from claims, demands or actions by Grantee, its employees, agents, guests, invitees or other persons using or occupying the property with its authority, arising from such nuisance.

5. Condemnation. If the property or any portion thereof is taken or condemned by any duly constituted authority, all compensation and damages payable on account of such taking or condemnation must be used for the educational purposes for which Grantee was formed, including the acquisition of a new school site.

6. Reservation of Water Rights. Grantor, for itself, its successors and assigns forever, reserves all waters and water rights of every nature on, under or otherwise appurtenant or belonging to the property.

7. Nature of Conveyance. This conveyance and the covenants of the Grantor shall be jointly and severally binding upon the person or persons identified above as "Grantor", and

the Grantor's successors and assigns, and shall run in favor of and inure to the benefit of the person or persons identified above as "Grantee", and the Grantee's successors and assigns. The use herein of the singular in reference to a party shall include the plural and the use of a pronoun of any gender shall include all genders. The term "person" shall include an individual, partnership, association or corporation, as the context may require.

IN WITNESS WHEREOF, the Grantor and Grantee have duly executed this instrument this 26th day of August, 1992.

THE LIHUE PLANTATION COMPANY,
LIMITED, a Hawaii corporation

By Wesley W. Furbush
Its Vice President

By TEJ

By _____
Its

Grantor

ISLAND SCHOOL, a Hawaii
non-profit corporation

By Wm. J. Kama
Its President

By R. P. E.
Its Vice President

Grantee

EXHIBIT "A"

LOT 1-A

LAND SITUATED AT LIHUE, PUNA, KAUAI, HAWAII

Being a Portion of Land Commission Award 7713,
Apana 2, Part 2 to V. Kamamalu

Being Also a Portion of Grant 188, Apana 1 to W. L. Lee

Beginning at the Southwest corner of this parcel of land and on the Northeasterly boundary of Lot 445-A-1 of Ld. Ct. App. 1087, the coordinates referred to Government Survey Triangulation Station "KILOHANA" being 8,071.46 feet South and 10,640.90 feet East, thence running by azimuths measured clockwise from true South:

1. 149° 00' 735.97 feet along Lots 445-A-1 and 706 of Ld. Ct. App. 1087;
2. 275° 28' 735.97 feet along the remainder of L.C. Aw. 7713, Ap. 2, Part 2 to V. Kamamalu (remainder of Grant 188, Ap. 1 to W. L. Lee);
3. 329° 00' 735.97 feet along the remainder of L.C. Aw. 7713, Ap. 2, Part 2 to V. Kamamalu (remainder of Grant 188, Ap. 1 to W. L. Lee);
4. 95° 28' 735.97 feet along Lot 445-A-1 of Ld. Ct. App. 1087 to the point of beginning and containing an area of 10.000 acres.

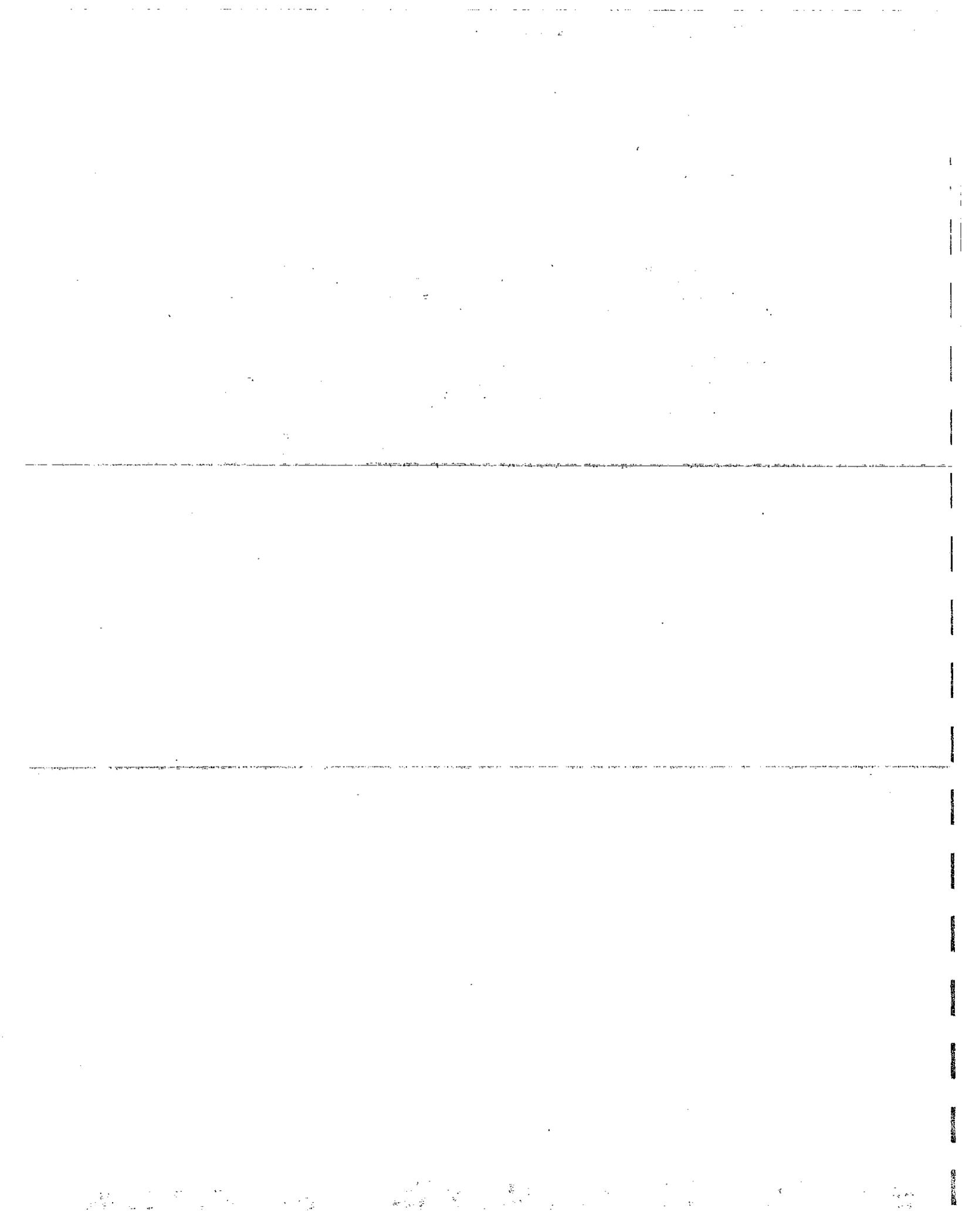
TOGETHER WITH that certain Easement B (44-feet wide) for access and utility purposes, situated at Nawiliwili, Lihue, Kauai, Hawaii, more particularly described as follows:

Being a Portion of Grant 188, Apana 1 to W. L. Lee.
Being also a Portion of L.C. Award 7713 Apana 2, Part 2 to V. Kamamalu.

Beginning at the east corner of this parcel of land on the north side of Kaunualii Highway. Thence running along the north side of Grant 529, the remainder of L.C. Aw. 7713:2, Part 2, and Lot 445-A-1 of Land Court Application 1087 to the east corner of Lot 1-A.

SUBJECT, HOWEVER, to that certain Access Agreement, dated December 10, 1991, recorded in the Bureau of Conveyances of the State of Hawaii as Document No. 92-014622, by and between The Lihue Plantation Company, Limited, a Hawaii corporation, and Island School, a Hawaii non-profit corporation.

SUBJECT, FURTHER, HOWEVER, to all items of public record, including without limitation existing easements, restrictions, or encumbrances of public record.



R-493

STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED

APR 09, 1999 08:01 AM

Doc No(s) 99-054724

/s/ CARL T. WATANABE
ACTING
REGISTRAR OF CONVEYANCES

CONVEYANCE TAX: \$200.00

Return by Mail Pickup

MR SCOTT D RADOVICH
CASE BIGELOW & LOMBARDI
737 BISHOP ST
STE 2600 MAUKA TWR
HONOLULU, HI 96813

TG: 382802-A
TGE: 98-101-0958
ANN OGLNO

Total Pages: 13

Tax Map Key No.: (4) 3-8-02:2 (portion)

**DEED
AND
RESERVATION OF RIGHTS AND EASEMENTS**

THIS DEED AND RESERVATION OF RIGHTS AND EASEMENTS (this "Deed") is made as of APR 09 1999, 1999, by and between **THE LIHUE PLANTATION COMPANY, LIMITED**, a Hawaii corporation (the "Grantor"), the address of which is c/o Amfac Land Company, Limited, 700 Bishop Street, Suite 501, Honolulu, Hawaii 96813, and **ISLAND SCHOOL**, a Hawaii non-profit corporation (the "Grantee"), the address of which is 3-1875 Kaunualii Highway, Lihue, Kauai, Hawaii 96766.

WITNESSETH:

That for Ten Dollars and other valuable consideration paid by the Grantee to the Grantor, the receipt of which is hereby acknowledged, and pursuant to that certain unrecorded Property Purchase Agreement dated as of April 7, 1998, as amended by Amendment to Property Purchase Agreement dated December 10, 1998, and by Second Amendment to Property Purchase Agreement dated January 12, 1999 (collectively, the "Purchase Agreement"), by and between the Grantor, as seller, and the Grantee, as purchaser, the Grantor does hereby grant and convey unto the Grantee that certain real property (the "Property") described in Exhibit "A" attached hereto, which Exhibit "A" is incorporated into this Deed by reference;

AND the reversions, remainders, rents, issues and profits thereof and all of the estate, right, title and interest of the Grantor, both at law and in equity, therein and thereto.

TO HAVE AND TO HOLD the same, together with all rights, easements, rights of way, privileges, appurtenances thereon and thereto belonging or appertaining or held and enjoyed therewith, and all other rights and benefits running with the Property, unto the Grantee forever.

SUBJECT, HOWEVER, to: (i) existing county, state and federal laws, rules and regulations, including zoning ordinances and other land use regulations and restrictions applicable to the Property; (ii) claims, if any, to the Property arising out of rights customarily and traditionally exercised for subsistence, cultural, religious, access or gathering purposes, and such claims or rights, including access, use and/or occupancy rights, as may be attendant or ancillary to kuleana claims on or affecting the Property; (iii) encroachments, easements and other rights or facts which may or would be disclosed by a correct boundary and improvement survey or archaeological study of the Property, including, without limitation, trails, rights of way, historic property, burial sites and other items of historical, archaeological or religious significance; (iv) all encumbrances, exceptions, reservations, easements and other items set forth in this Deed; and (v) such encumbrances, exceptions and other items as may affect the Property as a result of Consolidation of Lot 1-A and Lot 1-B into Lot 1-A-1, as shown on map dated December 30, 1998, prepared by Dennis M. Esaki, Licensed Professional Land Surveyor.

EXCEPTING AND RESERVING UNTO THE GRANTOR, its successors and assigns, all water and water rights of every nature on, under or otherwise appurtenant, belonging or relating to the Property.

FURTHER SUBJECT TO the covenants, acknowledgments and agreements of the Grantee, and the rights of the Grantor, as follows:

1. The Grantee's use of the Property shall be limited to the construction, improvement, maintenance, and operation of an educational institution, in conjunction with the Grantee's ownership and use of certain property adjacent to the Property identified as Tax Map Key o. (4) 3-8-2:16 and being described in Exhibit "B" attached hereto ("Lot 1-A").

2. The Grantee acknowledges that the Property is located adjacent to and/or in the vicinity of ~~Seller's Cane-Haul Road and the Adjacent Property (as those terms are defined in the Purchase Agreement)~~, both of which have the potential for hazardous conditions relating to the Grantor's continuing agricultural and industrial activities. Immediately upon the date hereof (and prior to the Grantee's occupancy of the Property), the Grantee shall install, and at all times thereafter the Grantee shall maintain, at its sole responsibility and expense, both of the following: (a) a continuous fence or wall, no less than six feet high from grade and of new chain link or better quality, on the Property along the full length of the common boundary of the Property and the Adjacent Property; and (b) a planting buffer consisting of a hedge or similar windbreak at least twenty feet high from grade, on the Property along the full length of the northern boundary of the Property, intended and designed to create a substantial and continuous barrier between the Property and Seller's Cane-Haul Road. The Grantee shall further take such other actions, which may include the posting of signs and the imposition of sanctions, as may be necessary or prudent to discourage and prevent the Grantee's students from entering upon the Adjacent Property.

3. Immediately upon the date hereof (and prior to the Grantee's occupancy of the Property), the Grantee shall install, at its responsibility and expense but subject to the Grantor's prior

written approval of the location, design and specifications thereof, an automatic sprinkler system on the Adjacent Property intended and designed for dust control for such portions of Seller's Cane-Haul Road as are located along or in the vicinity of the northern boundary of the Property, which system may include, subject to the Grantor's written approval of location, design and effect thereof, necessary and appropriate drainage diversion improvements. Such sprinkler system ("Cane-Haul Road Sprinklers") shall tie into the Grantee's sprinkler system(s) or other water line(s) servicing the Property and/or the Grantee's other lands adjacent to the Property; provided, however, that the Cane-Haul Road Sprinklers shall be on a separate valve and the timer(s) therefor shall be under the exclusive control of the Grantor; and provided further that the Grantee may withdraw water from the Grantor's reservoir on the Adjacent Property to supply only the Cane-Haul Road Sprinklers, subject to the Grantee's installation and maintenance, at the Grantee's expense, of such pumps and other facilities reasonably required for such purpose, and subject further to the Grantor's periodic confirmation of sufficient excess water availability from the reservoir for such purpose.

4. The Grantee agrees to and shall indemnify, defend and hold harmless the Grantor and Amfac-Related Entities (as that term is defined in the Purchase Agreement) from and against any and all loss, liability, cost, claim, demand, damage, action, cause of action, suit, administrative proceedings and/or penalties resulting from or otherwise directly or indirectly relating to the Grantee's ownership, use, occupancy or development of, or any other act or neglect by the Grantee with respect to, the Property or other property owned or controlled by either the Grantor or the Grantee. Such indemnity shall include and cover, without limitation, claims relating to the presence or existence of hazardous or nuisance conditions on, under, in the vicinity of, or otherwise affecting the Property (or other property owned or controlled by either the Grantor or the Grantee).

5. The Grantee, for itself, any person or entity claiming by or through it and their respective successors and assigns, acknowledges that the Property is located near or adjacent to properties, including the Adjacent Property, owned by the Grantor or in which the Grantor has an interest, which are or may be used for various agricultural, industrial and related or ancillary purposes. As such, it is expected that the Property will periodically be affected by noise, traffic (including heavy equipment), dust, smoke, soot, ash, odor or other adverse conditions of any kind created by or resulting from such agricultural and industrial activities. The Grantee, for itself, any person or entity claiming by or through it and their respective successors and assigns, further acknowledges and agrees that neither the Grantor, Amfac-Related Entities, nor any of their respective successors in title or assigns shall be held liable for any nuisance, personal injury, illness or other loss, damage or claim which is caused by or related to the presence, operation and/or use of the Adjacent Property for agricultural, industrial and related or ancillary purposes.

6. Commencing immediately upon the date hereof, the Grantee shall include in its student admission materials, or in such other medium as may be approved by the Grantor, clear and adequate notice to all students of the Grantee and their parents/legal guardians that the Property is located adjacent to and in the vicinity of Seller's Cane-Haul Road and the Adjacent Property, and of the potential for nuisance and hazardous conditions relating to the Grantor's continuing agricultural and industrial activities, together with instructions that all comments, complaints and other communications relating to Seller's Cane-Haul Road or the Adjacent Property are to be made to the Grantee and not directly to the Grantor. The form and content of the notice shall be subject to the prior review and approval of the Grantor, including further review and approval prior to any change

in the form, content or distribution medium of such notice, and upon any other change in circumstances, at the discretion of the Grantor.

7. Lot 1-A-1, being a consolidation of the Property with Lot 1-A and being described in Exhibit "C" attached hereto, shall not be subdivided without the prior written consent of the Grantor, which consent may be conditioned upon or subject to the Grantor's receipt of adequate confirmation and assurances, satisfactory to the Grantor, that such subdivision shall not detrimentally affect any ability of the Grantor to subdivide, or otherwise use or develop, the Adjacent Property (being the property described in Exhibit "D" attached hereto).

8. The Grantee confirms and agrees that the Grantee has inspected the Property and that the Property is being conveyed to the Grantee in "AS IS" condition, and without any representations or warranties of any kind with respect to the Property, except as expressly provided in this Deed, all as more particularly set forth in Section 8 of the Purchase Agreement.

9. The Grantee confirms and agrees that certain provisions of the Purchase Agreement, including without limitation the provisions specifically referred to in this Deed, shall survive the conveyance of the Property to the Grantee, as provided in the Purchase Agreement. The Grantee hereby specifically covenants and agrees to perform, abide by, and comply with the Grantee's obligations under said surviving provisions of the Purchase Agreement.

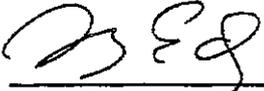
In consideration of the premises, the Grantor does hereby covenant with the Grantee that the Grantor is seised of the Property in fee simple; that the Property is free and clear of and from all liens and encumbrances made or suffered by the Grantor, excepting the lien of real property taxes assessed for the current fiscal year but not yet due, and further excepting any and all exceptions, reservations and encumbrances created by or referred to in this Deed (including the rights and reservations of the Grantor as set forth herein); that the Grantor has good right to sell and convey the Property; and that the Grantor will WARRANT AND DEFEND the same unto the Grantee against the lawful claims and demands of all persons, except as aforesaid.

~~This conveyance and the covenants of the Grantor shall be binding upon the Grantor and the Grantor's successors and assigns, and shall run in favor of and inure to the benefit of the Grantee and the Grantee's successors and assigns. The covenants and agreements of the Grantee and the rights and reservations of the Grantor shall run with the land described in Exhibit "A" attached hereto, shall be binding upon the Grantee and the Grantee's successors and assigns, and shall run in favor of and inure to the benefit of the Grantor and the Grantor's successors and assigns.~~

The parties hereto agree that this Deed may be executed in counterparts, each of which shall be deemed an original, and said counterparts shall together constitute one and the same agreement, binding all of the parties hereto, notwithstanding all of the parties are not signatory to the original or the same counterparts. For all purposes, including, without limitation, recordation, filing and delivery of this Deed, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

above. The Grantor and the Grantee have executed this Deed as of the date first referenced

THE LIHUE PLANTATION COMPANY, LIMITED

By 
Name: TAMARA G. EDWARDS
Title: VICE PRESIDENT

Grantor

ISLAND SCHOOL

By _____
Name:
Title:

Grantee

The Grantor and the Grantee have executed this Deed as of the date first referenced above.

THE LIHUE PLANTATION COMPANY, LIMITED

By _____
Name:
Title:

Grantor

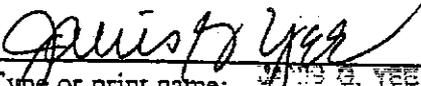
ISLAND SCHOOL

By David W Pratt
Name: David W Pratt
Title: President

Grantee

STATE OF HAWAII)
) SS.
CITY AND COUNTY OF HONOLULU)

On APR 5 1990, before me personally appeared AMARA G. EDWARDS me personally known, who, being by me duly sworn or affirmed, did say that such person(s) executed the foregoing instrument as the free act and deed of such person(s), and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.


Type or print name: JAMES G. YEE
Notary Public, State of Hawaii

My commission expires: DEC. 29, 2001

STATE OF HAWAII)
) SS:
COUNTY OF KAUAI)

On this 7th day of April, 1999, before me appeared DAVID W. PRATT, to me personally known, who, being by me duly sworn, did say that he is the President of ISLAND SCHOOL, a Hawaii non-profit corporation, and that said instrument was signed in behalf of said corporation by authority of its Board of Directors, and the said officer acknowledged said instrument to be the free act and deed of said corporation.

L.S.

Shari E. Ogata
Name of Notary: Shari E. Ogata
Notary Public, State of Hawaii.

My commission expires: 10/05/2000

EXHIBIT "A"

LOT 1-B

LAND SITUATED AT NAWILIWILI, LIHUE, KAUAI, HAWAII

Being a Portion of Grant 188:1

Being Also a Portion of L.C. Award 7713:2, Part 2

Beginning at the northwest corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KAUAI NORTH BASE" being 18.89 feet North and 3.57 feet East, thence running by azimuths measured clockwise from true South:

1. 287° 00' 1,966.55 feet along the remainder of L.C. Award 7713:2, Part 2;
2. 20° 00' 198.96 feet along the remainder of L.C. Award 7713:2, Part 2;
3. 38° 00' 212.75 feet along the remainder of L.C. Award 7713:2, Part 2;
4. 64° 00' 151.61 feet along the remainder of L.C. Award 7713:2, Part 2;
5. 82° 00' 209.64 feet along the remainder of L.C. Award 7713:2, Part 2;
6. 50° 00' 106.67 feet along the remainder of L.C. Award 7713:2, Part 2;
7. 149° 00' 434.45 feet along the remainder of L.C. Award 7713:2, Part 2 (Lot 1-A);
8. 95° 28' 735.97 feet along the remainder of L.C. Award 7713:2, Part 2 (Lot 1-A);
9. 149° 00' 624.33 feet along Ld. Ct. App. 1087 (Lot 445-A-1 and Lot 445-A-3);
10. 190° 41' 30" 118.17 feet along Ld. Ct. App. 1087 (Lot 445-A-3) passing over Triangulation Station "KAUAI NORTH BASE" at 98.95 feet to the point of beginning and containing an area of 20.000 acres.

SUBJECT, HOWEVER, to the following:

1. All recorded easements, covenants, conditions, reservations and restrictions affecting the Property.
2. Reservation in favor of the State of Hawaii of all mineral and metallic mines.

3. Applicable County conditions and requirements relating to final subdivision approval, as that term is defined in the Purchase Agreement.

4. Any mechanic's, materialmen's or other liens which may affect the Property relating to or as a result of the Grantee's activities on or relating to the Property pursuant to the Purchase Agreement.

5. The reservations and exceptions created by or referred to in the Deed and Reservation of Rights and Easements to which this exhibit is attached and incorporated.

END OF EXHIBIT "A"

EXHIBIT "B"

LOT 1-A

LAND SITUATED AT LIHUE, PUNA, KAUAI, HAWAII

Being a Portion of Land Commission Award 7713,
Apana 2, Part 2 to V. Kamamalu

Being Also a Portion of Grant 188, Apana 1 to W. L. Lee

Beginning at the Southwest corner of this parcel of land and on the Northeasterly boundary of Lot 445-A-1 of Ld. Ct. App. 1087, the coordinates referred to Government Survey Triangulation Station "KILOHANA" being 8,071.46 feet South and 10,640.90 feet East, thence running by azimuths measured clockwise from true South:

1. 149° 00' 735.97 feet along Lots 445-A-1 and 706 of Ld. Ct. App. 1087;
2. 275° 28' 735.97 feet along the remainder of L.C. Aw. 7713, Ap. 2, Part 2 to V. Kamamalu (remainder of Grant 188, Ap. 1 to W. L. Lee);
3. 329° 00' 735.97 feet along the remainder of L.C. Aw. 7713, Ap. 2, Part 2 to V. Kamamalu (remainder of Grant 188, Ap. 1 to W. L. Lee);
4. 95° 28' 735.97 feet along Lot 445-A-1 of Ld. Ct. App. 1087 to the point of beginning and containing an area of 10.000 acres.

EXHIBIT "C"

LOT 1-A-1

LAND SITUATED AT NAWILIWILI, LIHUE, KAUAI, HAWAII

Being a Portion of Grant 188:1
Being also a Portion of L.C. Award 7713:2, Part 2

Beginning at the northwest corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KAUAI NORTH BASE" being 18.89 feet North and 3.57 feet East, thence running by azimuths measured clockwise from true South:

1. 287° 00' 1966.55 feet along the remainder of L.C. Award 7713:2, Part 2;

2. 20° 00' 198.96 feet along the remainder of L.C. Award 7713:2, Part 2;
3. 38° 00' 212.75 feet along the remainder of L.C. Award 7713:2, Part 2;
4. 64° 00' 151.61 feet along the remainder of L.C. Award 7713:2, Part 2;
5. 82° 00' 209.64 feet along the remainder of L.C. Award 7713:2, Part 2;
6. 50° 00' 106.67 feet along the remainder of L.C. Award 7713:2, Part 2;

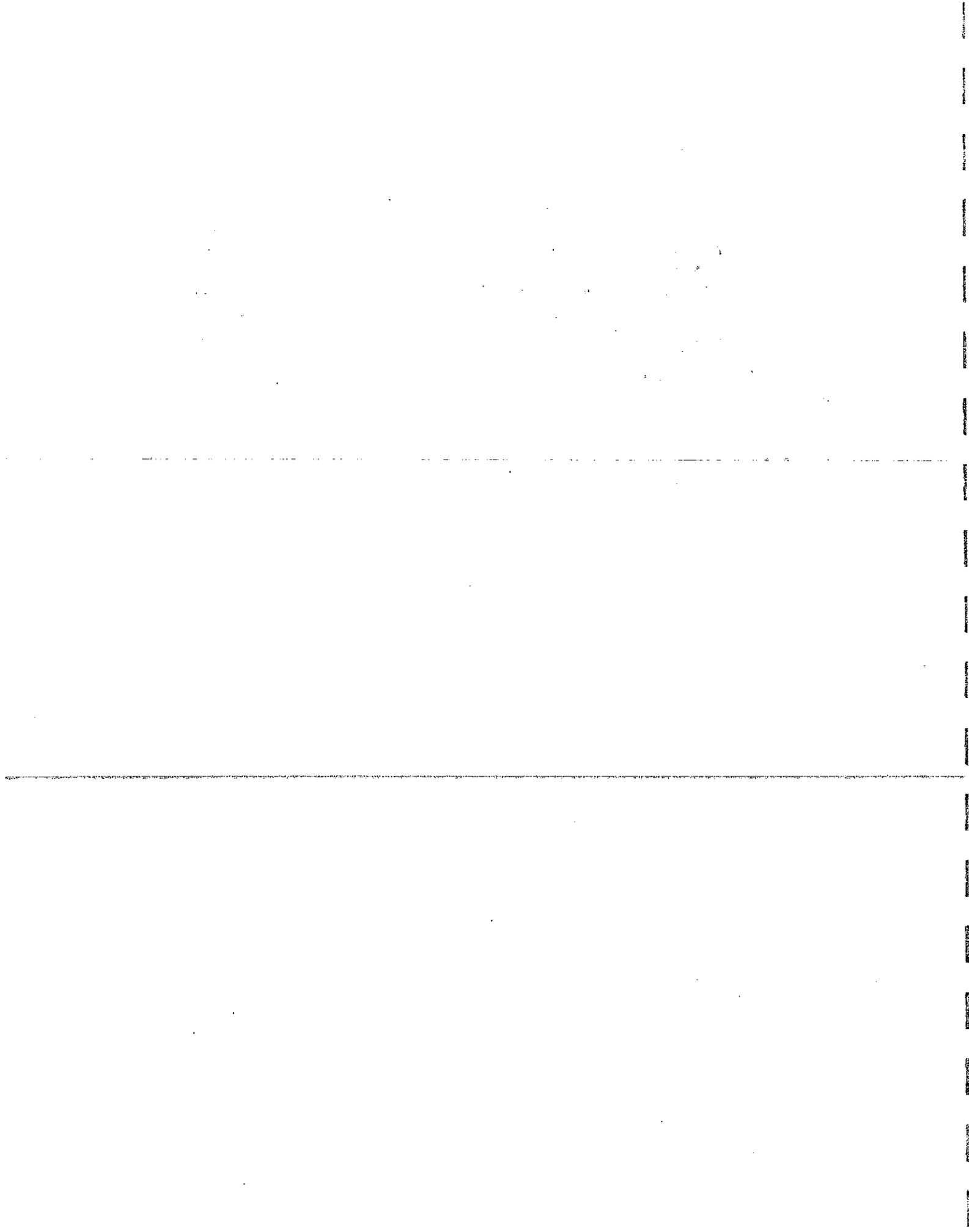
7. 329° 00' 301.52 feet along the remainder of L.C. Award 7713:2, Part 2;
8. 95° 28' 735.97 feet along Ld. Ct. App. 1087 (Lot 445-A-1);
9. 149° 00' 1,360.30 feet along Ld. Ct. App. 1087 (Lot 445-A-1 and Lot 445-A-3);
10. 190° 41' 30" 118.17 feet along Ld. Ct. App. 1087 (Lot 445-A-3), passing over Triangulation Station "KAUAI NORTH BASE" at 98.95 feet, to the point of beginning and containing an area of 30.000 acres.

EXHIBIT "D"

[ADJACENT PROPERTY]

All of that certain parcel of land (being portions of the land(s) described in and covered by Royal Patent Number 4481, Land Commission Award Number 7713, Apana 2, Part 7 to V. Kamamalu, Royal Patent Grant Number 188, Apana 1 to Wm. L. Lee, and portion of Royal Patent Number 4478, Land Commission Award Number 7713, Apana 2, Part 2 to V. Kamamalu) situate, lying and being at Hanamaulu, Kalapaki, Nawiliwili, Island and County of Kauai, State of Hawaii, bearing Tax Key designation 3-8-002-002 (4), and containing an area of 5,379.94 acres, more or less.

EXCLUDING THEREFROM Lot 1-B, being the property described in Exhibit "A" to this Deed.



106



R-1106 STATE OF HAWAII
BUREAU OF CONVEYANCES
RECORDED
DEC 29, 2005 10:30 AM
Doc No(s) 2005-265794



/s/ CARL T. WATANABE
REGISTRAR OF CONVEYANCES

20 2/3 Z9

CTax (15): \$1.50

Ka

AFTER RECORDATION, RETURN BY MAIL () PICKUP ()

Case Bigelow & Lombardi (DML)
737 Bishop Street, Suite 2600
Honolulu, HI 96813
Telephone: 547-5400

Total Pages: 8

TYPE OF DOCUMENT:

DEED

PARTIES TO DOCUMENT:

Grantor: VISIONARY LLC
3-1850 Kaunualii Highway
Lihue, Hawaii, 96766

Grantee: ISLAND SCHOOL
3-1875 Kaunualii Highway
Lihue, Hawaii 96766

PROPERTY DESCRIPTION: LIBER/PAGE:

See Exhibit "A"

DOCUMENT NO.:
TRANSFER CERTIFICATE OF
TITLE NO(S).

TMK No.: (4) 3-8-002-002

DEED

KNOW ALL MEN BY THESE PRESENTS THAT:

VISIONARY LLC, a Virginia limited liability company, whose principal place of business is 3-1850 Kaunualii Highway, Lihue, Hawaii, 96766 and whose post office address is P. O. Box 662069, Lihue, Hawaii, 96766; hereinafter called the "Grantor", in consideration of the sum of Ten Dollars (\$10.00) and other good and valuable consideration to the Grantor paid by **ISLAND SCHOOL**, a Hawaii non-profit corporation, the address of which is 3-1875 Kaunualii Highway, Lihue, Hawaii 96766, hereinafter called the "Grantee", the receipt of which is acknowledged, does hereby grant and quitclaim unto the Grantee the real property described in Exhibit "A" attached hereto and incorporated herein by reference (sometimes the "Premises").

TOGETHER WITH the reversions, remainders, rents, issues and profits thereof, and all of the estate, right, title, and interest of the Grantor, both at law and in equity, therein and thereto.

TO HAVE AND TO HOLD the same, together with the improvements thereon, and all rights, easements, privileges and appurtenances thereunto belonging or appertaining, unto the Grantee, in fee simple

SUBJECT, HOWEVER, TO and/or excluding each of those items set forth in Exhibit "A" as encumbrances or reservations in favor of Grantor.

The Grantee acknowledges and agrees that the premises may be affected periodically by the adverse environmental conditions more particularly described in Exhibit "A" attached hereto, accepts the possibility of the occurrence of the same, and holds harmless the Grantor and its lessees, tenants, licensees, and occupants from any responsibility for the elimination or abatement of said adverse environmental conditions. The covenants of the Grantee herein contained and the encumbrances set forth in Exhibit "A" shall run with the land and be binding upon the Grantee, its licensees and invitees, and all persons who shall hereafter have an interest in the land hereby conveyed.

Grantee further acknowledges and agrees that so long as the Premises remains classified within the Agricultural District by the State Land Use Commission of the State of Hawaii, use of the Premises shall be and is hereby restricted to those uses permitted by the State Land Use Commission Rules and Regulations and Charter 205 Hawaii Revised Statutes.

This conveyance and the respective covenants of the Grantor and the Grantee shall be jointly and severally binding upon the person or persons identified above as "Grantor" and "Grantee," if entered into by more than one person, and shall run in favor of, inure to the benefit of, and be binding upon the person or persons identified above as Grantor and Grantee, and their respective estates, heirs, executors, administrators, personal representatives, successors, and assigns. The use herein of the singular in reference to a party shall include the plural and the use of a pronoun of any gender shall include all genders. The term "person" shall include an individual, partnership, association or corporation, as the context may require.

IN WITNESS WHEREOF, the Grantor and the Grantee have caused these presents to be
duly executed this 22nd day of December 2005.

VISIONARY, LLC,
a Virginia limited liability company

By Warren H. Haruki
Name: Warren H. Haruki
Title: President and Chief Executive Officer

By Sandra L. Day
Name: Sandra L. Day
Title: Treasurer

Grantor

ISLAND SCHOOL
a Hawaii non-profit corporation

By David W. Pratt
Name: David W. Pratt
Title: President

By Katherine Richardson
Name: KATHERINE G. RICHARDSON
Title: SECRETARY

Grantee

STATE OF HAWAII)
COUNTY OF KAUAI) SS:

On this 22nd day of Dec., 2009, before me appeared Warren H. Horuki
and Sandra L. Day, to me personally known, who, being by me duly sworn,
did say that they are the President and Chief Executive Officer and Treasurer
respectively, of VISIONARY, LLC, a Virginia limited liability company, ~~and that the seal affixed to~~
~~the foregoing instrument is the corporate seal of said corporation, and that the instrument was~~
~~signed and sealed in~~ behalf of said corporation by authority of its Board of Directors, and the said
officers acknowledged the instrument to be the free act and deed of said corporation.

Sly/N.P.

Sharyl E. Lam Yuan LS
Type or print name Sharyl E. Lam Yuan
Notary Public, State of Hawaii

My commission expires: 12-16-2009

STATE OF HAWAII
COUNTY OF KAUAI

)
) SS.
)

On this 22nd day of December, 2005, before me personally appeared David W. Pratt and Katherine G. Richardson, to me personally known, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable, in the capacities shown, having been duly authorized to execute such instrument in such capacities.

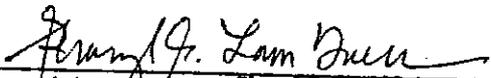
 LS
Type or print name: Sheryl E. Lam Yuen
Notary Public, State of Hawaii
My commission expires: 12-16-2009

EXHIBIT "A"

(Metes and Bounds for Lot 1-A-2)

SUBJECT, HOWEVER, to all encumbrances of record.

LOT 1-A-2

LAND SITUATED AT NAWILIWILI, LIHUE, KAUAI, HAWAII

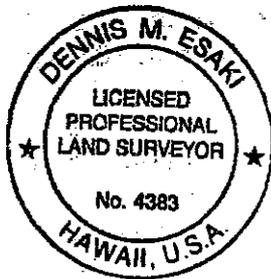
Being a Portion of L. C. Aw. 7713:2, Part 2 to V. Kamamalu
Being Also a Portion of Grant 188:1

Beginning at the north corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "KALEPA" being 8,898.35 feet South and 14,888.66 feet West, thence running by azimuths measured clockwise from true South:

1.	287° 00'	1000.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
2.	197° 00'	75.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
3.	287° 00'	1220.82	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
4.	20° 00'	287.17	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
5.	3° 28' 40"	507.42	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
6.	95° 28'	433.11	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
7.	199° 00'	90.33	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
8.	179° 00'	79.00	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
9.	161° 00'	158.18	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
10.	58° 00'	71.31	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
11.	90° 00'	91.76	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);

EXHIBIT A

12.	53° 11'	162.23	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
13.	329° 00'	254.94	feet along the remainder of L. C. Aw. 7713:2, Part 2 (Grant 188:1);
14.	95° 28'	735.97	feet along Land Court Application 1087;
15.	149° 00'	1360.30	feet along Land Court Application 1087;
16.	190° 41' 30"	118.17	feet along Land Court Application 1087, passing over North Base Triangulation Station at 98.95 feet, to the point of beginning and containing an area of 38.448 acres.



Lihue, Hawaii
December 2005

DESCRIPTION PREPARED BY:
ESAKI SURVEYING AND MAPPING, INC.

A handwritten signature in black ink, appearing to read "Dennis M. Esaki", written over a horizontal line.

Dennis M. Esaki
Licensed Professional Land Surveyor
Certificate Number 4383

**FINANCIAL AUDIT OF THE
Island School**

June 30, 2015

EXHIBIT "5"

Island School

TABLE OF CONTENTS

	Page
INDEPENDENT AUDITOR'S REPORT	3
FINANCIAL STATEMENTS	
Statement of Financial Position	5
Statement of Activities	7
Statement of Cash Flows	8
Notes to Financial Statements	9
SUPPLEMENTAL INFORMATION	
Schedule of Expenses	18

SONODA & ISARA, LLP
Certified Public Accountants

INDEPENDENT AUDITOR'S REPORT

To the Board of Directors of
Island School

We have audited the accompanying financial statements of Island School (a nonprofit organization) which comprise the statement of financial position as of June 30, 2015, and the related statements of activities and cash flows for the year then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation on the financial statements in order to design audit procedures in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Island School as of June 30, 2015, and the changes in its net assets and its cash flows for the year then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matter

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The schedule of expenses on page 18 is presented for purposes of additional analysis and is not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.

Sonoda & Isara, LLP

A handwritten signature in black ink, appearing to read "Sonoda & Isara, LLP", written in a cursive style.

Honolulu, Hawaii
February 17, 2016

Island School
STATEMENT OF FINANCIAL POSITION
June 30, 2015

ASSETS

CURRENT ASSETS

Cash		\$ 1,271,205
Tuition receivable	\$ 2,106,032	
Other receivables	2,036	
Less allowance for doubtful accounts	<u>(40,000)</u>	2,068,068
Due from plant fund		10,000
Deferred financial assistance		707,770
Prepaid expenses		92,631
Inventories		<u>6,650</u>
Total current assets		4,156,324

PROPERTY AND EQUIPMENT

Land and improvements		1,947,661
Buildings and improvements		9,203,335
Furniture and equipment		1,496,008
Other		22,662
Construction in progress		<u>368,835</u>
		13,038,501
Less accumulated depreciation		<u>(4,450,018)</u>
		<u>8,588,483</u>

INVESTMENTS

		<u>934,771</u>
Total assets		<u><u>\$ 13,679,578</u></u>

See accompanying notes and independent auditor's report

Island School
STATEMENT OF FINANCIAL POSITION (CONTINUED)
June 30, 2015

LIABILITIES AND NET ASSETS

CURRENT LIABILITIES

Accounts payable and accrued expenses	\$ 42,320
Accrued payroll and benefits	236,408
Due to operations	10,000
Deferred tuition and fees	4,126,041
Other deferred deposits	40,609
Current portion of long-term debt	<u>22,602</u>
Total current liabilities	<u>4,477,980</u>

LONG-TERM LIABILITIES

Note payable	<u>47,567</u>
--------------	---------------

NET ASSETS

Unrestricted	8,001,973
Temporarily restricted	538,668
Permanently restricted	<u>613,390</u>
	<u>9,154,031</u>

Total liabilities and net assets	<u>\$ 13,679,578</u>
----------------------------------	----------------------

See accompanying notes and independent auditor's report

Island School
STATEMENT OF ACTIVITIES
Fiscal Year Ended June 30, 2015

	<u>Unrestricted</u>	<u>Temporarily Restricted</u>	<u>Permanently Restricted</u>	<u>Total</u>
REVENUES AND OTHER SUPPORT				
Tuition (net of financial assistance of \$768,000)	\$ 4,218,209	\$ -	\$ -	\$ 4,218,209
Donations and grants	65,802	330,168	7,113	403,083
Class and club revenues	-	224,417	-	224,417
Revenues from fundraising events and special projects (net of expenses of \$112,156)	84,203	-	-	84,203
Lunch sales (net of expenses of \$61,882)	24,276	-	-	24,276
Dividends and interest	1,453	33,183	-	34,636
Realized and unrealized loss on investments	-	(20,978)	-	(20,978)
Rental income	21,750	-	-	21,750
Other	257,145	-	-	257,145
Net assets released from restrictions	556,274	(556,274)	-	-
TOTAL REVENUE AND OTHER SUPPORT	<u>5,229,112</u>	<u>10,516</u>	<u>7,113</u>	<u>5,246,741</u>
EXPENSES				
Program services	4,555,009	-	-	4,555,009
Management and general	889,874	-	-	889,874
TOTAL EXPENSES	<u>5,444,883</u>	<u>-</u>	<u>-</u>	<u>5,444,883</u>
INCREASE (DECREASE) IN NET ASSETS FROM OPERATIONS	(215,771)	10,516	7,113	(198,142)
NET ASSETS AT BEGINNING OF YEAR	8,217,744	431,767	606,277	9,255,788
Prior period adjustment	-	96,385	-	96,385
NET ASSETS AT BEGINNING OF YEAR (RESTATED)	<u>8,217,744</u>	<u>528,152</u>	<u>606,277</u>	<u>9,352,173</u>
NET ASSETS AT END OF YEAR	<u>\$ 8,001,973</u>	<u>\$ 538,668</u>	<u>\$ 613,390</u>	<u>\$ 9,154,031</u>

See accompanying notes and independent auditor's report

**Island School
STATEMENT OF CASH FLOWS
Fiscal Year Ended June 30, 2015**

OPERATING ACTIVITIES	
Decrease in net assets	\$ (198,142)
Adjustment to reconcile decrease in net assets to net cash provided by operating activities:	
Depreciation	313,560
Below-market loan amortization	14,054
Bad debt expense	97,426
Realized and unrealized capital (gains) losses	20,978
Change in operating assets and liabilities:	
Increase/decrease in net receivables	(352,151)
Increase/decrease in due from plant fund	(10,000)
Increase/decrease in deferred financial aid	(86,500)
Increase/decrease in prepaid expenses	20,589
Increase/decrease in inventories	3,691
Increase/decrease in accounts payable and accrued expenses	1,861
Increase/decrease in accrued payroll	(26,218)
Increase/decrease in due to operations	10,000
Increase/decrease in prepaid school fees	248,601
Increase/decrease in other deferred deposits	<u>(681)</u>
Net cash provided by operating activities	<u>57,068</u>
INVESTING ACTIVITIES	
Purchases of property and equipment	(131,442)
Net purchases of investments	(169,133)
Proceeds from sale of investments	<u>156,827</u>
Net cash used in investing activities	<u>(143,748)</u>
FINANCING ACTIVITIES	
Payments toward notes payable	<u>(37,500)</u>
Net cash used in financing activities	<u>(37,500)</u>
NET DECREASE IN CASH AND CASH EQUIVALENTS	(124,180)
Cash and cash equivalents at beginning of year	<u>1,395,385</u>
Cash and cash equivalents at end of year	<u><u>\$ 1,271,205</u></u>

See accompanying notes and independent auditor's report

Island School
NOTES TO FINANCIAL STATEMENTS
Fiscal Year Ended June 30, 2015

**NOTE A - NATURE OF ORGANIZATION AND SIGNIFICANT ACCOUNTING
POLICIES**

Nature of organization:

Island School is a private nonprofit organization. Incorporated on February 9, 1976, under the laws of the State of Hawaii, Island School teaches Kauai children in Pre-kindergarten, Kindergarten and Grades 1-12. Approximately 375 students were enrolled at the conclusion of the School year ended June 30, 2015. The School operates at a 38.5 acre campus in Puhī, Kauai, Hawaii.

Principle of accounting:

The financial statements have been prepared on the accrual basis of accounting and in conformity with the standards promulgated by the American Institute of Certified Public Accountants in its audit guide for not-for-profit organizations.

Financial statement presentation:

The School is required to report information regarding its financial position and activities according to three classes of net assets: Unrestricted net assets, temporarily restricted net assets, and permanently restricted net assets as follows:

Unrestricted net assets - Net assets that are not subject to donor-imposed stipulations.

Temporarily restricted net asset - Net assets subject to donor-imposed stipulations that may or will be met, either by actions of the School and/or the passage of time. When a restriction expires, temporarily restricted net assets are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions.

Permanently restricted net assets - Net assets subject to donor-imposed stipulations that they be maintained permanently by the School. Generally, the donors of these assets permit the School to use all or part of the income earned on any related investments for general or specific purposes.

Contributions:

Contributions, including unconditional promises to give, are recorded as made. All contributions are available for unrestricted use unless specifically restricted by the donor. Conditional promises to give are recognized when the conditions on which they depend are substantially met. Unconditional promises to give due in the next year are recorded at their net realizable value. Unconditional promises to give due in subsequent years are reported at the present value of their net realizable value, using risk-free interest rates applicable to the years in which the promises are to be received.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

**NOTE A - NATURE OF ORGANIZATION AND SIGNIFICANT ACCOUNTING
POLICIES (CONTINUED)**

Investments:

Investments in marketable securities with readily determinable fair values and all investments in debt securities are valued at their fair values in the statement of financial position. Unrealized gains and losses are included in the statement of activities.

Tuition receivables:

Tuition receivables includes student tuition fees. The tuition receivables are stated at the amount management expects to collect from outstanding balances. Management provides for probable uncollectible accounts base on its assessment of the current status of individual accounts.

Property and equipment:

If an expenditure results in an asset with an estimated useful life of five years or more, and/or was acquired or produced for a cost of \$50,000 or more, the expenditure is capitalized and depreciated or amortized over the estimated useful life of the asset.

Property and equipment are recorded at cost or, if donated, at fair value at the time of donation. Depreciation is provided for under the straight-line method over the following estimated useful lives:

Furniture and equipment	5-10 years
Buildings	40 years

Income taxes:

The School has obtained tax exempt status under Internal Revenue Code Section 501 (c)(3) and application state law.

The Organization's federal Form 990 for 2013, 2014, and 2015 are subject to examination by the IRS, generally for 3 years after they were filed.

Statement of cash flows:

Cash equivalents, if any, reflected in the Statement of Cash Flows include certificates of deposit and other investments with original maturities of three months or less.

Donated materials and services:

Donated materials and equipment are reflected as contributions in the accompanying financial statements at their estimated fair values at date of donation. No amounts

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

**NOTE A - NATURE OF ORGANIZATION AND SIGNIFICANT ACCOUNTING
POLICIES (CONTINUED)**

have been reflected in the statements for donated services inasmuch as no objective basis is available to measure the value of such services and these services do not meet recognition criteria.

Allocated costs:

Expenses by function have been allocated among program and supporting services classifications on the basis of actual expenditures and on estimates made by the School's management.

Tuition:

Revenues from tuition are recognized monthly. The School's enrollment agreement states that the parents are committed to tuition for the entire school year whether or not the child remains enrolled for the full year. Parents are allowed to select from three payment plans.

Delinquent accounts are charged to bad debt expense as they are deemed uncollectible based upon a periodic review of the accounts and collection efforts.

Deferred revenues:

Deferred revenues results from the School recognizing registration and tuition revenue in the period in which the related educational instruction is performed. Accordingly, tuition and fees for the next school year are deferred until instruction commences.

Advertising costs:

The School expenses nondirect-response advertising costs as they are incurred and no direct-response advertising costs were incurred.

NOTE B - MANAGEMENT'S USE OF ESTIMATES

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE C - INVESTMENTS

Investments consist of mutual fund investments and certificates of deposit stated at market value according to broker statements and consist of the following at June 30, 2015:

	Cost	Market Value	Cumulative Unrealized Gain(Loss)
Mutual funds - fixed income	\$ 369,246	\$ 362,910	\$ (6,336)
Mutual funds - equity	483,122	571,861	88,739
	\$ 852,368	\$ 934,771	\$ 82,403

The mutual fund investments represents endowments permanently restricted and include undistributed temporarily restricted investment earnings. Earnings from the certificates of deposit are classified as unrestricted.

Earnings consisted of the following:

Mutual funds - dividends and interest	\$ 33,183
Mutual funds - realized loss	(3,266)
Mutual funds - unrealized loss	(17,712)
	\$ 12,205

NOTE D - PENSION PLAN

The School's employees participate in a retirement plan established pursuant to Section 403 (b) of the Internal Revenue Code, (IRC). All full time employees with one year of service are eligible to participate and they may contribute a percentage of their gross wages subject to IRC limitations. The School accrued a contribution of 2% of eligible employees' compensation for the plan year ended June 30, 2015 in the amount of \$50,907.

NOTE E - UNINSURED CASH BALANCES

As of June 30, 2015, cash and certificates of deposit held in certain financial institutions exceeded the institutions' \$250,000 federal depository insurance coverage limit by \$771,605.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE F - NOTES PAYABLE

In October, 2008, the School received a \$300,000 interest-free note payable to the Kauai Island Utility Cooperative as part of federal program administered by the U.S. Department of Agriculture. The note is secured by a stand-by letter of credit for \$300,000. The note is payable in monthly installments of \$3,125 commencing October, 2010 and ending in September, 2018.

In accordance with generally accepted accounting principles, the note payable was discounted based on the fair market value of the loan at a rate of 6% per annum. The original discount of \$132,500 was recorded as a temporally restricted contribution during the fiscal year ended June 30, 2010. The discount is to be amortized over the life of the loan as interest expense. During the current fiscal year \$14,054 was amortized.

Current maturities, net of amortized discounts are as follows:

<u>Fiscal Year Ended</u>	<u>Note Payable</u>	<u>Interest Amortization</u>	<u>Total</u>
6/30/2016	37,500	(14,898)	22,602
6/30/2017	37,500	(15,791)	21,709
6/30/2018	37,500	(16,739)	20,761
6/30/2019	9,375	(4,278)	5,097
	<u>\$ 121,875</u>	<u>\$ (51,706)</u>	<u>\$ 70,169</u>

The School also has a \$525,000 revolving line of credit, of which \$525,000 remained unused at June 30, 2015. Advances are payable on demand and carry an interest rate of 1.25% above the bank's prime rate. At June 30, 2015, the effective interest rate was 5.625%. The credit line is secured by substantially all assets of the School.

NOTE G - NET ASSETS

Temporarily restricted net assets are released from donor restrictions primarily by incurring expenses that satisfy the restricted purposes. Net assets of released from restriction in the fiscal year ended June 30, 2015, were for program expenditures and facility improvements.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE G - NET ASSETS (CONTINUED)

At June 30, 2015, temporarily restricted net assets consisted of contributions and grants, which are restricted for various purposes by the donors as follows:

Below-market loan discount	\$ 51,706
Financial aid and professional development (endowment fund)	346,582
Classroom and club funds	129,367
Other grants	11,013
	<u>\$ 538,668</u>

Permanently restricted net assets consist of endowment fund assets to be held indefinitely. The income is to be used to support financial aid and professional development.

NOTE H - ENDOWMENTS

The School's endowment consists of approximately 17 individual funds established for a variety of purposes. Its endowment includes both donor-restricted funds and funds designated by the Board of Directors to function as endowments. As required by generally accepted accounting principles, net assets associated with endowment funds, including funds designated by the Board of Directors to function as endowments, are classified and reported based on the existence or absence of donor-imposed restrictions.

The Board of Directors of the School has interpreted the State Prudent Management of Institutional Funds Act (SPMIFA) as requiring the preservation of the fair value of the original gift as of the gift date of the donor-restricted endowment funds absent explicit donor stipulations to the contrary. As a result of this interpretation, the School classifies as permanently restricted net assets (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment, and (c) accumulations to the permanent endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portion of the donor-restricted endowment fund that is not classified in permanently restricted net assets is classified as temporarily restricted net assets until those amounts are appropriated for expenditure by the School in a manner consistent with the standard of prudence prescribed by SPMIFA. In accordance with SPMIFA, the School considers the following factors in making a determination to appropriate or accumulate donor-restricted endowment funds: (1) the duration and preservation of the various funds, (2) the purposes of the donor-restricted

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE H - ENDOWMENTS (CONTINUED)

endowment funds, (3) general economic conditions, (4) the possible effect of inflation and deflation, (5) the expected total return from income and the appreciation of investments, (6) other resources of the School, and (7) the School's investment policies.

Investment Return Objectives, Risk Parameters and Strategies. The School has adopted investment and spending policies, approved by the Board of Directors, for endowment assets that attempt to provide a predictable stream of funding to programs supported by its endowment funds while also maintaining the purchasing power of those endowment assets over the long-term. Accordingly, the investment process seeks to achieve an after-cost total real rate of return, including investment income as well as capital appreciation, which exceeds the annual distribution with acceptable levels of risk. Endowment assets are invested in a well diversified asset mix, which includes equity and debt securities, that is intended to result in a consistent inflation-protected rate of return that has sufficient liquidity to make an annual distribution of up to 5%, while growing the funds if possible. Therefore, the School expects its endowment assets, over time, to produce an average rate of return of approximately 8% annually. Actual returns in any given year may vary from this amount. Investment risk is measured in terms of the total endowment fund; investment assets and allocation between asset classes and strategies are managed to not expose the fund to unacceptable levels of risk.

Spending Policy. The School has a policy of appropriating for distribution each year up to 5% of its endowment fund's average fair value of the prior 12 quarters through the calendar year-end preceding the fiscal year in which the distribution is planned. In establishing this policy, the School considered the long-term expected return on its investment assets, the nature and duration of the individual endowment funds, many of which must be maintained in perpetuity because of donor-restrictions, and the possible effects of inflation. The School expects the current spending policy to allow its endowment funds to grow at a nominal average rate of 4% annually. This is consistent with the School's objective to maintain the purchasing power of the endowment assets as well as to provide additional real growth through new gifts and investment return.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE H - ENDOWMENTS (CONTINUED)

Endowment Net Asset Composition by Type of Fund as of June 30, 2015 is as follows:

	<u>Unrestricted</u>	<u>Temporarily Restricted</u>	<u>Permanently Restricted</u>	<u>Total Net Endowment Assets</u>
Donor-restricted endowment funds	\$ -	\$ 346,582	\$ 613,390	\$ 959,972
Board-designated endowment funds	-	-	-	-
	<u>\$ -</u>	<u>\$ 346,582</u>	<u>\$ 613,390</u>	<u>\$ 959,972</u>

Changes in endowment net assets as of June 30, 2015 are as follows:

	<u>Unrestricted</u>	<u>Temporarily Restricted</u>	<u>Permanently Restricted</u>	<u>Total Net Endowment Assets</u>
Endowment net assets, beginning of year	\$ -	\$ 362,377	\$ 606,277	\$ 968,654
Contributions	-	-	7,113	7,113
Investment income	-	29,917	-	29,917
Net appreciation (depreciation)	-	(17,712)	-	(17,712)
Other reclassifications	-	-	-	-
Amounts appropriated for expenditure	-	(28,000)	-	(28,000)
Endowment net assets, end of year	<u>\$ -</u>	<u>\$ 346,582</u>	<u>\$ 613,390</u>	<u>\$ 959,972</u>

NOTE I - FAIR VALUE MEASUREMENTS

FASB ASC Topic 820, *Fair Value Measurements and Disclosures*, establishes a hierarchy for ranking the quality and reliability of information used to determine fair values and requires assets and liabilities carried at fair value to be classified and disclosed in one of the following three categories:

- Level 1: Quoted prices (unadjusted) in active markets for identical assets or liabilities that the Board has the ability to access at the measurement date.
- Level 2: Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly through corroboration with observable market data.
- Level 3: Unobservable inputs that are not corroborated by market data.

Island School
NOTES TO FINANCIAL STATEMENTS (CONTINUED)
Fiscal Year Ended June 30, 2015

NOTE I - FAIR VALUE MEASUREMENTS (CONTINUED)

The fair values of financial assets are the same as their cost basis. The fair values of financial liabilities are the same as their cost basis generally because management believes that any discount on early extinguishment would be insignificant. The fair values of investments are recorded based on quoted prices in active markets (Level 1). The financial statements as of and for the year ended June 30, 2015 do not include any nonrecurring fair value measurements.

NOTE J - PRIOR PERIOD ADJUSTMENT

During the year, the School began recognizing its individual class and club funds as part of its Statement of Activities. The effects of this change was to increase beginning temporarily restricted net assets by \$96,385, which is the amount of the deferred balance at the beginning of the year.

NOTE K - SUBSEQUENT EVENTS

Subsequent events were evaluated to February 17, 2016, which was the date the financial statements were available to be issued.

**Island School
SUPPLEMENTAL SCHEDULE OF EXPENSES
Fiscal Year Ended June 30, 2015**

Program Services	<u>Total</u>
Salaries and Benefits	
Salaries and wages	\$ 2,831,741
Employee benefits	409,042
Payroll taxes	237,876
Other personnel costs	216,544
Substitutes	53,989
	<u>3,749,192</u>
Occupancy	
Utilities	108,521
Janitorial services	87,342
Repairs and maintenance	50,412
Refuse	17,465
	<u>263,740</u>
Program and Professional	
Class and club expenses	210,161
Program supplies and activities	172,505
In-staff development	41,322
Stipends	24,080
	<u>448,068</u>
Cafeteria	
Food and supplies	<u>14,770</u>
Transportation	
Vehicle maintenance	<u>79,239</u>
	<u><u>\$ 4,555,009</u></u>
 General and Administrative	
Depreciation	\$ 313,560
Equipment maintenance and repair	109,623
Bad debts	97,426
Bank fee	89,374
Insurance	44,867
Payroll and accounting service	41,907
Miscellaneous	36,802
Public relations	34,175
Board of Directors	29,952
Office supplies	18,928
Interest	14,054
Development	12,628
Staff recruitment	11,937
Parent Association	10,944
Postage	7,762
Equipment lease and rental	7,280
Telephone	4,490
General excise tax	4,165
	<u>889,874</u>
	<u><u>\$ 889,874</u></u>

See accompanying notes and independent auditor's report

Final Environmental Assessment/ Finding of No Significant Impact

Island School Updated Master Plan

Puhi, Līhu‘e, Kaua‘i, Hawai‘i

Tax Map Key: (4) 3-8-002: 016

Prepared For

**ISLAND SCHOOL
3-1875 Kaumuali‘i Highway
Līhu‘e, Kaua‘i, Hawai‘i 96766-9597**

Prepared By

**WILSON OKAMOTO CORPORATION
1907 South Beretania Street, Suite 400
Honolulu, Hawai‘i 96826**

January 2013

***FINAL ENVIRONMENTAL ASSESSMENT
and
FINDING OF NO SIGNIFICANT IMPACT***

**ISLAND SCHOOL
UPDATED MASTER PLAN**

Puhi, Līhu‘e District, Island of Kaua‘i, Hawai‘i

Tax Map Key: (4) 3-8-002: 016

Prepared For:

**Island School
3-1875 Kaumuali‘i Highway
Līhu‘e, Kaua‘i, Hawai‘i 96766-9597**

Prepared By:

**Wilson Okamoto Corporation
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawai‘i 96826**

January 2013

TABLE OF CONTENTS

	<u>Page</u>
PREFACE	P-1
PROJECT SUMMARY	S-1
1. INTRODUCTION	1-1
1.1 Introduction.....	1-1
1.2 Project Location.....	1-3
1.3 Background	1-3
1.4 Existing and Surrounding Uses	1-6
2. PROJECT DESCRIPTION	2-1
2.1 Project Need.....	2-1
2.2 Project Description	2-1
2.3 Sustainable Strategies	2-3
2.4 Development Schedule	2-4
3. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES	3-1
3.1 Climate	3-1
3.2 Geology, Topography and Soils	3-1
3.3 Hydrology	3-6
3.3.1 Surface Waters.....	3-6
3.3.2 Ground Water	3-10
3.3.3 Coastal Waters	3-10
3.4 Natural Hazards	3-11
3.4.1 Flood Hazard	3-11
3.4.2 Hurricanes/Strong Winds and Earthquakes	3-13
3.5 Flora	3-13
3.6 Fauna	3-14
3.7 Agricultural Resources	3-17
3.8 Air Quality.....	3-18
3.9 Noise	3-18
3.10 Hazardous Materials	3-19
3.11 Historic and Archaeological Resources.....	3-19
3.12 Cultural Resources.....	3-23
3.13 Visual Resources	3-26
3.14 Traffic	3-26
3.15 Socio-Economic Characteristics.....	3-32
3.16 Civil Defense	3-35
3.17 Police and Fire Protection Services	3-35
3.18 Medical Services	3-35
3.19 Schools.....	3-36
3.20 Recreational Facilities	3-36
3.21 Solid Waste Disposal	3-37
3.22 Utilities.....	3-37
3.22.1 Wastewater System.....	3-37
3.22.2 Water System	3-38

TABLE OF CONTENTS (CONTINUED)

	<u>Page</u>
3.22.3 Drainage System	3-38
3.22.4 Electrical and Communications Systems	3-39
4. RELATIONSHIP TO LAND USE PLANS AND POLICIES	4-1
4.1 State Land Use District.....	4-1
4.1.1 Conformance to the State Urban District Standards	4-1
4.2 Hawai'i State Plan	4-9
4.3 Hawai'i Coastal Zone Management Program.....	4-12
4.4 County of Kaua'i General Plan	4-19
4.5 County of Kaua'i Līhu'e Development Plan.....	4-23
4.6 County of Kaua'i Comprehensive Zoning Ordinance	4-24
4.7 County of Kaua'i Special Management Area.....	4-24
5. ALTERNATIVES TO THE PROPOSED ACTION.....	5-1
5.1 No Action Alternative.....	5-1
6. REQUIRED PERMITS AND APPROVALS.....	6-1
7. NOTICE OF DETERMINATION	7-1
8. REFERENCES	8-1
9. CONSULTATION	9-1
9.1 Pre-Assessment Consultation	9-1
9.2 Draft Environmental Assessment Consultation	9-2

List of Figures

	<u>Page</u>
Figure 1-1 Location Map	1-2
Figure 1-2 Tax Map Key: (4) 3-8-002: 016.....	1-4
Figure 1-3 Photo Key Map	1-7
Figure 1-3a Project Site Photos	1-8
Figure 1-3b Project Site Photos	1-9
Figure 1-3c Project Site Photos	1-10
Figure 2-1 Conceptual Master Site Plan	2-2
Figure 3-1 Soils Map.....	3-2
Figure 3-2 University of Hawai'i Land Study Bureau Map	3-4
Figure 3-3 Agricultural Lands of Importance in the State of Hawai'i Map	3-5
Figure 3-4 Surface Waters Map.....	3-7
Figure 3-5 Historic Surface Features Map	3-9
Figure 3-6 Flood Zone Map	3-12
Figure 4-1 Existing State Land Use Districts Map	4-2
Figure 4-1a Proposed State Land Use Districts Map.....	4-3
Figure 4-1b Proposed State Land Use Districts Map With Kaua'i Community College	4-6

TABLE OF CONTENTS (CONTINUED)**List of Figures (Continued)**

	<u>Page</u>
Figure 4-2 Existing County of Kaua'i General Plan Land Use Map	4-20
Figure 4-2a Proposed County of Kaua'i General Plan Land Use Map	4-22
Figure 4-3 Līhu'e Development Plan Land Use Map	4-25
Figure 4-4 County of Kaua'i Zoning Map	4-26

List of Tables

	<u>Page</u>
Table 1 Evaluation of Historic Features	3-22
Table 2 Existing and Projected Year 2020 (Without Project) Traffic Operating Conditions	3-30
Table 3 Projected Year 2020 (Without and With Project) Traffic Operating Conditions.....	3-31
Table 4 Population and Housing Characteristics: 2010	3-32
Table 5 Social and Economic Characteristics: 2010.....	3-34

Appendices

Appendix A:	Biological Surveys of the Island School Campus, Prepared by Rana Biological Consulting, Inc. and AECOS Consultants, September 24, 2010
Appendix B:	Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Prepared by Cultural Surveys Hawai'i, Inc., January 2013 And Letter from the State Department of Land and Natural Resources, Historic Preservation Division Dated October 26, 2012
Appendix C	Cultural Impact Assessment for the Kaua'i Community College Redesignation to Urban District Project, Prepared by Cultural Surveys Hawai'i, Inc., April 2012
Appendix D	Traffic Impact Report for the Island School Master Plan, Prepared by Wilson Okamoto Corporation, December 2010

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PREFACE

This Final Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) is prepared pursuant to Chapter 343, Hawai'i Revised Statutes (HRS), and Title 11, Chapter 200, Administrative Rules, Department of Health, State of Hawai'i. Proposed is an Applicant Action by Island School, Petitioner, to update its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. The proposed master plan for the 38.448-acre campus updates the current master plan approved through a Special Permit, Use Permit and Class IV Zoning Permit by the County of Kaua'i (County) Planning Commission on April 26, 2005.

The Petitioner is seeking to amend the County General Plan Land Use Map for the Island School campus (Petition Area) from the Agriculture designation to the Urban Center designation, and then reclassify the Petition Area from the State Agricultural District to the State Urban District. The reclassification of the Petition Area will allow the improvements in the proposed updated Island School master plan to be implemented without a State Special Permit. The need to amend the Petition Area from the County General Plan Agriculture designation to the Urban Center designation, and to reclassify from the State Agricultural District to the Urban District, is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaumuali'i Highway. Preparation of this EA is required for the proposed County General Plan Amendment pursuant to Chapter 343, HRS, and Title 11, Chapter 200, Hawai'i Administrative Rules. In conjunction with this EA, the Petition for General Plan Amendment has been filed with and is being concurrently processed by the County Planning Department.

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PROJECT SUMMARY

Petitioner:	Island School 3-1875 Kaumuali'i Highway Līhu'e, Kaua'i, Hawai'i 96766-9597
Approving Agency:	County of Kaua'i Planning Department 4444 Rice Street, Suite 473 Līhu'e, Hawai'i 96766
Location:	Puhi, Līhu'e District, Kaua'i, Hawai'i
Tax Map Key (TMK):	(4) 3-8-002: 016
Petition Area:	38.448 acres
Recorded Fee Owner:	Island School 3-1875 Kaumuali'i Highway Līhu'e, Kaua'i, Hawai'i 96766-9597
Existing Use:	Island School campus, and areas of undeveloped, vegetated land
State Land Use Classification:	Agricultural District
County General Plan:	Agriculture
Līhu'e Development Plan:	Agriculture
County Zoning:	Agriculture District (A) and Open District (O)
Special Management Area (SMA):	Outside of the SMA boundaries
Proposed Action:	Island School is proposing an update of its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 full-time equivalent (FTE) faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment. The proposed master plan for the 38.448-acre campus updates the current master plan approved through a Special Permit, Use Permit and Class IV Zoning Permit by the County of Kaua'i (County) Planning Commission on April 26, 2005.

The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, baseball field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces.

The Petitioner is seeking to amend the County General Plan Land Use Map for the Island School campus (Petition Area) from the Agriculture designation to the Urban Center designation, and then reclassify the Petition Area from the State Agricultural District to the State Urban District. The reclassification of the Petition Area will allow the improvements in the proposed updated Island School master plan to be implemented without a State Special Permit. The need to amend the Petition Area from the County General Plan Agriculture designation to the Urban Center designation, and to reclassify from the State Agricultural District to the Urban District, is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaumuali'i Highway.

Impacts:

No significant impacts are anticipated from the proposed amendments to the County General Plan and State land use designations and development of the project improvements.

**Required Permits
& Approvals:**

State of Hawai'i

Department of Business, Economic Development and Tourism, Land Use Commission

- State Land Use District Boundary Amendment

Department of Health

- National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Associated with Construction Activity

Department of Land and Natural Resources, Historic Preservation Division

- Chapter 6E, HRS, Historic Preservation

County of Kaua'i

Planning Department

- County General Plan Amendment
- Use Permit
- Class IV Zoning Permit

Department of Public Works

- Grading Permit
- Building Permit
- Drainage System Requirements

Department of Water:

- Water and Water System Requirements

Utility Companies

- Utility Service Requirements

**Agencies Consulted
In Pre-Assessment
Process:**

Federal

U.S. Army Corps of Engineers, Civil Works Technical Branch
U.S. Army Corps of Engineers, Regulatory Branch
U.S. Geological Survey
U.S. Fish and Wildlife Service
U.S. Department of Agriculture, Natural Resources Conservation Service

State of Hawai'i

Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism
Department of Business, Economic Development and Tourism, Land Use
Commission
Department of Business, Economic Development and Tourism, Office of
Planning
Department of Defense
Department of Education
Department of Health
Department of Health, Office of Environmental Quality Control
Department of Health, Environmental Planning Office
Department of Health, Environmental Management Division
Department of Health, Clean Water Branch
Department of Health, Wastewater Branch
Department of Land and Natural Resources
Department of Land and Natural Resources, Land Division
Department of Land and Natural Resources, Land Division, Kaua'i District
Department of Land and Natural Resources, Division of Forestry and
Wildlife

State of Hawai'i (continued)

Department of Land and Natural Resources, Division of Forestry and Wildlife, Kaua'i District
Department of Land and Natural Resources, Historic Preservation Division
Department of Transportation
Office of Hawaiian Affairs
University of Hawai'i at Mānoa, Environmental Center
University of Hawai'i Community Colleges, Kaua'i Community College

County of Kaua'i

Planning Department
Department of Public Works, Engineering Division
Department of Public Works, Building Division
Department of Public Works, Division of Solid Waste Management
Department of Public Works, Wastewater Management Division
Department of Water
Department of Parks and Recreation
Transportation Agency
Civil Defense Agency
Office of Economic Development
Police Department
Fire Department

Utilities

Kaua'i Island Utility Cooperative
Hawaiian Telcom
Oceanic Time Warner Cable

**Agencies Consulted
In Draft EA
Process:**

Federal

U.S. Army Corps of Engineers, Civil Works Technical Branch
U.S. Army Corps of Engineers, Regulatory Branch
U.S. Geological Survey
U.S. Fish and Wildlife Service
U.S. Department of Agriculture, Natural Resources Conservation Service

State of Hawai'i

Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism
Department of Business, Economic Development and Tourism, Land Use Commission
Department of Business, Economic Development and Tourism, Office of Planning
Department of Defense
Department of Education

State of Hawai'i (continued)

Department of Health
Department of Health, Office of Environmental Quality Control
Department of Health, Environmental Planning Office
Department of Health, Environmental Management Division
Department of Health, Clean Water Branch
Department of Health, Wastewater Branch
Department of Land and Natural Resources
Department of Land and Natural Resources, Land Division
Department of Land and Natural Resources, Land Division, Kaua'i District
Department of Land and Natural Resources, Division of Forestry and
Wildlife
Department of Land and Natural Resources, Division of Forestry and
Wildlife, Kaua'i District
Department of Land and Natural Resources, Historic Preservation
Division
Department of Transportation
Department of Transportation, Highways Division, Kaua'i District
Office of Hawaiian Affairs
University of Hawai'i at Mānoa, Environmental Center
University of Hawai'i Community Colleges, Kaua'i Community College

County of Kaua'i

Honorable Mayor Bernard P. Carvalho, Jr.
Office of the County Clerk
Council Chair Jay Furfaro
Council Vice Chair JoAnn Yukimura
Councilmember Nadine Nakamura
Councilmember Tim Bynum
Councilmember Dickie Chang
Councilmember KipuKai Kualii
Councilmember Mel Rapozo
Planning Department
Department of Public Works, Engineering Division
Department of Public Works, Building Division
Department of Public Works, Division of Solid Waste Management
Department of Public Works, Wastewater Management Division
Department of Water
Department of Parks and Recreation
Transportation Agency
Civil Defense Agency
Office of Economic Development
Police Department
Fire Department

Utilities

Kaua'i Island Utility Cooperative

Hawaiian Telcom

Oceanic Time Warner Cable

Others

Hawai'i State Library

Kaua'i Community College Library

Līhu'e Public Library

1. INTRODUCTION

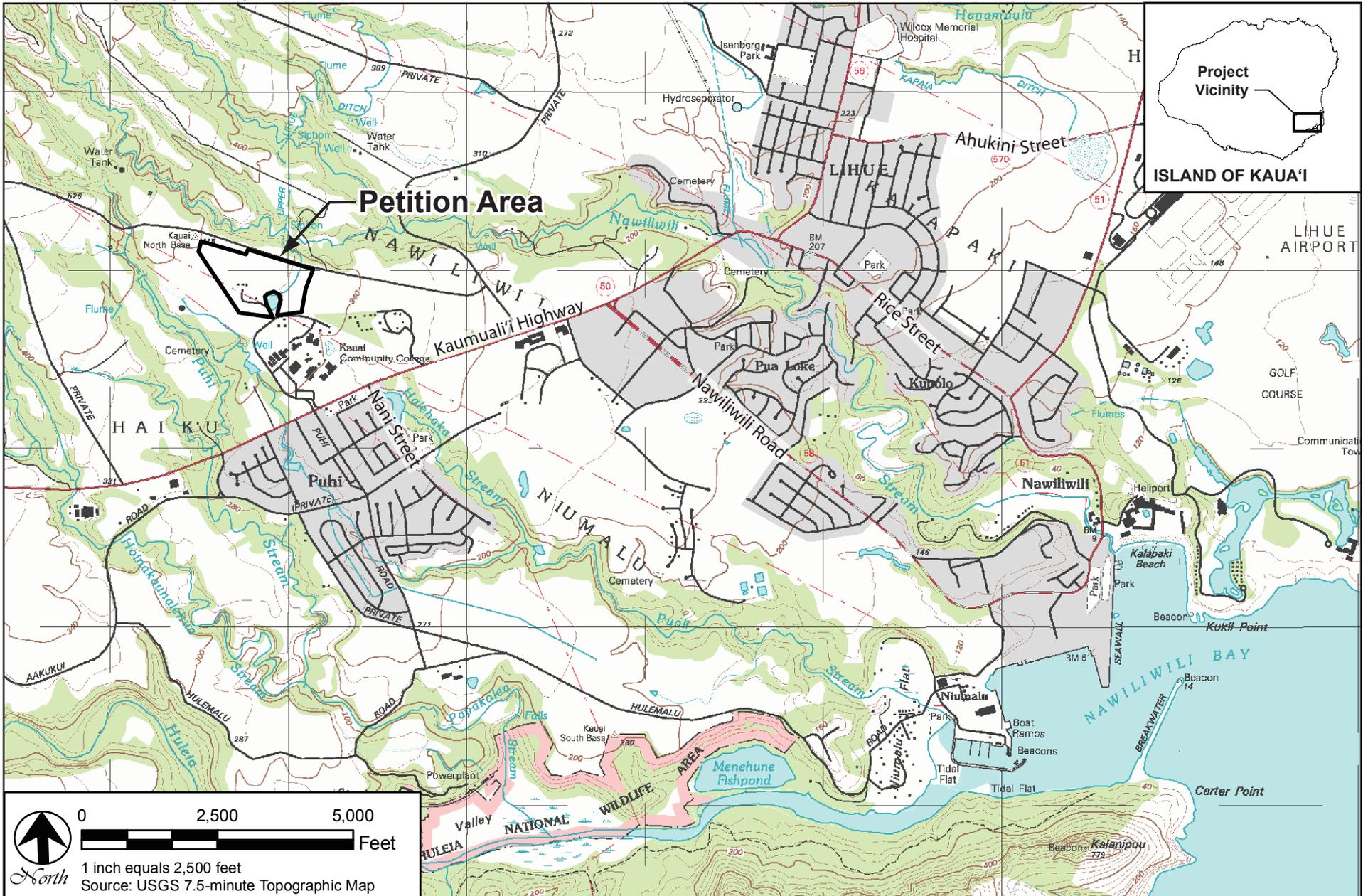
1.1 Introduction

Island School, Petitioner, is proposing an update of its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. The Island School campus, encompassing 38.448 acres (Petition Area), is located in Puhi, approximately two miles west of Līhu'e town, on the Island of Kaua'i (see Figure 1-1).

The Petitioner is seeking to amend the County of Kaua'i (County) General Plan Land Use Map for the Petition Area from the Agriculture designation to the Urban Center designation, and then reclassify the Petition Area from the State Agricultural District to the State Urban District. The County zoning designations for the Petition Area are Agriculture District (A) and Open District (O). The reclassification of the Petition Area will allow the improvements in the proposed updated Island School master plan to be implemented without a State Special Permit. Reclassification of the Petition Area to the State Urban District would convey land use jurisdiction to the County, which would regulate uses through its Comprehensive Zoning Ordinance (CZO). Preparation of this Environmental Assessment (EA) is required pursuant to Chapter 343, Hawai'i Revised Statutes (HRS) since the proposed project involves a County General Plan Amendment. As the Petitioner will pursue the County General Plan Amendment prior to petitioning for the State Land Use District Boundary Amendment, the County Planning Department is the Approving Agency for the EA. The Petition for General Plan Amendment has been filed with and is being concurrently processed by the Planning Department.

The need to amend the Petition Area from the County General Plan Agriculture designation to the Urban Center designation, and to reclassify from the State Agricultural District to the Urban District, is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaunualii Highway. It is noted that the University of Hawai'i Community Colleges (UHCC) is currently proposing to reclassify approximately 153 acres of the Kaua'i Community College campus, located adjacent to and southwest/south of the Petition Area, from the State Agricultural District to the Urban District. The Kaua'i Community College campus is, in turn, contiguous with existing Urban District lands to the south. Development of the Kaua'i Community College campus was previously permitted through a Special Permit granted by the State Land Use Commission (SLUC). However, Kaua'i Community College was subsequently apprised by the County Planning Department that future expansion of the campus will not be permitted through another Special Permit.

The respective Petitions for State Land Use District Boundary Amendment for Island School and the Kaua'i Community College campus are planned to be filed concurrently with the SLUC by April 2013. With the proposed reclassification of the Kaua'i Community College campus to the State Urban District, further expansion of the Urban District into the Petition Area would be logical, and will not contribute toward scattered or spot urban development.



Island School Updated Master Plan

LOCATION MAP

FIGURE

1-1

1.2 Project Location

The Petition Area is located adjacent to and north/northeast of the University of Hawai'i's Kaua'i Community College campus and approximately two miles west of Līhu'e town in Puhi, Līhu'e District, Island of Kaua'i. The Petition Area encompasses 38.448 acres owned by Island School, and is identified as Tax Map Key (TMK): (4) 3-8-002: 016 (see Figure 1-2).

1.3 Background

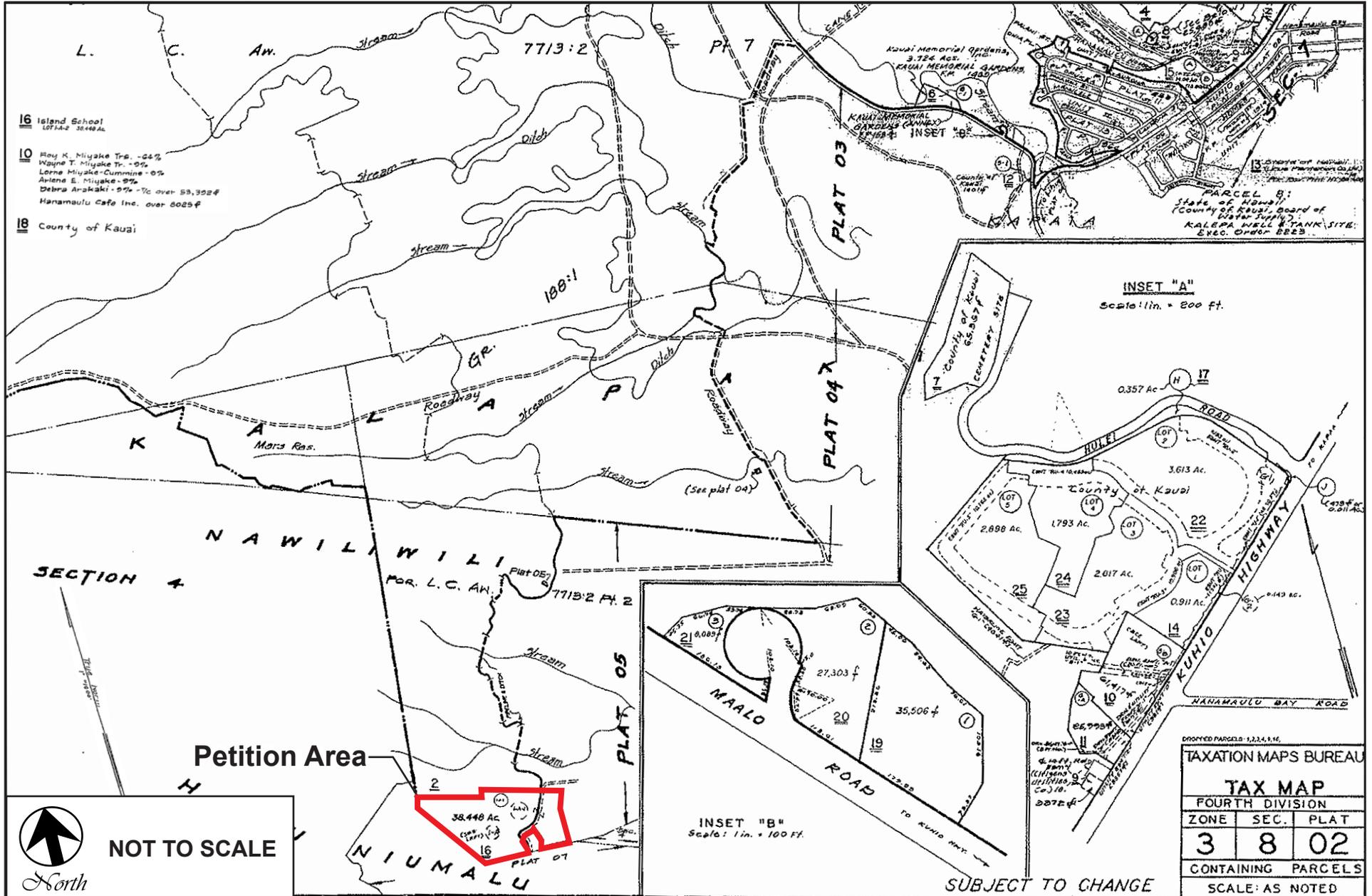
Island School was founded in 1977 by a group of Kaua'i parents and teachers concerned with providing quality education for Kaua'i's children. It is Kaua'i's largest private, non-sectarian, independent school accommodating Grades Pre-Kindergarten (Pre-K) through 12, and has a current enrollment of approximately 370 students. Island School is structured as a Hawai'i non-profit corporation, relies on tuition, grants and donations for its operating fund, and obtains no funds from governmental sources. It is governed by a Board of Directors consisting of up to 22 members.

Island School was originally located in Keālia on the east side of Kaua'i, in the old Keālia Camp Store Building on property leased from Līhu'e Plantation Company., Ltd. Initially, Island School primarily accommodated students in Grades K through 8. Between 1977 and 1990, the enrollment at Island School increased from 25 to 120 students, thereby reaching its maximum capacity at that location.

In 1991, Island School relocated from Keālia to its current Puhi location on a 10-acre site adjacent to and mauka of the Kaua'i Community College campus. The new site allowed for development of a larger school facility to meet the increased demand in student enrollment. The 10-acre site, designated in the State Agricultural District and County zoned Agriculture District (A), was deeded to Island School by the Līhu'e Plantation Company, Ltd. The relocation of Island School to the Puhi site and construction of new campus facilities were approved by the County Planning Commission on August 23, 1990 through a Special Permit, Use Permit, Variance Permit, and Class IV Zoning Permit. The school's master plan included development of the campus in two phases containing classroom facilities, administrative offices, athletic field/playground, library, cafeteria, off-street parking, and additional classroom facilities to accommodate future student enrollment projections. The Phase 1 improvements maintained Grades K through 8 with a projected enrollment of approximately 180 students and 20 faculty and staff. The facility improvements in Phase 1 included the relocation of five structures to the site, including two classroom buildings for Grades 6, 7 and 8, a groundskeeper/security house, an administration/library building, and a cafetorium; and construction of three new classroom structures. The Phase 2 improvements included staff housing, a sports center, a theater, additional classrooms, and support facilities, and were to be undertaken upon availability of funding.

On April 13, 1995, the County Planning Commission approved a revised master plan for Island School for construction of a multi-purpose building to be used as an enrichment center for art, music, and physical education under the existing land use permits.

On August 22, 1996, the County Planning Commission approved a Special Permit, Use Permit and Class IV Zoning Permit for the addition of a Grade 9 class to Island School to be housed in three existing portable classrooms. Enrollment of the Grade 9 class was projected to be a maximum of 30 students and approximately five associated staff.



Island School Updated Master Plan

TAX MAP KEY: (4) 3-8-002: 016

FIGURE

1-2

On August 14, 1997, the County Planning Commission approved a Special Permit, Use Permit and Class IV Zoning Permit for the addition of Grades 10, 11 and 12 to Island School, and construction of a new classroom building, multi-purpose athletic court, and additional parking. This approval allowed for the establishment of a full high school consisting of Grades 9 through 12, in addition to the existing Grades K through 8 lower school. Each high school grade was projected to consist of a maximum of 30 students, with approximately 12 full-time equivalent (FTE) associated faculty and staff at the high school.

In September 1998, Island School requested a Variance Permit and Class IV Zoning Permit for the acquisition of an additional 20 acres of adjacent land to the north and east for expansion of its campus. The 20-acre site is designated State Agricultural District and is County zoned Agriculture District (A) and Open District (O). The permit request was to subdivide the 20-acre site from the larger contiguous parcel owned by Līhu'e Plantation Company, Ltd., and consolidate it with the existing 10-acre site to create a 30-acre campus. The intent of the land acquisition was to accommodate future expansion of the campus resulting from enrollment increases. The 20 acres were to allow for development of additional structures and expansion of athletic and playing fields. On November 12, 1998, the County Planning Commission approved the Variance Permit and Class IV Zoning Permit to deviate from the "one-time" subdivision limitation for parcels within the Agriculture District (A).

On January 19, 2001, the County Planning Department approved a Class I Zoning Permit for the installation of one ready-built wooden structure with a new building foundation for use as a classroom. This classroom building was part of the approved master plan for the Island School campus.

On April 26, 2005, the County Planning Commission approved a Special Permit, Use Permit and Class IV Zoning Permit to acknowledge the revised master plan of Island School and allow construction of the Phase I improvements. The revised master plan included the following:

Phase I Improvements:

- A sports complex consisting of: 1) a 14,000 square-foot gymnasium with a regulation basketball court or two regulation volleyball courts; 2) a locker facility of approximately 4,800 square feet, including boys and girls lockers and showers/toilet, instructor's office/shower, laundry/janitorial, trainer's room, physical education (P.E.) education/meeting room, and weight room; and, 3) deferred construction of an eight-lane, 25 meter (m) outdoor swimming pool.
- A Hawaiian cultural pavilion of approximately 1,700 square feet.

Future Phase Improvements:

- Additional classrooms
- New library/learning center
- Cafeteria with student lounge
- Performing arts building

The Phase I improvements were intended to expand the participation of the existing student body enrollment of approximately 325 students in athletic and Hawaiian cultural activities. The future phase improvements were intended for the contemplated expansion of the student body enrollment to approximately 500 students, and were projected over a ten- to 15-year period.

In 2006, an additional 8.448 acres of adjoining land to the north and east was acquired through a beneficial gift from Grove Farm Company, Inc., and added to the Island School campus by boundary adjustment. This increased the total acreage of the Island School campus to 38.448 acres. The 8.448-acre area is designated State Agricultural District and is County zoned Agriculture District (A) and Open District (O).

In February 2010, the County Planning Department approved the constructing of a science building instead of the locker room/weight room and 25m swimming pool which were deferred to a later development timeline. The planned two-story science building, consisting of approximately 14,000 square feet of total floor area, was located within the original 10-acre master plan, and within the Phase I area of the revised master plan.

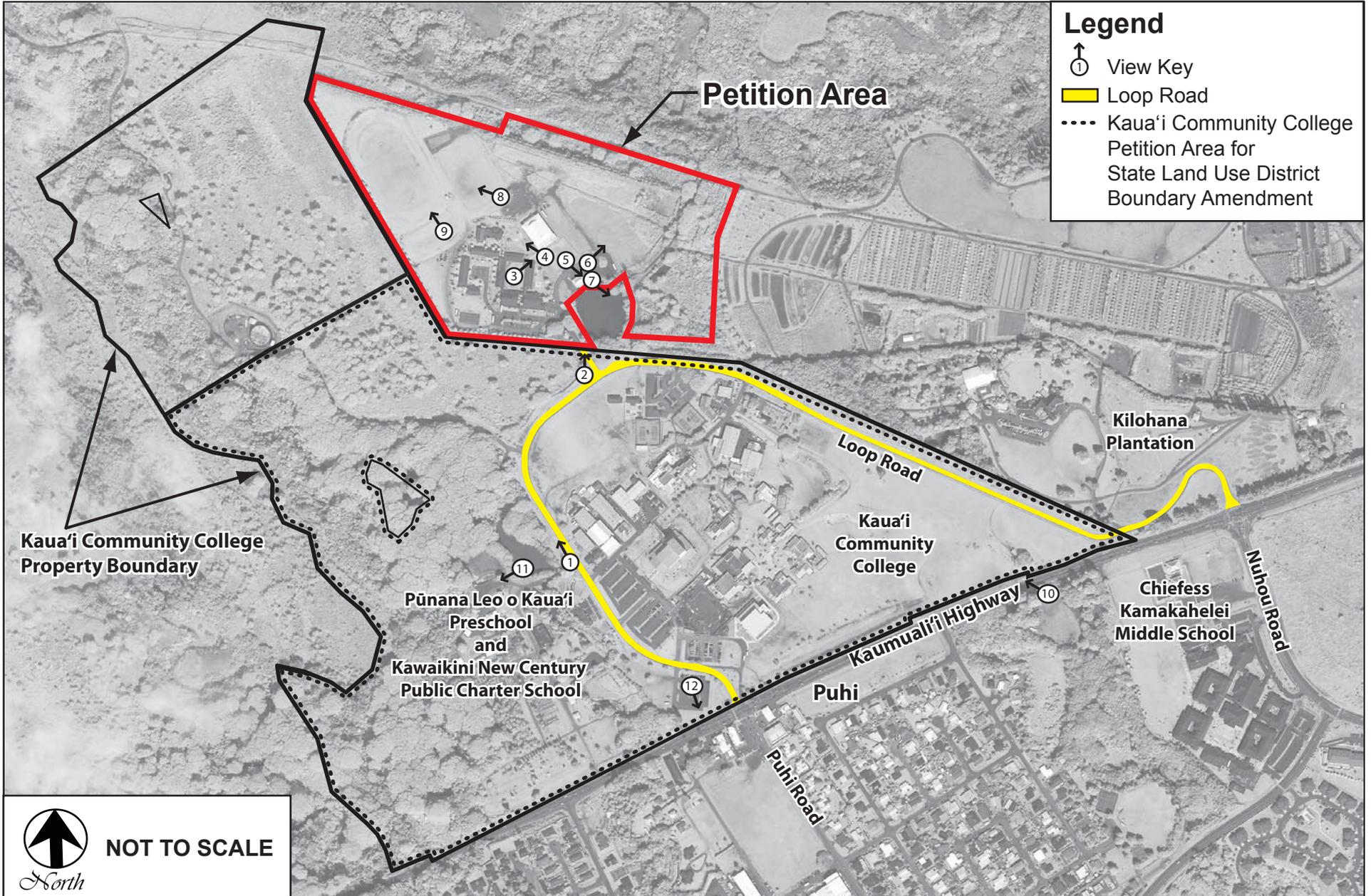
In July 2012, the County issued a building permit for the construction of a 200 kilowatt (kW) solar photovoltaic facility on an approximately one-acre site within the northeast portion of the Petition Area. Construction of the solar photovoltaic facility was completed in November 2012, and is currently operational. The solar photovoltaic facility includes more than 1,200 solar panels that will generate clean, renewable solar energy to meet the daytime needs of the Island School campus.

1.4 Existing and Surrounding Uses

Existing Uses: The Petition Area was previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area of approximately 30 acres encompassing the western and central portions of the site, has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; school parking; and, road access. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. Photos of the Petition Area shown in Figures 1-3a, 1-3b, and 1-3c are located on Figure 1-3.

Surrounding Uses: Land uses bordering the Petition Area include the University of Hawai'i's Kaua'i Community College campus to the southwest/south; a reservoir to the south; undeveloped, vegetated lands owned by Grove Farm Company, Inc. to the north; and, an agro-tourism venture operated by Kaua'i Kilohana Partners, dba Kilohana Plantation, to the east on property owned by Grove Farm Company, Inc. Photos of the surrounding areas shown in Figures 1-3a, 1-3b, and 1-3c are located on Figure 1-3.

Other surrounding land uses in the nearby vicinity include Kilohana Plantation to the southeast; Kaumuali'i Highway to the south; two Hawaiian Language Immersion schools, including Punana Leo o Kaua'i Preschool and Kawaikini New Century Public Charter School, located to the south within the Kaua'i Community College property; a water storage tank located to the southwest; and, undeveloped, vegetated lands owned by Grove Farm Company, Inc. to the west, north and east.



NOT TO SCALE

North

Island School Updated Master Plan

PHOTO KEY MAP

FIGURE

1-3



Photo 1: Access road to Island School along the western boundary of Kaua'i Community College campus.



Photo 2: Entrance to Island School from access road.



Photo 3: Island School classroom building. Samuel W. & Edith K. Wilcox Gymnasium in the background.



Photo 4: Classroom buildings and gymnasium looking west from the "Piko" of the Island School campus.

Island School Updated Master Plan

PROJECT SITE PHOTOS

FIGURE

1-3a



Photo 5: Culture and Arts building within the south-central portion of the Island School campus.



Photo 6: Eastern portion of Island School campus looking northeast.



Photo 7: Reservoir adjacent to south-central portion of Petition Area looking east. Southeast portion of Petition Area in the background.



Photo 8: Recreational field within northwestern portion of Island School campus looking northwest.

Island School Updated Master Plan

PROJECT SITE PHOTOS

FIGURE

1-3b



Photo 9: Outdoor science area within western portion of Island School campus.



Photo 10: Kaua'i Community College campus from Kaumuali'i Highway looking northwest.



Photo 11: Kawaikini New Century Public Charter School (left) and Pūnana Leo o Kaua'i Preschool (right) within southwest portion of Kaua'i Community College property.



Photo 12: Retail/commercial establishments along Kaumuali'i Highway from access road within Kaua'i Community College campus.

Island School Updated Master Plan

PROJECT SITE PHOTOS

FIGURE

1-3c

Further to the south of the Petition Area and Kaumuali'i Highway, land uses include Kukui Grove Center and the Kukui Grove Village West commercial area consisting of Costco, Home Depot, and various other retail and commercial establishments; Chiefess Kamakahelei Middle School; Puakea Golf Course; residential subdivisions; the County's Puhi Park and Puhi Subdivision Park; Puhi Industrial Park; Kaua'i Nursery & Landscaping; and, various retail and commercial establishments.

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2. PROJECT DESCRIPTION

2.1 Project Need

The need for the updated Island School master plan is to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students projected over a ten-year period. This master plan updates the current campus master plan approved through a Special Permit, Use Permit and Class IV Zoning Permit by the County Planning Commission on April 26, 2005.

2.2 Project Description

Island School is proposing an update of its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment. The proposed master plan for the 38.448-acre campus updates the current master plan approved through a Special Permit, Use Permit and Class IV Zoning Permit by the County Planning Commission on April 26, 2005.

The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, baseball field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces. The Conceptual Master Site Plan for Island School is depicted in Figure 2-1.

Existing vehicular and pedestrian access to the Island School campus is from Kaunualii Highway via a paved, two-way loop road from the intersection at Puhi Road, traversing along the perimeter of the developed portion of the Kauai Community College campus, and continuing within the southern portion of the adjoining eastern parcel owned by Wilcox Family Limited Partnership, to the intersection at Nuhou Road (see Figure 1-3). From the top of the loop road, an entry road extends mauka into the Island School campus. Use of the portion of the access road, and the entry road to the Island School campus, located within the Kauai Community College campus is via an unrecorded Grant of Easement from the University of Hawaii to Island School dated June 20, 2009, effective as of July 3, 2007, for a term of 30 years. Use of the remaining portion of the access road located within the Wilcox Family Limited Partnership parcel is via a recorded Grant of Easement from the Gaylord & Carol Wilcox Family Limited Partnership to Island School and the University of Hawaii dated July 3, 2007, for a term of 30 years.



MASTER SITE PLAN

The Island School

FLANSBURGH ARCHITECTS

SCALE: NTS

10/31/2012

Island School Updated Master Plan

CONCEPTUAL MASTER SITE PLAN

FIGURE

2-1

2.3 Sustainable Strategies

The project proposes to incorporate Leadership in Energy and Environmental Design (LEED) standards and strategies, to the extent deemed economically feasible, to achieve sustainable site, utilities and building development. The following are green principles and strategies that are ongoing, or may be created for the proposed project:

Sustainable Sites:

- Control storm water runoff by capturing and retaining runoff on-site.
- Develop erosion and sedimentation control measures meeting the construction activity pollution prevention criteria. This would include reducing pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust generation.
- Minimize light pollution, and reduce the potential for interactions of nocturnally-flying seabirds, by shielding exterior lighting within the campus. Refer to Section 3.6 Fauna for additional information.

Energy and Water Efficiency:

- Reduce energy demand and consumption through the use of solar and efficient, low-consumption lighting fixtures and equipment, such as Energy Star rated appliances.
- Reduce fossil fuel energy by more than 50 percent with the current installation of a 200 kilowatt (kW) solar facility within the Petition Area to provide clean, renewable solar energy to meet the daytime needs of the campus.
- Reduce potable water consumption by utilizing non-potable water from Grove Farm Company, Inc.'s irrigation ditch system to irrigate the campus, as needed, and employing catchment systems for reuse of rain water.

Building Design:

- Design spaces for natural ventilation to take advantage of the trade winds, and use of ceiling fans.
- Utilize skylights to allow natural light to illuminate interior spaces.

Sustainable Transport:

- Reduce the use of automobiles by continuing to provide bus transportation between home and school for students residing within the North Shore and eastern areas of the Island; implementing car pooling for students and staff; and, encouraging bicycling and walking by students residing near the campus by way of sidewalks/pedestrian pathways along the existing loop road providing access to the school.

Waste Stream Diversion:

- During construction, develop a solid waste management plan to minimize disposal of construction, demolition and land clearing debris in the County's landfill.
- Utilize locally-produced materials, such as aggregate and concrete, wherever feasible and applicable.
- Continue implementation of the on-campus recycling program to reduce the amount of solid waste generated. Employ composting of greenwaste for use in the landscaped areas within the campus.

In addition to these green principles and strategies, Island School will continue the following programs and activities toward achieving sustainability education, both within the campus and in the broader community.

- Kaua'i BOTS is an Island School robotics program that allows participation by students from Kaua'i's three public high schools. Approximately 40 percent of the participants in this cooperative program are public school students, thereby promoting efficient use of resources.
- Approximately 35 organizations currently utilize facilities at Island School, 27 of which do so on a recurring basis. This sharing of facilities reduces the demand for construction of new facilities to serve these organizations.
- Island School has a cooperative program with its neighboring Kaua'i Community College. In addition to receiving committee advisory assistance, the advanced students at Island School have the opportunity to take college level courses at the college. Such sharing of resources promotes sustainability.
- Island School is helping to establish a community garden within its campus through a private grant. The plan is to allow members of the Puhi community to participate in food production and share their gardening knowledge with Island School students.

2.4 Development Schedule

The anticipated timeframes for application and approval of the County General Plan Amendment and State Land Use District Boundary Amendment are as follows:

County General Plan Amendment:

Filing of Petition	October 2012
Approval	June 2013

State Land Use District Boundary Amendment

Filing of Petition	April 2013
Approval	December 2013

Following receipt of the above boundary amendment approvals and the subsequent required entitlements approvals, build-out of the updated master plan improvements is anticipated to be completed by 2020, to the extent necessary to accommodate 500 students.

3. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures to mitigate potential adverse impacts resulting from the development of the proposed project.

3.1 Climate

The climate of Kauaʻi, relatively moderate throughout most of the year, is characterized as semi-tropical with two seasons. The summer period from May through September is generally warm and dry, with predominantly northeast trade winds. In contrast, the winter season from October through April is associated with lower temperatures, higher rainfall, and less prevalent trade winds.

The average temperature in the Puhi area is 73 degrees Fahrenheit (F). The prevailing wind patterns are the northeasterly trade winds, which range from 10 to 15 miles per hour. The Puhi area has a mean annual precipitation of 65.8 inches, while the median annual precipitation ranges from 50 to 75 inches, with most of the rainfall occurring between October and May.

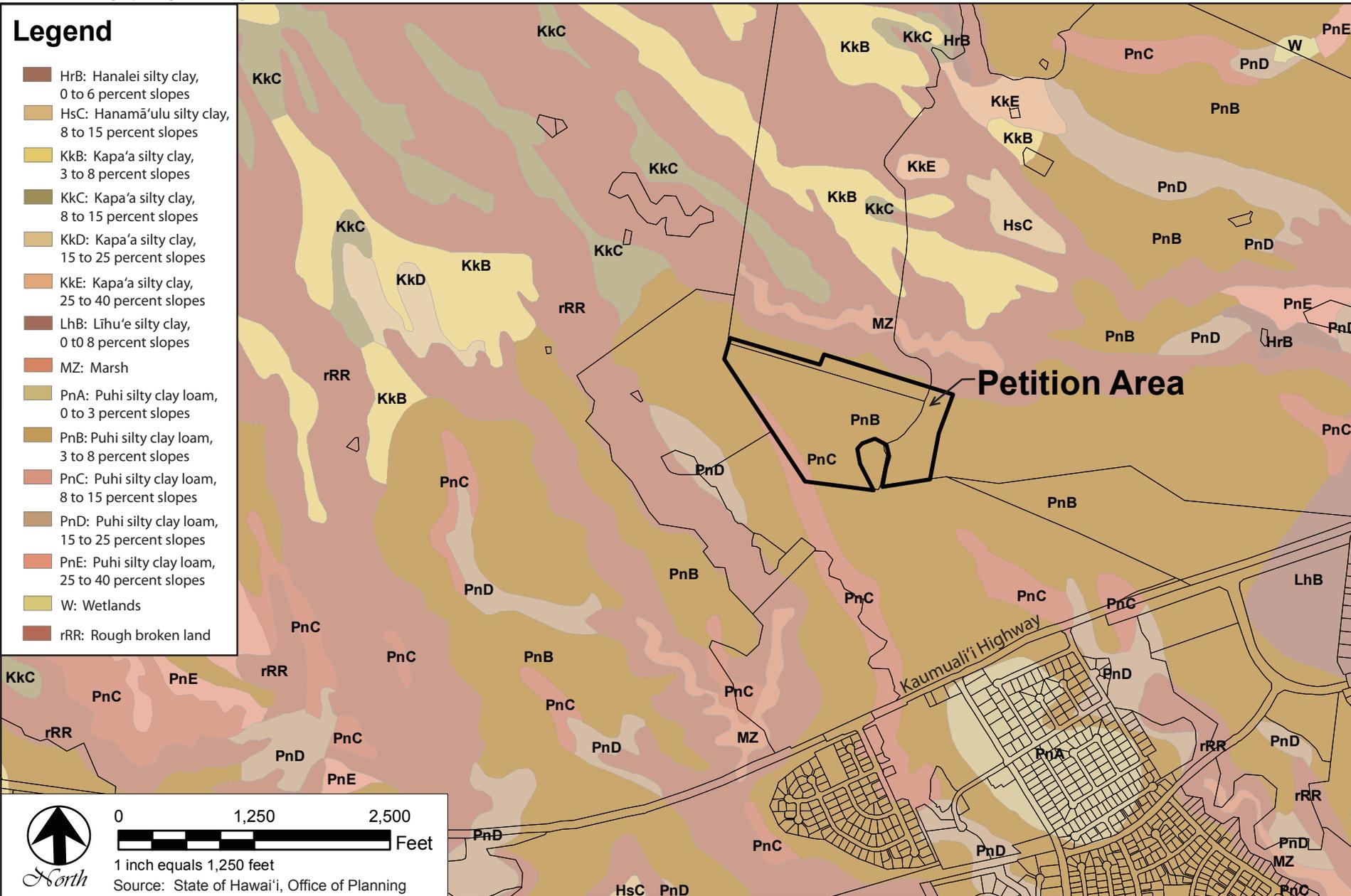
3.2 Geology, Topography and Soils

Geology and Topography: The Island of Kauaʻi is geologically one of the oldest and structurally complex islands in the State, consisting principally of a large volcano, the Kauaʻi shield, which became active approximately four million years ago. The Island's land mass was formed by two major volcanic series identified as the Waimea Canyon Volcanic Series and the Kōloa Volcanic Series. The Waimea Volcanic Series, which is more than three million years old, refers to the flows that formed the original volcanic shield and caldera of the Island. The Kōloa Volcanic Series, which is less than 1.5 million years old, refers to subsequent flows that overlaid much of the Waimea Volcanic Series formations on the lower slopes of the Island. The Kōloa Volcanic Series consists of a range of formations from olivine basalt to nepheline basalt. These rocks are much less permeable than some of the rocks of the Waimea Canyon Volcanic Series as they were deposited as nearly flat layers that tend to be massive and devoid of permeability elements.

The regional geology consists of the Kōloa Volcanic Series overlying the Waimea Canyon Series. The Kōloa Volcanic Series thickens toward the south coast of the Island, and the composition ranges from alkalic olivine basalt through basanites to nephelinites and melilite nephelinites.

The topography of the Petition Area is gently sloping at approximately 3 percent, ranging in elevation from approximately 400 feet above mean sea level (msl) at the northwestern portion to about 350 feet above msl at the eastern portion.

Soils: The U.S. Department of Agriculture Natural Resources Conservation Service classifies the soils within the Petition Area as the Puhi series and rough broken land (see Figure 3-1).



SOILS MAP

FIGURE

3-1

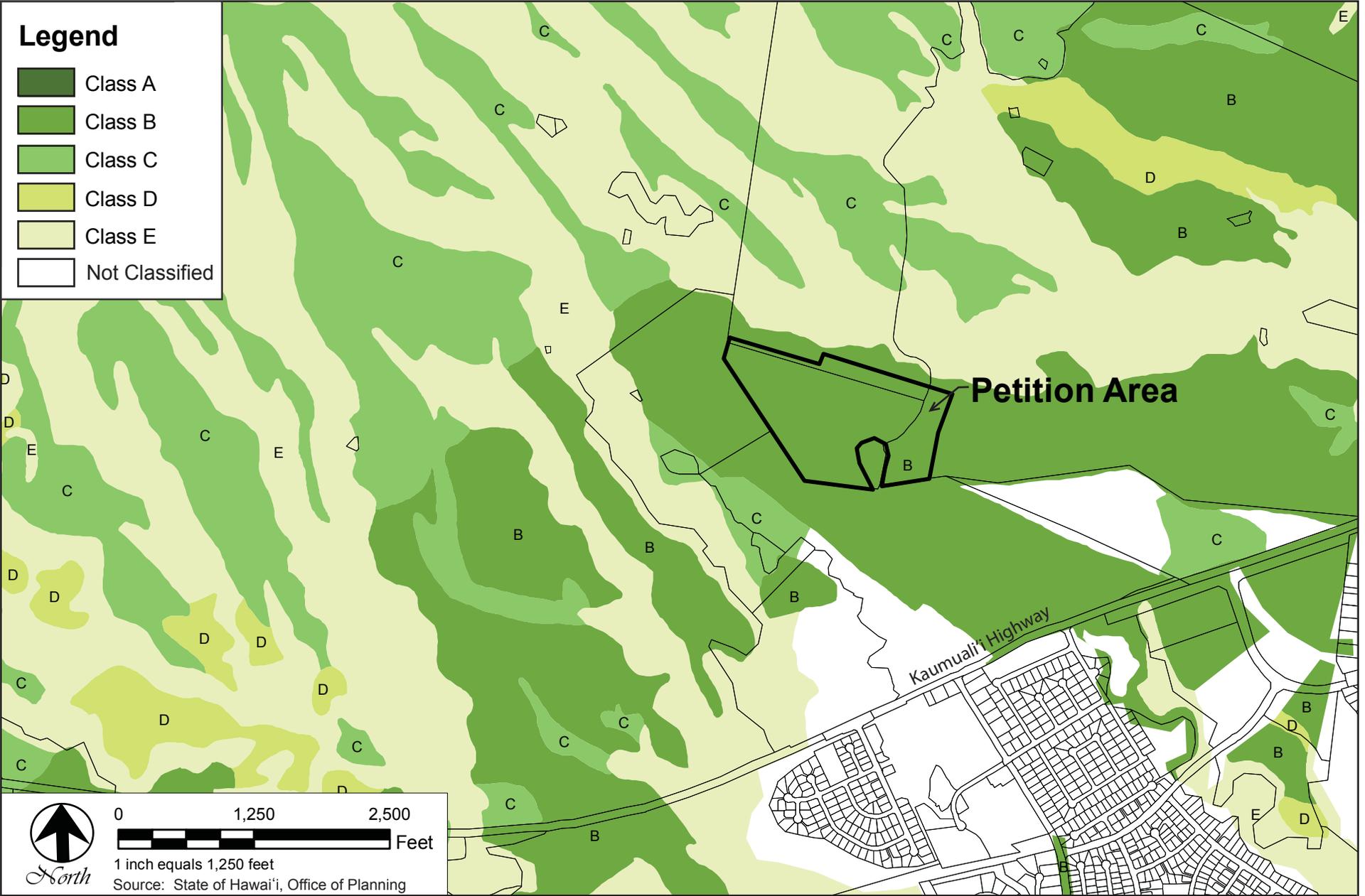
The predominant soil type within the Petition Area is classified as Puhi silty clay loam, 3 to 8 percent slopes (PnB), with a sliver along the southwestern boundary classified as Puhi silty clay loam, 8 to 15 percent slopes (PnC). This soil type is well-drained, developed in material derived from basic igneous rock, and occurs on broad interfluves on the uplands. The representative profile of the surface layer is brown silty clay loam, about 12 inches thick. The subsoil, about 48 inches thick, is reddish-brown and dark reddish brown silty clay loam and silty clay that has subangular blocky structure. The substratum is silty clay. Runoff is slow and erosion hazard is slight.

A sliver within the northeastern portion of the Petition Area is classified as rough broken land (rRR). This soil type consists of very steep land broken by numerous intermittent drainage channels. It occurs in gulches and on mountainsides, and in most places it is not stony. These soils are variable, and are 20 to more than 60 inches deep over soft, weathered rock. In most places, some weathered rock fragments are mixed with the soil material. Small areas of rock outcrop, stones, and soil slips are common. Runoff is rapid, and geologic erosion is active.

The *Detailed Land Classification – Island of Kaua‘i* published by the University of Hawai‘i Land Study Bureau (LSB) evaluates the quality or productive capacity of certain lands on the Island for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established, with “A” representing the class of highest productivity and “E” the lowest. The Petition Area is classified as “B” rated soils which are considered to have good attributes for agricultural productivity (see Figure 3-2).

The State Department of Agriculture’s *Agricultural Lands of Importance in the State of Hawai‘i* (ALISH) established a classification system for identification of agriculturally important lands. Three classes of lands were established for the State, primarily, but not exclusively, on the basis of soil characteristics. The three classes of ALISH lands are Prime Agricultural Land, Unique Agricultural Land, and Other Important Agricultural Land. Lands not included under this system are “unclassified”. The majority of the Petition Area is classified as Prime Agricultural Land, except for slivers of land within the northeast and southern portions which are unclassified (see Figure 3-3).

The County Planning Department, in coordination with the University of Hawai‘i Department of Urban and Regional Planning and University of Hawai‘i Economic Research Organization, is currently conducting the Kaua‘i Important Agricultural Lands (IAL) Study, a community-based effort to identify and designate a working base of Kaua‘i’s agricultural lands as IAL. As part of a Statewide initiative, the purpose of designating IAL is to “conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands” in fulfillment of the voter-mandated 1978 amendment to the Hawai‘i State Constitution. The recommendations from the IAL study will be considered by the State Land Use Commission and the State Department of Agriculture in the continued implementation of IAL legislation. According to the methodology and findings of the IAL study (County of Kaua‘i Important Agricultural Lands Study – Second Draft, August 2011), the eight criteria used to identify IAL include: land currently in agriculture, soil quality, identified by agricultural productivity rating systems, traditional native Hawaiian uses, sufficient water, consistent with County plans, contribute to critical land mass, and proximity to support infrastructure. The results of the study will include maps of recommended IAL for the County, along with supporting data and analysis. All lands considered for IAL in this study are currently

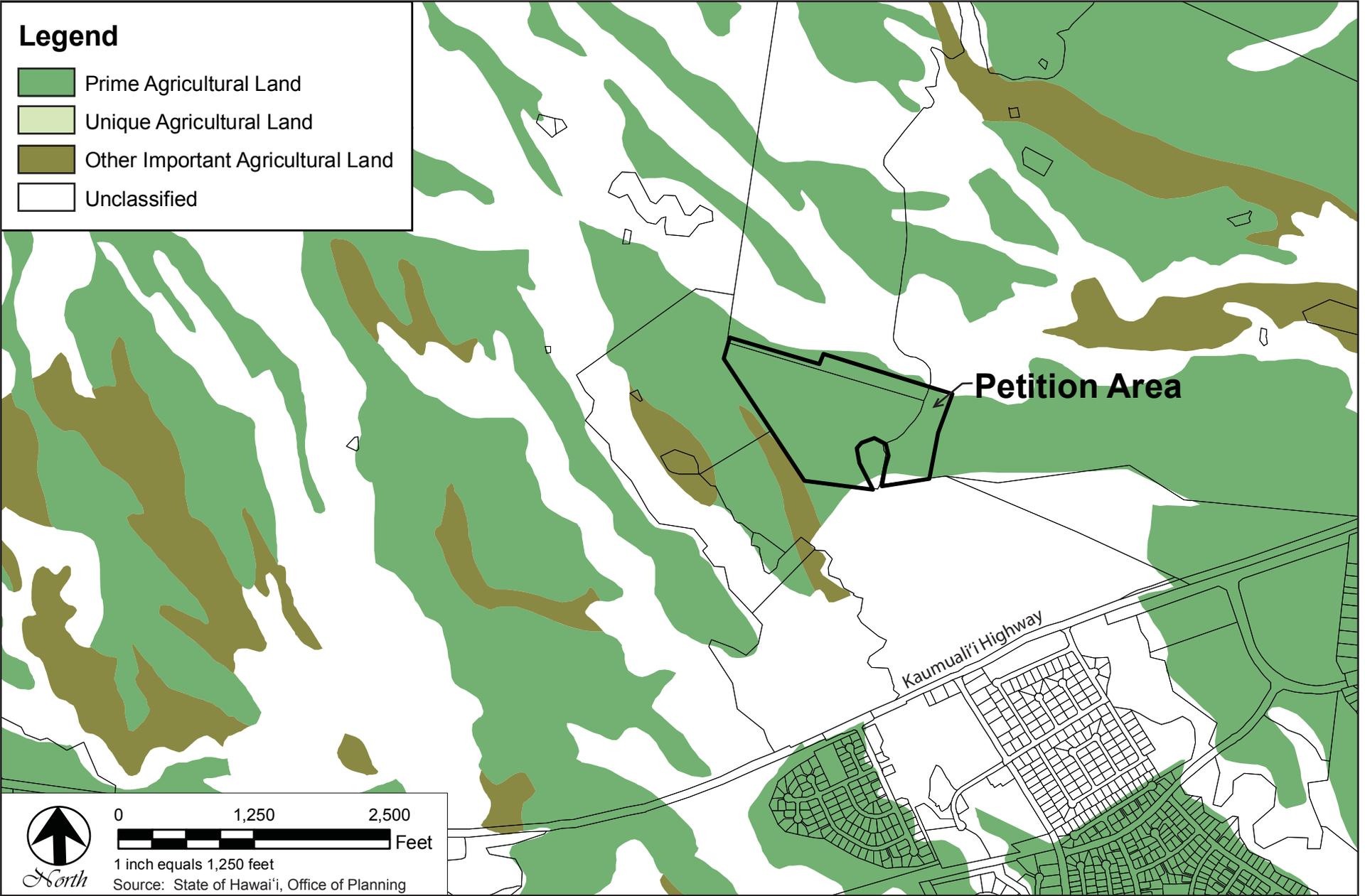


Island School Updated Master Plan

UNIVERSITY OF HAWAI'I LAND STUDY BUREAU MAP

FIGURE

3-2



Island School Updated Master Plan

AGRICULTURAL LANDS OF IMPORTANCE IN THE STATE OF HAWAI'I MAP

FIGURE

3-3

zoned for agriculture under the State Land Use District classification system or the County's Comprehensive Zoning Ordinance.

The Petition Area was previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed into the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area.

Impacts and Mitigation Measures

No significant impacts to the geology, topography and soils are anticipated with the construction and development of the proposed project. Construction of the proposed project improvements will involve grading and excavation of presently undeveloped and developed areas within the Petition Area. Potential water quality impacts to surface and near shore coastal waters during construction of the project will be mitigated by adherence to State and County water quality regulations governing grading, excavation and stockpiling. A National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity, as administered by the State Department of Health (DOH), will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural Best Management Practices (BMPs), such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following the associated construction activity, exposed soils and excavated areas will be graded, backfilled to its existing contours, built and paved over, or re-vegetated/landscaped to control erosion.

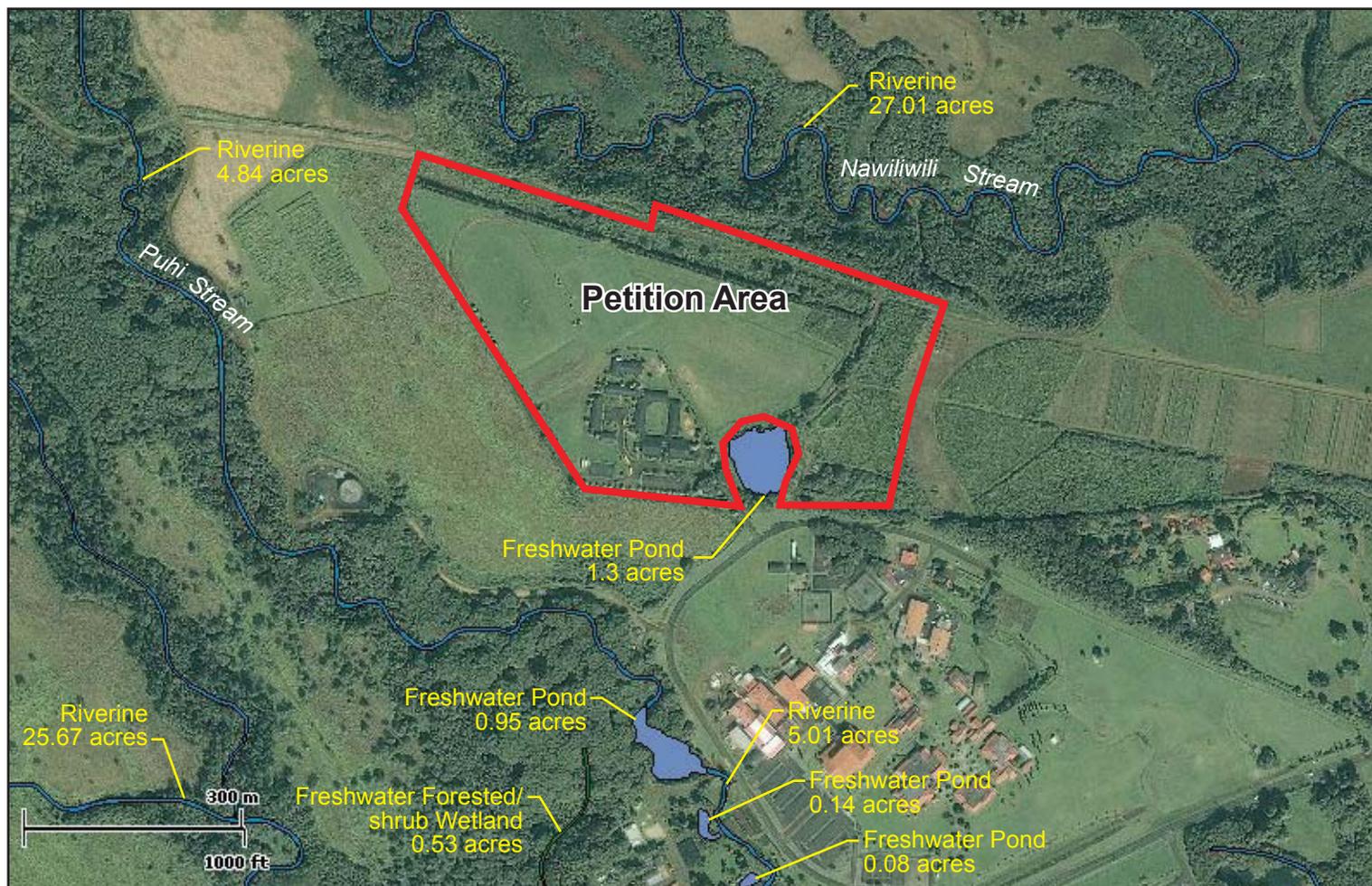
According to the County Planning Department, the final recommendations of the County of Kaua'i IAL Study have yet to be adopted, although the priority for County-led IAL designation does not include the Petition Area. The majority of the adjacent Kaua'i Community College campus does not have an IAL score since the area is designated Urban Center in the County General Plan.

The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990. Given the existing and proposed campus improvements within the Petition Area, it is highly unlikely that the land will revert to agricultural use in the future.

3.3 Hydrology

3.3.1 Surface Waters

There are no streams within the Petition Area. Surface waters in the nearby vicinity of the Petition Area are shown in Figure 3-4. Nāwiliwili Stream is the nearest perennial stream, located approximately 300 feet north of the Petition Area at its closest point. Nāwiliwili Stream generally flows in a northwesterly to easterly direction in the vicinity of the Petition Area, and continues in a southeasterly direction to Nāwiliwili Bay. Puhi Stream flows in a southerly



NOT TO SCALE

Source: U.S. Fish and Wildlife Service
National Wetland Inventory
May 25, 2011

Island School Updated Master Plan

SURFACE WATERS MAP

FIGURE

3-4

direction approximately 0.2 mile west of the Petition Area at its closest point. Puhi Stream converges with Hoinakaunalehu Stream south of the Petition Area, forming Papakōlea Stream. Further south, Papakōlea Stream flows through the Hulē'ia National Wildlife Area before discharging into Hulē'ia Stream, which flows east to Nāwiliwili Bay.

Portions of three plantation-era irrigation ditches, which are part of Grove Farm Company, Inc.'s (formerly Līhu'e Plantation Company, Ltd.'s) irrigation system, are located within the western, southern and eastern portions of the Petition Area (see Figure 3-5). The ditch identified as CSH 2, located along the western and southwestern boundaries of the Petition Area, collects storm runoff from the western portion of the Island School campus. This ditch is not currently used for irrigation. The ditch identified as CSH 3, located within the eastern portion of the Petition Area, is an active irrigation ditch that enters the Petition Area from the north and feeds into Grove Farm Company, Inc.'s (formerly Līhu'e Plantation Company, Ltd.'s) reservoir adjacent to the south-central boundary of the Petition Area. The ditch identified as CSH 4, located along the southeastern boundary of the Petition Area, can be fed by the adjacent reservoir. An existing plantation-era irrigation ditch located south of the Petition Area flows out of the reservoir adjacent to the south-central boundary of the Petition Area, and also collects storm runoff from the Island School campus.

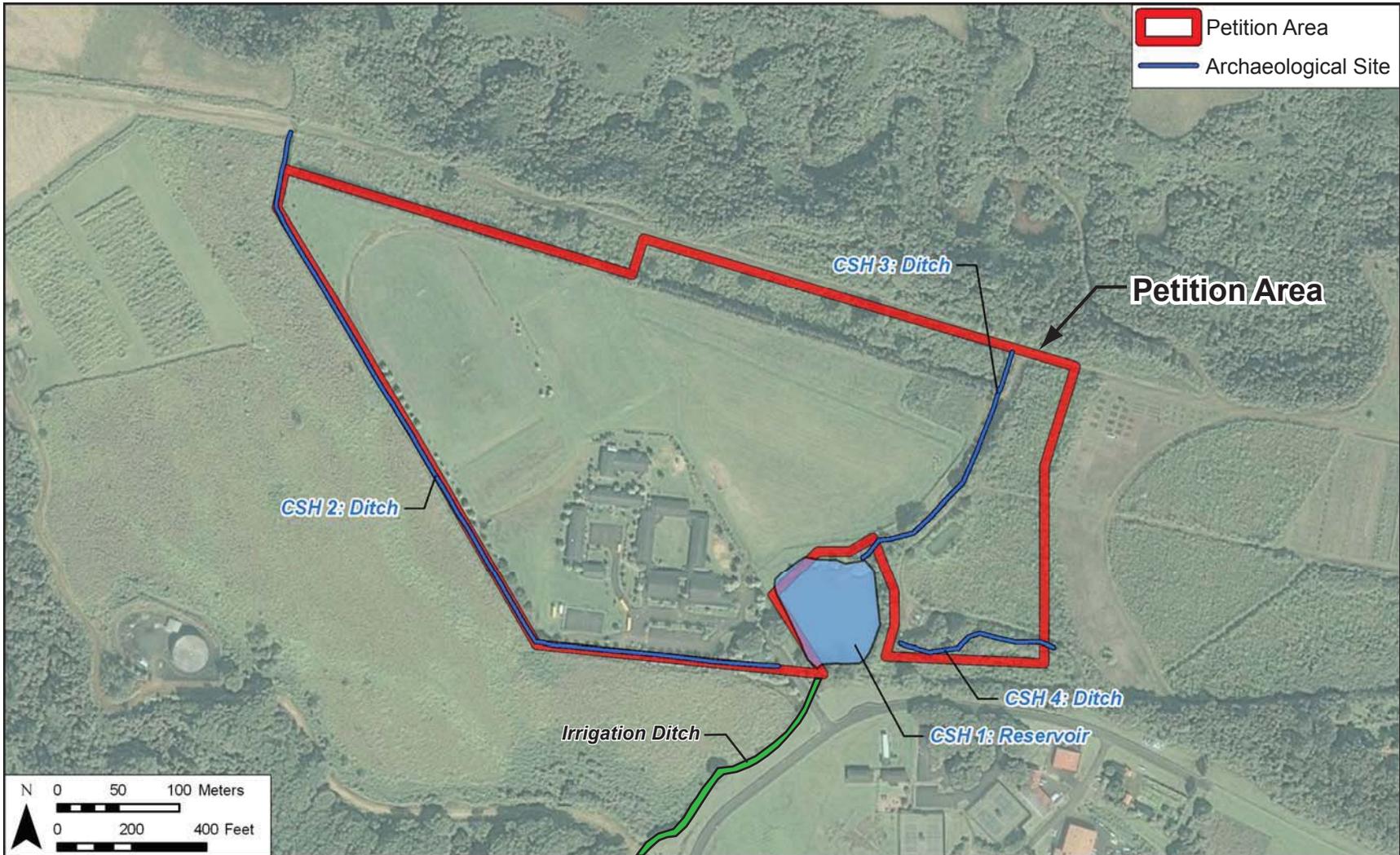
Wetlands: There are no wetlands located within the Petition Area. The existing reservoir located outside of and adjacent to the south-central boundary of the Petition Area is designated as a wetland according to the U.S. Fish and Wildlife Service (USFWS), National Wetlands Inventory as shown on Figure 3-4.

Impacts and Mitigation Measures

No significant impacts on surface waters are anticipated as a result of the construction and development of the proposed project.

Construction of the proposed project improvements will involve grading and excavation of presently undeveloped and developed areas within the Petition Area. Potential impacts to the quality of nearby surface waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, as administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.



Source: Cultural Surveys Hawai'i, Inc., October 2010

Island School Updated Master Plan

HISTORIC SURFACE FEATURES MAP

FIGURE

3-5

3.3.2 Ground Water

Ground water occurs within portions of geologic formations called aquifers that are favorable for receiving, storing and transporting water. The Island of Kaua'i is divided into three Aquifer Sector Areas, consisting of the Līhu'e Aquifer Sector Area, comprising the eastern portion of the Island; the Hanalei Aquifer Sector Area, comprising the northern portion of the Island; and, the Waimea Aquifer Sector Area, comprising the western portion of the Island. The Petition Area is located within the Līhu'e Aquifer Sector Area. The Aquifer Sector Areas are divided into Aquifer System Areas which are defined by hydrogeological continuity, particularly hydraulic connections among units.

The Līhu'e Aquifer Sector Area is comprised of five Aquifer System Areas identified as the Kīlauea, Anahola, Wailua, Hanamaulu, and Kōloa Aquifer System Areas. The Petition Area is located within the Hanamaulu Aquifer System Area. The State Department of Land and Natural Resources (DLNR), Commission on Water Resource Management (CWRM) has adopted a sustainable yield of 36 million gallons per day (mgd) for this aquifer. The aquifer is predominantly composed of high-level aquifers perched on beds of weathered soil, ash, and dense lavas and constrained at high levels by the relatively low permeability of the aquifer. The aquifer experiences annual rainfall of 83 inches. The aquifer also consists of basal groundwater contained deep below the surface in Kōloa lava formations near the coast.

The Petition Area is not within a Ground Water Management Area as designated by DLNR CWRM. The designated Ground Water Management Areas within the State are located on the Islands of O'ahu, Maui, and Moloka'i.

Impacts and Mitigation Measures

No significant impacts on ground water are anticipated as a result of the construction and development of the proposed project. Construction and operational activities associated with the proposed project are not likely to introduce to, nor release from the soil, any materials which could adversely affect ground water sources.

3.3.3 Coastal Waters

The coastal water offshore of the Petition Area is Nāwiliwili Bay which is located approximately 2.7 miles to the southeast. The State DOH classifies this coastal water as Class A. The objective of this class is that "their use for recreational purposes and aesthetic enjoyment be protected. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class." (Water Quality Standards, Title 11, Chapter 54, Hawai'i Administrative Rules (HAR)).

Impacts and Mitigation Measures

No significant impacts on near shore coastal waters are anticipated as a result of the construction and development of the proposed project.

Construction of the proposed project improvements will involve grading and excavation of presently undeveloped and developed areas within the Petition Area. Potential impacts to the quality of coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with

Construction Activity, as administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

3.4 Natural Hazards

The Disaster Mitigation Act of 2000 (DMA 2000), 44 Code of Federal Regulations (CFR), Hazard Mitigation Planning, required states and counties to have approved hazard mitigation plans by November 1, 2004 to receive Pre-Disaster Mitigation funding. The development of state and local hazard mitigation plans is critical for maintaining eligibility for future Federal Emergency Management Agency (FEMA) mitigation and disaster recovery funding.

Given Hawai'i's vulnerability to natural hazards and history of disasters, the State has maintained and implemented a comprehensive, multi-hazard mitigation strategy to reduce loss of life and property damage. This strategy is embodied in the *State of Hawai'i Multi-Hazard Mitigation Plan, 2010 Update*. First adopted by Executive Order in 2004, the 2010 State of Hawai'i Multi-Hazard Mitigation Plan meets a mandatory three-year review and update of State, county and industry capabilities and plans to address natural and man-made hazards.

The County of Kaua'i's Multi-Hazard Mitigation Plan was formally approved in December 2003, and updated in 2009. The *County of Kaua'i Multi-Hazard Mitigation Plan, Update 2009*, provides an update to all sections of the County's mitigation plan, including hazard identification, asset identification, risk and vulnerability assessments, current mitigation activities and capabilities, mitigation strategy, and plan maintenance to meet requirements set forth by the DMA 2000.

Information from the respective State and County Multi-Hazard Mitigation Plans are included in this section as relevant to the Petition Area and proposed project.

3.4.1 Flood Hazard

According to the Flood Insurance Rate Map (FIRM) prepared by the FEMA, the Petition Area is designated Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain" (see Figure 3-6).

The Petition Area is not within a tsunami inundation area as it is located approximately 2.7 miles inland (northwest) from the shoreline, and at elevations ranging from approximately 350 to 400 feet above msl.



Island School Updated Master Plan

FLOOD ZONE MAP

FIGURE

Impacts and Mitigation Measures

Construction and development of the proposed project are not anticipated to result in flooding of the Petition Area or lower elevation properties.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

3.4.2 Hurricanes/Strong Winds and Earthquakes

The Island of Kaua'i has experienced exceptionally strong trade wind events, winter Kona storms, and passing tropical storms and hurricanes. Hurricanes Dot (1959), Iwa (1982), and Iniki (1992) were exceptionally damaging. Hurricane Dot sustained winds of 75 miles per hour (mph), with gusts of 165 mph as it passed directly over Kaua'i. Hurricane Iwa produced winds over 125 mph. Hurricane Iniki was the strongest and most destructive hurricane to hit the Hawaiian Islands in recent history, with sustained winds at 130 mph and gusts topping 160 mph.

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions from the expansion or shrinkage of magma reservoirs. The Island of Kaua'i is periodically subject to episodes of seismic activity of varying intensity, but available historical data indicates that the number of major earthquakes occurring on Kaua'i have been generally low. Although it does not occur frequently, the proximity to highly seismic areas mean that there is a risk from earthquakes.

The 2006 International Building Code (IBC) provides minimum design criteria to address potential for damages due to seismic disturbances. The IBC contains six seismic zones, ranging from zero (no chance of severe ground shaking) to 4 (10% chance of severe shaking in a 50-year interval). Kaua'i is designated in Zone 1.

Impacts and Mitigation Measures

The proposed project will be designed and constructed in accordance with the relevant wind load and seismic provisions of the 2006 IBC.

3.5 Flora

A botanical survey of the Petition Area was conducted by AECOS Consultants in September 2010. The botanical survey report is included in Appendix A and is summarized below.

The Petition Area supports two basic vegetation areas: 1) landscaping around the existing school buildings, road, and other appurtenances such as the athletic field; and, 2) minimally or unmaintained areas representing proposed campus expansion areas.

In all, one mushroom, nine ferns, and 167 species of flowering plants were recorded within the Petition Area. Of those flowering plants and ferns found outside of the landscaped areas (95 species), only four are natives (4 percent) and all are indigenous to the Hawaiian Islands and relatively common in the lowlands. No endemic species were recorded, except as part of the landscaped areas.

The vegetation within the undeveloped areas of the Petition Area consists of mixed areas of moderately open to closed forest, shrubland, and grassland. Forest tends to predominate, with mostly mature macaranga (*Macaranga tanarius*) and albizia (*Falcataria moluccana*) trees. Other species include Christmas berry (*Schinus terebinthifolius*), octopus plant (*Schefflera actinophylla*), and Java plum (*Syzygium cuminii*). Groundcover and understory shrubs and vines varied considerably from area to area.

No plant species currently listed as endangered, threatened, or proposed for listing under either the Federal or State of Hawai'i endangered species programs were recorded as growing naturally within the Petition Area. Several listed species observed were ornamentals in a Hawaiian native plant garden.

Impacts and Mitigation Measures

As the Petition Area does not contain a unique botanical habitat, no significant impacts on flora are anticipated from the construction and development of the proposed project. The proposed campus expansion areas are devoid of botanical resources that would merit special concern. All species are common to lowland windward Kaua'i, nearly exclusively non-native, and not requiring or deserving of preservation within the Petition Area. Therefore, it is not expected that development of the proposed project improvements will result in deleterious impacts to any plants species currently listed as endangered, threatened, or proposed for listing under either the Federal or State of Hawai'i endangered species statutes.

Although the botanical field survey was conducted in August 2010 (dry season), the Petition Area is within a relatively wet area in the lowlands of Kaua'i. The Petition Area has been, and is further proposed to be, modified by campus improvements and activities. There is no habitat within the Petition Area that would support native or rare plants. All of the native species recorded within the Petition Area were found around the Hawaiian cultural pavilion within the south-central portion of the site where the school has re-vegetated the area with native species.

3.6 Fauna

A fauna survey of the Petition Area was conducted by Rana Biological Consulting, Inc. in September 2010. The fauna report is included in Appendix A and is summarized below.

A total of 221 individual birds of 22 species, representing 16 separate families, were recorded during the survey. Three of the species recorded, the Hawaiian Goose or Nēnē (*Branta sandvicensis*), Common Moorhen (*Galinula chloropus sandvicensis*), and Hawaiian Coot (*Fulica alai*) are all native and listed as endangered species under both Federal and State of Hawai'i endangered species statutes. The Nēnē population on Kaua'i is increasing at a fairly rapid pace, and it is likely that if this increase continues, human interactions with Nēnē will continue to rise over time on the Island. The Common Moorhen and Hawaiian Coot are relatively abundant and widespread on the Island. One other species recorded, the Pacific Golden-Plover (*Pluvialis fulva*), is an indigenous migratory shorebird species that nests in the high Arctic during the late Spring and Summer months, returning to Hawai'i and the tropical Pacific to spend the Fall and Winter months each year. Another, the Black-crowned Night-Heron (*Nycticorax nycticorax hoactli*), is an indigenous resident breeding species. The remaining 17 species recorded are all considered to be alien to the Hawaiian Islands.

Avian diversity and densities were in keeping with the highly manicured nature of the majority of the Petition Area, and its location in the lowlands of Kaua'i. Three species, the Chestnut Munia (*Lonchura atricapilla*), Zebra Dove (*Geopelia striata*), and Common Myna (*Acridotheris tristis*), accounted for slightly less than 52 percent of all birds recorded during the station counts. The most commonly recorded species was the Chestnut Munia, which accounted for slightly more than 21 percent of the total number of individual birds recorded.

Although not detected during the survey, it is probable that the Hawaiian endemic sub-species of the Short-eared Owl, or Pueo (*Asio flammeus sandwichensis*) use resources in the general project area, as they are regularly seen foraging over open fields in the low- to mid-elevation areas on the Island.

Two other species not detected during the survey, the endangered Hawaiian Petrel (*Pterodroma sandwichensis*) and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) have been recorded flying over the Petition Area between April and the end of November each year. Additionally, the Save Our Shearwaters Program has recovered both species from the general Petition Area on an annual basis over the past three decades. There are no nesting colonies or appropriate nesting habitat for either of these listed seabird species within or close to the Petition Area.

By letter dated September 14, 2012, in response to the pre-assessment consultation conducted for this Draft EA, the USFWS stated that the Band-rumped Storm Petrel (*Oceanodroma castro*), a candidate for listing, may fly over the Petition Area. In addition, the USFWS stated the federally endangered Hawaiian stilt (*Himantopus mexicanus*) and endangered Hawaiian duck (*Anas wyvilliana*) may also be present in the vicinity of the project site (letter dated December 26, 2012 in response to Draft EA, see Appendix F).

Mammalian species detected during the survey include a dead cat (*Felis c. catus*), and tracks and sign of both dog (*Canis f. familiaris*) and pig (*Sus s. scrofa*). The endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'ōpe'ape'a as it is known locally, was not detected during the survey, although bats have been recorded within the general Petition Area on a regular basis. Hawaiian hoary bats are widely distributed in the lowland areas on Kaua'i, and have been documented in and around almost all areas that still have some dense vegetation.

Although no rodents were detected during the survey, it is likely that the four established alien muridae found on Kaua'i, the Roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), European house mouse (*Mus musculus domesticus*), and possibly Polynesian rat (*Rattus exulans hawaiiensis*) use various resources found within the general Petition Area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them.

No mammalian species protected or proposed for protection under either the Federal or State of Hawai'i endangered species programs were detected within the Petition Area during the survey.

There is no Federally delineated Critical Habitat present within or adjacent to the Petition Area.

Impacts and Mitigation Measures

No significant impacts on fauna within the Petition Area are anticipated from the construction and operation of the proposed project. No listed, candidate, or proposed threatened or endangered avian or mammalian species under either the Federal or State endangered species statutes will be disturbed or adversely impacted as a result of the proposed project.

The primary cause of mortality in Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the Summer and Fall, can become disoriented by exterior lighting. When disoriented, the seabirds often collide with man-made structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals.

The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. Although Nēnē on Kaua'i tend to show a remarkable disregard of human activity, fatalities have occurred on construction sites and along roads, and numerous nests have failed due to human disturbance and as a direct result of predators taking eggs and goslings.

If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.

Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.

The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. The principal threat that clearing potential roosting habitat poses to this species is between June and September when female bats may be carrying pups and potentially may not be able to flee vegetation clearing activities quickly enough to avoid harm. Following build-out of the project, lighting associated with the school facilities, and landscaping vegetation will likely attract volant insects to the site, which in turn will provide bats with additional foraging opportunities. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation, including woody plants greater than 15 feet, along the periphery of the Petition Area should not occur between June 1 to September 15 when bats may be carrying young and potentially could be at risk by such clearing activities.

As there is no Federally delineated Critical Habitat present within or adjacent to the Petition Area, development of the proposed project improvements will not result in impacts to any Critical Habitat.

3.7 Agricultural Resources

The Petition Area was previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area.

Agricultural activities currently occurring in the nearby vicinity of the Petition Area include an agro-tourism venture operated by Kaua'i Kilohana Partners, dba Kilohana Plantation, on approximately 67 acres of land leased from Grove Farm Company, Inc. located to the east of the Petition Area. This agro-tourism venture includes a train ride for visitors to observe current uses of former sugar cane land, including forestry, cattle ranching, seed corn, pineapple, papaya and various other fruit trees, and vegetable gardening.

Other undeveloped lands surrounding the Petition Area were formerly in sugar cane cultivation by the Līhu'e Plantation Company, Ltd., and currently lie fallow.

Impacts and Mitigation Measures

The proposed project will not have a significant impact on the conversion of agricultural-designated land within the Petition Area. The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990. Further, no intensive agricultural activities presently occur within the Petition Area. Given the existing and proposed campus improvements within the Petition Area, it is highly unlikely that the land will revert to agricultural use in the future.

The project will not have a significant impact on adjoining or nearby agricultural lands as the proposed updated master plan improvements will occur entirely within the Petition Area, of which the majority of the site is currently developed as the Island School campus.

3.8 Air Quality

Air quality in the vicinity of the Petition Area is generally good, with prevalent northeasterly tradewinds during most of the year. Within the nearby vicinity of the Petition Area, air quality is primarily affected by vehicular-related emissions in the form of carbon monoxide (CO) generated from traffic traveling along Kaumuali'i Highway and other nearby roadways.

Impacts and Mitigation Measures

In the short-term, there will be air quality impacts related to construction activities, including fugitive dust generated by soil disturbance, and emissions from construction vehicles and equipment and commuting construction workers. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, "Air Pollution Control". The construction contractor(s) will be responsible for complying with the State DOH regulations that prohibit visible dust emissions at property boundaries. Compliance with State regulations will require adequate measures to control fugitive dust by methods such as water spraying and sprinkling of loose or exposed soil or ground surface areas and dust-generating equipment during construction. Exhaust emissions from construction vehicles are anticipated to have negligible impact on air quality in the vicinity of the Petition Area as the emissions would be relatively small and readily dissipated.

In the long-term, no significant impacts on ambient air quality are anticipated with the development of the proposed project. The ambient air quality levels would be most affected by vehicular emissions in the form of CO generated by project-related traffic, although the elevated concentrations are anticipated to be nominal and dissipate.

3.9 Noise

Ambient noise in the vicinity of the Petition Area is predominantly attributed to vehicular traffic along Kaumuali'i Highway.

Impacts and Mitigation Measures

Unavoidable short-term construction noise impacts will be mitigated to some degree by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" regulations which require a noise permit if the noise levels from construction activities are expected to exceed the allowable noise levels stated in the Rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the State DOH noise control regulations must be adhered to.

In the long-term, no significant impacts on ambient noise levels are anticipated from the development of the proposed project. Ambient noise levels in the vicinity of the Petition Area will increase slightly as a result of the associated minimal increase in vehicular traffic generated by the proposed project. Operation of the proposed project will potentially generate slightly increased noise during school hours due to additional students, faculty, and school and service-related activities.

3.10 Hazardous Materials

The Petition Area and adjoining lands were previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed into the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area.

Past use of agricultural chemicals on lands previously used for commercial agricultural purposes has the potential to impact the subject property. According to Chapter 128D, Environmental Response Law, HAR, the presence of agricultural chemicals does not constitute a release of hazardous substance. Section 128D-1, HAR, excludes "any release resulting from the legal application of a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act."

Impacts and Mitigation Measures

Due to its use as a school campus, the project is not anticipated to release any hazardous materials into the environment during construction and operation of the proposed improvements.

3.11 Historic and Archaeological Resources

An archaeological literature review and field inspection of the Petition Area was conducted by Cultural Surveys Hawai'i, Inc. in October 2010. The report was revised to incorporate SHPD's comments. The revised report is included in Appendix B and is summarized below.

The Petition Area is within the Nāwiliwili Ahupuaa, located in the ancient *moku*, or district of Puna. According to traditional accounts, the coastal area (located approximately 2.8 miles southeast of the Petition Area) contained a majority of the population of the ahupuaa of Nāwiliwili, due to the concentration of lo'i within the vicinity of the coast, and the availability of aquatic resources.

Within a few years following the establishment of the missionary and business activities at Kōloa in the mid 1830s, western homesteading and commerce were established on the lands above Nāwiliwili Bay that would evolve into Līhu'e Town. By 1830, the sandalwood trade had waned, the whaling industry was just beginning, and commercial agriculture was being established on Kaua'i.

Mahele records indicate that taro continued to be cultivated in Nāwiliwili Valley through the mid-19th century. Later in that century, much of the taro lands in Nāwiliwili were converted to rice cultivation. Due to the availability of large tracts of land for sale during the Mahele, in 1849, Līhu'e Plantation Company, Ltd. was established on the site chosen by Kaikio'ewa, which became the start of Līhu'e town. Līhu'e Plantation Company, Ltd. became the most modern plantation in Hawai'i at that time, and its success allowed its continued expansion. Līhu'e Plantation Company, Ltd. remained a vibrant and successful commercial operation throughout most of the 20th century, in part because of a continued interest in technological innovation. By 1910, little development had occurred within the Petition Area and its vicinity.

Līhu‘e Plantation Company, Ltd.’s technological innovations included the 1912 installation of two 240-kilowatt generators above the sugar cane fields on the slopes of Kilohana Crater. In 1919, Līhu‘e Plantation Company, Ltd. began the development of an extensive irrigation water system that eventually spanned and connected several watersheds from Hanalei to Kōloa. The first irrigation ditch, originally constructed in 1856 by William Hyde Rice, eventually metamorphosed into the Lower Līhu‘e Ditch.

A 1941 map of Līhu‘e Plantation Company, Ltd. shows the Petition Area primarily within sugar cane Field 39B and extending into Field 39A. The 1963 U.S. Geological Survey map shows a portion of the “Upper Līhu‘e Ditch” extending into the Petition Area. The ditch dates to the early 20th century. The location of the ditch corresponds with the separation between Fields 39A and 39B.

Aerial photos dated 1965 and 1977-1978 show sugar cane cultivation occurring within the Petition Area and its immediate vicinity. Līhu‘e Plantation Company, Ltd. continued commercial sugar cane cultivation in Līhu‘e until it shut down its operations in 2000.

In 1989, ten acres of the current Petition Area were donated by American Factors, Inc. (AMFAC) for the Island School campus. Pre-K through Grade 4 classrooms were constructed in 1990. Two buildings donated by Hawaiian Dredging Construction Company were reconfigured into the current administration building and main hall, and two portable classroom buildings completed the new campus that opened in September 1991. Construction of other school facilities subsequently occurred, culminating with new soccer fields and a grass track on half of a 20-acre parcel acquired in 2000 from Līhu‘e Plantation Company, Ltd.

The field inspection survey consisted of a walk-through reconnaissance of the Petition Area. A total of four historic surface features related to the Līhu‘e Plantation Company, Ltd., three of which are within the Petition Area, were observed during the survey. The surface features include a reservoir (CSH 1) located on a separate parcel adjacent to and outside of the Petition Area, and three irrigation ditches (CSH 2, CSH 3, and CSH 4), two of which (CSH 3 and CSH 4) are associated with the adjacent reservoir (CSH 1) (see Figure 3-5). All of the surface features are currently in use.

CSH 1 is a plantation-era reservoir almost completely surrounded by the south-central boundary of the Petition Area. The reservoir measures 88.5 m by 82.3 m, with a constructed berm on the east and south sides. A wooden catwalk extends 2 m from the east bank over the water. A metal mechanical device for opening and closing an underground drain pipe is located at the end of the catwalk. A formed, slotted concrete gate frame is located at the southwest side of the reservoir. Water flows from the reservoir through the gate frame to the west, to an area within the adjacent Kaua‘i Community College campus. This is the reservoir’s only outlet. A modern concrete pipe storm drain outlet from the Petition Area enters the reservoir at the northwest side. The 1963 U.S. Geological Survey map shows a portion of the “Upper Līhu‘e Ditch” that corresponds with the separation between Fields 39A and 39B, indicating CSH 1 was likely associated with the Upper Līhu‘e Ditch. The reservoir also appears on the 1910 U.S. Geological Survey map, although its associated ditches are not evident.

CSH 2 is a plantation-era irrigation ditch that forms the western, southwestern, and portion of the southern boundary of the Petition Area. The earthen ditch is 703 m long and 0.9 m deep,

with a maximum width of 2 m. The walls of the ditch are sloped, with a bottom width of 1 m. The ditch is not currently used for irrigation, but collects storm drainage and surface run-off from the Island School campus and athletic fields. A 1941 map of Līhu'e Plantation Company, Ltd. shows CSH 2 forming the western boundary of Field 39B, separating Līhu'e Plantation and Grove Farm Company, Inc.

CSH 3 is a section of an active plantation era irrigation ditch. The portion of the ditch within the Petition Area is 209 m long. The ditch enters the Petition Area from the north, near the northeastern corner. Water flowing through the ditch feeds the CSH 1 reservoir. The irrigation ditch has mounded earthen berms on each side that measure 2 m wide and range from 0.5 to 0.7 m high. The water channel is 2.5 m wide and approximately 1.2 m deep. The ditch has two concrete gate frames without gates. A 1941 map of Līhu'e Plantation Company, Ltd. shows that CSH 3 is the boundary between Fields 39A and 39B. The 1963 U.S. Geological Survey map depicts a portion of the "Upper Līhu'e Ditch" whose location corresponds with the separation between Fields 39A and 39B, indicating that CSH 3 is associated with the Upper Līhu'e Ditch.

CSH 4 is a plantation-era irrigation ditch that appears to have been fed by the CSH 1 reservoir. The portion of the ditch within the Petition Area measures 128 m long, 2.3 m wide, and 1.5 m deep. This portion of the ditch begins at a concrete culvert on the southeast side of the reservoir, and continues in a generally eastern direction until it exits the Petition Area at its eastern boundary. An abandoned valve at the end of the CSH 1 reservoir catwalk likely controlled the flow of water into the ditch. Based on its association with CSH 1, CSH 4 may also have been associated with the Upper Līhu'e Ditch.

Impacts and Mitigation Measures

The four historic features (CSH 1 to CSH 4) are plantation-era Līhu'e Plantation Company, Ltd. infrastructure. The three features within the Petition Area (CSH 2, CSH 3, and CSH 4) comprise one historic property. The features of this historic property were evaluated for significance according to the broad criteria established for the Hawai'i Register of Historic Places (see Table 1). The five criteria are:

- A - Associated with events that have made an important contribution to the broad patterns of our history;
- B - Associated with the lives of persons important in our past;
- C - Embodies the distinctive character of a type, period, or method of construction, represents the work of a master, or possesses high artistic value;
- D - Have yielded, or is likely to yield information important for research on prehistory or history; and,
- E - Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history and cultural identity.

Feature	Feature Type	Function	Age	Evaluation
CSH 1	Reservoir	Water control	Plantation era	D No further work; Outside of Petition Area
CSH 2	Irrigation ditch	Water control	Plantation era	D No further work; Sufficient documentation
CSH 3	Irrigation Ditch	Water control	Plantation era	D No further work; Sufficient documentation
CSH 4	Irrigation ditch	Water control	Plantation era	D No further work; Sufficient documentation

The proposed project improvements are not anticipated to have an adverse effect on the historic features related to plantation-era infrastructure. No project improvements are proposed to be constructed within or in the immediate vicinity of the plantation-era infrastructure. While no additional work appears to be necessary, consultation with the State DLNR Historic Preservation Division (SHPD) is being conducted to determine mitigation, if any, which may be appropriate for the plantation infrastructure features that have been recommended for no further work.

The SHPD, in a letter dated September 18, 2012 in conjunction with this EA, a copy which is included in Chapter 9 Consultation, Section 9.1 Pre-Assessment Consultation of this document, indicates that although the subject property was formerly used as agricultural land, the potential exists for subsurface historic properties below the cultivation zone. As recommended by SHPD, ground disturbing activities associated with the proposed project will be monitored by a qualified archaeologist, and an archaeological monitoring plan will be prepared and submitted to the SHPD for review and approval. The monitoring plan will include information as specified in Hawai'i Administrative Rule §13-279.4.

Pursuant to SHPD's review of the archaeological literature review and field inspection report by letter dated October 26, 2012, an archaeological inventory survey of the Petition Area will be conducted in conjunction with the Petition for State Land Use District Boundary Amendment for the project. A copy of this letter is included in Appendix B.

Should any previously unidentified burial, archaeological or historic sites be found during the course of construction of the proposed project, the Petitioner will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and, as necessary, the Kaua'i/Ni'ihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

3.12 Cultural Resources

A cultural impact assessment (CIA) was undertaken by Cultural Surveys Hawai'i, Inc. in April 2012 as part of the Environmental Assessment prepared in conjunction with the proposed State Land Use District Boundary reclassification of the adjacent Kaua'i Community College campus. The study area of the CIA includes the ahupuaa of Nāwiliwili, Niumalu, and Haiku within the Līhu'e District. As the Petition Area is located within the Nāwiliwili Ahupuaa, a summary of the CIA is included below. The CIA report is included in Appendix C.

The traditional moku or districts of Kaua'i were replaced in the mid- to late 19th century. Līhu'e became the modern district that includes the ahupuaa of Nāwiliwili, Niumalu, and Haiku, previously under the Puna District. Between the 1830s and the Mahele of 1848, the names Nāwiliwili and Līhu'e were used somewhat interchangeably to refer to the settlement along Nāwiliwili Bay. "Līhu'e" was not consistently used until the establishment of commercial sugar cane cultivation in the mid-19th century.

The archaeological record of early Hawaiian occupation of the study area indicates a date range of A.D. 1100 to 1650 for the pre-contact Hawaiian habitations. Excavated settlements near the mouth of Hanamaulu Stream, north of Nāwiliwili, indicate a radiocarbon date of A.D. 1170 to 1400. Historically, settlement of the study area was predominantly along the coastal areas as evidenced by the concentration of permanent house sites, temporary shelters, heiau, and fishponds in these areas.

Mo'olelo (stories, oral histories) and wahi pana (storied places) associated with the study area are plentiful, suggesting early settlement of the area by a viable Native Hawaiian population. The abundance of water and the presence of distinguished fishponds along the coast and water systems are testament to early settlement. Nāwiliwili and its vicinity had rich soils with a variety of crops like sugar cane, taro, sweet potatoes, beans, as well as groves of kukui, hau, koa, hala, and wiliwili.

After the Mahele, Victoria Kamamalu was awarded over 2,000 acres of Nāwiliwili Ahupuaa, along with much of Niumalu and Haiku. Land Commission Awards (LCAs) describe many lo'i and kula lands within the study area, particularly as being in the same apana. Many fishponds were prevalent in the study area. Alekoko Fishpond, also known as Menehune Fishpond or Niumalu Fishpond (SIHP No. 50-30-11-501), is the largest fishpond on Kaua'i and still exists in the study area.

Commercial agriculture became established on Kaua'i in the 1830s as the sandalwood trade waned. In 1835, commercial cultivation of sugar cane began at Kōloa, and plantations like Līhu'e Plantation and Grove Farm Plantation burgeoned.

Līhu'e Plantation Company, Ltd. began as a partnership in 1849 between Henry Augustus Pierce, Judge William Little Lee, and Charles R. Bishop. In 1866, the first 3,000 acres were purchased in Nāwiliwili and an additional 300 acres were purchased in Ahukini. Līhu'e Plantation Company, Ltd. was the most modern plantation in Hawaii at that time, and invested heavily in irrigation ditch infrastructure. Līhu'e Plantation Company, Ltd. remained a vibrant and successful commercial operation throughout most of the 20th century, in part because of its continued interest in technological innovation. Commercial sugar cane cultivation in Līhu'e

continued until 2000, when Līhu'e Plantation Company, Ltd. and the Kekaha Sugar Co. shut down.

Grove Farm Plantation, named after an old stand of kukui trees, was established in 1850 by Warren Goodale. In 1864, George Wilcox leased Grove Farm Plantation from subsequent owner Judge Widemann, and rapidly expanded development of the Plantation's irrigation ditch infrastructure. By 1881, lease and land purchases by George Wilcox in the Haiku Ahupuaa increased the acreage of Grove Farm Plantation nearly ten-fold.

Grove Farm Plantation was also at the forefront of housing improvements during a time when plantation housing throughout the Hawaiian Islands was inadequate. Between 1917 and 1920, Grove Farm Plantation built 120 houses in a single new camp for workers which became known as Puhi Camp. In the 1920s, Grove Farm Plantation began a new building program at Puhi, along the route of the present Kaunualii Highway and just south of the current Kaua'i Community College site. Puhi Camp also extended within the current site of the Kaua'i Community College. The plantation camp consisted of about 600 homes occupied by up to 1,200 workers and their families, and also included a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events.

During the 1930s, federal funds became available to assist the Territory of Hawai'i's highway construction program. Between 1933 and 1937, construction of the Belt Road, presently Kaunualii Highway, was completed incrementally. At the same time that the Belt Road construction program was underway, during the mid-1930s, Grove Farm Plantation was further expanding into Puhi with its new headquarters.

In the early 1970s, Grove Farm Plantation donated 200 acres of former sugar cane land to the State for the Kaua'i Community College. Grove Farm Plantation ended its sugar business in 1974, setting aside lands for development and also for the continuation of sugar cultivation by leasing its Līhu'e lands to Līhu'e Plantation Company, Ltd., and its Kōloa lands to McBryde Sugar Company, Limited.

Most of the Puhi Camp housing was removed in the 1970s, prior to construction of Kaua'i Community College. The last of the homes in Puhi Camp were dismantled in the 1980s. Currently, the Punana Leo o Kaua'i Pre-School, Kawaikini New Century Public Charter School, and a few agricultural plots occupy a portion of the former Puhi Camp lands.

An archaeological reconnaissance by Palama in 1973 identified the Puhi Camp Cemetery (SIHP No. 50-30-11-B006), old plantation camp remains associated with Puhi Camp, Puhi Camp, and an area containing possible lo'i. All of these historic features are located within the current Kaua'i Community College site, except the Puhi Camp Cemetery which is in a separate parcel surrounded by the College campus. This parcel is owned by Grove Farm Company, Inc., and not by Kaua'i Community College.

To determine the potential impact of the proposed project upon native Hawaiian cultural resources, beliefs and practices, information from the archaeological literature review and field inspection of the Petition Area conducted by Cultural Surveys Hawai'i, Inc. in October 2010 (refer to Section 3.11) is provided herein.

The archaeological literature review and field inspection identified no burials, trails or archaeological sites of cultural importance in the vicinity of the Petition Area.

In the 1830s, western homesteading and commerce were established on the lands above Nāwiliwili Bay that would evolve into Līhu'e Town. In 1849, Līhu'e Plantation Company, Ltd. was established on a site which became the start of the town of Līhu'e. By 1910, however, little development had occurred within the Petition Area and its vicinity.

In 1919, Līhu'e Plantation began the development of an extensive irrigation water system that eventually spanned and connected several watersheds from Hanalei to Kōloa. A 1941 map of Līhu'e Plantation Company, Ltd. shows the Petition Area primarily within sugar cane Field 39B and extending into Field 39A. Aerial photos dated 1965 and 1977-1978 show sugar cane cultivation occurring within the Petition Area and its immediate vicinity.

Historic maps and photographs (including a 1941 Līhu'e Plantation field map and 1965 and 1977 aerial photographs) show the entire Petition Area as a sea of sugar cane. This has implications for the likelihood of traditional cultural properties and practices. Typically, Līhu'e Plantation Company, Ltd. would have been highly proprietary over their lands excluding public access. Hence, it is unlikely that there could have been access to the subject property for cultural practices from well before 1941. Perhaps more importantly, this expanse of sugar cane would appear to exclude the possibility of any traditional gathering within the Petition Area.

In 1990, construction of the Island School campus within the Petition Area commenced, with subsequent construction of additional school facilities occurring to date.

During the field inspection survey, a total of four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure were observed (see Figure 3-5). The surface features consist of a reservoir located on a separate parcel adjacent to the south-central portion of the Petition Area (CSH 1), and three irrigation ditches (CSH 2, CSH 3, and CSH 4), two of which are associated with the adjacent reservoir. All of the surface features are currently in use. Based on an evaluation for significance according to the criteria established for the Hawai'i Register of Historic Places, no additional work appears to be necessary for the four features.

Aside from the four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are anticipated to be found within the Petition Area.

Impacts and Mitigation Measures

The cultural impacts and recommendations of the CIA are mostly pertinent to potential impact of future development of the Kaua'i Community College on the historical remnants of the Old Puhi Camp, and the Puhi Cemetery located on a separate parcel surrounded by that site, and do not pertain to the subject Petition Area.

Based on the above findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices. In the event that previously unrecorded, significant historic sites are encountered during the course of

development activities within the Petition Area, further mitigation measures would be undertaken for the protection of these sites. As a precautionary measure, personnel involved in future development of the Petition Area will be informed of the possibility of inadvertent cultural finds, and made aware of the appropriate notification measures to follow, including consultation the SHPD and, as may be appropriate, with Kaua'i community cultural organizations.

3.13 Visual Resources

The Petition Area is not visible from public vantage points due to its inland location and distance from Kaumuali'i Highway, the nearest public roadway. The Petition Area is located approximately 0.4-mile mauka of Kaumuali'i Highway at its closest point, and is visually buffered by vegetation and the adjacent Kaua'i Community College campus located between the southern boundary of the site and the Highway. The visual environment of the remaining areas surrounding the Petition Area is of expansive undeveloped, vegetated lands, and agricultural cultivation.

Impacts and Mitigation Measures

No significant visual or aesthetic impacts are anticipated as a result of the proposed project. The new buildings to be constructed within the Petition Area are proposed to be mostly located within the central portion of the campus and visually will be an extension of the existing facilities. Any visual impacts of the proposed project from the surrounding areas will be minimized through appropriate architectural design criteria and compliance with the applicable development standards of the County's Comprehensive Zoning Ordinance (CZO) relative to building height, setbacks, etc. The visual environment of the northern and eastern portions of the Petition Area will mostly remain open with athletic fields and undeveloped areas. Appropriate landscaping will be provided along the southwestern and southern boundaries of the Petition Area to visually screen the campus buildings from the nearby areas.

3.14 Traffic

A Traffic Impact Report (TIR) for the proposed project was prepared by Wilson Okamoto Corporation in December 2010. The purpose of the TIR is to assess the traffic impacts resulting from the implementation of the Island School's updated master plan, and to identify recommendations of improvements, if appropriate, that would mitigate the traffic impacts. The TIR is included in Appendix D and is summarized below.

Existing Area Roadway System: Existing roadways within the vicinity of the Petition Area include Kaumuali'i Highway, Puhi Road, Nani Street, and Nuhou Street. At the time that the TIR was prepared, the ongoing widening of Kaumuali'i Highway from two to four lanes had not reached the segment fronting the Petition Area. Hence, the TIR is based on conditions at the intersections of Kaumuali'i Highway with Nuhou and Puhi Roads and Nani Street at the time it was conducted.

In the vicinity of the Petition Area, Kaumuali'i Highway is a predominantly two-lane, two-way State roadway generally oriented in the east-west direction. At the signalized intersection with Puhi Road, both approaches of Kaumuali'i Highway have exclusive turning lanes and one through lane.

Puhi Road is a predominantly two-lane, two-way County roadway generally oriented in the north-south direction. At the intersection with Kaumuali'i Highway, the northbound approach of Puhi Road has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the western access road for Kaua'i Community College and Island School, which has a shared left-turn and through lane, and an exclusive right-turn lane. An additional westbound departure lane is provided along Kaumuali'i Highway at this intersection to allow southbound right-turning vehicles to proceed freely through the intersection.

Northeast of the intersection with Puhi Road, Kaumuali'i Highway intersects Nani Street. At this unsignalized T-intersection, the eastbound approach of the highway has one lane that serves through and right-turn traffic movements, while the westbound approach has one lane that serves left-turn and through traffic movements. Nani Street is a two-lane, two-way County roadway generally oriented in the north-south direction. At the intersection with the highway, the Nani Street approach has one lane that serves left-turn and right-turn traffic movements.

Further northeast, Kaumuali'i Highway intersects Nuhou Street. At this signalized intersection, the eastbound approach of the highway has exclusive turning lanes and one through lane, while the westbound approach has one through lane and a shared through and right-turn lane. Nuhou Street is a four-lane, two-way County roadway generally oriented in the north-south direction. At the intersection with the highway, the northbound approach of Nuhou Street has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the eastern access for Kaua'i Community College and Island School, which has one lane that serves all traffic movements.

Traffic Volumes and Conditions: The TIR analyzed traffic conditions at the following intersections in the vicinity of the Petition Area during the weekday AM and PM peak traffic hour periods:

- Kaumuali'i Highway and Puhi Road
- Kaumuali'i Highway and Nani Street
- Kaumuali'i Highway and Nuhou Street

Field investigations were conducted on September 14-16, 2010 at the above intersections, which consisted of manual turning movement count surveys during the morning peak hours between 6:00 AM and 9:00 AM, and the afternoon peak hours between 3:00 PM and 6:00 PM. In addition, a 24-hour mechanical count survey was conducted along the main access for Kaua'i Community College north of the Kaumuali'i Highway and Puhi Road intersection.

The morning peak hour of traffic generally occurs between 7:15 AM and 8:15 AM in the vicinity of the Petition Area. The afternoon peak hour of traffic generally occurs between 4:00 PM and 5:00 PM.

The highway capacity analysis performed in this TIR is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Synchro" software developed by Trafficware. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic. LOS is a quantitative and qualitative assessment of traffic operations. LOS are defined by LOS "A"

through “F”, with LOS “A” representing ideal or free-flow traffic operating conditions and LOS “F” representing unacceptable or potentially congested traffic operating conditions.

Existing Traffic Conditions: Existing peak hour traffic conditions at the study intersections are as follows:

Kaumuali'i Highway and Puhī Road: At the intersection with Puhī Road, Kaumuali'i Highway carries higher traffic volumes during the PM peak period versus the AM peak period. The left-turn traffic movement on both the eastbound and westbound approaches of the highway operate at LOS “D” and LOS “E” during the AM and PM peak periods, respectively, while the right-turn traffic movements operate at LOS “B” during both peak periods. The eastbound through traffic movement operates at LOS “C” during both peak periods, while the westbound through traffic movement operates at LOS “C” and LOS “D” during the AM and PM peak periods, respectively.

The northbound left-turn and through traffic movement on the Puhī Road approach of the intersection operates at LOS “D” and LOS “E” during the AM and PM peak periods, respectively, while the right-turn traffic movement operates at LOS “C” and LOS “D” during the AM and PM peak periods, respectively.

The southbound left-turn and through traffic movement on this approach of the intersection operates at LOS “C” and LOS “E” during the AM and PM peak periods, respectively.

Kaumuali'i Highway and Nani Street: At the intersection with Nani Street, Kaumuali'i Highway carries higher traffic volumes during the PM peak period versus the AM peak period. The critical traffic movement along the highway at the intersection is the westbound approach which operates at LOS “A” during both peak periods.

Kaumuali'i Highway and Nuhou Street: At the intersection with Nuhou Street, Kaumuali'i Highway carries higher traffic volumes westbound during the AM peak period versus the PM peak period, and higher traffic volumes eastbound during the PM peak period versus the AM peak period. The left-turn traffic movement on both approaches of the highway operates at LOS “E” during both peak periods, while the eastbound through and westbound through and right-turn traffic movements operate at LOS “C” during both peak periods. The eastbound right-turn traffic movement along the highway operates at LOS “B” during both peak periods.

The traffic movements on the Nuhou Street (northbound) approach of the intersection operate at LOS “D” during both peak periods. The southbound approach of the intersection operates at LOS “E” and LOS “D” during the AM and PM peak periods, respectively.

Impacts and Mitigation Measures

Short-Term Impacts and Mitigation Measures: During construction of the proposed project, short-term traffic impacts will occur from construction vehicles such as earthmovers and heavy trucks transporting equipment and materials. However, as the construction schedule for the updated master plan improvements will occur over a period of time through 2020, the resulting traffic impacts will be correspondingly reduced. Traffic control measures will be implemented during construction to mitigate potential traffic impacts along the roads in the immediate project vicinity. Such mitigation will include restricting the transport of large, slow-moving, heavy

construction vehicles or equipment during the AM and PM peak traffic hours, and the use of flaggers and/or off-duty police officers to direct traffic during significant phases of construction.

Long-Term Impacts and Mitigation Measures:

Projected Traffic Conditions: Traffic conditions were forecast to Year 2020, the anticipated completion date of the proposed project.

The travel forecast is based upon historical traffic count data obtained from the State Department of Transportation (DOT) Highway Division survey stations in the vicinity of the Petition Area. The historical data indicates a stable or declining growth in traffic. As such, an annual traffic growth rate of approximately 0.5 percent per year was conservatively assumed along Kaumuali'i Highway in the project vicinity. Using 2010 as the Base Year, a growth factor of 1.05 was applied to the existing through traffic demands along Kaumuali'i Highway to achieve the projected Year 2020 traffic demands.

Other Considerations: Kaua'i Community College's Long Range Development Plan (LRDP) includes the construction of a number of new facilities to allow the expansion of existing programs. In conjunction with the planned expansion, enrollment at Kaua'i Community College is expected to increase from the current enrollment of 864 students to an enrollment of 1,038 students by the Year 2020. The increase in enrollment at Kaua'i Community College is expected to result in approximately 35 new trips during the AM peak period and 35 new trips during the PM peak period.

The DOT is currently widening Kaumuali'i Highway from a two-lane undivided highway to a four-lane divided highway between Anonui Road and the Līhu'e Mill Bridge. The highway will have two travel lanes in each direction, with auxiliary lanes provided at the intersections along this segment once construction is completed. The widening of Kaumuali'i Highway from the Līhu'e Mill Bridge to the Kaua'i Community College entrance was completed in September 2012.

Year 2020 Without Project: The projected Year 2020 AM and PM peak hour traffic operating conditions without the implementation of Island School's updated master plan are shown in Table 2. The existing levels of service are provided for comparison purposes. Kaumuali'i Highway is assumed to be widened to a four-lane divided highway by the Year 2020, with a westbound left-turn bay provided at the intersection with Nani Street.

Traffic operations in the vicinity of Island School without the implementation of their updated master plan are expected to improve during both peak hours of traffic due to the widening of Kaumuali'i Highway to a four-lane-divided highway. The traffic movements at the intersection of Kaumuali'i Highway with Puhi Road are expected to operate at LOS "C" or better during the AM peak period and LOS "D" or better during the PM peak period, while those at the intersection with Nani Street are expected to operate at LOS "B" or better during both peak periods. At the intersection with Nuhou Street, the traffic movements are expected to operate at LOS "D" or better during both peak periods.

Intersection	Critical Traffic Movement		AM		PM	
			Existing	Year 2020 Without Project	Existing	Year 2020 Without Project
Kaumuali'i Hwy/ Puhi Road	Eastbound	LT	D	C	E	D
		TH	C	B	C	B
		RT	B	B	B	B
	Westbound	LT	D	C	E	D
		TH	C	B	D	B
		RT	B	B	B	B
	Northbound	LT-TH	D	C	E	C
		RT	C	B	D	B
	Southbound	LT-TH	C	B	E	C
RT		-	B	-	B	
Kaumuali'i Hwy/ Nani Street	Westbound	LT	A	A	A	B
		TH		-		-
	Northbound	LT-RT	C	B	C	B
Kaumuali'i Hwy/ Nuhou Street	Eastbound	LT	E	D	E	D
		TH	C	B	C	B
		RT	B	B	B	B
	Westbound	LT	E	C	E	D
		TH-RT	C	B	C	B
	Northbound	LT-TH	D	C	D	C
		RT	D	C	D	B
	Southbound	LT-TH-RT	E	C	D	C

Year 2020 With Project: The Year 2020 cumulative AM and PM peak hour traffic conditions with the implementation of Island School's updated master plan are summarized in Table 3. The projected Year 2020 operating conditions without the proposed project are provided for comparison purposes.

Traffic operations in the vicinity of Island School with the implementation of its updated master plan are expected, in general, to operate at levels of service similar to Year 2020 without project conditions despite the addition of site-generated traffic to the surrounding roadways. The southbound left-turn and through traffic movement at the intersection of Kaumuali'i Highway with Puhi Street is expected to operate at a slightly lower level of service during the AM peak period. Similarly, at the intersection of Kaumuali'i Highway with Nuhou Street, the eastbound through and westbound left-turn traffic movements, as well as the southbound approach, are expected to operate at slightly lower levels of service during the AM peak period. The remaining critical movements at these intersections, as well as the other study intersections, are expected to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the study intersections are expected to increase by 2 to 3 percent during the AM peak period, and less than 1 percent during the PM peak period with the proposed project. These increases in the total traffic volumes are in the range of daily volume

fluctuations along Kaumuali'i Highway and represent a minimal increase in the overall traffic volumes.

Intersection	Critical Traffic Movement		AM		PM	
			Year 2020 Without Project	Year 2020 With Project	Year 2020 Without Project	Year 2020 With Project
Kaumuali'i Hwy/ Puhi Road	Eastbound	LT	C	C	D	D
		TH	B	B	B	B
		RT	B	B	B	B
	Westbound	LT	C	C	D	D
		TH	B	B	B	B
		RT	B	B	B	B
	Northbound	LT-TH	C	C	C	C
		RT	B	B	B	B
	Southbound	LT-TH	B	C	C	C
		RT	B	B	B	B
Kaumuali'i Hwy/ Nani Street	Westbound	LT	A	A	B	B
	Northbound	LT-RT	B	B	B	B
Kaumuali'i Hwy/ Nuhou Street	Eastbound	LT	D	D	D	D
		TH	B	C	B	B
		RT	B	B	B	B
	Westbound	LT	C	D	D	D
		TH-RT	B	B	B	B
	Northbound	LT-TH	C	C	C	C
		RT	C	C	B	B
	Southbound	LT-TH-RT	C	D	C	C

Recommendations: Based on the analysis of the traffic data, the following are the recommendations of the TIR with the proposed project:

1. Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
2. Maintain adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Maintain adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on-site to avoid vehicle-reversing maneuvers onto public roadways.
4. Maintain sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

5. If the implementation of Island School's updated master plan is not completed by the Year 2020, prepare an updated Traffic Impact Report that incorporates a revised project completion year.

To reduce the use of automobiles, ongoing sustainable transportation options by Island School include providing bus transportation between home and school for students residing within the North Shore and eastern areas of the Island; implementing car pooling for students and staff; and, encouraging bicycling and walking by students residing near the campus by way of the sidewalks/pedestrian pathways along the existing loop road providing access to the school.

3.15 Socio-Economic Characteristics

The Petition Area is within the Puhi-Hanamā'ulu Census Tract (CT) 404 based on the 2010 Census, and the Puhi-Hanamā'ulu Census County Division (CCD) based on the 2006-2010 American Community Survey 5-Year Estimates. The American Community Survey is conducted every year to provide up-to-date information about the social and economic needs of communities.

Population and Housing: An overview of the population and housing characteristics of the Puhi-Hanamā'ulu CT in comparison to the Island of Kaua'i is shown in Table 4.

- The median age of the Puhi-Hanamā'ulu CT population is slightly lower than Kaua'i at 39.3 versus 41.3;
- By racial mix, there are more Asians and less Whites and Native Hawaiian and other Pacific Islanders in the Puhi-Hanamā'ulu CT than Kaua'i;
- Households in the Puhi-Hanamā'ulu CT have a larger family household and average household and family size, but lower non-family household than Kaua'i; and,
- The Puhi-Hanamā'ulu CT has more occupied housing units and owner-occupied housing units, but slightly lower renter-occupied housing units than Kaua'i.

Subject	CT 404 (Puhi-Hanamā'ulu)		Kaua'i County	
	Number	Percent	Number	Percent
Total Population	8,740	100	67,091	100
AGE				
Under 5 years	587	6.7	4,281	6.4
5 – 9 years	594	6.8	4,179	6.2
10 – 14 years	574	6.6	4,055	6.0
15 – 19 years	573	6.6	4,146	6.2
20 – 24 years	491	5.6	3,472	5.2
25 – 29 years	557	6.4	4,161	6.2
30 – 34 years	511	5.8	3,980	5.9
35 – 39 years	582	6.7	4,018	6.0
40 – 44 years	599	6.9	4,354	6.5
45 – 49 years	703	8.0	4,849	7.2
50 – 54 years	638	7.3	5,390	8.0
55 – 59 years	582	6.7	5,483	8.2
60 – 64 years	452	5.2	4,738	7.1
65 – 69 years	368	4.2	3,234	4.8
70 – 74 years	266	3.0	2,113	3.1

Subject	CT 404 (Puhi-Hanamā'ulu)		Kaua'i County	
	Number	Percent	Number	Percent
Total Population	8,740	100	67,091	100
75 – 79 years	218	2.5	1,632	2.4
80 – 84 years	188	2.2	1,390	2.1
85 years and over	257	2.9	1,616	2.4
Median age (years)	39.3	--	41.3	--
RACE				
White	1,513	17.3	22,159	33.0
Black or African American	32	0.4	278	0.4
American Indian and Alaska Native	12	0.1	254	0.4
Asian	4,529	51.8	21,016	31.3
Native Hawaiian and other Pacific Islander	632	7.2	6,060	9.0
Some Other Race	85	1.0	608	0.9
Two or more races	1,937	22.2	16,716	24.9
HOUSEHOLD BY TYPE				
Total Households	2,564	100.0	23,240	100.0
Family households (families)	1,923	75.0	16,147	69.5
Non-family households	641	25.0	7,093	30.5
Average household size	3.23	--	2.84	--
Average family size	3.66	--	3.31	--
HOUSING OCCUPANCY				
Total Housing Units	2,876	100.0	29,793	100.0
Occupied housing units	2,564	89.2	23,240	78.0
Vacant housing units	312	10.8	6,553	22.0
HOUSING TENURE				
Occupied Housing Units	2,564	100.0	23,240	100.0
Owner-occupied housing units	1,575	61.4	13,968	60.1
Renter-occupied housing units	989	38.6	9,272	39.9

Source: U.S. Census Bureau, Census 2010

Social and Economic: An overview of the social and economic characteristics of the Puhi-Hanamā'ulu CCD in comparison to the Island of Kaua'i is shown in Table 5.

- For the population 25 years and older in the Puhi-Hanamā'ulu CCD, the high school graduates or higher and those with bachelor's degree or higher are slightly lower than Kaua'i;
- The population in the labor force age 16 and over in the Puhi-Hanamā'ulu CCD is slightly higher than Kaua'i at 68.4 percent versus 67.0 percent; and,

- The median household income for the Puhi-Hanamā‘ulu CCD is \$64,234, which is greater than the median household income for Kaua‘i which is \$62,531. However, the median family income and per capita income for the Puhi-Hanamā‘ulu CCD are slightly lower than Kaua‘i at \$70,957 versus \$71,847, and \$24,539 versus \$26,513, respectively.

Subject	Puhi-Hanamā‘ulu CCD		Kaua‘i County	
	Number	Percent	Number	Percent
Total Population	8,530	100	65,460	100
SOCIAL CHARACTERISTICS				
Population 25 years and over	5,886		45,286	
High school graduate or higher	1,750	29.7	13,701	30.3
Bachelor’s degree or higher	822	14.0	7,214	15.9
ECONOMIC CHARACTERISTICS				
In labor force (pop. 16 & over)	4,683	68.4	35,100	67.0
Median household income (dollars)	64,234	--	62,531	--
Median family income (dollars)	70,957	--	71,847	--
Per capita income (dollars)	24,539	--	26,513	--
<i>Source: 2006-2010 American Community Survey 5-Year Estimates</i>				

Impacts and Mitigation Measures

In the short term, the proposed project will bring about positive benefits to the local economy. This would include increased expenditures for construction, construction-related jobs and tax revenue. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

Construction activities associated with the proposed project will create some adverse short-term impacts such as temporary disruption of traffic, unavoidable noise impacts, and air quality impacts from soil excavation and grading activities in the vicinity of the Petition Area. The construction contractor(s) will be required to mitigate potential vehicular traffic impacts through appropriate traffic control measures (see Section 3.14 Traffic). Unavoidable construction noise impacts on nearby land uses in the immediate vicinity of the proposed project will be mitigated to some degree by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control (see Section 3.9 Noise). Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control (see Section 3.8 Air Quality).

In the long-term, the project will contribute toward positive economic benefits through the employment of labor associated with the increased faculty and staff associated with the updated master plan improvements. An increase of approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in the student enrollment to approximately 500 students.

Currently, approximately 35 organizations utilize facilities at Island School, 27 of which do so on a recurring basis. The proposed updated master plan improvements will provide additional facilities that may be available for use by organizations. This sharing of facilities reduces the demand for construction of new facilities to serve these organizations.

3.16 Civil Defense

The closest designated civil defense shelters to the Petition Area are at the adjacent Kaua'i Community College located to the south, and at Chiefess Kamakahelei Middle School located approximately 0.5 mile to the southeast, at the intersection of Kaumuali'i Highway and Nuhou Street. The closest civil defense siren to the Petition Area is located in Puhi (Siren 315).

Impacts and Mitigation Measures

The State Department of Defense, Office of the Director of Civil Defense, by letter dated August 30, 2012 commenting on the pre-assessment consultation, indicated that the Petition Area is covered by the arc of an existing warning siren.

Island School has an agreement with Kaua'i Community College which allows its students, faculty and staff to evacuate to the College's facilities in the event of an emergency situation requiring immediate evacuation.

3.17 Police and Fire Protection Services

Police Protection: Police protection service for the project area is provided by the County Police Department's Līhu'e Headquarters, Sectors 4 to 6, located approximately 2.7 miles east of the Petition Area at 3990 Kā'ana Street.

Fire Protection: Fire protection service for the project area is provided by the County's Līhu'e Fire Station located at 4223 Rice Street, approximately 2.1 miles east of the Petition Area.

Impacts and Mitigation Measures

The proposed project will not adversely impact police and fire protection services. Although it is anticipated that the proposed project would require the occasional police and fire protection services, it would likely not represent a significant proportion of the overall regional demand. The proposed project will be designed and built in compliance with the applicable County fire code requirements.

3.18 Medical Services

Emergency medical service is provided by American Medical Response, a private ambulance service contracted by the County to provide ambulance and paramedic services, located at 3277 Palai Street, approximately 2.3 miles northeast of the Petition Area.

Health care services are available at the Wilcox Memorial Hospital located at 3420 Kūhiō Highway, approximately 2.2 miles northeast of the Petition Area. Wilcox Memorial Hospital consists of the main clinic and hospital that provides men's, women's, and children's health care services, specialty services, elderly care, family support, a long-term care units, and education and prevention services.

Impacts and Mitigation Measures

The proposed project is not anticipated to generate significant demands on medical services. The existing medical facilities and ambulance service will be adequate to serve the needs of the project.

3.19 Schools

There are a total of 19 public and charter schools on Kaua'i, including ten elementary schools, two middle schools, three high schools, and four charter schools. Public schools servicing the Līhu'e region include King Kaumuali'i Elementary School (Grades K to 5) located approximately 3.2 miles northeast of the Petition Area; Wilcox Elementary School (Grades K to 5) located approximately 2.0 miles east of the Petition Area; Chiefess Kamakahelei Middle School (Grades 6 to 8) located approximately 0.7 mile south of the Petition Area; and Kaua'i High School (Grades 9 to 12) located approximately 2.6 miles southeast of the Petition Area. Two Hawaiian Language Immersion schools, including the Punana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School (Grades K to 12), are located approximately 0.2 mile south of the Petition Area, within the Kaua'i Community College property.

According to the State Department of Education (DOE), for school year 2011-2012, student enrollment at King Kaumuali'i Elementary School is 611 students, 933 students at Wilcox Elementary School, 889 students at Chiefess Kamakahelei Middle School, 1,187 students at Kaua'i High School, and 109 students at Kawaikini New Century Public Charter School.

There are a total of eight private schools on Kaua'i, including Island School. The other seven private schools include Kahili Adventist School in Lawai (Grades K to 12), Kaua'i Christian Academy in Kīlauea (Grades Pre-K to 12), Olelo Christian Academy in Līhu'e (Grades K to 12), St. Catherine School in Kapaa (Grades Pre-K to 8), St. Theresa School in Kekaha (Grades Pre-K to 8), Kaua'i Pacific School in Kīlauea (Grades Pre-K to 6), and Crater Hill School in Kīlauea (Grades Pre-K to 6).

Impacts and Mitigation Measures

The proposed project is not anticipated to adversely affect existing schools on Kaua'i or in the Līhu'e/Puhi region. The new campus facilities to accommodate future increase in student enrollment would reduce the burden on public school facilities in the area.

3.20 Recreational Facilities

The County's Department of Parks and Recreation operates 17 parks and recreational facilities in the Līhu'e/Puhi region, including 13 neighborhood parks, three beach parks, and Vidinha Memorial Stadium located to the east of the Petition Area near Līhu'e Airport, which is used as a venue for public sporting events. State parks and recreational facilities in the Līhu'e/Puhi region include Ahukini Recreation Pier State Park at Ahukini Landing located to the northeast of the Petition Area, and Nāwiliwili Small Boat Harbor located to the southeast of the Petition Area in Niualu. Kalapaki Beach and Running Waters Beach are located to the southeast of the Petition Area, adjacent to the Kaua'i Marriott Resort and Beach Club and Kaua'i Lagoons Resort, respectively.

There are two golf courses within the Līhu'e/Puhi region, including the Puakea Golf Course and Kaua'i Lagoons Golf Club located to the south and southeast of the Petition Area, respectively.

Impacts and Mitigation Measures

The construction and development of the proposed project are not anticipated to significantly impact public recreational facilities. In addition to an existing gymnasium with a regulation basketball court or two regulation volleyball courts, the updated Island School master plan will provide recreational facilities, including a track and football field, soccer field, baseball field, softball field, outdoor swimming pool, and playground facilities. Therefore, the proposed project will not generate a demand for off-site recreational facilities.

3.21 Solid Waste Disposal

The County Department of Public Works (DPW) maintains an Island-wide solid waste collection and disposal system. The existing Kekaha Landfill, located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island, is the primary disposal site for solid waste on the Island. The County is currently seeking a lateral expansion of the Kekaha Landfill which could extend its capacity by about 12 years. The County is also seeking another landfill site as part of its long-term planning objectives.

Currently, refuse generated at the Island School campus is collected by a private refuse collection company and transported to the Kekaha Landfill for disposal. Island School has been implementing a recycling program for the past 12 years, including paper, cardboard, and participation in the State's "high five" program. The food waste generated by the school's food services is separated from the trash and provided to pig farmers. The school's recycling program has resulted in a reduction in the quantity of trash generated, as well as in the number of trash pick-up days from five days per week to three days per week.

Impacts and Mitigation Measures

No significant impacts to solid waste disposal are anticipated from the construction and development of the proposed project.

During construction of the project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the County's Kekaha Landfill.

Upon development, refuse generated by the project will continue to be collected by a private refuse collection company and transported to the Kekaha Landfill for disposal. During operation of the project, it is estimated that approximately 0.75 tons of solid waste will be generated per week for disposal at the County's landfill. In an effort to reduce the amount of solid waste to be generated, the on-campus recycling program will continue to be implemented, and food waste will continue to be provided to pig farmers. Composting of greenwaste will be employed for the project's landscaped areas.

3.22 Utilities

3.22.1 Wastewater System

Wastewater service for the Island School campus is provided by Grove Farm Company, Inc.'s Puhi Wastewater Treatment Plant (WWTP) located southeast of the Petition Area and makai of Kaunali'i Highway. The privately-owned and operated WWTP currently has a design capacity of 1.0 million gallons per day (mgd), and is expandable to 3.0 mgd. The WWTP currently operates at R-1 effluent quality standards, the highest level of effluent quality regulated by the State. The WWTP currently treats approximately 400,000 gallons per day (gpd) of wastewater.

The treated effluent is used to irrigate the nearby Puakea Golf Course. The existing wastewater transmission system for the Island School campus includes a network of sewer lines varying in diameter from eight to 27 inches between the WWTP and Kaua'i Community College campus, from six to eight inches within the Kaua'i Community College campus, and six inches with the Island School campus.

Impacts and Mitigation Measures

The projected average wastewater flow for the proposed project is approximately 13,900 gpd, with a peak flow of approximately 88,400 gpd. The Puhi WWTP has sufficient capacity to serve the proposed project.

3.22.2 Water System

Potable water service for the Island School campus is provided by the County Department of Water's (DOW) Puhi 510-foot water system. A booster pump station located at the DOW's Puhi 393-foot water reservoir site provides source from the 393-foot water system to the 510-foot system. The Island School campus is currently served by a two-inch water meter, which has a maximum flow of 9,600 gallons per hour.

Island School currently has an agreement to utilize irrigation water from Grove Farm Company, Inc.'s irrigation ditch system which traverses within the Petition Area. Since rainfall is mostly sufficient for irrigation of landscaping within the campus, Island School has generally not utilized much irrigation water, except for a minimal amount for landscaping adjacent to the buildings over the past 20 years.

Impacts and Mitigation Measures

The projected average daily water demand for the proposed project is approximately 4,700 gpd. The Petitioner will consult with the County DOW on the adequacy of the existing water system to accommodate the proposed project improvements.

Island School will continue to have use of irrigation water from Grove Farm Company, Inc.'s irrigation ditch system, as needed. The projected average demand for irrigation water for the Island School campus with the updated master plan improvements is approximately 65,000 gpd. As the average flow of the irrigation ditch within the Petition Area is approximately 1.0 mgd, the irrigation water system would be adequate to meet the irrigation demands of the proposed project.

3.22.3 Drainage System

Currently, storm runoff from the Petition Area sheetflows to three existing plantation-era irrigation ditches located within the site, and one existing plantation-era irrigation ditch located adjacent to and south of the site, and is then directed to an existing adjacent reservoir (see Figure 3-5). The ditches and reservoir are part of Grove Farm Company, Inc.'s (formerly Līhu'e Plantation Company, Ltd.'s) irrigation system. The ditch identified as CSH 2, located along the western and southwestern boundaries of the Petition Area, collects storm runoff from the western portion of the Island School campus. The ditch identified as CSH 3, located within the eastern portion of the Petition Area, is an active irrigation ditch that enters the Petition Area from the north and feeds into the reservoir adjacent to the south-central boundary of the Petition Area. The ditch identified as CSH 4, located along the southeastern boundary of the Petition Area, is fed by the adjacent reservoir. The irrigation ditch located south of the Petition Area

flows out of the adjacent reservoir, and also collects storm runoff from the Island School campus.

Impacts and Mitigation Measures

Potential impacts to the quality of nearby surface waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

3.22.4 Electrical and Communications Systems

Electrical System: Electrical service to the Island School campus is provided by Kaua'i Island Utility Cooperative (KIUC) via an underground duct system to a pad-mounted transformer. In addition, a 200 kW solar photovoltaic facility has been constructed, and is currently operational, on an approximately one-acre site within the northeast portion of the Petition Area. The solar photovoltaic facility includes more than 1,200 solar panels that will generate clean, renewable solar energy to meet the daytime needs of the Island School campus.

Communications and Cable Systems: Data/telephone service to the Island School campus is provided by Hawaiian Telcom via an underground duct system to distribution equipment located within an electrical room. Fifty (50) pairs are provided to the distribution equipment, with 13 pairs currently in use.

Cable television (CATV) to the Island School campus is provided by Oceanic Time Warner Cable via an underground duct system to distribution equipment located within an electrical room.

Impacts and Mitigation Measures

Electrical System: Based on a high load of 87.36 kW, the existing transformer has approximately 60 kilovolt (kVA) of spare capacity available for future campus growth.

Island School will continue to employ sustainable measures to promote renewable energy sources and energy efficiency. The 200 kW solar photovoltaic facility within the Petition Area will generate clean, renewable solar energy to meet the daytime needs of the Island School campus, resulting in a reduction of fossil fuel energy by more than 50 percent. Energy demand and consumption will be further reduced through the use of solar and efficient, low-consumption lighting fixtures and equipment, such as Energy Star rated appliances. The campus buildings will be designed for natural ventilation to take advantage of the trade winds, including use of ceiling fans, and skylights will be utilized to allow natural light to illuminate interior spaces.

Communications and Cable Systems: The existing data/telephone cabling has sufficient spare capacity (37 spare pairs) for future campus growth.

The single coaxial cable has sufficient spare capacity for additional standard cable service required for future campus growth.

4. RELATIONSHIP TO LAND USE PLANS AND POLICIES

The proposed project's consistency with relevant State and County land use plans and policies is discussed below.

4.1 State Land Use District

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect, and encourage the development of lands in the State for uses which are best suited to the public health and welfare of Hawai'i's people. All lands in the State are classified into four land use districts by the SLUC: Urban, Agricultural, Conservation, and Rural. The Petition Area is currently designated within the State Agricultural District (see Figure 4-1).

The Petitioner is seeking to reclassify the Petition Area from the State Agricultural District to the State Urban District (see Figure 4-1a). The need to reclassify the Petition Area from the State Agricultural District to the Urban District is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaumuali'i Highway. The reclassification of the Petition Area will allow the improvements in the proposed updated Island School master plan to be implemented without a State Special Permit. Reclassification of the Petition Area to the State Urban District would convey land use jurisdiction to the County, which would regulate uses through its Comprehensive Zoning Ordinance (CZO).

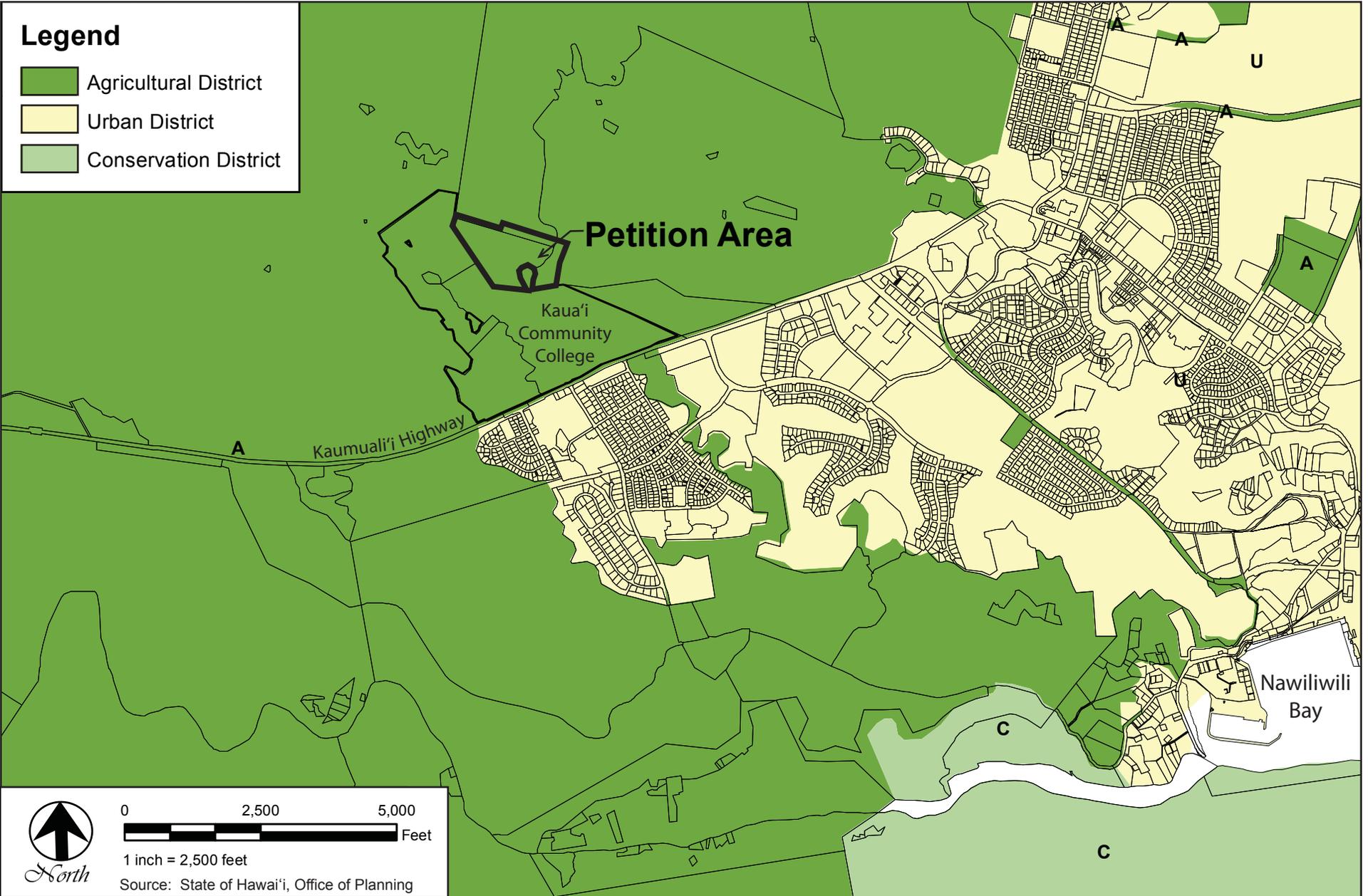
4.1.1 Conformance to the State Urban District Standards

The SLUC, in accordance with Chapter 15-15, HAR, must specifically consider the extent to which the proposed reclassification conforms to the applicable district standards. The standards for determining the boundaries for the Urban District include eight areas which are listed and discussed below:

- (1) *It shall include lands characterized by "city-like" concentrations of people, structures, streets, urban level of services and other related land uses;*

The proposed reclassification of the Petition Area from the State Agricultural District to the Urban District is more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaumuali'i Highway. The Petition Area is located in close proximity to the Līhu'e and Puhi areas, which provide urban levels of services and related land uses, including schools, Kaua'i Community College, civic, retail/commercial, residential, light industrial, golf courses, and parks/recreational facilities.

- (2) *It shall take into consideration the following specific factors:*
 - (A) *Proximity to centers of trading and employment except where the development would generate new centers of trading and employment;*
 - (B) *Availability of basic services such as schools, parks, wastewater systems, solid waste disposal, drainage, water, transportation systems, public utilities, and police and fire protection; and*
 - (C) *Sufficient reserve areas for foreseeable urban growth;*



Island School Updated Master Plan

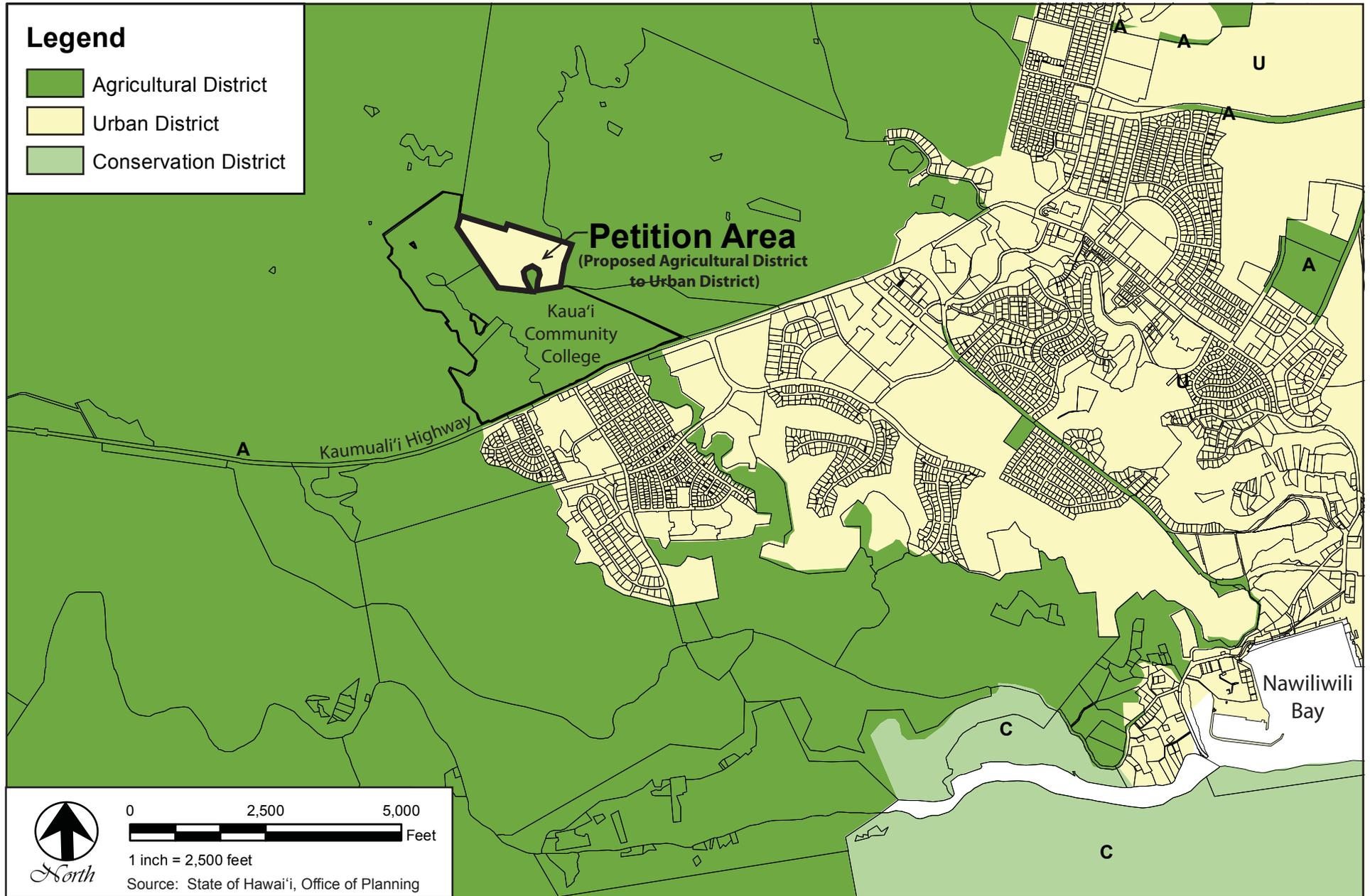
EXISTING STATE LAND USE DISTRICTS MAP

FIGURE

4-1

Legend

-  Agricultural District
-  Urban District
-  Conservation District



Island School Updated Master Plan

PROPOSED STATE LAND USE DISTRICTS MAP

FIGURE

4-1a

The Petition Area is located within Puhi and in close proximity to Līhu'e, areas of trading and employment. Līhu'e is the government center of Kaua'i with areas of trading and employment, including Līhu'e Airport, Nāwiliwili Harbor, Kalapaki commercial area, Līhu'e Industrial Park, U.S. Post Office, judiciary complex, Kaua'i Lagoons Resort, and Kaua'i Marriott Resort and Beach Club. Areas of trading and employment within Puhi include the adjacent Kaua'i Community College, Chiefess Kamakāhelei Middle School, Punana Leo o Kaua'i Preschool, Kawaikini New Century Public Charter School, Kukui Grove Center, Kukui Grove Village West commercial area, Puhi Industrial Park, and various retail and commercial establishments.

The County's Department of Parks and Recreation operates 17 parks and recreational facilities in the Līhu'e/Puhi region, including 13 neighborhood parks, three beach parks, and Vidinha Memorial Stadium located to the east of the Petition Area near Līhu'e Airport, which is used as a venue for public sporting events. State parks and recreational facilities in the Līhu'e/Puhi region include Ahukini Recreation Pier State Park at Ahukini Landing located to the northeast of the Petition Area, and Nāwiliwili Small Boat Harbor located to the southeast of the Petition Area in Niūmalu. Kalapaki Beach and Running Waters Beach are located to the southeast of the Petition Area, adjacent to the Kaua'i Marriott Resort and Beach Club and Kaua'i Lagoons Resort, respectively.

The Petition Area is in close proximity to public transportation systems, utilities and services. Vehicular access to the Petition Area is via a paved loop road from Kaumuali'i Highway, a State road located approximately 0.4-mile to the south. Other public roads intersecting Kaumuali'i Highway on its makai side include Puhi Road, Nani Street, and Nuhou Street. Traffic operations in the vicinity of Island School with the implementation of its updated master plan are expected, in general, to operate at levels of service similar to Year 2020 without project conditions despite the addition of site-generated traffic to the surrounding roadways.

The County Police Department's Līhu'e Headquarters is located approximately 2.7 miles east of the Petition Area on Kā'ana Street, and the County's Līhu'e Fire Station is located approximately 2.1 miles to the east on Rice Street.

The existing Kekaha Landfill, located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island, is the primary disposal site for solid waste on the Island. The County DPW is seeking a lateral expansion of the Kekaha Landfill which could extend its capacity by about 12 years, and is also seeking another landfill site as part of its long-term planning objectives. During construction of the proposed project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the Kekaha Landfill. In an effort to reduce the amount of solid waste to be generated upon development of the project, Island School will continue with implementation of its on-campus recycling program, and food waste generated by the school's food services will continue to be provided to pig farmers. Composting of greenwaste will be employed for the project's landscaped areas.

Potable water service for the Island School campus is provided by the County DOW's Puhi 510-foot water system. The projected average daily water demand for the proposed project is approximately 4,700 gpd. The Petitioner will consult with the County DOW on the adequacy of the existing water system to accommodate the proposed project. Island School will continue to have use of irrigation water from Grove Farm Company, Inc.'s irrigation ditch system, as needed. The projected average demand for irrigation water for the Island School campus with the updated master plan improvements is approximately 65,000 gpd. As the average flow of the irrigation ditch within the Petition Area is approximately 1.0 mgd, the irrigation water system would be adequate to meet the irrigation demands of the proposed project.

Wastewater service for the Island School campus is provided by Grove Farm Company, Inc.'s Puhi WWTP. The projected average wastewater flow for the proposed project is approximately 13,900 gpd, with a peak flow of approximately 88,400 gpd. The privately-owned and operated Puhi WWTP, which has a design capacity of 1.0 mgd and is expandable to 3.0 mgd, has sufficient capacity to serve the proposed project.

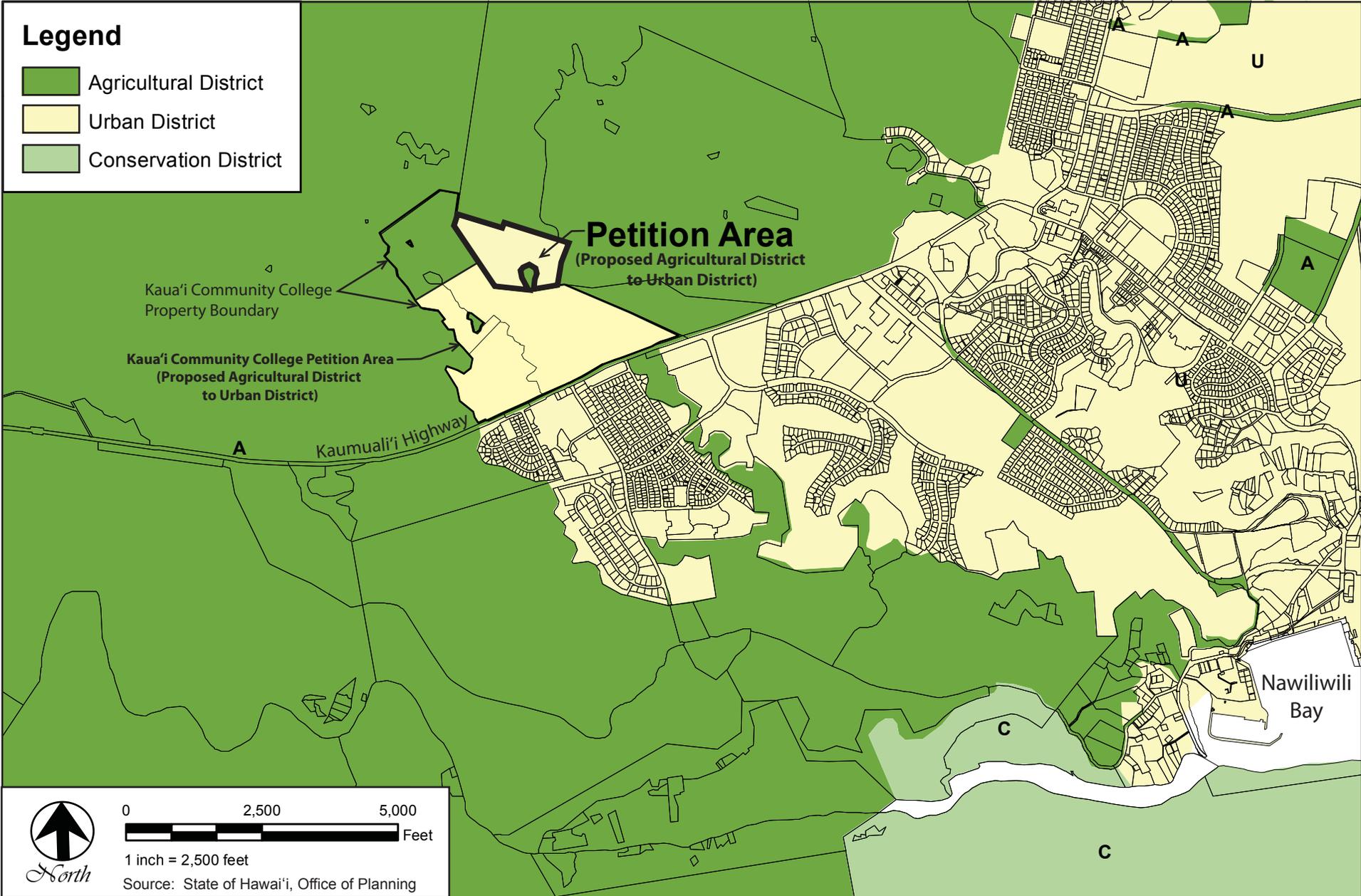
New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

Although the Petition Area is presently not contiguous with existing urban areas, the University of Hawai'i Community Colleges is currently proposing to reclassify approximately 153 acres of the Kaua'i Community College campus, located adjacent to and southwest/south of the Petition Area, from the State Agricultural District to the Urban District (see Figure 4-1b). The reclassification of the Kaua'i Community College campus to the Urban District is deemed appropriate due to its current developed character as a campus. The Kaua'i Community College campus is, in turn, contiguous with existing Urban District lands to the south. The Petition for State Land Use District Boundary Amendment for the Kaua'i Community College campus is planned to be filed concurrently with Island School's Petition for State Land Use District Boundary Amendment. With the proposed reclassification of the Kaua'i Community College campus to the State Urban District, further expansion of the Urban District into the Petition Area would be logical, and will not contribute toward scattered or spot urban development.

- (3) *It shall include lands with satisfactory topography, drainage, and reasonably free from the danger of any flood, tsunami, unstable soil conditions, and other adverse environmental effects;*

The existing topography of the Petition Area is gently sloping at approximately 3 percent, ranging in elevation from approximately 400 feet above msl at the northwestern portion to about 350 feet above msl at the eastern portion.

Currently, storm runoff from the Petition area sheetflows to three existing plantation-era irrigation ditches located within the site, and one existing plantation-era irrigation ditch located adjacent to and south of the site, and is



Legend

- Agricultural District
- Urban District
- Conservation District

Petition Area
(Proposed Agricultural District to Urban District)

Kaua'i Community College
Property Boundary

Kaua'i Community College Petition Area
(Proposed Agricultural District to Urban District)

Kaumuali'i Highway

Nawiliwili Bay



0 2,500 5,000
Feet

1 inch = 2,500 feet
Source: State of Hawai'i, Office of Planning

Island School Updated Master Plan

PROPOSED STATE LAND USE DISTRICTS MAP WITH KAUA'I COMMUNITY COLLEGE

FIGURE
4-1b

then directed to an existing adjacent reservoir. Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

According to the FIRM prepared by FEMA, the Petition Area is designated Zone "X", "Areas determined to be outside the 0.2% annual chance floodplain". The Petition Area is not within a tsunami inundation area as it is located approximately 2.7 miles inland (northwest) from the shoreline, and at elevations ranging from approximately 350 to 400 feet above msl.

- (4) *Land contiguous with existing urban areas shall be given more consideration than non-contiguous land, and particularly when indicated for future urban use on state or county general plans;*

Although the Petition Area is presently not contiguous with existing urban areas, the University of Hawai'i Community Colleges is currently proposing to reclassify approximately 153 acres of the Kaua'i Community College campus, located adjacent to and southwest/south of the Petition Area, from the State Agricultural District to the Urban District (see Figure 4-1b). The reclassification of the Kaua'i Community College campus to the Urban District is deemed appropriate due to its current developed character as a campus. The Kaua'i Community College campus is, in turn, contiguous with existing Urban District lands to the south. The Petition for State Land Use District Boundary Amendment for the Kaua'i Community College campus is planned to be filed concurrently with Island School's Petition for State Land Use District Boundary Amendment. With the proposed reclassification of the Kaua'i Community College campus to the State Urban District, further expansion of the Urban District into the Petition Area would be logical, and will not contribute toward scattered or spot urban development.

The Petitioner is proposing to amend the County General Plan Land Use Map for the Petition Area from the Agriculture designation to the Urban Center designation prior to petitioning for the State Land Use District Boundary Amendment. The proposed amendment to the Urban Center designation will be consistent with the existing Urban Center designation of the adjacent Kaua'i Community College campus, as well as lands to the south, makai of Kaumuali'i Highway.

- (5) *It shall include lands in appropriate locations for new urban concentrations and shall give consideration to areas of urban growth as shown on the state and county general plans;*

The Petition Area is an appropriate location for new urban concentration and growth given its locality within Puhi and close proximity to Līhu'e. The Petitioner will pursue amending the County General Plan Land Use Map for the Petition Area from the Agriculture designation to the Urban Center designation prior to

petitioning for the State Land Use District Boundary Amendment. The proposed amendment to the Urban Center designation will be consistent with the existing Urban Center designation of the adjacent Kaua'i Community College campus and lands to the south, makai of Kaumuali'i Highway.

- (6) *It may include lands which do not conform to the standards in paragraphs (1) to (5):*
- (A) *When surrounded by or adjacent to existing urban development; and*
 - (B) *Only when those lands represent a minor portion of this district;*

The Petition Area conforms to the referenced paragraphs (1) to (5) as described above.

- (7) *It shall not include lands, the urbanization of which will contribute toward scattered spot urban development, necessitating unreasonable investment in public infrastructure or support services; and*

Although the Petition Area is presently not contiguous with existing urban areas, the University of Hawai'i Community Colleges is currently proposing to reclassify approximately 153 acres of the Kaua'i Community College campus, located adjacent to and southwest/south of the Petition Area, from the State Agricultural District to the Urban District (see Figure 4-1b). The reclassification of the Kaua'i Community College campus to the Urban District is deemed appropriate due to its current developed character as a campus. The Kaua'i Community College campus is, in turn, contiguous with existing Urban District lands to the south. The Petition for State Land Use District Boundary Amendment for the Kaua'i Community College campus is planned to be filed concurrently with Island School's Petition for State Land Use District Boundary Amendment. With the proposed reclassification of the Kaua'i Community College campus to the State Urban District, further expansion of the Urban District into the Petition Area would be logical, and will not contribute toward scattered or spot urban development.

The proposed project will include all required on- and off-site infrastructure improvements to minimize the burden on public systems. The project is not anticipated to have any significant impacts on public services in the area as discussed in paragraph (2) above.

- (8) *It may include lands with a general slope of twenty per cent or more if the commission finds that those lands are desirable and suitable for urban purposes and that the design and construction of controls, as adopted by any federal, state, or county agency, are adequate to protect the public health, welfare and safety, and the public's interests in the aesthetic quality of the landscape.*

The existing topography of the Petition Area is gently sloping at approximately 3 percent, ranging in elevation from approximately 400 feet above msl at the northwestern portion to about 350 feet above msl at the eastern portion.

4.2 Hawai'i State Plan

The Hawai'i State Plan, embodied in Chapter 226, HRS, serves as a guide for goals, objectives, policies, and priority guidelines for statewide planning. The Hawai'i State Plan provides a basis for determining priorities, allocating limited resources, and improving coordination of State and County plans, policies, programs, projects, and regulatory activities. The Hawai'i State Plan also directs the appropriate State agencies to prepare functional plans for their respective program areas. The proposed project is consistent with the following Hawai'i State Plan objectives and policies:

Section 226-11 Objectives and policies for the physical environment – land-based, shoreline, and marine resources.

(b)(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.

The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.

Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.

The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation, including woody plants greater than 15 feet, along the

periphery of the Petition Area should not occur between June 1 to September 15, when bats may be carrying young and potentially could be at risk by such clearing activities.

Section 226-12 Objectives and policies for the physical environment—scenic, natural beauty, and historic resources.

(b)(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.

During the field inspection survey conducted in conjunction with the archaeological literature review for the Petition Area, a total of four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure were observed. The surface features consist of a reservoir located on a separate parcel adjacent to the south-central portion of the Petition Area (CSH 1), and three irrigation ditches (CSH 2, CSH 3, and CSH 4), two of which are associated with the adjacent reservoir. All of the surface features are currently in use. Based on an evaluation for significance according to the criteria established for the Hawai'i Register of Historic Places, no additional work appears to be necessary for the four features.

The proposed project improvements are not anticipated to have an adverse effect on the historic features related to plantation-era infrastructure. No project improvements are proposed to be constructed within or in the immediate vicinity of the plantation-era infrastructure. While no additional work appears to be necessary, consultation with the SHPD is being conducted to determine mitigation, if any, which may be appropriate for the plantation infrastructure features that have been recommended for no further work.

Should any previously unidentified burial, archaeological or historic sites be found during the course of construction of the proposed project, the Petitioner will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and, as necessary, the Kaua'i/Ni'ihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

Aside from the four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are anticipated to be found within the Petition Area. Based on these findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices.

Section 226-13 Objectives and policies for the physical environment – land, air, and water quality.

(b)(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.

(b)(7) Encourage urban developments in close proximity to existing services and facilities.

Potential impacts to the quality of nearby surface and near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES

General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

The Petition Area is located within Puhi and in close proximity to Līhu'e, areas which provide existing urban levels of services and facilities, such as civic, schools, Kaua'i Community College, retail/commercial, light industrial, resort, and parks/recreational facilities.

Section 226-21 Objectives and policies for socio-cultural advancement—education.

(b)(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

(b)(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

Island School is Kaua'i's largest private, non-sectarian, independent school accommodating Grades Pre-K through 12, and has a current enrollment of approximately 370 students. Island School's mission is to prepare its students to live productive, fulfilling lives as confident, responsible life-long learners and contributing members of society; to express fully the talents of its faculty and administration through a challenging curriculum that prepares students for successful higher education; and, to provide a safe, nurturing environment that fosters creativity, critical thinking, initiative, and respect for self and others.

The proposed update of the Island School master plan will accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment. The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, baseball field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces.

Part III. Priority Guidelines

The purpose of establishing priority guidelines is to address areas of Statewide concern. The proposed project is consistent with the following priority guidelines:

Section 226-108 Sustainability. Priority guidelines and principles to promote sustainability shall include:

(1) Encouraging balanced economic, social, community, and environmental priorities.

(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.

(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai'i.

The project proposes to incorporate Leadership in Energy and Environmental Design (LEED) standards and strategies, to the extent deemed economically feasible, to achieve sustainable site, utilities and building development. Green principles and strategies that are ongoing, or may be created for the proposed project, include those associated with sustainable sites, energy and water efficiency, building design, sustainable transport, and waste stream diversion as further discussed in Section 2.3 of this document.

In addition to these green principles and strategies, Island School will continue the following programs and activities toward achieving sustainability education, both within the campus and in the broader community.

- Kaua'i BOTS is an Island School robotics program that allows participation by students from Kaua'i's three public high schools. Approximately 40 percent of the participants in this cooperative program are public school students, thereby promoting efficient use of resources.
- Approximately 35 organizations currently utilize facilities at Island School, 27 of which do so on a recurring basis. This sharing of facilities reduces the demand for construction of new facilities to serve these organizations.
- Island School has a cooperative program with its neighboring Kaua'i Community College. In addition to receiving committee advisory assistance, the advanced students at Island School have the opportunity to take college level courses at the college. Such sharing of resources promotes sustainability.
- Island School is helping to establish a community garden within its campus through a private grant. The plan is to allow members of the Puhi community to participate in food production and share their gardening knowledge with Island School students.

4.3 Hawai'i Coastal Zone Management Program

The National Coastal Zone Management (CZM) Program was created through passage of the Coastal Zone Management Act of 1972. Hawai'i's CZM Program, adopted as Chapter 205A, HRS, provides a basis for protecting, restoring and responsibly developing coastal communities and resources. The coastal zone management area is defined as all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and

management authority, including the United States territorial sea (Section 205A-1, HRS). A discussion of the project's consistency with the objectives and policies under Section 205A-2, HRS, of the CZM Program is provided below.

(1) *Recreational Resources*

Objective:

Provide coastal recreational opportunities accessible to the public.

Policies:

- (A) *Improve coordination and funding of coastal recreational planning and management; and*
- (B) *Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:*
 - (i) *Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;*
 - (ii) *Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;*
 - (iii) *Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;*
 - (iv) *Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;*
 - (v) *Ensuring public recreational 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;*
 - (vi) *Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;*
 - (vii) *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*
 - (viii) *Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6.*

As the Petition Area is located approximately 2.7 miles inland (northwest) from the coastline, the proposed project will not provide or impact coastal recreational opportunities accessible to the public.

Potential water quality impacts to near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm

Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

(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 Hawai'i and American history and culture.

Policies:

- (A) Identify and analyze significant archaeological resources;*
- (B) Maximize information retention through preservation of remains and artifacts or salvage operations; and*
- (C) Support state goals for protection, restoration, interpretation, and display of historic resources.*

During the field inspection survey conducted in conjunction with the archaeological literature review for the Petition Area, a total of four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure were observed. The surface features consist of a reservoir located on a separate parcel adjacent to the south-central portion of the Petition Area (CSH 1), and three irrigation ditches (CSH 2, CSH 3, and CSH 4), two of which are associated with the adjacent reservoir. All of the surface features are currently in use. Based on an evaluation for significance according to the criteria established for the Hawai'i Register of Historic Places, no additional work appears to be necessary for the four features.

The proposed project improvements are not anticipated to have an adverse effect on the historic features related to plantation-era infrastructure. No project improvements are proposed to be constructed within or in the immediate vicinity of the plantation-era infrastructure. While no additional work appears to be necessary, consultation with the SHPD is being conducted to determine mitigation, if any, which may be appropriate for the plantation infrastructure features that have been recommended for no further work.

Pursuant to SHPD's review of the archaeological literature review and field inspection report by letter dated October 26, 2012, an archaeological inventory survey of the Petition Area will be conducted in conjunction with the Petition for State Land Use District Boundary Amendment for the project. A copy of this letter is included in Appendix B.

Should any previously unidentified burial, archaeological or historic sites be found during the course of construction of the proposed project, the Petitioner will stop work in the immediate

vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and, as necessary, the Kaua'i/Ni'ihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

Aside from the four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are anticipated to be found within the Petition Area. Based on these findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices.

(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:

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

As the Petition Area is located approximately 2.7 miles inland (northwest) of the coastline, the proposed project will not affect scenic resources or public views to and along the shoreline.

(4) *Coastal Ecosystems*

Objective:

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

Policies:

- (A) *Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;*
- (B) *Improve the technical basis for natural resource management;*
- (C) *Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;*
- (D) *Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and*

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

Potential water quality impacts to near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

(5) *Economic Uses*

Objective:

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

Policies:

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

The proposed project is to accommodate additional master plan facilities within the existing Island School campus located approximately 2.7 miles inland (northwest) from the coastline. The project is not a coastal dependent development.

(6) *Coastal Hazards*

Objectives:

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

Policies:

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

The Petition Area is not located within a flood hazard zone. According to the FIRM prepared by the FEMA, the Petition Area is located within Zone "X", defined as "Areas determined to be outside the 0.2% annual chance floodplain". The Petition Area is not within a tsunami inundation area as it is located approximately 2.7 miles inland (northwest) from the shoreline, and at elevations ranging from approximately 350 to 400 feet above msl.

(7) Managing Development

Objective:

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

Policies:

- (A) *Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;*
- (B) *Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and*
- (C) *Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.*

Government agencies, organizations and the general public are being notified of the proposed project, and being given an opportunity to comment on the project through the environmental review and land use boundary amendment process. Short- and long-term impacts have been assessed in this EA.

(8) Public Participation

Objective:

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

Policies:

- (A) *Promote public involvement in coastal zone management processes;*
- (B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and*

- organizations concerned with coastal issues, developments, and government activities; and*
- (C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Government agencies, organizations and the general public are being notified of the proposed project, and being given an opportunity to comment on the project through the environmental review and land use boundary amendment process.

(9) *Beach Protection*

Objective:

Protect beaches for public use and recreation.

Policies:

- (A) *Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;*
- (B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities;*
- (C) *Minimize the construction of public erosion-protection structures seaward of the shoreline;*
- (D) *Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and*
- (E) *Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.*

As the Petition Area is located approximately 2.7 miles inland (northwest) from the shoreline, the proposed project will not impact beach systems or public access to beaches, and will not involve the construction of improvements in the shoreline setback or require any erosion-protection structures.

(10) *Marine Resources*

Objective:

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

Policies:

- (A) *Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;*
- (B) *Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;*

- (C) *Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;*
- (D) *Promote research, study, and understanding of ocean processes, marine life, and other ocean resources to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and*
- (E) *Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.*

The proposed project is not anticipated to have any adverse impact on marine and coastal resources. Potential water quality impacts to near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

4.4 County of Kaua'i General Plan

The County of Kaua'i General Plan (2000) provides broad policy statements to guide land use regulations, new developments and facilities, and planning for County facilities and services. Relevant sections of the General Plan and their consistency with the proposed project are as follows:

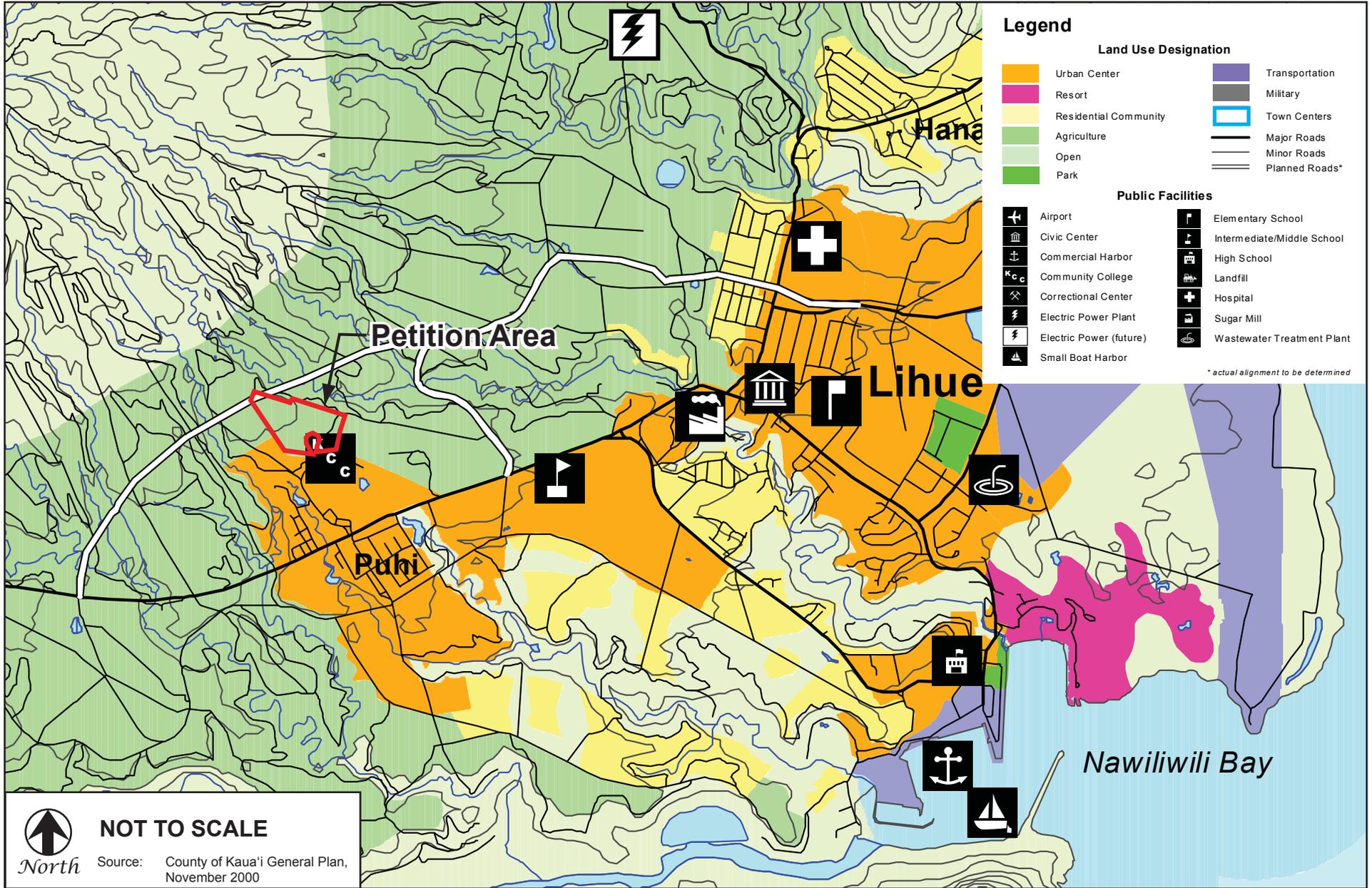
General Plan Land Use Map and Policies: The Līhu'e Planning District Land Use Map of the General Plan designates the Petition Area as Agriculture (see Figure 4-2).

The applicable policy for the Agriculture designation is as follows:

5.2 Agricultural Lands

5.2.1 Policy

- (a) *Lands included within the Agriculture designation shall be predominantly used for or held in reserve to be used in the future for agricultural activities. These activities include the breeding, planting, nourishing and caring for, gathering, and processing of any animal or plant organism, including aquatic animals and plants, for the purpose of producing food or material for non-food products; the commercial growing of flowers or other ornamental plants; the commercial growing of forest products; and the commercial breeding and caring for domestic animals and pets.*



NOT TO SCALE

North

Source: County of Kaua'i General Plan, November 2000

Island School Updated Master Plan

EXISTING COUNTY OF KAUA'I GENERAL PLAN LAND USE MAP

FIGURE

4-2

The Petition Area was previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area. The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990.

The Petitioner is proposing to amend the County General Plan Land Use Map for the Petition Area from the Agriculture designation to the Urban Center designation prior to petitioning for the State Land Use District Boundary Amendment (see Figure 4-2a). The proposed amendment to the Urban Center designation will be consistent with the existing Urban Center designation of the adjacent Kaua'i Community College campus, as well as lands to the south, makai of Kaumuali'i Highway. Further, the amendment will not have a significant impact on adjoining or nearby agricultural lands as the proposed updated master plan improvements will occur entirely within the Petition Area, of which the majority of the site is currently developed as the Island School campus.

Other General Plan Policies Applicable to the Project: The proposed project is consistent with the following applicable policies of the General Plan:

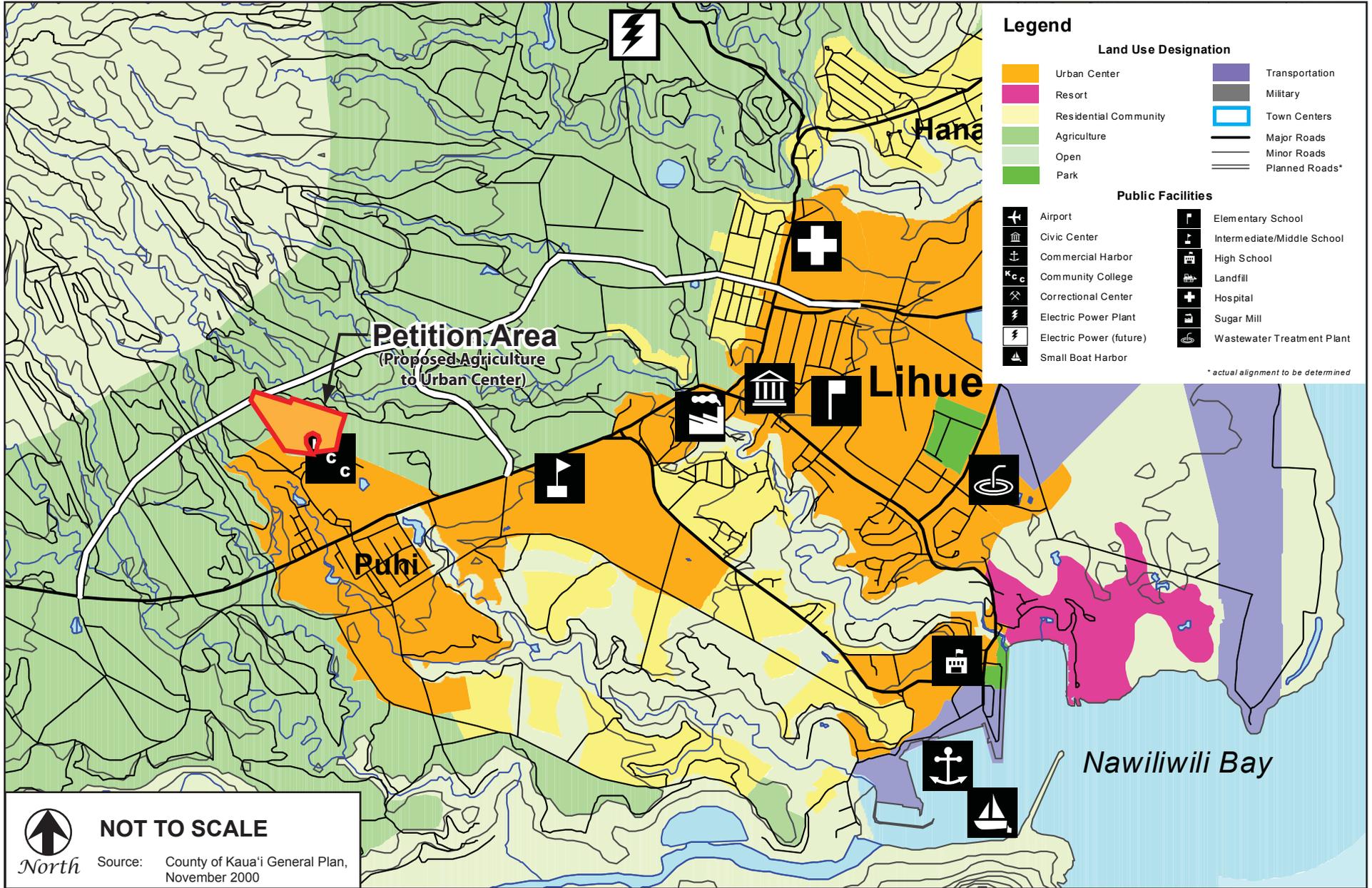
3.4 Watersheds, Streams and Water Quality

3.4.2 Policy

(b) Site Development. Plan, design and develop sites to:

- (1) Protect areas that provide important water quality benefits – i.e., wetlands;*
- (2) Protect areas that are particularly susceptible to erosion and sediment loss – i.e., stream banks;*

Potential impacts to the quality of nearby surface waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins. No construction activities in conjunction with the proposed project will occur within the adjacent reservoir.



NOT TO SCALE

North

Source: County of Kaua'i General Plan, November 2000

Island School Updated Master Plan

PROPOSED COUNTY OF KAUA'I GENERAL PLAN LAND USE MAP

FIGURE

4-2a

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

8.3 Education

8.3.1 Policy

- (a) Strive for a strong education system which provides Kauai's children, teens, college students, and adults with the knowledge and skills needed to obtain a well-paying job on Kaua'i.*

- (d) Consider schools as community resources for learning about specialized environmental, cultural, and historic subjects related to Kaua'i and each of its communities. Schools should also assume important community functions such as recreational centers, meeting facilities, and emergency shelters.*

Island School is Kaua'i's largest private, non-sectarian, independent school accommodating Grades Pre-K through 12, with a current enrollment of approximately 370 students. Island School's mission is to prepare its students to live productive, fulfilling lives as confident, responsible life-long learners and contributing members of society; to express fully the talents of its faculty and administration through a challenging curriculum that prepares students for successful higher education; and, to provide a safe, nurturing environment that fosters creativity, critical thinking, initiative, and respect for self and others. The proposed update of the Island School master plan will accommodate additional campus facilities for future increase in its student enrollment to approximately 500 students.

Specific facilities within the Island School campus are made available for community functions. Approximately 35 organizations currently utilize facilities at the school, 27 of which do so on a recurring basis. The proposed updated master plan improvements will provide additional facilities that may be available for community functions.

4.5 County of Kaua'i Līhu'e Development Plan

The County's Līhu'e Development Plan, adopted by County ordinance in 1976, provides physical, social and economic measures which relate specifically to these communities. The Līhu'e Development Plan land use designation for the Petition Area is "Agriculture" (see Figure 4-3). As indicated in the Development Plan's existing land use description, Agriculture is predominantly sugar cane and covers much of the lands not in urban use.

The Līhu'e Plantation Company, Ltd. ceased sugar cane cultivation in the area in the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed into the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area. The Petition Area is rendered unsuitable for intensive agricultural uses

given its use as a school since 1990. Given the existing and proposed campus improvements within the Petition Area, it is highly unlikely that the land will revert to agricultural use in the future.

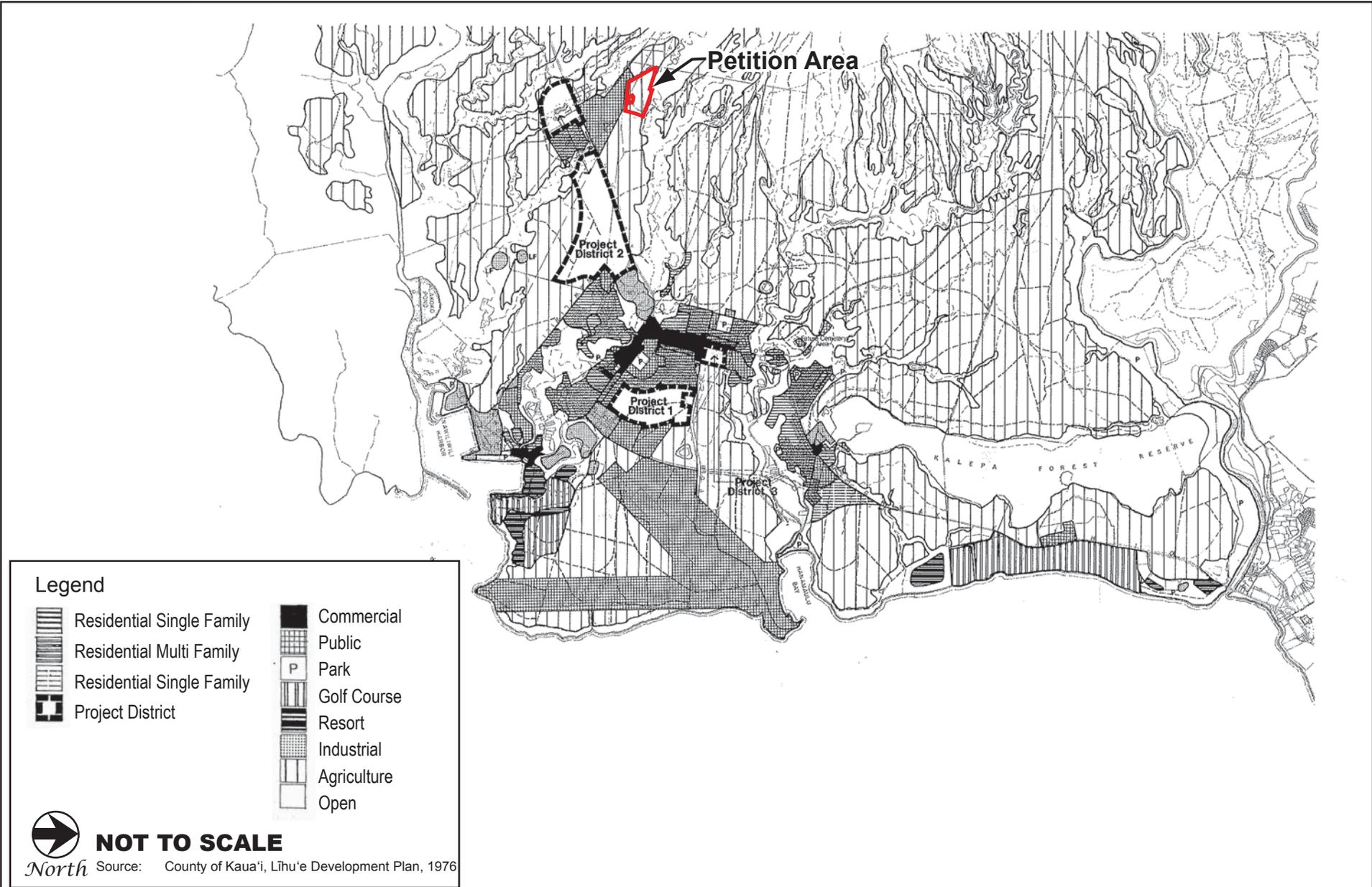
4.6 County of Kaua'i Comprehensive Zoning Ordinance

The County's Comprehensive Zoning Ordinance (CZO) establishes procedures for the division of the County into land use districts, and creates regulations for the types, size, placement, and control of structures within various zoning district classifications. The CZO also delineates the respective types of permitted uses and the development that can take place in those zoning districts.

The zoning designations for the Petition Area are Agriculture District (A) and Open District (O) (see Figure 4-4). A Use Permit will be required since the proposed school improvements are not generally permitted within the Agriculture District (A) and Open District (O). A Class IV Zoning Permit will be required because a Use Permit is being sought. The application for Use Permit and Class IV Zoning Permit is processed by the County Planning Department and approved by the County Planning Commission.

4.7 County of Kaua'i Special Management Area

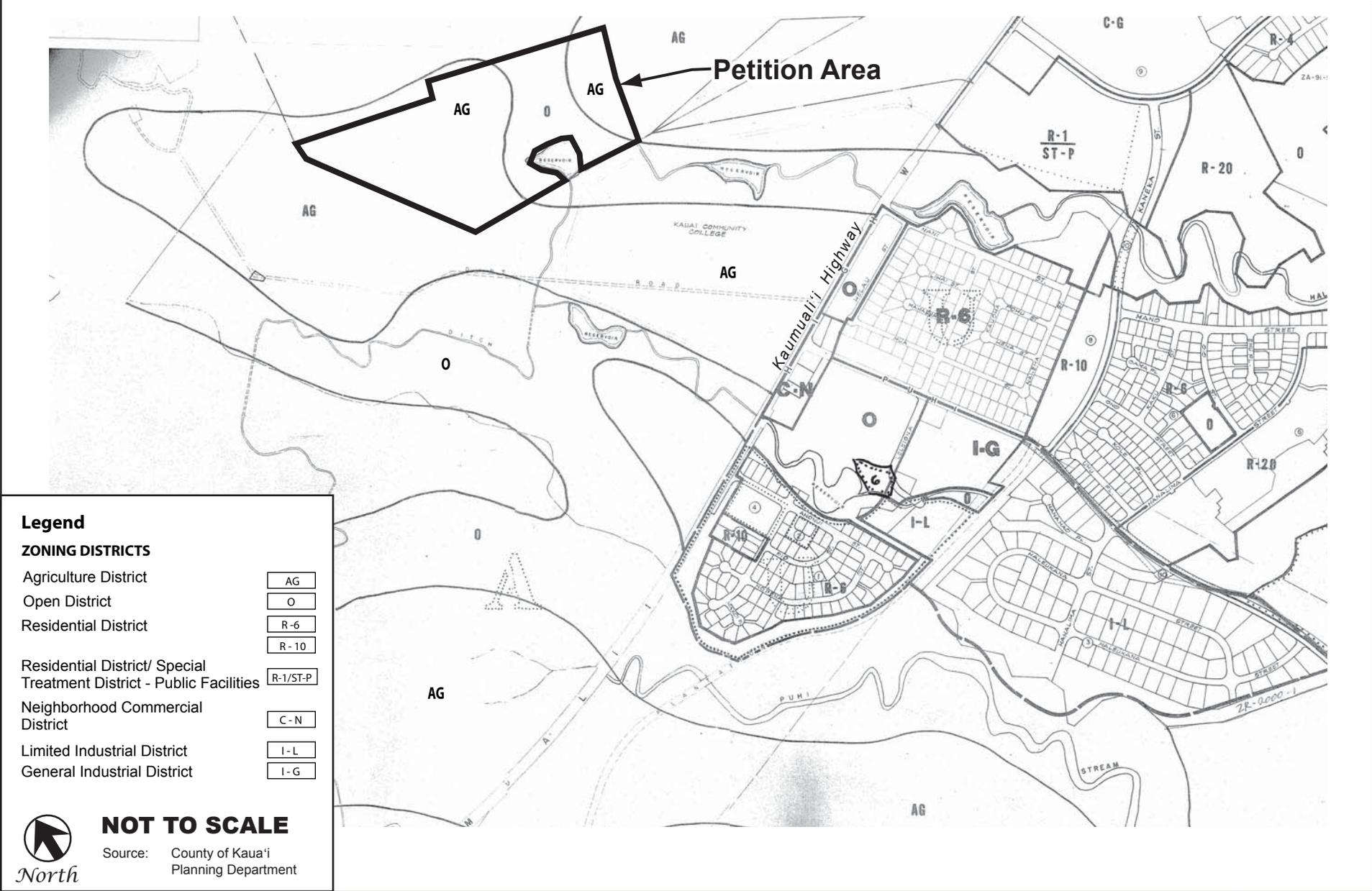
The Hawai'i Coastal Zone Management (CZM) Act (Chapter 205A, HRS) is the basis of the Hawai'i CZM Program as discussed previously in Section 4.3. The Act establishes objectives, policies and guidelines upon which all counties within the State have structured specific legislation which designated Special Management Areas (SMA). Any development located within the SMA requires a County-issued SMA permit, which on Kaua'i is administered by the County Planning Department. The Petition Area is located outside of the SMA boundaries and, therefore, does not require a SMA Use Permit.



Island School Updated Master Plan

LĪHU'Ē DEVELOPMENT PLAN LAND USE MAP

FIGURE



Island School Updated Master Plan

COUNTY OF KAUA'I ZONING MAP

FIGURE

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

Under the No Action Alternative, Island School would continue to operate in its current capacity with regard to campus facilities and student enrollment. Without the proposed updated master plan improvements, Island School would not be able to accommodate the projected future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. Further, the Island School campus would continue to be designated within the State Agricultural District and the County General Plan's Agriculture designation.

The No Action Alternative would also preclude all other short-term and long-term beneficial and adverse physical, environmental and socio-economic impacts described in this EA.

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6. REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals that may be required prior to construction and development of the proposed project.

State of Hawai'i

Department of Business, Economic Development and Tourism, Land Use Commission

- State Land Use District Boundary Amendment

Department of Health

- National Pollutant Discharge Elimination System (NPDES) Permit for Storm Water Associated with Construction Activity

Department of Land and Natural Resources, Historic Preservation Division

- Chapter 6E, HRS, Historic Preservation

County of Kaua'i

Planning Department

- County General Plan Amendment
- Use Permit
- Class IV Zoning Permit

Department of Public Works

- Grading Permit
- Building Permit
- Drainage System Requirements

Department of Water:

- Water and Water System Requirements

Utility Companies

- Utility Service Requirements

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7. NOTICE OF DETERMINATION

A. Petitioner

Island School
3-1875 Kaumuali'i Highway
Līhu'e, Kaua'i, Hawai'i 96766-9597

Contact: Mr. David Pratt, Vice President of Island School
Phone: (808) 651-5029
Facsimile: (808) 245-4814

B. Approving Agency

County of Kaua'i Planning Department
4444 Rice Street, Suite 473
Līhu'e, Hawai'i 96766

C. Description of the Proposed Action

Island School is proposing an update of its master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 full-time equivalent (FTE) faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment. The proposed master plan for the 38.448-acre campus updates the current master plan approved through a Special Permit, Use Permit and Class IV Zoning Permit by the County of Kaua'i (County) Planning Commission on April 26, 2005.

The proposed updated master plan includes new, renovated and expanded classroom buildings; expanded administration facility and visual arts facility; new facilities, including science building, campus center, dining facility, auditorium and stage, arts education building, back-of-house building and courtyard, robotics shed, outdoor science area, maintenance facility, and informal gathering areas; playground and sports facilities, including physical education (P.E.) facilities, track and football field, soccer field, softball field, and outdoor swimming pool; internal loop road with bus parking spaces; school and community drop-off areas; and, additional parking spaces.

The Petitioner is seeking to amend the County General Plan Land Use Map for the Island School Campus (Petition Area) from the Agriculture designation to the Urban Center designation, and then to reclassify the Petition Area from the State Agricultural District to the State Urban District. The reclassification of the Petition Area will allow the improvements in the proposed updated Island School master plan to be implemented without a State Special Permit. The need to amend the Petition Area from the County General Plan Agriculture designation to the Urban Center designation, and to reclassify from the State Agriculture District to the Urban District, is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaumuali'i Highway.

D. Determination and Reasons Supporting Determination

The Island School Updated Master Plan Draft EA was filed with the State Office of Environmental Quality Control (OEQC) and published in the November 23, 2012 publication of *The Environmental Notice*. A total of 10 comment letters were received during the 30-day public review period which ended on December 24, 2012. Based on the significance criteria set forth in Section 11-200-12 of Title 11, Chapter 200, Administrative Rules, State Department of Health, the County of Kaua'i Planning Department has determined that the proposed project will not have a significant effect on the environment, and that a Finding of No Significant Impact (FONSI) will be filed with the State Office of Environmental Quality Control (OEQC).

The findings supporting this determination are described below according to these significance criteria.

1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Development of the proposed project will require an irrevocable commitment of land, energy, labor, and materials for construction. The principal irrevocable commitment of a natural resource that would result from the project is the development of land for Island School's proposed updated master plan improvements. The Petition Area was previously in sugar cane cultivation by the L'hu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) encompassing the western and central portions of the site, has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The remaining 8.448 acres comprising the north-central and eastern portions of the Petition Area are currently undeveloped and vegetated with forest, shrubland, and grassland areas. No intensive agricultural activities presently occur within the Petition Area. The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990. Given the existing and proposed campus improvements within the Petition Area, it is highly unlikely that the land will revert to agricultural use in the future.

No listed, candidate, or proposed threatened or endangered botanical and fauna species under either the Federal or State of Hawai'i endangered species statutes will be disturbed as a result of the proposed project. The recommended mitigation measures discussed in Sections 3.5 and 3.6 will be implemented to minimize or prevent any impacts on botanical and faunal species.

During the field inspection survey conducted in conjunction with the archaeological literature review for the Petition Area, a total of four historic surface features related to the L'hu'e Plantation Company, Ltd.'s plantation-era infrastructure were observed. The surface features consist of a reservoir located on a separate parcel adjacent to the south-central portion of the Petition Area (CSH 1), and three irrigation ditches (CSH 2, CSH 3, and CSH 4), two of which are associated with the adjacent reservoir. All of the surface features are currently in use. Based on an evaluation for significance according to the criteria established for the Hawai'i Register of Historic Places, no additional work appears to be necessary for the four features.

The proposed project improvements are not anticipated to have an adverse effect on the historic features related to plantation-era infrastructure. No project improvements are proposed to be constructed within or in the immediate vicinity of the plantation-era infrastructure. While no

additional work appears to be necessary, consultation with the SHPD is being conducted to determine mitigation, if any, which may be appropriate for the plantation infrastructure features that have been recommended for no further work.

Should any previously unidentified burial, archaeological or historic sites be found during the course of construction of the proposed project, the Petitioner will stop work in the immediate vicinity and the SHPD will be notified immediately. The significance of these finds will then be determined and appropriate mitigation measures will be approved by the SHPD and, as necessary, the Kaua'i/Ni'ihau Islands Burial Council, as appropriate. Subsequent work will proceed after SHPD authorization has been received and mitigative measures have been implemented.

Aside from the four historic surface features related to the L'hu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are anticipated to be found within the Petition Area. Based on these findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices.

2) Curtails the range of beneficial uses of the environment;

The intention of the project is to commit the Petition Area to the proposed use over the long-term. Upon amendment of the Petition Area from the County General Plan Agriculture designation to the Urban Center designation, and reclassification from the State Agricultural District to the State Urban District, beneficial uses of the Petition Area and environment would not be curtailed since the proposed project would be an appropriate use of the site.

3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344 HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project's relationship to the environmental policies, goals, and guidelines set forth in Chapter 344, HRS, is assessed through this EA process.

As the Petition Area does not contain a unique botanical habitat, no significant impacts on flora are anticipated from the construction and development of the proposed project. The proposed campus expansion areas are devoid of botanical resources that would merit special concern. All species are common to lowland windward Kaua'i, nearly exclusively non-native, and not requiring or deserving of preservation within the Petition Area. Therefore, it is not expected that development of the proposed project improvements will result in deleterious impacts to any plants species currently listed as endangered, threatened, or proposed for listing under either the Federal or State of Hawai'i endangered species statutes.

The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be

required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.

Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.

The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation along the periphery of the Petition Area should not occur between June 1 to September 15, when bats may be carrying young and potentially could be at risk by such clearing activities.

As the Petition Area is located approximately 2.7 miles inland (northwest) of the coastline, the proposed project will not affect scenic resources or public views to and along the shoreline. The new buildings to be constructed within the Petition Area are proposed to be mostly located within the central portion of the campus and visually will be an extension of the existing facilities. Any visual impacts of the proposed project from the surrounding areas will be minimized through appropriate architectural design criteria and compliance with the applicable development standards of the County's Comprehensive Zoning Ordinance (CZO) relative to building height, setbacks, etc. The visual environment of the northern and eastern portions of the Petition Area will mostly remain open with athletic fields and undeveloped areas. Appropriate landscaping will be provided along the southwestern and southern boundaries of the Petition Area to visually screen the campus buildings from the nearby areas.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

During construction of the proposed project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the County's Kekaha Landfill. In an effort to reduce the amount of solid waste to be generated upon development of the project, Island School will continue with implementation of its on-campus recycling program, and food waste generated by the school's food services will continue to be provided to pig farmers. Composting of greenwaste will be employed for the project's landscaped areas.

4) Substantially affects the economic, social welfare, or cultural practices of the community or State;

In the short term, the proposed project will bring about positive benefits to the local economy. This would include increased expenditures for construction, construction-related jobs and tax revenue. Direct economic benefits will result from construction expenditures both through the purchase of material from local suppliers and through the employment of local labor, thereby stimulating that sector of the economy. Indirect economic benefits may include benefits to local retailing businesses resulting from construction activities.

In the long-term, the project will contribute toward positive economic benefits through the employment of labor associated with the increased faculty and staff associated with the updated master plan improvements. An increase of approximately 22 FTE faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in the student enrollment to approximately 500 students.

Currently, approximately 35 organizations utilize facilities at Island School, 27 of which do so on a recurring basis. The proposed updated master plan improvements will provide additional facilities that may be available for use by organizations. This sharing of facilities reduces the demand for construction of new facilities to serve these organizations.

Aside from the four historic surface features related to the Līhu'e Plantation Company, Ltd.'s plantation-era infrastructure, no traditional Hawaiian sites or ancient trail systems were found within the Petition Area during the field inspection survey. Based on the literature review and field inspection survey, no burials are anticipated to be found within the Petition Area. Based on these findings, development of the proposed project will have minimal or no impact upon native Hawaiian cultural resources, beliefs and practices.

5) Substantially affects public health;

The proposed Project is not anticipated to adversely affect public health.

Construction activities associated with the proposed project will create some adverse short-term impacts such as unavoidable noise impacts and air quality impacts from soil excavation and grading activities in the vicinity of the Petition Area. Unavoidable construction noise impacts on nearby land uses in the immediate vicinity of the proposed project will be mitigated to some degree by complying with the provisions of the State DOH Administrative rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control.

6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The proposed project is not expected to result in substantial secondary impacts, such as population changes. The projected increase in student enrollment of approximately 130 students, and the 22 FTE faculty and staff that will be required for the increased student enrollment, are anticipated to be mostly residents currently residing on Kaua'i. Any of these students or faculty and staff members that may be from off-Island would be minimal. As the proposed project is an update of Island School's current master plan, there would be no resulting substantial secondary impacts on public facilities.

7) Involves a substantial degradation of environmental quality;

The proposed Project is not anticipated to result in a substantial degradation of environmental quality.

Construction activities associated with the proposed project will create some adverse short-term impacts such as temporary disruption of traffic, unavoidable noise impacts, and air quality impacts from soil excavation and grading activities in the vicinity of the Petition Area. The construction contractor(s) will be required to mitigate potential vehicular traffic impacts through appropriate traffic control measures. Unavoidable construction noise impacts on nearby land uses in the immediate vicinity of the proposed project will be mitigated to some degree by complying with the provisions of the State DOH Administrative rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control.

Potential impacts to the quality of nearby surface and near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

In the long-term, no significant air quality, noise, or water quality impacts are anticipated from the operation of the proposed project. Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

8) Is individually limited but cumulatively has a considerable effect upon the environment or involves a commitment for larger actions;

The proposed project is not anticipated to have a significant adverse cumulative effect on the environment, nor will it involve a commitment for larger actions. The project involves an update

of the Island School master plan to accommodate additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. Since 1990, approximately 30 acres of the 38.448-acre Petition Area has been developed as the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The proposed updated master plan improvements will occur entirely within the Petition Area. The potential for cumulative impacts is limited to traffic impacts, which is based on Island School's and the adjacent Kaua'i Community College's student enrollment projections. Further, in the traffic impact assessment conducted for the proposed project, a growth factor of 1.05 was applied to the existing through traffic demands along Kaumuali'i Highway to achieve the projected Year 2020 traffic demands. The results indicate that traffic operations in the vicinity of Island School with the implementation of its updated master plan are expected to operate at levels of service similar to Year 2020 without project conditions despite the addition of site-generated traffic to the surrounding roadways.

9) Substantially affects a rare, threatened or endangered species, or its habitat;

As the Petition Area does not contain a unique botanical habitat, no significant impacts on flora are anticipated from the construction and development of the proposed project. No plant species currently listed as endangered, threatened, or proposed for listing under either the Federal or State of Hawai'i endangered species programs were recorded as growing naturally within the Petition Area.

No listed, candidate, or proposed threatened or endangered avian or mammalian species under either the Federal or State endangered species statutes will be disturbed or adversely impacted as a result of the proposed project. The recommended mitigation measures discussed in Sections 3.5 and 3.6 will be implemented to minimize or prevent any impacts on botanical and faunal species.

The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.

Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.

The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation, including woody plants beyond 15 feet, along the periphery of the Petition Area should not occur between June 1 to September 15, when bats may be carrying young and potentially could be at risk by such clearing activities.

There is no Federally delineated Critical Habitat present within or adjacent to the Petition Area.

10) Detrimentially affects air or water quality or ambient noise levels;

During construction, dust and noise from construction activities will be unavoidable. Short-term construction noise impacts on nearby land uses in the immediate vicinity of the proposed project will be mitigated to some degree by complying with the provisions of the State DOH Administrative Rules, Title 11, Chapter 46, Community Noise Control. Potential air quality impacts during construction of the proposed project will be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60, Air Pollution Control.

No significant air quality impacts are anticipated with the development of the proposed project. The ambient air quality levels would be most affected by vehicular and emissions in the form of CO generated by project-related traffic and development, although the elevated concentrations are anticipated to be nominal and dissipate.

No significant impacts on ambient noise levels are anticipated from the development of the proposed project. Ambient noise levels in the vicinity of the Petition Area will increase slightly as a result of the associated minimal increase in vehicular traffic generated by the proposed project. Operation of the proposed project will potentially generate slightly increased noise during school hours due to additional students, faculty, and school and service-related activities.

Potential impacts to the quality of nearby surface and near shore coastal waters during construction of the proposed project improvements will be mitigated by adherence to State and County water quality regulations governing grading, excavation, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity, administered by the State DOH, will be required to control storm water discharges. Mitigation measures will be instituted in accordance with site-specific assessments, incorporating appropriate structural and/or non-structural BMPs, such as minimizing time of exposure between construction and re-vegetation, and implementing erosion control measures such as silt fences and sediment basins.

Following construction, the proposed project improvements will increase impervious surface areas within the Petition Area. This will not, however, result in adverse effects from storm runoff to adjacent and downstream areas. New drainage improvements, which may include drain lines, grass swales, and culverts, will be provided in conjunction with the proposed project.

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;

The Petition Area is not located within a flood hazard zone. According to the FIRM prepared by the FEMA, the Petition Area is located within Zone "X", defined as "Areas determined to be outside the 0.2% annual chance floodplain". The Petition Area is not within a tsunami inundation area as it is located approximately 2.7 miles inland (northwest) from the shoreline, and at elevations ranging from approximately 350 to 400 feet above msl.

12) Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;

The proposed project will not affect scenic vistas and viewplanes identified in County or State plans or studies. As the Petition Area is located approximately 2.7 miles inland (northwest) of the coastline, the proposed project will not affect scenic resources or public views to and along the shoreline. The Petition Area is not visible from public vantage points due to its inland location and distance from Kaumuali'i Highway, the nearest public roadway. The Petition Area is located approximately 0.4-mile mauka of Kaumuali'i Highway at its closest point, and is visually buffered by vegetation and the adjacent Kaua'i Community College campus located between the southern boundary of the site and the Highway. The visual environment of the remaining areas surrounding the Petition Area is of expansive undeveloped, vegetated lands, and agricultural cultivation.

13) Requires substantial energy consumption;

The proposed project will consume a relatively insignificant amount of energy in the course of construction and development. Island School will continue to employ sustainable measures to promote renewable energy sources and energy efficiency. The 200 kW solar photovoltaic facility within the Petition Area will generate clean, renewable solar energy to meet the daytime needs of the Island School campus, resulting in a reduction of fossil fuel energy by more than 50 percent. Energy demand and consumption will be further reduced through the use of solar and efficient, low-consumption lighting fixtures and equipment, such as Energy Star rated appliances. The campus buildings will be designed for natural ventilation to take advantage of the trade winds, including use of ceiling fans, and skylights will be utilized to allow natural light to illuminate interior spaces.

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8. REFERENCES

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2. County of Kaua'i Civil Defense Agency. *South Kaua'i Sirens*. Internet. Available at: <http://www.kauai.gov/Government/Departments/CivilDefenseAgency/KauaiSirenLocations/SouthKauaiSirens/tabid/80/Default.aspx>.
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4. County of Kaua'i Planning Department. *Kaua'i General Plan*. November 2000.
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Final Report – Second Draft. Prepared for the County of Kaua'i Planning Department. August 2011.

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18. Wilson Okamoto Corporation. *Hawai'i Water Plan, Water Resource Protection Plan.* Prepared for the State of Hawai'i Department of Land and Natural Resources, Commission on Water Resource Management. June 2008.
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9. CONSULTATION

9.1 Pre-Assessment Consultation

The following agencies were consulted during the pre-assessment phase of the Draft EA. Those who formally replied with verbal or written comments are indicated by an asterisk (*). All written comments and responses are reproduced herein.

Federal

- U.S. Army Corps of Engineers, Civil Works Technical Branch
- U.S. Army Corps of Engineers, Regulatory Branch
- * U.S. Geological Survey
- * U.S. Fish and Wildlife Service
- * U.S. Department of Agriculture, Natural Resources Conservation Service

State of Hawai'i

- Department of Agriculture
- * Department of Accounting and General Services
- Department of Business, Economic Development and Tourism
- * Department of Business, Economic Development and Tourism, Land Use Commission
- * Department of Business, Economic Development and Tourism, Office of Planning
- * Department of Defense
- Department of Education
- Department of Health
- Department of Health, Office of Environmental Quality Control
- * Department of Health, Environmental Planning Office
- Department of Health, Environmental Management Division
- Department of Health, Clean Water Branch
- * Department of Health, Wastewater Branch
- Department of Land and Natural Resources
- Department of Land and Natural Resources, Land Division
- * Department of Land and Natural Resources, Land Division, Kaua'i District
- Department of Land and Natural Resources, Division of Forestry and Wildlife
- Department of Land and Natural Resources, Division of Forestry and Wildlife, Kaua'i District
- * Department of Land and Natural Resources, Historic Preservation Division
- * Department of Transportation
- Office of Hawaiian Affairs
- University of Hawai'i at Mānoa, Environmental Center
- University of Hawai'i Community Colleges, Kaua'i Community College

County of Kaua'i

- Planning Department
- Department of Public Works, Engineering Division
- Department of Public Works, Building Division
- * Department of Public Works, Division of Solid Waste Management
- * Department of Public Works, Wastewater Management Division
- Department of Water
- Department of Parks and Recreation

County of Kaua'i (continued)

- Transportation Agency
- * Civil Defense Agency
- Office of Economic Development
- Police Department
- * Fire Department

Utilities

- Kaua'i Island Utility Cooperative
- Hawaiian Telcom
- Oceanic Time Warner Cable

9.2 Draft Environmental Assessment Consultation

The following agencies and organizations were consulted during the public review period of the Draft EA. Those who formally replied are indicated by an asterisk (*). All written comments and responses are reproduced herein.

Federal

- U.S. Army Corps of Engineers, Civil Works Technical Branch
- U.S. Army Corps of Engineers, Regulatory Branch
- U.S. Geological Survey
- * U.S. Fish and Wildlife Service
- U.S. Department of Agriculture, Natural Resources Conservation Service

State of Hawai'i

- Department of Agriculture
- * Department of Accounting and General Services
- Department of Business, Economic Development and Tourism
- Department of Business, Economic Development and Tourism, Land Use Commission
- * Department of Business, Economic Development and Tourism, Office of Planning
- Department of Defense
- * Department of Education
- Department of Health
- Department of Health, Office of Environmental Quality Control
- Department of Health, Environmental Planning Office
- Department of Health, Environmental Management Division
- Department of Health, Clean Water Branch
- * Department of Health, Wastewater Branch
- Department of Land and Natural Resources
- * Department of Land and Natural Resources, Land Division
- Department of Land and Natural Resources, Land Division, Kaua'i District
- Department of Land and Natural Resources, Division of Forestry and Wildlife
- Department of Land and Natural Resources, Division of Forestry and Wildlife, Kaua'i District
- Department of Land and Natural Resources, Historic Preservation Division
- * Department of Transportation
- Department of Transportation, Highways Division, Kaua'i District
- Office of Hawaiian Affairs

State of Hawai'i (continued)

University of Hawai'i at Mānoa, Environmental Center
University of Hawai'i Community Colleges, Kaua'i Community College

County of Kaua'i

Honorable Mayor Bernard P. Carvalho, Jr.
Office of the County Clerk
Council Chair Jay Furfaro
Council Vice Chair JoAnn Yukimura
Councilmember Nadine Nakamura
Councilmember Tim Bynum
Councilmember Dickie Chang
Councilmember KipuKai Kualii
Councilmember Mel Rapozo
Planning Department
Department of Public Works, Engineering Division
Department of Public Works, Building Division
* Department of Public Works, Division of Solid Waste Management
* Department of Public Works, Wastewater Management Division
* Department of Water
Department of Parks and Recreation
Transportation Agency
Civil Defense Agency
Office of Economic Development
Police Department
Fire Department

Utilities

Kaua'i Island Utility Cooperative
Hawaiian Telcom
Oceanic Time Warner Cable

Others

Hawai'i State Library
Kaua'i Community College Library
Līhu'e Public Library

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Pre-Assessment Consultation Correspondence



United States Department of the Interior

U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813
Phone: (808) 587-2400/Fax: (808) 587-2401

August 31, 2012

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

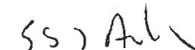
Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation/Draft Environmental Assessment (EA), Island School,
Tax Map Key: (4) 3-8-002: 016, Puhi, Lihu'e District, island of Kaua'i, Hawai'i

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

We appreciate the opportunity to participate in the review process.

Sincerely,


Stephen S. Anthony
Center Director



1907 South Beretania Street
Arlesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
October 19, 2012

Mr. Stephen S. Anthony, Center Director
United States Department of the Interior
U.S. Geological Survey
Pacific Islands Water Science Center
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawai'i 96813

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Anthony:

Thank you for your letter dated August 31, 2012 regarding the subject project. We acknowledge that your department was unable to review this document due to prior commitments and lack of available staff.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,



Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850



SEP 14 2012

In Reply Refer To:
2012-TA-0424

Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

Subject: Technical Assistance for the Island School Master Plan Draft Environmental Assessment, Kauai

Dear Mr. Matsukawa:

The U.S. Fish and Wildlife Service (Service) received your letter on August 21, 2012, requesting our comments for the preparation of a draft Environmental Assessment (EA) for the proposed update to the Island School Master Plan. The Island School campus is located on a 38.5-acre parcel in Puhi on the island of Kauai [TMK (4) 3-8-002:016]. The update to the school's Master Plan will reclassify the campus parcel from State Agricultural District to State Urban District and amend the County of Kauai General Plan Land Use Map from the 'Agricultural' to 'Urban Center' designation. The purpose of this reclassification is to allow improvements within the Island School Master Plan to be implemented without a State Special Permit. The updated Master Plan includes new and expanded classrooms and facilities, recreational sport fields, outdoor pool, residences, a 200 kilowatt solar facility, 145 new parking spaces and additional infrastructure.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program and the Hawaii GAP Program. Our information indicates that the federally endangered Hawaiian hoary bat (Lasiurus cinereus semotus) may be present in the vicinity of the proposed facility. Additionally, the federally threatened Newell's shearwater (Puffinus auricularis newellii), endangered Hawaiian petrel (Pterodroma sandwichensis), and a candidate for listing, the band-rumped storm-petrel (Oceanodroma castro) (collectively referred to as seabirds), may fly over the project area when traversing between the ocean and mountainous breeding colonies. We offer the following recommendations to assist you in the preparation of your draft EA:

Hawaiian Hoary Bat

The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs

Mr. Earl Matsukawa

suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.

Seabirds

Seabirds, including the Newell's shearwater, Hawaiian petrel, and band-rumped storm-petrel, fly at night and are attracted to artificially-lighted areas resulting in disorientation and subsequent fallout due to exhaustion. Seabirds are also susceptible to collision with objects that protrude above the vegetation layer, such as utility lines, guy-wires, and communication towers. Additionally, once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. To reduce potential impacts to seabirds, we recommend the following minimization measures be incorporated into your final EA:

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

We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Michelle Bogardus, Consultation and Habitat Conversation Planning Program (phone: 808-792-9437; fax: 808-792-9581).

Sincerely,

[Signature]
Loyal Mehrhoff
Field Supervisor





1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
October 19, 2012

Mr. Loyal Mehrhoff, Field Supervisor
United States Department of the Interior
Fish and Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawai'i 96850

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihue District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Mehrhoff:

Thank you for your letter dated September 14, 2012 (Ref. 2012-TA-0424) regarding the subject project. We acknowledge your statement that the federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) may be present in the project vicinity, and that the federally threatened Newell's Shearwater (*Puffinus auricularis newelli*), endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and Band-rumped Storm Petrel (*Oceanodroma castro*), a candidate for listing, may fly over the project area. An avian and terrestrial mammalian survey was conducted for the project and will be included in the Draft EA. The Draft EA will include a discussion on the above species and potential mitigation measures that could minimize the risk of harming these species. Specifically:

1. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation along the periphery of the Petition Area should not occur between May 15 and July 15, when bats may be carrying young and potentially could be at risk by such clearing activities.
2. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School



Natural Resources Conservation Service
 P.O. Box 50004 Rm. 4-118
 Honolulu, HI 96850
 808-541-2600

September 11, 2012

Mr. Earl Matsukawa, AICP
 Wilson Okamoto Corp.
 1907 S. Beretania St.
 Ste. 400
 Honolulu, HI 96826

Dear Mr. Matsukawa:

Thank you for providing NRCS the opportunity to review the status of lands that will be affected by the proposed additional campus facilities to be located at the Island School campus in Puhi, Kaua'i. The conversion of the land shown in Figure 1 (provided by you) from agricultural land to an area with structures that are not engaged in support of farming operation requires that a USDA form AD-1006 – Farmland Conversion Impact Rating – be completed as part of the Environmental Assessment process. A copy of this form and instructions are attached.

If you have any questions concerning the soils and related quality and suitability ratings for this project area, please contact Dr. Cynthia Stiles, Assistant State Soil Scientist, by phone (808) 541-2600 x129 or email at cynthia.stiles@hi.usda.gov.

Sincerely,

ANGEL FIGUEROA
 Director
 NRCS, Pacific Islands Area

Attachment

Cc: Lex Riggle, District Conservationist, Lihue, Hawaii
 Cynthia Stiles, Asst. State Soil Scientist, Honolulu, Hawaii

Helping People Help the Land
 An Equal Opportunity Provider and Employer

U.S. Department of Agriculture
FARMLAND CONVERSION IMPACT RATING

PART I (To be completed by Federal Agency)		Date Of Land Evaluation Request			
Name Of Project		Federal Agency Involved			
Proposed Land Use		County And State			
PART II (To be completed by NRCS)		Date Request Received By NRCS			
Does this site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply – do not complete additional parts of this form).		Yes <input type="checkbox"/>	No <input type="checkbox"/>	Acres Irrigated	Average Farm Size
Major Crop(s)	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %		Date Land Evaluation Returned By NRCS	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System				
PART III (To be completed by Federal Agency)		Alternative Site Rating			
		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly					
B. Total Acres To Be Converted Indirectly					
C. Total Acres In Site		0.0	0.0	0.0	0.0
PART IV (To be completed by NRCS) Land Evaluation Information					
A. Total Acres Prime And Unique Farmland					
B. Total Acres Statewide And Local Important Farmland					
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted					
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value					
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value Of Farmland To Be Converted (Scale Of 0 to 100 Points)		0	0	0	0
PART VI (To be completed by Federal Agency) Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))		Maximum Points			
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
TOTAL SITE ASSESSMENT POINTS		160	0	0	0
PART VII (To be completed by Federal Agency)					
Relative Value Of Farmland (From Part V)		100	0	0	0
Total Site Assessment (From Part VI above or a local site assessment)		160	0	0	0
TOTAL POINTS (Total of above 2 lines)		260	0	0	0
Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>			
Reason For Selection:					

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step 4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at 160.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

Total points assigned Site A = 180 x 160 = 144 points for Site "A."
Maximum points possible 200

Site Assessment Scoring for the Twelve Factors Used in FPPA

The Site Assessment criteria used in the Farmland Protection Policy Act (FPPA) rule are designed to assess important factors other than the agricultural value of the land when determining which alternative sites should receive the highest level of protection from conversion to non agricultural uses.

Twelve factors are used for Site Assessment and ten factors for corridor-type sites. Each factor is listed in an outline form, without detailed definitions or guidelines to follow in the rating process. The purpose of this document is to expand the definitions of use of each of the twelve Site Assessment factors so that all persons can have a clear understanding as to what each factor is intended to evaluate and how points are assigned for given conditions.

In each of the 12 factors a number rating system is used to determine which sites deserve the most protection from conversion to non-farm uses. The higher the number value given to a proposed site, the more protection it will receive. The maximum scores are 10, 15 and 20 points, depending upon the relative importance of each particular question. If a question significantly relates to why a parcel of land should not be converted, the question has a maximum possible protection value of 20, whereas a question which does not have such a significant impact upon whether a site would be converted, would have fewer maximum points possible, for example 10.

The following guidelines should be used in rating the twelve Site Assessment criteria:

1. How much land is in non-urban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent	15 points
90-20 percent	14 to 1 points
Less than 20 percent	0 points

This factor is designed to evaluate the extent to which the area within one mile of the proposed site is non-urban area. For purposes of this rule, "non-urban" should include:

- Agricultural land (crop-fruit trees, nuts, oilseed)
- Range land
- Forest land
- Golf Courses
- Non paved parks and recreational areas
- Mining sites
- Farm Storage
- Lakes, ponds and other water bodies
- Rural roads, and through roads without houses or buildings
- Open space
- Wetlands
- Fish production
- Pasture or hayland

Urban uses include:

- Houses (other than farm houses)
- Apartment buildings
- Commercial buildings
- Industrial buildings
- Paved recreational areas (i.e. tennis courts)
- Streets in areas with 30 structures per 40 acres
- Gas stations

- Equipment, supply stores
- Off-farm storage
- Processing plants
- Shopping malls
- Utilities/Services
- Medical buildings

In rating this factor, an area one-mile from the outer edge of the proposed site should be outlined on a current photo; the areas that are urban should be outlined. For rural houses and other buildings with unknown sizes, use 1 and 1/3 acres per structure. For roads with houses on only one side, use one half of road for urban and one half for non-urban.

The purpose of this rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government. With this goal in mind, factor S1 suggests that the more agricultural lands surrounding the parcel boundary in question, the more protection from development this site should receive. Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater number of points for protection from development. Thus, where more than 90 percent of the area around the proposed site (do not include the proposed site in this assessment) is non-urban, assign 15 points. Where 20 percent or less is non-urban, assign 0 points. Where the area lies between 20 and 90 percent non-urban, assign appropriate points from 14 to 1, as noted below.

Percent Non-Urban Land within 1 mile	Points
90 percent or greater	15
85 to 89 percent	14
80 to 84 percent	13
75 to 79 percent	12
70 to 74 percent	11
65 to 69 percent	10
60 to 64 percent	9
55 to 59 percent	8
50 to 54 percent	7
45 to 49 percent	6
40 to 44 percent	5
35 to 39 percent	4
30 to 24 percent	3
25 to 29 percent	2
21 to 24 percent	1
20 percent or less	0

2. How much of the perimeter of the site borders on land in non-urban use?

More than 90 percent:	10 points
90 to 20 percent:	9 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the land adjacent to the proposed site is non-urban use. Where factor #1 evaluates the general location of the proposed site, this factor evaluates the immediate perimeter of the site. The definition of urban and non-urban uses in factor #1 should be used for this factor.

In rating the second factor, measure the perimeter of the site that is in non-urban and urban use. Where more than 90 percent of the perimeter is in non-urban use, score this factor 10 points. Where less than 20 percent, assign 0 points. If a road is next to the perimeter, class the area according to the

use on the other side of the road for that area. Use 1 and 1/3 acre per structure if not otherwise known. Where 20 to 90 percent of the perimeter is non-urban, assign points as noted below:

Percentage of Perimeter Bordering Land	Points
90 percent or greater	10
82 to 89 percent	9
74 to 81 percent	8
65 to 73 percent	7
58 to 65 percent	6
50 to 57 percent	5
42 to 49 percent	4
34 to 41 percent	3
27 to 33 percent	2
21 to 26 percent	1
20 percent or Less	0

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last ten years?

More than 90 percent:	20 points
90 to 20 percent:	19 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the proposed conversion site has been used or managed for agricultural purposes in the past 10 years.

Land is being farmed when it is used or managed for food or fiber, to include timber products, fruit, nuts, grapes, grain, forage, oil seed, fish and meat, poultry and dairy products.

Land that has been left to grow up to native vegetation without management or harvest will be considered as abandoned and therefore not farmed. The proposed conversion site should be evaluated and rated according to the percent, of the site farmed.

If more than 90 percent of the site has been farmed 5 of the last 10 years score the site as follows:

Percentage of Site Farmed	Points
90 percent or greater	20
86 to 89 percent	19
82 to 85 percent	18
78 to 81 percent	17
74 to 77 percent	16
70 to 73 percent	15
66 to 69 percent	14
62 to 65 percent	13
58 to 61 percent	12
54 to 57 percent	11
50 to 53 percent	10
46 to 49 percent	9
42 to 45 percent	8
38 to 41 percent	7
35 to 37 percent	6
32 to 34 percent	5
29 to 31 percent	4
26 to 28 percent	3

23 to 25 percent	2
20 to 22 percent percent or Less	1
Less than 20 percent	0

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected:	20 points
Site is not protected:	0 points

This factor is designed to evaluate the extent to which state and local government and private programs have made efforts to protect this site from conversion.

State and local policies and programs to protect farmland include:

State Policies and Programs to Protect Farmland

1. Tax Relief:

A. Differential Assessment: Agricultural lands are taxed on their agricultural use value, rather than at market value. As a result, farmers pay fewer taxes on their land, which helps keep them in business, and therefore helps to insure that the farmland will not be converted to nonagricultural uses.

1. **Preferential Assessment for Property Tax:** Landowners with parcels of land used for agriculture are given the privilege of differential assessment.
2. **Deferred Taxation for Property Tax:** Landowners are deterred from converting their land to nonfarm uses, because if they do so, they must pay back taxes at market value.
3. **Restrictive Agreement for Property Tax:** Landowners who want to receive Differential Assessment must agree to keep their land in - eligible use.

B. Income Tax Credits

Circuit Breaker Tax Credits: Authorize an eligible owner of farmland to apply some or all of the property taxes on his or her farmland and farm structures as a tax credit against the owner's state income tax.

C. Estate and Inheritance Tax Benefits

Farm Use Valuation for Death Tax: Exemption of state tax liability to eligible farm estates.

2. "Right to farm" laws:

Prohibits local governments from enacting laws which will place restrictions upon normally accepted farming practices, for example, the generation of noise, odor or dust.

3. Agricultural Districting:

Wherein farmers voluntarily organize districts of agricultural land to be legally recognized geographic areas. These farmers receive benefits, such as protection from annexation, in exchange for keeping land within the district for a given number of years.

4. Land Use Controls: Agricultural Zoning.

Types of Agricultural Zoning Ordinances include:

- A. Exclusive:** In which the agricultural zone is restricted to only farm-related dwellings, with, for example, a minimum of 40 acres per dwelling unit.
- B. Non-Exclusive:** In which non-farm dwellings are allowed, but the density remains low, such as 20 acres per dwelling unit.

Additional Zoning techniques include:

A. Sliding Scale: This method looks at zoning according to the total size of the parcel owned. For example, the number of dwelling units per a given number of acres may change from county to county according to the existing land acreage to dwelling unit ratio of surrounding parcels of land within the specific area.

B. Point System or Numerical Approach: Approaches land use permits on a case by case basis.

LESA: The LESA system (Land Evaluation-Site Assessment) is used as a tool to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.

C. Conditional Use: Based upon the evaluation on a case by case basis by the Board of Zoning Adjustment. Also may include the method of using special land use permits.

5. Development Rights:

A. Purchase of Development Rights (PDR): Where development rights are purchased by Government action.

Buffer Zoning Districts: Buffer Zoning Districts are an example of land purchased by Government action. This land is included in zoning ordinances in order to preserve and protect agricultural lands from non-farm land uses encroaching upon them.

B. Transfer of Development Rights (TDR): Development rights are transferable for use in other locations designated as receiving areas. TDR is considered a locally based action (not state), because it requires a voluntary decision on the part of the individual landowners.

6. Governor's Executive Order: Policy made by the Governor, stating the importance of agriculture, and the preservation of agricultural lands. The Governor orders the state agencies to avoid the unnecessary conversion of important farmland to nonagricultural uses.

7. Voluntary State Programs:

A. California's Program of Restrictive Agreements and Differential Assessments: The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows cities, counties and individual landowners to form agricultural preserves and enter into contracts for 10 or more years to insure that these parcels of land remain strictly for agricultural use. Since 1972 the Act has extended eligibility to recreational and open space lands such as scenic highway corridors, salt ponds and wildlife preserves. These contractually restricted lands may be taxed differentially for their real value. One hundred-acre districts constitute the minimum land size eligible.

Suggestion: An improved version of the Act would state that if the land is converted after the contract expires, the landowner must pay the difference in the taxes between market value for the land and the agricultural tax value which he or she had been

paying under the Act. This measure would help to insure that farmland would not be converted after the 10 year period ends.

- B. Maryland Agricultural Land Preservation Program: Agricultural landowners within agricultural districts have the opportunity to sell their development rights to the Maryland Land Preservation Foundation under the agreement that these landowners will not subdivide or develop their land for an initial period of five years. After five years the landowner may terminate the agreement with one year notice.

As is stated above under the California Williamson Act, the landowner should pay the back taxes on the property if he or she decides to convert the land after the contract expires, in order to discourage such conversions.

- C. Wisconsin Income Tax Incentive Program: The Wisconsin Farmland Preservation Program of December 1977 encourages local jurisdictions in Wisconsin to adopt agricultural preservation plans or exclusive agricultural district zoning ordinances in exchange for credit against state income tax and exemption from special utility assessment. Eligible candidates include local governments and landowners with at least 35 acres of land per dwelling unit in agricultural use and gross farm profits of at least \$6,000 per year, or \$18,000 over three years.

8. Mandatory State Programs:

- A. The Environmental Control Act in the state of Vermont was adopted in 1970 by the Vermont State Legislature. The Act established an environmental board with 9 members (appointed by the Governor) to implement a planning process and a permit system to screen most subdivisions and development proposals according to specific criteria stated in the law. The planning process consists of an interim and a final Land Capability and Development Plan, the latter of which acts as a policy plan to control development. The policies are written in order to:

- prevent air and water pollution;
- protect scenic or natural beauty, historic sites and rare and irreplaceable natural areas; and
- consider the impacts of growth and reduction of development on areas of primary agricultural soils.

- B. The California State Coastal Commission: In 1976 the Coastal Act was passed to establish a permanent Coastal Commission with permit and planning authority. The purpose of the Coastal Commission was and is to protect the sensitive coastal zone environment and its resources, while accommodating the social and economic needs of the state. The Commission has the power to regulate development in the coastal zones by issuing permits on a case by case basis until local agencies can develop their own coastal plans, which must be certified by the Coastal Commission.

- C. Hawaii's Program of State Zoning: In 1961, the Hawaii State Legislature established Act 187, the Land Use Law, to protect the farmland and the welfare of the local people of Hawaii by planning to avoid "unnecessary urbanization". The Law made all state lands into four districts: agricultural, conservation, rural and urban. The Governor appointed members to a State Land Use Commission, whose duties were to uphold the Law and form the boundaries of the four districts. In addition to state zoning, the Land Use Law introduced a program of Differential Assessment, wherein agricultural landowners paid taxes on their land for its agricultural use value, rather than its market value.

- D. The Oregon Land Use Act of 1973: This act established the Land Conservation and Development Commission (LCDC) to provide statewide planning goals and guidelines.

Under this Act, Oregon cities and counties are each required to draw up a comprehensive plan, consistent with statewide planning goals. Agricultural land preservation is high on the list of state goals to be followed locally.

If the proposed site is subject to or has used one or more of the above farmland protection programs or policies, score the site 20 points. If none of the above policies or programs apply to this site, score 0 points.

5. How close is the site to an urban built-up area?

The site is 2 miles or more from an urban built-up area	15 points
The site is more than 1 mile but less than 2 miles from an urban built-up area	10 points
The site is less than 1 mile from, but is not adjacent to an urban built-up area	5 points
The site is adjacent to an urban built-up area	0 points

This factor is designed to evaluate the extent to which the proposed site is located next to an existing urban area. The urban built-up area must be 2500 population. The measurement from the built-up area should be made from the point at which the density is 30 structures per 40 acres and with no open or non-urban land existing between the major built-up areas and this point. Suburbs adjacent to cities or urban built-up areas should be considered as part of that urban area.

For greater accuracy, use the following chart to determine how much protection the site should receive according to its distance from an urban area. See chart below:

Distance From Perimeter of Site to Urban Area	Points
More than 10,560 feet	15
9,860 to 10,559 feet	14
9,160 to 9,859 feet	13
8,460 to 9,159 feet	12
7,760 to 8,459 feet	11
7,060 to 7,759 feet	10
6,360 to 7,059 feet	9
5,660 to 6,359 feet	8
4,960 to 5,659 feet	7
4,260 to 4,959 feet	6
3,560 to 4,259 feet	5
2,860 to 3,559 feet	4
2,160 to 2,859 feet	3
1,460 to 2,159 feet	2
760 to 1,459 feet	1
Less than 760 feet (adjacent)	0

6. How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote nonagricultural use?

None of the services exist nearer than 3 miles from the site	15 points
Some of the services exist more than one but less than 3 miles from the site	10 points
All of the services exist within 1/2 mile of the site	0 points

This question determines how much infrastructure (water, sewer, etc.) is in place which could facilitate nonagricultural development. The fewer facilities in place, the more difficult it is to develop an area. Thus, if a proposed site is further away from these services (more than 3 miles distance away), the site should be awarded the highest number of points (15). As the distance of the parcel of land to services decreases, the number of points awarded declines as well. So, when the site is equal to or further than 1 mile but less than 3 miles away from services, it should be given 10 points. Accordingly, if this distance is 1/2 mile to less than 1 mile, award 5 points; and if the distance from land to services is less than 1/2 mile, award 0 points.

Distance to public facilities should be measured from the perimeter of the parcel in question to the nearest site(s) where necessary facilities are located. If there is more than one distance (i.e. from site to water and from site to sewer), use the average distance (add all distances and then divide by the number of different distances to get the average).

Facilities which could promote nonagricultural use include:

- Water lines
- Sewer lines
- Power lines
- Gas lines
- Circulation (roads)
- Fire and police protection
- Schools

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with \$1,000 or more in sales.)

As large or larger:	10 points
Below average: Deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more is below average	9 to 0 points

This factor is designed to determine how much protection the site should receive, according to its size in relation to the average size of farming units within the county. The larger the parcel of land, the more agricultural use value the land possesses, and vice versa. Thus, if the farm unit is as large or larger than the county average, it receives the maximum number of points (10). The smaller the parcel of land compared to the county average, the fewer number of points given. Please see below:

Parcel Size in Relation to Average County Size	Points
Same size or larger than average (100 percent)	10
95 percent of average	9
90 percent of average	8
85 percent of average	7
80 percent of average	6
75 percent of average	5
70 percent of average	4
65 percent of average	3
60 percent of average	2
55 percent of average	1
50 percent or below county average	0

State and local Natural Resources Conservation Service offices will have the average farm size information, provided by the latest available Census of Agriculture data

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	10 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project	9 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

This factor tackles the question of how the proposed development will affect the rest of the land on the farm. The site which deserves the most protection from conversion will receive the greatest number of points, and vice versa. For example, if the project is small, such as an extension on a house, the rest of the agricultural land would remain farmable, and thus a lower number of points is given to the site. Whereas if a large-scale highway is planned, a greater portion of the land (not including the site) will become non-farmable, since access to the farmland will be blocked; and thus, the site should receive the highest number of points (10) as protection from conversion.

Conversion uses of the Site Which Would Make the Rest of the Land Non-Farmable by Interfering with Land Patterns

Conversions which make the rest of the property nonfarmable include any development which blocks accessibility to the rest of the site. Examples are highways, railroads, dams or development along the front of a site restricting access to the rest of the property.

The point scoring is as follows:

Amount of Land Not Including the Site Which Will Become Non-Farmable	Points
25 percent or greater	10
23 - 24 percent	9
21 - 22 percent	8
19 - 20 percent	7
17 - 18 percent	6
15 - 16 percent	5
13 - 14 percent	4
11 - 12 percent	3
9 - 11 percent	2
6 - 8 percent	1
5 percent or less	0

9. Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

This factor is used to assess whether there are adequate support facilities, activities and industry to keep the farming business in business. The more support facilities available to the agricultural

landowner, the more feasible it is for him or her to stay in production. In addition, agricultural support facilities are compatible with farmland. This fact is important, because some land uses are not compatible; for example, development next to farmland can be dangerous to the welfare of the agricultural land, as a result of pressure from the neighbors who often do not appreciate the noise, smells and dust intrinsic to farmland. Thus, when all required agricultural support services are available, the maximum number of points (5) are awarded. When some services are available, 4 to 1 point(s) are awarded; and consequently, when no services are available, no points are given. See below:

Percent of Services Available	Points
100 percent	5
75 to 99 percent	4
50 to 74 percent	3
25 to 49 percent	2
1 to 24 percent	1
No services	0

10. Does the site have substantial and well-maintained on farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of non-farm investment	19 to 1 point(s)
No on-farm investments	0 points

This factor assesses the quantity of agricultural facilities in place on the proposed site. If a significant agricultural infrastructure exists, the site should continue to be used for farming, and thus the parcel will receive the highest amount of points towards protection from conversion or development. If there is little on farm investment, the site will receive comparatively less protection. See below:

Amount of On-farm Investment	Points
As much or more than necessary to maintain production (100 percent)	20
95 to 99 percent	19
90 to 94 percent	18
85 to 89 percent	17
80 to 84 percent	16
75 to 79 percent	15
70 to 74 percent	14
65 to 69 percent	13
60 to 64 percent	12
55 to 59 percent	11
50 to 54 percent	10
45 to 49 percent	9
40 to 44 percent	8
35 to 39 percent	7
30 to 34 percent	6
25 to 29 percent	5
20 to 24 percent	4
15 to 19 percent	3
10 to 14 percent	2
5 to 9 percent	1
0 to 4 percent	0

11. Would the project at this site, by converting farmland to nonagricultural use, reduce the support for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted	10 points
Some reduction in demand for support services if the site is converted	9 to 1 point(s)
No significant reduction in demand for support services if the site is converted	0 points

This factor determines whether there are other agriculturally related activities, businesses or jobs dependent upon the working of the pre-converted site in order for the others to remain in production. The more people and farming activities relying upon this land, the more protection it should receive from conversion. Thus, if a substantial reduction in demand for support services were to occur as a result of conversions, the proposed site would receive a high score of 10; some reduction in demand would receive 9 to 1 point(s), and no significant reduction in demand would receive no points.

Specific points are outlined as follows:

Amount of Reduction in Support Services if Site is Converted to Nonagricultural Use	Points
Substantial reduction (100 percent)	10
90 to 99 percent	9
80 to 89 percent	8
70 to 79 percent	7
60 to 69 percent	6
50 to 59 percent	5
40 to 49 percent	4
30 to 39 percent	3
20 to 29 percent	2
10 to 19 percent	1
No significant reduction (0 to 9 percent)	0

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable of existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

Factor 12 determines whether conversion of the proposed agricultural site will eventually cause the conversion of neighboring farmland as a result of incompatibility of use of the first with the latter. The more incompatible the proposed conversion is with agriculture, the more protection this site receives from conversion. Therefore, if the proposed conversion is incompatible with agriculture, the site receives 10 points. If the project is tolerable with agriculture, it receives 9 to 1 points; and if the proposed conversion is compatible with agriculture, it receives 0 points.

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information.

For Water and Waste Programs, corridor analyses are not applicable for distribution or collection networks. Analyses are applicable for transmission or trunk lines where placement of the lines are flexible.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?

- | | |
|--------------------------|-----------------------|
| (2) More than 90 percent | (3) 15 points |
| (4) 90 to 20 percent | (5) 14 to 1 point(s). |
| (6) Less than 20 percent | (7) 0 points |

(2) How much of the perimeter of the site borders on land in nonurban use?

- | | |
|--------------------------|-------------------|
| (3) More than 90 percent | (4) 10 point(s) |
| (5) 90 to 20 percent | (6) 9 to 1 points |
| (7) less than 20 percent | (8) 0 points |

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

- | | |
|--------------------------|----------------------|
| (4) More than 90 percent | (5) 20 points |
| (6) 90 to 20 percent | (7) 19 to 1 point(s) |
| (8) Less than 20 percent | (9) 0 points |

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

- | | |
|-----------------------|-----------|
| Site is protected | 20 points |
| Site is not protected | 0 points |

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with \$1,000 or more in sales.)

- | | |
|---|---------------|
| As large or larger | 10 points |
| Below average deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average | 9 to 0 points |

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

- | | |
|--|------------------|
| Acreage equal to more than 25 percent of acres directly converted by the project | 25 points |
| Acreage equal to between 25 and 5 percent of the acres directly converted by the project | 1 to 24 point(s) |
| Acreage equal to less than 5 percent of the acres directly converted by the project | 0 points |

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

- | | |
|--------------------------------------|-----------------|
| All required services are available | 5 points |
| Some required services are available | 4 to 1 point(s) |
| No required services are available | 0 points |

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

- | | |
|---------------------------------------|------------------|
| High amount of on-farm investment | 20 points |
| Moderate amount of on-farm investment | 19 to 1 point(s) |
| No on-farm investment | 0 points |

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

- | | |
|--|------------------|
| Substantial reduction in demand for support services if the site is converted | 25 points |
| Some reduction in demand for support services if the site is converted | 1 to 24 point(s) |
| No significant reduction in demand for support services if the site is converted | 0 points |

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

- | | |
|---|-----------------|
| Proposed project is incompatible to existing agricultural use of surrounding farmland | 10 points |
| Proposed project is tolerable to existing agricultural use of surrounding farmland | 9 to 1 point(s) |
| Proposed project is fully compatible with existing agricultural use of surrounding farmland | 0 points |



8110-03
October 19, 2012

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
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Mr. Angel Figueroa, Director, NRCS, Pacific Islands Area
United States Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004, Room 4-118
Honolulu, Hawai'i 96850

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Figueroa:

Thank you for your letter dated September 11, 2012 regarding the subject project. As the privately-owned and funded Island School campus improvements will not involve any assistance from Federal agencies, the proposed project will not be subject to the Farmland Protection Policy Act.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR



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

AUG 31 2012

DEAN H. SEKI
COMPTROLLER

(P)1197.2



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8110-03
October 19, 2012

Mr. Dean H. Seki, Comptroller
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation Draft Environmental Assessment
Island School, Puhi, Kauai
TMK: (4) 3-8-002: 016

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

If you have any questions, please call me at 586-0400 or have your staff call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

DEAN H. SEKI
Comptroller

Dear Mr. Seki:

Thank you for your letter dated August 31, 2012 (Ref. (P)1197.2), indicating that the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and that you have no comments to offer at this time.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
Governor

BRIAN SCHATZ
Lieutenant Governor

RICHARD LIM
Director

MARY ALICE EVANS
Deputy Director



LAND USE COMMISSION
Department of Business, Economic Development & Tourism
State of Hawai'i

DANIEL ORODENKER
Executive Officer

BERT K. SARUWATARI
Planner

SCOTT A.K. DERRICKSON, AICP
Planner

FRED A. TALON
Drafting Technician

RILEY K. HAKODA
Chief Clerk

We have no further comments to offer at this time. Thank you for the opportunity to comment. Should you have any questions, please feel free to call me or Scott Derrickson, AICP of our office at 587-3822.

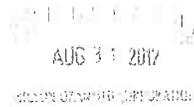
Sincerely,

DANIEL ORODENKER
Executive Officer

cc: State Office of Planning
County of Kaua'i, Planning Department

August 29, 2012

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawai'i 96826



Dear Mr. Matsukawa:

On August 21, 2012, the Commission received your Pre-Assessment Consultation request for the Draft Environmental Assessment (EA) for Island School. We have reviewed the Project Summary and have the following comments:

1. The identified trigger for compliance with Chapter 343, Hawai'i Revised Statutes (HRS), is the need for a County General Plan (GP) Amendment. We assume that the applicant will be seeking the GP amendment prior to petitioning for a State Land Use Boundary Amendment. Please clarify the sequence the applicant will pursue in seeking regulatory approvals and identify the accepting authority for the EA.
2. Within the discussion of the Project Background, please provide additional detail regarding past Special Permit approvals on the various parcels that now comprise the Project site. In addition, some discussion of any conditions that were included in any of the Special Permit approvals might assist government agencies and the public in reviewing the draft EA.
3. The Introduction acknowledges the intent of the Kaua'i Community College (KCC) to also seek a State Land Use District Boundary amendment. Please provide additional information about the timing of both Island School's intended timing for their petition and that of KCC's intended petition.
4. The EA should address the potential cumulative impacts on infrastructure systems based on Island School's proposed Master Plan, the adjacent KCC's proposed Master Plan, and the proposed by-pass road delineated in the County General Plan Land Use Map (figure 4).
5. Technical studies should also include discussion of storm water drainage, water, and wastewater systems.



8110-03
October 19, 2012

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Mr. Daniel Orodener, Executive Officer
State of Hawai'i
Department of Business, Economic Development & Tourism
Land Use Commission
P.O. Box 2359
Honolulu, Hawai'i 96804

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Orodener:

Thank you for your letter dated August 29, 2012 regarding the subject project. We offer the following responses in the order of your comments:

1. Island School, the Petitioner, will pursue the County General Plan Amendment process prior to petitioning for a State Land Use District Boundary Amendment. The County of Kaua'i Planning Department will be the Approving Agency for the EA. This information will be included in the Draft EA.
2. A discussion of the prior Special Permits and land use permit approvals for the project site will be included in the Draft EA. The conditions of the Special Permits and land use permits approved for the existing facilities have been fulfilled in conjunction with the development of the respective facilities.
3. The respective Petitions for State Land Use District Boundary Amendment for Island School and the Kaua'i Community College campus are planned to be filed concurrently with the State Land Use Commission by April 2013. This information will be included in the Draft EA.
4. Kaua'i Community College's (KCC) updated Long Range Development Plan (LRDP) is a conceptual reallocation of land uses previously recommended by the Ultimate Site Plan presented in the 1999 LRDP. The University of Hawai'i Community Colleges has no plans to implement major facilities or buildings at the KCC campus within the timeframe of Island School's updated master plan. Therefore, the discussion of the potential cumulative impacts is limited to traffic impacts, which is based on Island School's and KCC's student enrollment projections. No other potential cumulative impacts can be determined at this time.



8110-03
Letter to Mr. Orodener
October 19, 2012
Page 2

The planned Lihu'e-Hanamā'ulu Mauka Bypass Road is depicted as a general corridor on the County General Plan's Lihu'e Planning District Land Use Map. As indicated in the General Plan, this road is one of several roadway improvements representing needed roadway capacity, not actual projects, by 2020. A sub-area circulation study is currently proposed to be conducted by the County Department of Public Works to validate the need and priority of the Lihu'e-Hanamā'ulu Mauka Bypass Road. Due to the uncertainty of the development timeline of this road relative to the proposed project, the potential cumulative impacts associated with it cannot be determined at this time.

5. The Draft EA will include discussion of the existing and proposed drainage, water and wastewater systems for the proposed project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School



**DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM**

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Ref. No. P-13721

September 21, 2012

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation
Draft Environmental Assessment
Island School
Tax Map Key: (4) 3-8-002:016
Puhi, Lihu'e District, Island of Kaua'i

The Office of Planning (OP) has reviewed the project summary submitted for the proposed Island School Campus Master Plan Update. The proposed project is to accommodate additional campus facilities for future expansion on the Island School campus which totals 38.448 acres. Of the total acreage, 10 acres are used for school facilities under County issued special permits, use permits, and zoning permits. The petitioner intends to reclassify the entire property from the State Agricultural District to the State Urban District. In our review of requests for boundary amendments and their supporting environmental compliance documents, the following are important considerations:

1. OP represents the State as a mandatory party in proceedings before the State Land Use Commission (LUC). In developing its position on a petition, OP evaluates whether the project meets the LUC decision-making criteria in HRS §205-17, as well as **its conformance** with Coastal Zone Management objectives and policies in HRS §205 A-2. OP also encourages petitioners to review their proposals with respect to the Administration's priorities in implementing the goals of the Hawai'i State Plan, HRS Chapter 226. These priorities are set out in the Administration's New Day Comprehensive Plan, which is available at <http://hawaii.gov/about/a-new-day>.
2. Attached for your review and consideration in your environmental assessment and petition is a document entitled, "Attachment A - Issues of Concern in District Boundary Amendment Proceedings Based on LUC Decision-Making Criteria." We encourage early consultation with our office to discuss how a petition will address these issues and criteria – particularly the areas of State concern in this document and

Mr. Earl Matsukawa
Page 2
September 21, 2012

best practices that could or will be incorporated in the proposed project to address State priority guidelines for sustainability. A short list of resources related to best practices can be found at the OP website at http://hawaii.gov/dbedt/op/land_use.htm.

3. It would be useful in the Draft Environmental Assessment to reference the County of Kaua'i's Important Agricultural Lands Study currently underway, and to discuss how lands within and adjacent to the proposed petition area are scored by that study.

If you have any questions, please contact Scott Forsythe of our Land Use Division at 587-2805.

Sincerely,

Jesse K. Souki
Director

Attachment

Attachment A
Issues of Concern in District Boundary Amendment Proceedings
Based on LUC Decision-Making Criteria

The following issues are commonly discussed and analyzed for project proposals in petitions and their supporting environmental assessments (EAs) or environmental impact statements (EISs) prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS). This list reflects the range of issues the State Land Use Commission (LUC) must take into consideration in its decision-making under Chapter 205, HRS, and Chapter 15-15, Hawaii Administrative Rules (HAR). This list is not exhaustive or complete.

1. **Water Resources.** Groundwater and surface water resource protection and water quality are critical State issues. A thorough evaluation of these resources includes identifying and discussing: (a) estimated water demand by types of land use; (b) proposed potable and non-potable water sources to be used for the project and measures to reduce water demand and promote water reuse in the project; (c) whether the proposed project is within a designated Water Management Area; (d) the impact of the project on the sustainable yield and water quality of affected aquifers and surface water sources; (e) permits or other approvals required for proposed water source use; and (f) the consistency of the project and impact of the project in terms of proposed water use and system improvements and priorities contained in the County water use and development plan, prepared pursuant to the State Water Code, Chapter 174C, HRS.
2. **Agricultural Lands.** Article XI, Section 3, of the Hawaii State Constitution provides that “[t]he State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency, and assure the availability of agriculturally suitable lands.” Protecting agriculture is a policy objective in the Hawaii State Plan, Chapter 226, HRS, and in the State Administration’s New Day Comprehensive Plan, which is available at <http://hawaii.gov/gov/about/a-new-day>. Agricultural activity in the vicinity of the proposed project should be identified, and the impact of urban use or conversion of project lands on existing and future agricultural use and the viability of agricultural use of adjoining agricultural lands needs to be examined. Please discuss how the proposed project meets policy objectives to promote and protect agriculture, particularly in cases where the lands have high agricultural value.
3. **Affordable Housing.** Increasing the supply of affordable housing is a critical State and County issue. Every County has an affordable housing policy and both the Hawaii State Plan, Chapter 226, HRS, and the State Administration’s New Day Comprehensive Plan identify affordable housing as a policy priority. If applicable, please discuss specifically how the proposed project will meet State and County affordable housing policy objectives, to include a discussion of how the project’s proposed residential product types will be allocated among the market and various affordable housing target populations, and the expected price ranges for the different product types.
4. **Coastal Zone Management (CZM).** The Office of Planning is the lead agency for the Hawaii CZM Program, which is a Federal-State partnership for protecting, restoring, and responsibly developing coastal communities and resources. The coastal zone is defined as all lands of the State and the area extending seaward from the shoreline to the limit of the State’s police power and management authority, including the United States territorial sea (HRS § 205A-1). EA/EISs should reference this definition of the coastal zone. State agency actions must be consistent with the CZM program objectives and policies under Section 205A-2, HRS. The EA/EIS needs to discuss the project in terms of its consistency with the following CZM objective areas.
 - a. **Coastal and Ocean Resources.** The State has an interest in protecting coastal and marine ecosystems and resources, as well as coastal and marine water quality. The EA/EIS should identify any coastal and marine resources and ecosystems that may be impacted by the proposed project, and the potential for nonpoint sources of pollution from the project to adversely affect coastal and marine water quality. Project impacts on existing site and offsite

hydrology and measures to manage stormwater and runoff need to be discussed. The Office of Planning recommends the use of low impact development (LID) techniques and other best management practices (BMPs) that promote onsite infiltration and minimize runoff from storm events. More information on LID and stormwater BMPs can be found at <http://hawaii.gov/dbedt/czm/initiative/lid.php>.

- b. **Coastal and Other Hazards.** The EA/EIS should describe any hazard risks that are relevant to the site and describe the measures that are proposed to mitigate any hazard impacts, such as from tsunami, hurricane, wind, storm wave, sea level rise, flood, erosion, volcanic activity, earthquake, landslide, subsidence, and point and nonpoint source pollution. This should include a discussion of any wildfire hazard and any mitigation measures that might be required to address potential threats from wildfires.

The EA/EIS process also provides an opportunity to address the sustainability of proposed projects in terms of natural hazards and hazard mitigation, and the potential impact of climate change on the proposed project over time. To this end, OP recommends the final EA/EIS include a discussion of the proposed project with respect to the *State Multi-Hazard Mitigation Plan, 2010 Update*, adopted in September 2010, available at <http://www.scd.hawaii.gov/documents/HawaiiMultiHazardMitigationPlan2010PUBLIC.pdf>, as well as the respective County Hazard Mitigation Plan.

- c. **Coastal-dependent Uses and Beach Protection.** If the project is located on or near the coast, the EA/EIS should discuss why the proposed development needs to be located on the coast, the economic uses that will be of benefit to the State, as well as potential impacts on beach access. The discussion should identify measures to protect beach systems and ensure short- and long-term public access to beaches.
- d. **Coastal Recreational Resources.** If the project is located on the coast, the EA/EIS should include a description of recreational uses and facilities on or near the project site, and discuss how the impact of increasing users on coastal and ocean recreational resources and competing uses will be mitigated and managed during project development and buildout.
- e. **Scenic Resources.** The EA/EIS should discuss the impact of the proposed project on scenic views to and from the coast and along the coast and coastal open space, and how any impacts on these scenic and open space resources will be avoided, minimized, or mitigated.
- f. **Special Management Area (SMA) Permitting.** The SMA is defined by the Counties and includes areas in the coastal zone that are particularly sensitive so that it requires special attention. Please identify whether the proposed project is within the SMA and how SMA permitting requirements pursuant to Chapter 205A, HRS, will be satisfied.

For additional resources and information, visit <http://hawaii.gov/dbedt/czm>.

5. **Cultural, Archaeological, and Historic Resources.** Another CZM objective is to protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone that are significant in Hawaiian and American history and culture. If archaeological or historic properties or artifacts, including native Hawaiian burials, are identified in an archaeological inventory survey on the property, the EA/EIS should discuss how the petitioner has consulted with the State Historic Preservation Division (SHPD), what plans will be prepared to monitor or protect identified resources, and how the petitioner intends to comply with Chapter 6E, HRS, related to historic preservation, and the CZM objective and policies for historic resources contained in Sections 205A-2(b) and (c). SHPD has information and guidance available at <http://hawaii.gov/dnr/hpd/hpgrtg.htm>.

The EA/EIS document should identify any cultural resources and cultural practices associated with the property, including visual landmarks, if applicable, and discuss the impact of the proposed project on identified cultural resources and practices as well as proposed mitigation measures. The LUC is obligated

under Article XII, Section 7 of the Hawai'i State Constitution to protect the reasonable exercise of customarily and traditionally exercised native Hawaiian rights. Thus, the LUC requires information as to the presence of cultural resources and cultural practices associated with the project site and vicinity for decision-making on petitions. The State Office of Environmental Quality Control provides guidance for preparing a cultural assessment at <http://oeqc.doh.hawaii.gov>, at "Environmental_Assessment_PrepKit" (http://oeqc.doh.hawaii.gov/Shared%20Documents/Preparation_of_Hawaii_Environmental_Policy_Act_Documents/Guidance_on_Cultural_Impact/1997%20Cultural%20Impacts%20Guidance.pdf)

6. **Biota.** The EA/EIS should include an inventory and assessment of flora and fauna, including invertebrates, found on or in proximity to the project site and in any lava tubes and caves on the property that are listed on the federal or State list of endangered or threatened species. Please also discuss species of concern and candidates for listing. The petitioner should consult with the Database Manager at the Hawai'i Biodiversity and Mapping Program, Center for Conservation Research and Training, University of Hawai'i, (808) 956-8094, as to the potential for the presence of rare species in the project area. The EA/EIS should discuss measures to be taken to protect rare, threatened, or endangered species or ecosystems of concern as required by law. The design of the biological survey should consider both wet and dry season observations to capture the fullest range of flora and fauna.
7. **Wastewater Treatment and Disposal.** The EA/EIS needs to identify the anticipated volume of wastewater to be generated by type of user, as well as the proposed means of wastewater treatment and disposal. A discussion of the availability of County wastewater collection and treatment capacity and its existing service levels, design capacity, and allocated capacity is also needed. The EA/EIS should also identify whether any facility improvements would be required to accommodate additional wastewater generated within the service area, including the proposed project. If a private wastewater treatment system is identified as the preferred option, the EA/EIS should discuss the type of plant to be used, permitting requirements, plans for reuse and/or disposal of treated effluent and waste solids, and how the private system will be operated and maintained.
8. **Energy Use and Impacts.** The State Hawai'i Clean Energy Initiative has adopted a goal of using efficiency and renewable energy resources to meet 70 percent of Hawai'i's energy demand by 2030, with 30 percent from efficiency measures and 40 percent from locally-generated renewable sources. The EA/EIS should quantify the projected energy requirements of the project and discuss measures to be taken to reduce energy demand, promote energy efficiency, and to promote use of alternative, renewable energy sources. Please discuss how energy efficiency and energy demand reduction, including reduced transportation energy use will be incorporated in the design of the project and identify the kinds of green building and sustainable design practices that could be used to promote energy and resource conservation in the proposed project. Please also identify any generating or transmission capacity constraints that may arise as a result of the proposed project and other projects planned for the region.
9. **Impact on State Facilities and Resources.** The EA/EIS should quantify the impacts of the proposed project on State-funded facilities, including schools, highways, harbors, and airports, and discuss these impacts in terms of existing and planned capacity of the impacted facilities. The EA/EIS should cite the mitigation measures proposed to be used in the development of the project and describe efforts to address identified State agency concerns. Regarding transportation impacts, consider project design options that limit the need to drive, including mixed land uses, compact site design, walkable neighborhoods, and providing a variety of transportation choices (e.g., biking, public transit, etc.).
10. **Conservation District.** If the proposed project is within the State Conservation District, the EA/EIS should provide an inventory of conservation resources, and discuss how the loss of these resources (habitat, watershed area, etc.) will impact the public.

11. **Conformance with County Plan Designations and Urban Growth or Rural Community Boundaries.** Act 26, Session Laws of Hawai'i 2008, reaffirmed the Land Use Commission's duty to consider any proposed reclassification with respect to the Counties' adopted general, community, or development plans. If the proposed project is not consistent with the County plans or lies outside a County urban growth or rural community boundary, the EA/EIS should provide an analysis and discussion of the following:
 - a. **Alternative Sites Considered.** Describe and discuss alternative sites that were considered for the project, and discuss why the project could not be accommodated on lands within the urban growth or rural community boundary, if the county plan delineates such boundaries, or on land already designated by the county for similar uses.
 - b. **Impact on Surrounding Lands.** Discuss what the impacts of changing the county plan designation or extending the urban growth or rural community boundary would have on the surrounding lands.
 - c. **Significant Public Benefit.** Discuss what, if any, public benefits are provided by the proposed project above that already required under existing approval and permitting requirements.
 - d. **Plan Amendment.** Provide a timeframe for application for and approval of any required plan amendment.
12. **Environmental Health Hazards.** The EA/EIS should discuss the potential for the project or project users to generate hazardous materials or release possible contaminants to the air, soil, or water, as well as measures to be taken to ensure that environmental and public health and safety will be protected during construction and after buildout. The EA/EIS should also identify and discuss any potential health and environmental threats that may be present due to site-specific contamination from past or current use. If contaminants of concern are identified for the project site, OP recommends that the petitioner consult with the State Department of Health's Hazard Evaluation and Emergency Response Office as to measures to be taken to address possible or actual contamination at the site.
13. **Solid Waste Management.** The EA/EIS should quantify the volume of solid waste likely to be generated by the project by types of users, and describe the impact the project will have on the County's existing and planned capacity for managing solid waste as represented in the County's solid waste management plan. The EA/EIS should discuss specific mitigation measures to be taken to reduce solid waste generation and ensure that recycling and reuse are incorporated within the project area by residential, commercial, and institutional users.
14. **Sustainability Analysis.** OP is implementing the sustainability elements of the State Administration's New Day Comprehensive Plan and Act 181, Session Laws of Hawai'i (SLH) 2011 (the new sustainability priority guideline of the Hawai'i State Planning Act) by asking petitioners to prepare sustainability plans for their projects in anticipation of district boundary amendment proceedings before the LUC. LUC Dockets A06-771, DR Horton-Schuler Homes (Ho'opili) and A11-793, Castle & Cooke Homes (Koa Ridge Makai/Castle & Cooke Waiawa) provide a good point of reference for sustainability plans. The Koa Ridge Sustainability Plan and Ho'opili Sustainability Plan can be found on the LUC's web site under each respective docket's exhibits. Links to additional helpful resources can be found at the OP website at http://hawaii.gov/dbedt/op/land_use.htm.

OP evaluates sustainability plans based on the *Healthy Community Design Smart Growth Checklist* prepared by the Hawai'i State Department of Health, Built Environment Working Group, which recommends that State and county planning departments, developers, engineers, and other professionals apply healthy built environment principles when they plan or review new

developments or redevelopments. See <http://hawaii.gov/health/environmental/env-planning/landuse/hcdchecklist.pdf>.

The *Checklist* is adapted from the *Smart Scorecard for Development Projects* (Congress for New Urbanism and the U.S. Environmental Protection Agency, 2002) and *East Garrison Smart Growth Checklist* (Monterey, CA). The checklist applies Smart Growth principles to accomplish the following:

- Promote fitness through safe walking, biking, and other active transportation through connectivity of planned bikeways and paths with existing and adjacent networks, designing travelways that connect multiple destinations and encourage non-vehicular travel.
- Promote clean air by making transit convenient and comfortable, minimizing petroleum-fueled car and truck use, and minimizing fossil energy use.
- Promote a healthy environment by buying green products, reducing, reusing, and recycling, and minimizing waste in construction, operations, and demolition.
- Promote fitness and health by encouraging home and community gardens.

Factors to consider include Close Proximity to Existing/Future Development and Infrastructure; Site Optimization and Compactness; Mix and Balance of Uses; and Accessibility and Mobility Choices. The *Checklist* is flexible so that developers can implement what works for their particular development. It is also consistent with the objectives of Act 181, SLH 2011, and can help petitioners address reasonably foreseeable impacts caused by a proposed project on areas of State concern listed under Section 205-17, HRS.

15. **Development Timetable.** The LUC requires that projects seeking reclassification be substantially completed within ten years or seek incremental approvals, pursuant to Section 15-15-50, HAR. The EA/EIS and/or petitioner should provide a schedule of development for each phase of the total project and a map showing the location and timing of each phase or increment of development. Regarding infrastructure (e.g., highway improvements), the petitioner should discuss how improvements will be completed to ensure that mitigation coincides with the impact created by the proposed project.



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8110-03
October 19, 2012

Mr. Jesse K. Souki, Director
State of Hawai'i
Department of Business, Economic Development & Tourism
Office of Planning
P.O. Box 2359
Honolulu, Hawai'i 96804

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhī, Līhu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Souki:

Thank you for your letter dated September 21, 2012 (Ref. No. P-13721) regarding the subject project. We offer the following responses in the order of your comments:

1. We acknowledge that your Department will evaluate whether the proposed project meets the State Land Use Commission's (LUC) decision-making criteria in §205-17, Hawai'i Revised Statutes (HRS). The State Land Use District Boundary Amendment Petition and Draft EA will discuss the project's conformance with the Coastal Zone Management objectives and policies in §205A-2, HRS, and consistency with the applicable objectives and policies of Chapter 226, Hawai'i State Plan, HRS.
2. The Draft EA and Petition will address the following Issues of Concern in District Boundary Amendment Proceedings Based on LUC Decision-Making Criteria:
 1. **Water Resources.** The Draft EA will include discussion of the surface waters and ground water resources within and in the nearby vicinity of the Petition Area, and potential impacts associated with the proposed project. The Draft EA will also include discussion of the potable and non-potable water sources to be used for the project.
 2. **Agricultural Lands.** The Draft EA will identify agricultural activities currently occurring in the nearby vicinity of the Petition Area, and discuss the impact of the existing campus and proposed master plan improvements on agricultural-designated land within and adjoining the Petition Area.
 3. **Affordable Housing.** As the proposed project is an update of the Island School master plan to accommodate additional campus facilities for



future expansion of its student body enrollment, the County's workforce housing policy (Ordinance No. 860) is not applicable to the project.

4. **Coastal Zone Management (CZM).** The Draft EA will include the definition of the coastal zone as set forth in §205A-1, HRS. The Draft EA will discuss the project's consistency with the CZM program objectives and policies under Section 205A-2, HRS, including the following:
 - a. **Coastal and Ocean Resources.** The Draft EA will discuss the potential impacts of the proposed project on coastal ecosystems, and appropriate structural and/or non-structural best management practices (BMPs) to mitigate such impacts.
 - b. **Coastal and Other Hazards.** The Draft EA will include discussion of the hazard risks that are relative to the Petition Area, and measures proposed to mitigate such hazard impacts. The Draft EA will also include discussion of the proposed project with respect to the relevant aspects of the *State of Hawaii's Multi-Hazard Mitigation Plan, 2010 Update*, and the *County of Kaua'i Multi-Hazard Mitigation Plan, Update 2009*, as deemed appropriate.
 - c. **Coastal-dependent Uses and Beach Protection.** As the Petition Area is located approximately 2.7 miles inland (northwest) from the shoreline, the proposed project will not impact beach systems or public access to beaches, and will not involve the construction of improvements in the shoreline setback or require any erosion-protection structures. This information will be included in the Draft EA.
 - d. **Coastal Recreational Resources.** As the Petition Area is located approximately 2.7 miles inland (northwest) from the coastline, the proposed project will not provide or impact coastal recreational opportunities accessible to the public. This information will be included in the Draft EA.
 - e. **Scenic Resources.** As the Petition Area is located approximately 2.7 miles inland (northwest) of the coastline, the proposed project will not affect scenic resources or public views to and along the shoreline. This information will be included in the Draft EA.
 - f. **Special Management Area (SMA) Permitting.** The Petition Area is located outside of the SMA boundaries and, therefore,



does not require a SMA Use Permit. This information will be included in the Draft EA.

5. **Cultural, Archaeological, and Historic Resources.** An archaeological literature review and field inspection report has been prepared for the Petition Area, and will be included in the Draft EA. The Draft EA will include discussion of consultation with the State Historic Preservation Division (SHPD), and consistency with the CZM objectives and policies for historic resources contained in Sections 205A-2 (b) and (c), HRS.

A cultural impact assessment (CIA) was undertaken as part of the EA prepared in conjunction with the proposed State Land Use District Boundary reclassification of the Kaua'i Community College campus located adjacent to and south/southwest of the Petition Area. The study area of the CIA includes the ahupua'a of Nāwiliwili, Niūmalu, and Ha'ikū within the Līhu'e District, of which the Petition Area is located within the Nāwiliwili Ahupua'a. The CIA will be included in the Draft EA.
6. **Biota.** A botanical and fauna survey was conducted of the Petition Area and will be included in the Draft EA. The Draft EA will include a discussion of the potential impacts and mitigation measures to protect candidate for listing, threatened or endangered species.

Although the botanical field survey was conducted in August 2010 (dry season), the Petition Area is within a relatively wet area in the lowlands of Kaua'i. The Petition Area has been, and is further proposed to be, modified by campus improvements and activities. There is no habitat within the Petition Area that would support native or rare plants. All of the native species recorded within the Petition Area were found around the Hawaiian cultural pavilion within the south-central portion of the site where the school has re-vegetated the area with native species. This information will be included in the Draft EA.
7. **Wastewater Treatment and Disposal.** The Draft EA will include discussion of the existing wastewater system for the Island School campus and projected volume of wastewater to be generated by the proposed project.
8. **Energy Use and Impacts.** The Draft EA will include discussion of the existing and proposed sustainable measures employed by Island School to promote renewable energy sources and energy efficiency.
9. **Impact on State Facilities and Resources.** A Traffic Impact Report was prepared to assess the potential traffic impacts resulting from the



proposed project on the existing roadways within the vicinity of the Petition Area, and will be included in the Draft EA.

The proposed project is not anticipated to adversely affect existing schools on Kaua'i or in the Līhu'e/Puhi region. The new campus facilities to accommodate future increase in student enrollment could reduce the burden on public school facilities in the area. This information will be included in the Draft EA.

The Draft EA will include discussion of sustainable transportation options provided by Island School to reduce the use of automobiles.

10. **Conservation District.** As the Petition Area is currently designated within the State Agricultural District, the proposed project will not impact the State Conservation District.

11. **Conformance with County Plan Designations and Urban Growth or Rural Community Boundaries.** The County of Kaua'i General Plan designation for the Petition Area is Agriculture. Island School is proposing to amend the Petition Area's County General Plan land use designation from Agriculture to Urban Center prior to petitioning for the State Land Use District Boundary Amendment from the State Agricultural District to the Urban District.

The County of Kaua'i's Līhu'e Development Plan, adopted by County Ordinance in 1976, designates the Petition Area as Agriculture. The Petition Area and surrounding lands were previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s. Since 1990, the majority of the Petition Area (approximately 30 acres) has been developed into the Island School campus, with the remaining 8.448 acres within the north-central and eastern portions of the Petition area currently undeveloped and vegetated with forest, shrubland, and grassland areas. The Petition Area is rendered unsuitable for intensive agricultural uses given its use as a school since 1990.

- a. **Alternative Sites Considered.** Since 1990, the majority of the Petition Area (approximately 30 acres) has been developed into the Island School campus consisting of classroom, administration and various other facility buildings; athletic/recreational fields; and, school parking and road access facilities. The proposed updated master plan improvements will extend into the remaining 8.448 acres of the Petition Area. Given the current nature of the Petition Area as the Island School campus, alternative sites with existing urban designations were not considered. The need to reclassify the Petition Area from the State Agricultural District to the Urban



District, and from the County General Plan Agriculture designation to the Urban Center designation, is to be more consistent with its current urban character as a school campus, as well as with the existing urban lands and developments in the vicinity makai of Kaunuali'i Highway. The reclassification of the Petition Area will allow the improvements within the proposed updated Island School master plan to be implemented without a State Special Permit.

- b. **Impact on Surrounding Lands.** The Draft EA will include discussion of the potential impacts that the proposed County General Plan Amendment would have on the surrounding lands.
- c. **Significant Public Benefit.** The Draft EA will include discussion of public benefits that may be provided by the proposed project.
- d. **Plan Amendment.** The Draft EA will include a timeframe for the processing and approval of the State Land Use District Boundary Amendment and County General Plan Amendment for the proposed project.

12. **Environmental Health Hazards.** As the Petition Area was previously in sugar cane cultivation by the Līhu'e Plantation Company, Ltd. until the late 1980s, the Draft EA will include discussion of potential environmental hazards due to past use of agricultural chemicals.

Due to its use as a school campus, the project is not anticipated to release any hazardous materials into the environment during construction and operation of the proposed improvements. This information will be included in the Draft EA.

13. **Solid Waste Management.** During construction of the project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the County's Kekaha Landfill. This information will be included in the Draft EA. The Draft EA will also include a discussion of the existing and proposed solid waste recycling, diversion and disposal programs and practices of Island School.
14. **Sustainability Analysis.** The Draft EA will include a discussion of sustainable strategies that are ongoing within the Island School campus, or may be created for the proposed project.
15. **Development Timetable.** The Draft EA will include the anticipated development schedule for the proposed project.

8110-03

Letter to Mr. Souki

October 19, 2012

Page 6



3. According to the County of Kaua'i Planning Department, the final recommendations of the County of Kaua'i Important Agricultural Lands (IAL) Study have yet to be adopted, although the priority for County-led IAL designation does not include the Island School Petition Area. The majority of the adjacent Kaua'i Community College campus does not have an IAL score since the area is designated Urban Center in the County of Kaua'i General Plan. This information will be included in the Draft EA.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

A handwritten signature in black ink, appearing to read "Earl Matsukawa", written over a horizontal line.

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR

MAJOR GENERAL DARRYL D. M. WONG
DIRECTOR OF CIVIL DEFENSE

DOUG MAYNE
VICE DIRECTOR OF CIVIL DEFENSE



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
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August 30, 2012



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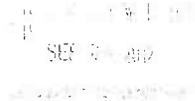
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8110-03
October 19, 2012

Mr. Doug Mayne, Vice Director of Civil Defense
State of Hawai'i
Department of Defense
Office of the Director of Civil Defense
3949 Diamond Head Road
Honolulu, Hawai'i 96816-4495

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihue District, Island of Kauai, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street
Suite 400
Honolulu, Hawaii 96826



Dear Mr Matsukawa:

Pre-Assessment Consultation for
Draft Environmental Assessment (EA) for Island School
TMK: (4) 3-8-002:016, Puhi, Lihue District, Kauai, Hawaii

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

After review of the documents provided, we find that the proposed parcel is covered by the arc of an existing warning siren.

Mitigation measures should be considered in planning and the design phase of any new construction, as mitigation prevents loss of life, minimizes loss of property, and plans for continuity of essential services. Generally, the cost of integrating mitigation measures during construction is approximately one-third the cost of post-construction retrofit.

If you have any questions please call Ms. Havinne Okamura, Hazard Mitigation Planner, at 733-4300, extension 556.

Sincerely,

DOUG MAYNE
Vice Director of Civil Defense

Dear Mr. Mayne:

Thank you for your letter dated August 30, 2012, indicating that the proposed project parcel is covered by the arc of an existing warning siren. This information will be included in the Draft EA.

We also appreciate and understand your recommendation to incorporate mitigation measures for safety and protection of property and essential services to Island School for consideration in the future facility planning and implementation.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



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

September 14, 2012

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:
12-152
DEA Island School



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8110-03
October 19, 2012

Ms. Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office Manager
State of Hawai'i
Department of Health
Environmental Health Administration
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: Pre-Assessment Consultation, Draft Environmental Assessment for Island School, TMK: (4) 3-8-002: 016, Puhi, Lihue, Island of Kauai

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your letter, dated **August 20, 2012**. Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The United States Environmental Protection Agency (EPA) provides a wealth of information on their website including strategies to help protect our natural environment and build sustainable communities at: <http://water.epa.gov/infrastructure/sustain/>. The DOH encourages State and county planning departments, developers, planners, engineers and other interested parties to apply these strategies and environment principles whenever they plan or review new developments or redevelopments projects. We also ask you to share this information with others to increase community awareness on healthy, sustainable community design. If there are any questions about these comments please contact me.

Sincerely,

Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office Manager
Environmental Health Administration
Department of Health
919 Ala Moana Blvd., Ste. 312
Honolulu, Hawaii 96814
Phone: 586-4337
Fax: 586-4370
laura.mcintyre@doh.hawaii.gov

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihue District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Ms. McIntyre:

Thank you for your letter dated September 14, 2012 (File: 12-152 DEA Island School) indicating you have no comments at this time. The Standard Comments included on the Department's referenced website will be reviewed and adhered to, as applicable to the project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEL ABERCROMBIE
GOVERNOR OF HAWAII



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

September 25, 2012

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

LUD-4 3 8 002 016-ID1075
PreAssmnt DEA Island School



WILSON OKAMOTO
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ENGINEERS / PLANNERS / CONSULTANTS

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8110-03
October 19, 2012

Ms. Sina Pruder, P.E., Acting Chief
State of Hawai'i
Department of Health
Wastewater Branch
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Ms. Pruder:

Thank you for your letter dated September 25, 2012 (Ref: LUD-4 3 8 002 016-ID1075 PreAssmnt DEA Island School) regarding the subject project.

Wastewater service for the Island School campus is provided by Grove Farm Company, Inc.'s Puhi Wastewater Treatment Plant, a privately-owned and operated facility located southeast of the Petition Area and makai of Kaumuali'i Highway. The Draft EA will include a discussion of the wastewater system for Island School.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza Suite 400
Honolulu, Hawaii 96826



Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation Draft Environmental Assessment
Island School, 3-1875 Kaumualii Highway, Lihue, Kauai 96766
TMK (4) 3-8-002: 016

Thank you for allowing us the opportunity to review the above subject project which requests comments on the Pre-Assessment Consultation Draft Environmental Assessment for Island School. We have the following comment to provide for the subject project.

If connection to a Private or County sewer system is not available, domestic wastewater generated by the proposed project shall be handled by wastewater systems that comply with our Chapter 11-62, Hawaii Administrative Rules.

Should you have any questions, please contact our branch at telephone 586-4294 or fax to 586-4300.

Sincerely,

SINA PRUDER, P.E., ACTING CHIEF
Wastewater Branch

LM:mt

c: DOH-Environmental Planning Office (12-152), Ms. Laura McIntyre
DOH-WWB's Kaula Staff, Ms. Lori Vetter

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

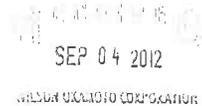
3060 Eiwa Street, Room 208
Lihue, Hawaii 96766
PHONE: (808) 274-3491
FAX: (808) 241-3535
August 29, 2012

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
ATTENTION: Mr. Earl Matsukawa, AICP



Dear Mr. Matsukawa,

After reviewing the proposed update to the Island School master plan, the Department of Land and Natural Resources, Land Division, Kauai District Branch has no objections.

Sincerely,

Marvin Mikasa
Land Agent

cc: District Files
Central Files

8110-03
October 19, 2012

Mr. Marvin Mikasa, Land Agent
State of Hawai'i
Department of Land and Natural Resources
Land Division, Kaua'i District Branch
3060 'Eiwa Street, Room 306
Lihue, Hawai'i 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhī, Līhu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Mikasa:

Thank you for your letter dated August 29, 2012, indicating that your Branch has no objections to the proposed project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCHROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

PAUL J. CONRY
INTERIM PAIST OFFICER

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF SURVEYANCE
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL ZONE
CORROSION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIKOOE ISLAND RESERVE COMMISSION
LAND
STATE PARKS



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FAX: 808-946-2253
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8110-03
October 19, 2012

Dr. Puualaokalani D. Aiu, Administrator
State of Hawai'i
Department of Land and Natural Resources
Historic Preservation Division
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhī, Līhu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

September 18, 2012

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
ematsukawa@wilsonokamoto.com

LOG NO: 2012.2605, 2012.2518
DOC NO: 1209SL15
Archaeology

Dear Mr. Earl Matsukawa:

**SUBJECT: Chapter 6E-8 Historic Preservation Review--
Pre-Assessment Consultation, Draft Environmental Assessment,
Proposed Update of the "Island School" Master Plan
Puhī Ahupua'a, Līhu'e District, Island of Kaua'i
TMK: (4) 3-8-002:016**

Thank you for the opportunity to review your document titled *Pre-Assessment Consultation, Draft Environmental Assessment (EA), Island School, Tax Map Key: (4) 3-8-002:016 Puhī, Līhu'e District, Island of Kaua'i, Hawai'i* which was received in our Kapolei office on August 21, 2012. The Island School campus consists of about 38,448 acres, which Island School seeks to reclassify from the State Agricultural District to the State Urban District, and to update its master plan to accommodate additional campus facilities. The school has constructed campus facilities on the property since relocating to the current Puhī location through the granting of several Special Permits, Use Permits, Variance Permits, and Class IV Zoning Permits. The proposed master plan includes new and expanded buildings and structures, including track, football, soccer, and baseball fields, playgrounds, a swimming pool, roads, parking, and so forth.

A review of our records indicates that no archaeological inventory survey has been conducted within the Island School property. Although the property formerly was used as agricultural land, potential exists for subsurface historic properties below the cultivation zone. SHPD recommends that ground disturbing activities associated with this reclassification and updating of the Island School Master Plan be monitored by a qualified archaeologist. We request that the applicant submit an archaeological monitoring plan that includes this more recent work to our office for review and approval; the plan should include all information as specified in Hawaii Administrative Rule §13-279-4. We will notify your office when the plan has been approved and work may proceed. Please contact Susan A. Lebo at (808) 692-8019 or Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha

Puualaokalani D. Aiu
Administrator

cc: Steve Molmen, Supervising Land Agent, DLNR
steve.molmen@hawaii.gov

Dear Dr. Aiu:

Thank you for your letter dated September 18, 2012 (Ref: LOG NO: 2012.2605, 2012.2518, DOC NO: 1209SL15 Archaeology) regarding the subject project.

An Archaeological Literature Review and Field Inspection report for the subject project has been prepared by Cultural Surveys Hawai'i, Inc. (October 2010) and submitted to and received by your department on January 11, 2011 for review. The Archaeological Literature Review and Field Inspection report will be included in the Draft EA.

We acknowledge that although the subject property was formerly used as agricultural land, the potential exists for subsurface historic properties below the cultivation zone. As recommended, ground disturbing activities associated with the proposed project will be monitored by a qualified archaeologist, and an archaeological monitoring plan will be prepared and submitted to your department for review and approval. The monitoring plan will include information as specified in Hawai'i Administrative Rule §13-279-4. This information will be included in the Draft EA.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR



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

GLENN M. OKIMOTO
DIRECTOR

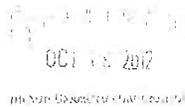
Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:

STP 8.0995

October 8, 2012

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania, Suite 400
Honolulu, Hawaii 96826



Dear Mr. Matsukawa:

Subject: Island School
Pre-Assessment for Draft Environmental Assessment
TMK: (4) 3-8-002:016

The State Department of Transportation (DOT) previously commented on the subject project in its letter STP 8.0979 dated September 24, 2012 (attached) and now offers the following supplemental comments.

A Traffic Impact Analysis Report (TIAR) should be prepared for our review. We reserve further comment until the TIAR has been submitted and reviewed. A copy of the TIAR should also be provided to the Highways Division, Kauai District Engineer for review.

The DOT appreciates the opportunity to provide comments. If there are any questions, including the need to meet with DOT staff, please contact Mr. Garrett Smith of the STP Office at 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

Attachment: Ltr. STP 8.0979 @td. 09/24/12

NEIL ABERCROMBIE
GOVERNOR



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

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:

STP 8.0979

September 24, 2012

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Island School
Pre-Assessment for Draft Environmental Assessment
TMK: (4) 3-8-002:016

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project.

DOT understands Island School is proposing to update its master plan to accommodate additional campus facilities for future expansion.

DOT appreciates the opportunity to provide comments; however, we do not have any comments at this time. Please continue to consult us on any land development projects that may have potential highway facilities impacts.

If there are any questions, including the need to meet with DOT staff, please contact Mr. Garrett Smith of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation



8110-03
October 19, 2012

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
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FAX: 808-946-2253
www.wilsonokamoto.com

Mr. Glenn M. Okimoto, Ph.D., Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Okimoto:

Thank you for your letters dated September 24, 2012 (Ref: STP 8.0979) and October 8, 2012 (Ref: STP 8.0995) regarding the subject project.

A Traffic Impact Report has been prepared for the subject project and will be included in the Draft EA. Copies of the Draft EA will be submitted to your Department and the Highways Division, Kaua'i District for review.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Bernard P. Carvalho, Jr.
Mayor



Gary K. Heu
Managing Director

DEPARTMENT OF PUBLIC WORKS
Solid Waste Division
County of Kauai, State of Hawaii
4444 Rice Street, Suite 275, Lihue, Hawaii 96766
TEL (808) 241-4839 FAX (808) 241-6887
September 4, 2012

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826
Attention: Mr. Earl Matsukawa

SUBJECT: *Proposed Island School Master Plan Update*

Dear Mr. Matsukawa,

We acknowledge receipt of your letter regarding the proposed Island School master plan update. We understand that the project is subject to an Environmental Assessment, and as part of that process, you are soliciting our comments. The Division of Solid Waste Management (DSWM) has prepared the following recommendations based on the key objective to divert recyclable and salvageable material from the landfill to the greatest extent possible.

The DSWM recommends the Owner develop and submit, for DSWM for approval, a project specific Solid Waste Management Plan, which includes Sections to address Construction and Demolition Debris Diversion and Operations Phase Recycling for solid waste generated on the property.

The Construction and Demolition Debris Diversion section should identify all materials to be managed during the construction phase of the project, and for each material, provide the estimated quantity, and the proposed method of diversion or disposal. The section should also describe a method for tracking the disposition of debris materials during the course of the project for inclusion in a final report summarizing debris diversion and disposal activities.

On a related note, the County Public Works Department is in the process of drafting an ordinance that will require all permitted construction projects exceeding \$100,000 in value to develop and implement Construction and Demolition Debris Diversion Plans, and to provide final reports on such projects. Designated recyclable materials specified by ordinance shall be recycled at a rate of 90%.

Consistent with the County's Zero Waste Resolution, the Operations Phase Recycling section should describe an ongoing recycling program for the Island School including expansion

An Equal Opportunity Employer

Wilson Okamoto Corporation
Master Plan Update for Island School
September 4, 2012
Page 2 of 2

facilities. The section should include information on collection, anticipated processing and transport methods, and destination facilities for all items anticipated to be diverted from the landfill.

The applicant's plan should demonstrate compliance with Section 21-3.3 and Section 21-7.3 of the Kauai County Code 1987 as amended which restrict disposal of certain solid waste materials generated by business, industrial, and other nonresidential sources from the County landfill including green waste, cardboard, metals, liquids, hazardous wastes, tires, and LCD and CRT monitors.

We understand that Island School has a commitment to Zero Waste principles, and implements such programs on campus already. The recommendations above are consistent with the school's existing philosophies and activities. Should you have questions, please contact Allison Fraley at (808) 241-4837.

Sincerely,

Handwritten signature of Troy Tanigawa in black ink.

TROY TANIGAWA, P.E.
Environmental Services
Management Engineer

Concur:

Handwritten signature of Larry Dill in black ink.

LARRY DILL, P.E.
County Engineer

af/tkt

cc: Environmental Services Officer
Planning Department



8110-03
October 19, 2012

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

Mr. Troy Tanigawa, P.E., Environmental Services Management Engineer
County of Kaua'i
Department of Public Works
Division of Solid Waste Management
4444 Rice Street, Suite 275
Līhu'e, Hawai'i 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Līhu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Tanigawa:

Thank you for your letter dated September 4, 2012 regarding the subject project.

During construction of the project, a trash management and recycling program will be developed and implemented to minimize solid waste disposal at the County's Kekaha Landfill. This information will be included in the Draft EA.

The Draft EA will also include a discussion of the existing and proposed solid waste recycling, diversion and disposal programs and practices of Island School.

We acknowledge that the County Department of Public Works (DPW) is in the process of drafting an ordinance that will require all permitted construction projects exceeding \$100,000 in value to develop and implement Construction and Demolition Debris Diversion Plans, and to provide final reports on such projects.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

8110-03
August 20, 2012



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

Mr. Edward Tschupp, Chief
County of Kaua'i
Department of Public Works
Wastewater Management Division
4444 Rice Street, Suite 500
Lihu'e, HI 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Tax Map Key: (4) 3-8-002: 016
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i

Dear Mr. Tschupp:

On behalf of Island School, Petitioner, Wilson Okamoto Corporation is currently preparing a Draft Environmental Assessment (EA) pursuant to Chapter 343, Hawai'i Revised Statutes (HRS) for the proposed update of the Island School master plan located on a 38.448-acre campus in Puhi, Lihu'e District, Island of Kaua'i. A Project Summary, Location Map, Tax Map, State Land Use Districts Map, County of Kaua'i General Plan Land Use Map, and Conceptual Master Site Plan of the proposed project are enclosed for your information.

The proposed project is subject to Chapter 343, HRS and Chapter 200 of Title 11, Department of Health Administrative Rules since a County General Plan Amendment is required.

As part of the EA process, we are soliciting comments you may have on the proposed project. Please submit your written comments to:

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawai'i 96826
ATTENTION: Mr. Earl Matsukawa, AICP

We would appreciate your written comments by September 21, 2012. Comments may also be faxed to our office at (808) 946-2253.

Should you have any questions, please call me at (808) 946-2277.

Sincerely,

Earl Matsukawa, AICP
Project Manager

Enclosures

cc: Mr. David Pratt, Island School



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
October 26, 2012

Mr. Edward Tschupp, Chief
County of Kaua'i
Department of Public Works
Wastewater Management Division
4444 Rice Street, Suite 500
Lihu'e, Hawai'i 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Tschupp:

Thank you for your comments dated October 26, 2012 indicating that the proposed project is not in a County sewer service area.

Wastewater service for the Island School campus is provided by Grove Farm Company, Inc.'s Puhi Wastewater Treatment Plant, a privately-owned and operated facility located southeast of the Petition Area and makai of Kaunuaui'i Highway. The Draft EA will include a discussion of the wastewater system for Island School.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

COMMENTS:

PROPOSED PROJECT IS NOT IN
A COUNTY SEWER SERVICE AREA.
APPLICANT SHALL COMPLY WITH
REQUIREMENTS OF STATE DEPT.
OF HEALTH FOR WASTEWATER.

ESK 10/26/12

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director



KAUAI CIVIL DEFENSE AGENCY
3990 Kaana St., Suite 100, Lihue, Hawaii 96766
TEL (808) 241-1800 FAX (808) 241-1860

September 4, 2012

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826
ATTN: Mr. Earl Matsukawa, AICP

RE: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Tax Map Key: (4) 3-8-002:016
Puhi, Lihue District, Island of Kauai, Hawaii

Dear Mr. Matsukawa:

Thank you for allowing me to comment on the Draft Environmental Assessment for the proposed update of the Island School master plan located in Puhi, Kauai, Hawaii. I have no comment to this proposed project.

If you have any questions, please call me at 241-1800. Thank you.

Sincerely,


Theodore A. Daligdig, III
Civil Defense Manager

Theodore A. Daligdig, III
Manager, Civil Defense

RECEIVED
SEP 07 2012



1907 South Beretania Street
Arlisian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
October 19, 2012

Mr. Theodore A. Daligdig, III, Civil Defense Manager
County of Kauai
Kauai Civil Defense Agency
3990 Ka'ana Street, Suite 100
Lihue, Hawaii 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihue District, Island of Kauai, Hawaii
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Daligdig:

Thank you for your letter dated September 4, 2012, indicating that you have no comment to the proposed project.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,


Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Earl Matsukawa

From: Daryl Date [DDate@kauai.gov]
Sent: Wednesday, September 19, 2012 9:04 AM
To: Earl Matsukawa
Subject: Island School
Mr. Earl Matsukawa

In response to your request for comments for the draft environmental assessment for the Island School expansion project, the Kaua'i Fire Department would like to inform you that the current adopted fire code is the 2006 NFPA 1 Uniform Fire Code. Areas of concern that will be looked at will be fire department access, fire alarm systems, and fire protection such as on-site fire hydrants.

Should you have any questions please call.

Daryl Date

Fire Prevention Captain
Kaua'i Fire Department
4444 Rice St., Suite 315
Lihu'e, HI 96766
Ph. 808-241-4982
Cell: 808-645-6353
Fax: 808-241-6508



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
October 19, 2012

Mr. Daryl Date, Fire Prevention Captain
County of Kaua'i
Fire Department
4444 Rice Street, Suite 315
Lihu'e, Hawai'i 96766

Subject: Pre-Assessment Consultation
Draft Environmental Assessment (EA)
Island School
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Date:

Thank you for your comments sent via e-mail dated September 19, 2012 regarding the subject project.

We acknowledge that the current adopted fire code is the 2006 NFPA 1 Uniform Fire Code, and that the areas of concern will include Fire Department access, fire alarm systems, and fire protection such as on-site fire hydrants.

Your letter, along with this response, will be included in the forthcoming Draft EA. We appreciate your participation in the pre-assessment consultation review process.

Sincerely,

A handwritten signature in black ink, appearing to read "Earl Matsukawa", written over a white background.

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Draft Environmental Assessment Consultation Correspondence



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawaii 96850



DEC 26 2012

In Reply Refer To:
2013-TA-0052

RECEIVED
DEC 28 2012

WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

Subject: Technical Assistance for the Island School Master Plan Draft Environmental Assessment, Kauai

Dear Mr. Matsukawa:

The U.S. Fish and Wildlife Service (Service) received your letter on November 20, 2012, requesting our comments to the draft Environmental Assessment (EA) for the proposed update to the Island School Master Plan. The Island School campus is located on a 38.5-acre parcel in Puhi on the island of Kauai [TMK (4) 3-8-002:016]. The update to the school's Master Plan will reclassify the campus parcel from State Agricultural District to State Urban District and amend the County of Kauai General Plan Land Use Map from the 'Agricultural' to 'Urban Center' designation. The purpose of this reclassification is to allow improvements within the Island School Master Plan to be implemented without a State Special Permit. The updated Master Plan includes new and expanded classrooms and facilities, recreational sport fields, outdoor pool, residences, a 200 kilowatt solar facility, 145 new parking spaces and additional infrastructure. We thank Mr. Earl Matsukawa for the two-day time extension to December 26, 2012, to submit our comments.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Program and the Hawaii GAP Program. Our data indicate that the federally endangered Hawaiian stilt (Himantopus mexicanus knudseni), endangered Hawaiian moorhen (Gallinula chloropus sandvicensis), endangered Hawaiian coot (Fulica alai), endangered Hawaiian duck (Anas wyvilliana) (collectively referred to as Hawaiian waterbirds), endangered Hawaiian goose (Branta sandvicensis), and endangered Hawaiian hoary bat (Lasiurus cinereus semotus) may be present in the vicinity of the proposed site. Additionally, the federally threatened Newell's shearwater (Puffinus auricularis newellii), endangered Hawaiian petrel (Pterodroma sandwichensis), and a candidate for listing, the band-rumped storm-petrel (Oceanodroma castro) (collectively referred to as Hawaiian seabirds), may fly over the project area when traversing between the ocean and mountainous breeding colonies.



Mr. Earl Matsukawa

According to our data and your draft EA, several federally listed species have been observed on the proposed project site or traverse the site as in the case of Hawaiian seabirds. From the information presented, it appears there will be the potential for adverse effects to several listed species or their habitats. It is unclear if there is a Federal nexus associated with this project. If there is a Federal nexus (funding) of the proposed school, then that agency must consult with the Service per section 7(a)(2) of the Endangered Species Act (ESA) if the implementation of the proposed project may affect a listed species. If no Federal agency is involved with the project and implementation of the project could result in take of a listed animal species, the applicant should apply for an incidental take permit under section 10(a)(1)(B) of the ESA. In addition to a Federal incidental take permit, implementation of the plan may also require obtaining a State incidental take license. We recommend that you work with us and the State of Hawaii Department of Lands and Natural Resources-Division of Forestry and Wildlife (DOFAW) to determine if a Habitat Conservation Plan is warranted for this project.

We have enclosed project specific comments in the attached Table that provides more detailed comments regarding the draft EA and the proposed project.

We appreciate your efforts to conserve protected species. If you have questions regarding this letter, please contact Jiny Kim, Consultation and Habitat Conversation Planning Program (phone: 808-792-9400; email: jiny_kim@fws.gov).

Sincerely,

[Signature]
for Loyal Mehrhoff
Field Supervisor

cc: Director of DOFAW, State of Hawaii

Table 1. Specific Comments on the Draft EA.

Table Comment Number	Page Number (in draft EA)	Comment
1	Page 2-3, line 12	The draft EA states that sustainable strategies will include actions to “minimize light pollution, and reduce the potential for interactions of nocturnally-flying seabirds, by shielding exterior lighting within the campus.” We recommend no lights be used during the peak fallout period (September 15 through December 15). If lights cannot be eliminated due to safety or security concerns, then they should be positioned low to the ground, be motion-triggered, and be shielded and/or full cut-off. Effective light shields should be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below. If listed seabirds “fall-out” on the project site due to existing or future lighting, this is considered “take” under the ESA; the applicant must address that “take” pursuant to section 7 or 10 of the ESA.
2	Page 3-14, line 30	The draft EA states “Three of the species recorded, the Hawaiian Goose or Nēnē (<i>Branta sandvicensis</i>), Common Moorhen (<i>Galinula chloropus sandvicensis</i>), and Hawaiian Coot (<i>Fulica alai</i>) are all native and listed as endangered species under both Federal and State of Hawai‘i endangered species statutes. The Nēnē population on Kaua‘i is increasing at a fairly rapid pace, and it is likely that if this increase continues, human interactions with Nēnē will continue to rise over time on the Island. The Common Moorhen and Hawaiian Coot are relatively abundant and widespread on the Island.” If Hawaiian waterbirds or the Hawaiian goose is present on the project site and human interactions may adversely affect the birds or their nesting areas, then that impact needs to be addressed pursuant to the ESA. In addition, our data indicate the federally endangered Hawaiian stilt (<i>Himantopus mexicanus knudseni</i>) and endangered Hawaiian duck (<i>Anas wyvilliana</i>) may also be present in the vicinity of the proposed site and impacts to these species should also be assessed in your final EA.
3	Page 3-15, line 11	The draft EA states “Two other species not detected during the survey, the endangered Hawaiian Petrel (<i>Pterodroma sandwichensis</i>) and the threatened endemic sub-species of the Newell’s Shearwater (<i>Puffinus auricularis newelli</i>) have been recorded flying over the Petition Area between April and the end of November each year. Additionally, the Save Our Shearwaters Program has recovered both species from the general Petition Area on an annual basis over the past three decades. There are no nesting colonies or appropriate nesting habitat for either of these listed seabird species within or close to the Petition Area.” Outdoor lighting, such as nighttime construction and street lights, does adversely impact listed and migratory seabird species. Seabirds fly at night and are attracted to artificially-lighted areas, which can result in disorientation and subsequent fallout due to exhaustion or collision with objects such as utility lines, guy-wires, and towers that protrude above the vegetation layer. Once grounded, they are vulnerable to predators and are often struck by vehicles along roadways. Any increase in the use of nighttime lighting, particularly during each year’s peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. Impacts to seabirds can

		be minimized by shielding outdoor lights associated with the project to the maximum extent possible, eliminating night-time construction, and providing all project staff and residents with information about seabird fallout. All lights, including street lights, should be shielded so the bulb can only be seen from below and use the lowest wattage bulbs possible. If existing power lines and cables must be altered or replaced or if nighttime construction is proposed June through December, we suggest that you contact our office so that we may assist you in developing appropriate avoidance and minimization measures. The draft EA states that Hawaiian seabirds have been recovered by Save Our Shearwaters on the proposed project area. As previously stated, “fall-out” of listed seabirds due to lighting is considered take and take exemption pursuant to section 7 or 10 of the ESA will be necessary. The final EA should address all potential impacts to seabirds and outline measures to minimize and offset those impacts.
4	Page 3-15, line 22	The draft EA states “The endangered Hawaiian hoary bat (<i>Lasiurus cinereus semotus</i>), or ‘ōpe‘ape‘a as it is known locally, was not detected during the survey, although bats have been recorded within the general Petition Area on a regular basis. Hawaiian hoary bats are widely distributed in the lowland areas on Kaua‘i, and have been documented in and around almost all areas that still have some dense vegetation.” Our data indicate that the federally endangered Hawaiian hoary bat may be present in the vicinity of the proposed site. The Hawaiian hoary bat roosts in both exotic and native woody vegetation and, while foraging, will leave young unattended in “nursery” trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the breeding season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid disturbance to Hawaiian hoary bats in the project area.
5	Page 3-16, line 23	The draft EA states “If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua‘i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.” Due to its range and foraging behavior, the endangered Hawaiian goose may be present in the vicinity of the proposed action at any time of year. If possible, construction should be timed to avoid the Hawaiian goose breeding season (October through March). A Hawaiian goose monitor may not be sufficient to avoid adverse impacts to nesting geese. We recommend working with our office and DOFAW to address potential impacts to nesting or foraging geese.
6	Page 3-16 to 3-17, line 38; Page 7-7, line 8	The draft EA states “The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. The principal threat that clearing potential roosting habitat poses to this species is between May and July when female bats may be carrying pups and potentially may not be able to flee vegetation clearing

		activities quickly enough to avoid harm. Following build-out of the project, lighting associated with the school facilities, and landscaping vegetation will likely attract volant insects to the site, which in turn will provide bats with additional foraging opportunities. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation along the periphery of the Petition Area should not occur between May 15 and July 15, when bats may be carrying young and potentially could be at risk by such clearing activities.” See our comment above regarding minimizing project impacts to Hawaiian hoary bats. All areas with trees and vegetation above 15 feet should be avoided during the bat breeding season, not just “dense” vegetation.
7	Page 4-9, line 13; Page 7-2, line 31; Page 7-6, line 24	The draft EA states “The principal potential impact that the proposed project improvements poses to Hawaiian Petrels, Newell’s Shearwaters, and Band-rumped Storm Petrels is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible nighttime construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built within the Petition Area. Should nighttime work be required in conjunction with the project construction, and during operation of the proposed project, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally-flying Hawaiian Petrels, Newell’s Shearwaters, and Band-rumped Storm Petrels with external lights and man-made structures.” Construction activities should only occur during daylight hours. Any increase in the use of nighttime lighting, particularly during peak fallout period (September 15 through December 15), could result in additional seabird injury or mortality. Again, we recommend working with our office and DOFAW to address downed seabirds associated with your project.
8	Page 4-9, line 22; Page 7-3, line 1; Page 7-6, line 33	The draft EA states “The principal potential impacts that the proposed project improvements pose to Nēnē are during construction, and following build-out with the increased student enrollment and associated school activities. If construction activity is planned to occur within the Petition Area during the Nēnē nesting season, which typically runs from October through March on Kaua’i, the Petition Area should be surveyed by a qualified biologist prior to the start of construction, to determine if any active Nēnē nesting activity is occurring on the site. If such nesting does occur during construction, it is recommended that a Nēnē monitor be on site during such activity to ensure that no harm occurs to the birds.” If possible, construction should be timed to avoid the Hawaiian goose breeding season (October through March). If a Hawaiian geese nests, forages or loafs in the project area and interactions with humans may result, then the potential for harm or harassment pursuant to the ESA must be addressed.
9	Page 4-9, line 30; Page 7-3, line 9; Page 7-6 to 7-7, line 41	The draft EA states “Due to the likelihood that the endangered Nēnē will utilize resources within the Petition Area, and the Hawaiian Petrels, Newell’s Shearwaters, and Band-rumped Storm Petrels could potentially fall onto the Petition Area during the construction phase of the project, it is recommended that an endangered species awareness program be developed to include general information on the endangered species act and protected species; specific restrictions that will be in force on the job site to protect endangered species; and protocol on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction

		personnel should be required to be familiar with the program, and its guidelines, restrictions and protocols to be followed.” This is a good suggestion and we recommend you work with us and DOFAW regarding implementation of this program.
10	Page 4-9 to 4-10, line 39; Page 7-3, line 18	The draft EA states “The principal potential impact that the proposed project improvements pose to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas of dense vegetation are likely used to some degree by roosting bats. To avoid potential impacts to the Hawaiian hoary bat, the clearing of dense vegetation along the periphery of the Petition Area should not occur between May 15 and July 15, when bats may be carrying young and potentially could be at risk by such clearing activities.” To minimize impacts to the endangered Hawaiian hoary bat, all woody plants (included in the project area) greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Site clearing should be timed to avoid all disturbance to Hawaiian hoary bats in the project area. Please see comment number 6 above.
11	Page 7-1, line 24	The draft EA states “No listed, candidate, or proposed threatened or endangered botanical and fauna species under either the Federal or State of Hawai’i endangered species statutes will be disturbed as a result of the proposed project.” This conclusion is not supported by the information included in your draft EA as endangered fauna have been identified onsite. This should be rectified in the final EA.
12	Page 7-6, line 21	The draft EA states “No listed, candidate, or proposed threatened or endangered avian or mammalian species under either the Federal or State endangered species statutes will be disturbed or adversely impacted as a result of the proposed project.” See comment number 11.



8110-03
January 25, 2013

Dr. Loyal Mehrhoff, Field Supervisor
Fish & Wildlife Service
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawai'i 96850

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihū'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Dr. Mehrhoff:

Thank you for your letter dated December 26, 2012 (2013-TA-0052). The proposed project is not utilizing federal money and lands nor does the project require federal approvals or permits. We offer the following in response to your comments:

1. As stated on page 3-16 of the subject Draft EA, should nighttime work be required in conjunction with the project construction, and during operation of the facility, all exterior lighting will be shielded to reduce the potential for interactions of nocturnally flying Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm-Petrels with external lights and man-made structures. The mitigation measures described in Section 3.6 Fauna and the Biological Survey prepared for the project (Appendix A) will be implemented to minimize and/or prevent any impacts to Hawaiian Petrels, Newell's Shearwaters, and Band-rumped Storm-Petrels.
2. The Final EA will add the Hawaiian Stilt and Hawaiian Duck as species that may also be present in the vicinity of the project site, though not recorded during our biological surveys.
3. See response no. 1.
4. As stated on page 3-16, clearing of dense vegetation along the periphery of the project site should not occur between June 1 – September 15, when bats may be carrying young and potentially could be at risk as a result of such clearing activities. We will include that woody plants beyond 15 feet should also not be cleared during this period.
5. Prior to construction, a qualified biologist will survey the area to determine if any active Nēnē nesting activity is occurring on the project site.
6. See response no. 4.
7. See response no. 1.
8. See response no. 5.
9. We acknowledge that you concur with the preparation of an endangered species awareness program for the project.
10. See response no. 4.

1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com



8110-03
Letter to Dr. Loyal Mehrhoff
January 25, 2013
Page 2 of 2

11. & 12. The recommended mitigation measures discussed in Sections 3.5 and 3.6 will be implemented to minimize or prevent any impacts to protected botanical and faunal species.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR



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

KATHRYN S. MATAYOSHI
SUPERINTENDENT

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

November 28, 2012

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

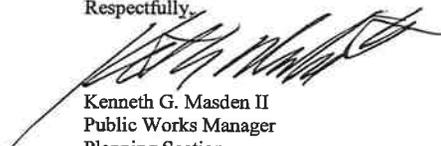
Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment Island School Updated Master Plan
Lihue, Kaua'i, TMK: 3-8-002: 016

The Department of Education has reviewed the Draft Environmental Assessment (DEA) for the Island School Updated Master Plan. We have no comment or concern with the proposed project.

Thank you for this opportunity to review the project plans. If you have any questions, please call Heidi Meeker of the Facilities Development Branch at 377-8301.

Respectfully,


Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Kathryn Matayoshi, Superintendent
Raymond L'Heureux, Assistant Superintendent, OSFSS
Duane Kashiwai, Public Works Administrator, FDB
William Arakaki, CAS, Kauai Complex Area
Leanora Kaiaokamalie, County of Kauai, Planning Department



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8110-03
January 25, 2013

Mr. Kenneth G. Masden, II, Public Works Manager
State of Hawai'i
Department of Education
Planning Section
P.O. Box 2360
Honolulu, Hawai'i 96804

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Masden:

Thank you for your letter dated November 28, 2012, indicating that your Department has no comment or concern with the proposed project.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,


Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR



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

DEC - 5 2012

Dean H. Seki
Comptroller
Marta E. Zheleznaki
Deputy Comptroller



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
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8110-03
January 25, 2013

Mr. Dean H. Seki, Comptroller
State of Hawai'i
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawai'i 96810-0119

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Seki:

Thank you for your letter dated December 5, 2012 (Ref: (P)1279.2), indicating that the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities, and that you have no comments to offer at this time.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

(P)1279.2

RECEIVED
DEC 06 2012
WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Pre-Assessment Consultation Draft Environmental Assessment
Island School, Puhi, Kauai
TMK: (4) 3-8-002: 016

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

If you have any questions, please call me at 586-0400 or have your staff call Ms. Gayle Takasaki of the Public Works Division at 586-0584.

Sincerely,

DEAN H. SEKI
Comptroller

c: Ms. Leanora Kaiakamalie, County of Kauai-Planning Dept.



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

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
File:

LUD-4 3 8 002 016-ID1142
DEA Island Sch Updated Master Plan

December 6, 2012



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Honolulu, Hawaii, 96826 USA
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FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
January 25, 2013

Mr. Marshall Lum, P.E., Acting Chief
State of Hawai'i
Department of Health
Wastewater Branch
P.O. Box 3378
Honolulu, Hawai'i 96801-3378

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihue District, Island of Kauai, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Lum:

Thank you for your letter dated December 6, 2012 (Ref: LUD-4 3 8 002 016-ID1142
DEA Island Sch Updated Master Plan), indicating that your Department has no
objections to the proposed update of Island School's master plan as domestic
wastewater from the campus will be handled by the Puhi Wastewater Treatment Plant.

Your letter, along with this response, will be included in the forthcoming Final EA. We
appreciate your time and effort in reviewing the subject EA.

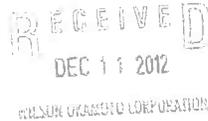
Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza Suite 400
Honolulu, Hawaii 96826



Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment
Island School Updated Master Plan
3-1875 Kaunualii Highway, Lihue, Kauai, Hawaii
TMK (4) 3-8-002: 016

Thank you for the opportunity to comment on the Draft Environmental Assessment for the Island
School Updated Master Plan.

We have no objections to the proposed update of Island School's master plan as domestic
wastewater from the campus updates will be handled by the Lihue-Puhi Wastewater Treatment
Plant.

Should you have any questions, please contact the Planning & Design Section of our branch at
phone 586-4294 or fax to 586-4300.

Sincerely,

MARSHALL LUM, P.E., ACTING CHIEF
Wastewater Branch

LM:mt

c: DOH-Environmental Planning Office, Ms. Laura McIntyre
DOH-WWB's Kauai Staff, Ms. Lori Vetter



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

December 20, 2012

Wilson Okamoto Corporation
Attention: Mr. Earl Matsukawa, AICP
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

via email: ematsukawa@wilsonokamoto.com

Dear Mr. Matsukawa,

SUBJECT: Draft Environmental Assessment (EA), Island School Updated Master Plan, TMK (4) 3-8-002: 016

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division - Kauai District; and (2) Engineering Division, on the subject matter. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

c: County of Kauai Planning Department
Attn: Ms. Leanora Kaiakamalie
Via email to: lkaiakamalie@kauai.gov



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 21, 2012

MEMORANDUM

TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Kauai District
- Historic Preservation

PERKOLDROW
NOV 28 12

11:55:09

FROM:

Russell Y. Tsuji, Land Administrator

SUBJECT:

Draft Environmental Assessment, Island School Updated Master Plan

LOCATION:

Puhi, Lihue District, Island of Kauai, TMK (4) 3-8-002:016

APPLICANT:

Wilson Okamoto Corporation for Island School, Petitioner

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document. Please submit any comments by December 19, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed:

Print Name:

Date:

M. H. S. J. A.

11/26/12

cc: Central Files



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 641
HONOLULU, HAWAII 96809

November 21, 2012

MEMORANDUM

TO: DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division - Kauai District
- Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator

SUBJECT: Draft Environmental Assessment, Island School Updated Master Plan

LOCATION: Puhi, Lihu'e District, Island of Kauai, TMK (4) 3-8-002:016

APPLICANT: Wilson Okamoto Corporation for Island School, Petitioner

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document. Please submit any comments by December 19, 2012.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: _____
 Print Name: Carty S. Chang, Chief Engineer
 Date: 11/26/12

cc: Central Files

RECEIVED
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

2012 NOV 27 P 2:50

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/SteveMolmen
REF.:DEAIslandSchoolMP
Kauai.126

COMMENTS

- (X) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The National Flood Insurance Program does not have any regulations for developments within Zone X.
- () Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone _____.
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is _____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- () Mr. Mario Siu Li at (808) 768-8098 or Ms. Ardis Shaw-Kim at (808) 768-8296 of the City and County of Honolulu, Department of Planning and Permitting.
- () Mr. Frank DeMarco at (808) 961-8042 of the County of Hawaii, Department of Public Works.
- () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
- () Ms. Wynne Ushigome at (808) 241-4890 of the County of Kauai, Department of Public Works.

- () The applicant should include water demands and infrastructure required to meet project needs. Please note that projects within State lands requiring water service from the Honolulu Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.
- () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update

() Additional Comments: _____

() Other: _____

Should you have any questions, please call Ms. Suzie S. Agraan of the Planning Branch at 587-0258.

Signed: _____
 CARTY S. CHANG, CHIEF ENGINEER
 Date: 11/26/12



8110-03
January 25, 2013

Mr. Russell Y. Tsuji, Land Administrator
State of Hawai'i
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Līhu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Tsuji:

Thank you for your letter dated December 20, 2012 regarding the subject Draft EA in which the Land Division - Kaua'i District indicated they have no objections to the project, and the Engineering Division confirmed that the project site is located in Zone X according to the Flood Insurance Rate Map (FIRM), and that the National Flood Insurance Program does not have any regulations for developments within Zone X.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

NEIL ABERCROMBIE
GOVERNOR



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

December 26, 2012

GLENN M. OKIMOTO
DIRECTOR

Deputy Directors
JADE T. BUTAY
FORD N. FUCHIGAMI
RANDY GRUNE
JADINE URASAKI

IN REPLY REFER TO:
STP 8.1069

EM



1907 South Beretania Street
Artisian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
January 25, 2013

Mr. Glenn M. Okimoto, Ph.D., Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813-5097

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Dr. Okimoto:

Thank you for your letter dated December 26, 2012 (STP 8.1069), indicating that your Department does not anticipate any significant adverse impacts to the State transportation facilities.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Island School
Draft Environmental Assessment
TMK: (4) 3-8-002:016

Thank you for requesting the State Department of Transportation's (DOT) review of the subject project. DOT understands the applicant proposes to update the school's master plan.

Given the Kaumualii Highway Widening project, fronting the subject project access is currently in place; DOT does not anticipate any significant adverse impacts to the State transportation facilities.

DOT appreciates the opportunity to provide comments. If there are any other questions, please contact Mr. Garrett Smith of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Very truly yours,

GLENN M. OKIMOTO, Ph.D.
Director of Transportation

Bernard P. Carvalho, Jr.
Mayor



Gary K. Heu
Managing Director

DEPARTMENT OF PUBLIC WORKS
County of Kauai, State of Hawaii
4444 Rice Street, Suite 275, Lihu'e, Hawaii 96766
TEL (808) 241-4992 FAX (808) 241-6604

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

December 19, 2012

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826
Attention: Mr. Earl Matsukawa, AICP

Via email only to HPR@wilsonokamoto.com

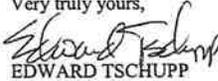
SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA) COMMENTS, ISLAND SCHOOL UPDATED MASTER PLAN (TMK 3-8-002:016)

Dear Mr. Matsukawa:

The County of Kauai, Department of Public Works, Division of Wastewater Management (Division) has reviewed your request for consultation on a Draft Environmental Assessment (DEA) for the subject project. The proposed project is not within a County sewer service area, and consequently the Division has no comments on the proposed project.

With respect to wastewater management for the project, the applicant shall comply with all requirements of the State of Hawaii, Department of Health and if applicable, the private wastewater utility serving the project.

We appreciate the request for pre-consultation on this proposed project. If you have any questions, please call, at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP
Chief, Wastewater Management Division

cc: Planning Department



1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii, 96826 USA
Phone: 808-946-2277
FAX: 808-946-2253
www.wilsonokamoto.com

8110-03
January 25, 2013

Mr. Edward Tschupp, Chief
County of Kauai
Department of Public Works
Wastewater Management Division
4444 Rice Street, Suite 275
Lihu'e, Hawaii 96766

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihu'e District, Island of Kauai, Hawaii
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Tschupp:

Thank you for your letter dated December 19, 2012 indicating that the proposed project is not in a County sewer service area and, consequently, your Division has no comments on the project.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,


Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School



MEMORANDUM

TO: LEANORA KAIAOKAMALIE, PLANNING DEPARTMENT

FROM: LARRY DILL, COUNTY ENGINEER 

VIA: TROY TANIGAWA, ESME 

SUBJECT: COMMENTS ON DRAFT EA ISLAND SCHOOL MASTER PLAN

DATE: 12/23/12

This memo is to inform you of the Department of Public Works' (DPW) receipt and review of the Draft Environmental Assessment (EA) for the Island School Updated Master Plan submitted by Wilson Okamoto Corporation.

The Draft EA contains a general description of solid waste disposal and impacts and mitigation measures that is acceptable for the purposes of the document. However, during zoning permitting, the DPW will request more detail on managing and tracking waste diversion efforts during the construction and operations phases of the project. Specific recommendations for developing a Demolition Debris Diversion and Operations Phase Recycling Plan, and for compliance with existing and planned ordinances for commercial waste diversion are provided in our September 4, 2012 correspondence to Wilson Okamoto Corporation.

We look forward to providing input in on this project in the future. Should you have any questions, please contact Allison Fraley at x4837.



1907 South Berelenia Street
 Artesian Plaza, Suite 400
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 FAX: 808-946-2253
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8110-03
 January 25, 2013

Mr. Larry Dill, P.E., County Engineer
 County of Kaua'i
 Department of Public Works
 4444 Rice Street, Suite 275
 Lihu'e, Hawai'i 96766

Attention: Mr. Troy Tanigawa, P.E., Environmental Services Management Engineer

Subject: Draft Environmental Assessment (EA)
 Island School Updated Master Plan
 Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
 Tax Map Key: (4) 3-8-002: 016

Dear Mr. Dill:

This is in response to your memorandum dated December 23, 2012 to Ms. Leanora Kaiaokamalie of the County of Kaua'i Planning Department regarding the subject Draft EA.

We appreciate your acknowledgement that the general description of solid waste disposal and associated impacts and mitigation measures of Island School, as discussed in the Draft EA, is acceptable for purposes of the document. During the subsequent zoning permit phase, we will provide further detail on managing and tracking waste diversion efforts during the construction and operation phases of the project. This would include a Demolition Debris Diversion and Operations Phase Recycling Plan, and compliance with applicable ordinances for commercial waste diversion as recommended in your Department's letter dated September 4, 2012 for the subject project.

Your memorandum, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
 Project Manager

EM/fy

cc: Mr. David Pratt, Island School



Water has no substitute.....Conserve it

EM

JAN 11 2013

January 8, 2013

Mr. Earl Matsukawa
Wilson Okamoto Corp.
1907 South Beretania Street, Suite 400
Honolulu, HI 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment (EA), Island School Updated Master Plan,
TMK: 3-8-02:016, Puhi, Kauai

This is in regard to your letter dated November 19, 2012. We have no objections to the proposed Draft Environmental Assessment. The following are our comments to the subject Draft Environmental Assessment for Island School Updated Master Plan.

Any actual subdivision or development of this area will be dependent on the adequacy of the source, storage, and transmission facilities existing at that time. At the present time, the existing source facilities are operating at capacity.

Prior to the Department of Water (DOW) recommending building permit or water service approval, the applicant will be required to:

1. Submit a formal request for water service for our review and approval. Include detailed water demand (both domestic and irrigation) calculations along with the proposed water meter size. Water demand calculations submitted by your engineer or architect should also include fixture count and water meter sizing worksheets. The Department's comments may change depending on the approved water demand calculations.
2. Prepare and receive DOW's approval of construction drawings for the necessary water system facilities and construct said facilities. These facilities may include but not be limited to:
 - a) Additional source facilities, if applicable.
 - b) The domestic and fire service connections, if applicable.
 - c) The appropriate backflow prevention device, if applicable.
3. FRC offsets may apply for source, storage, and transmission facilities that qualify for offsets, in accordance with the DOW Rules and Regulations.
4. Receive a "Certification of Completion" notice for the construction of necessary water system facilities from the DOW.

Mr. Earl Matsukawa
Wilson Okamoto Corp.
Subject: Draft Environmental Assessment (EA), Island School Updated Master Plan,
TMK: 3-8-02:016, Puhi, Kauai
January 8, 2013
Page 2

If you have any questions concerning the construction drawings, please contact Mr. Keith Aoki at (808) 245-5411. If you have any questions concerning the Certificate of Completion, please contact Mr. Dustin Moises at (808) 245-5459. For other questions, please contact Mr. Edward Doi at (808) 245-5417.

Sincerely,

Gregg Fujikawa
Chief of Water Resources and Planning Division

ED:lao
T-14379 Puhi, Draft EA for Island School Updated Master Plan- Nov 2012



8110-03
January 25, 2013

Mr. Gregg Fujikawa, Chief
Water Resources Planning Division
Department of Water
County of Kaua'i
4398 Pua Loke Street
P.O. Box 1706
Lihu'e, Hawai'i 96766

Subject: Draft Environmental Assessment (EA)
Island School Updated Master Plan
Puhi, Lihu'e District, Island of Kaua'i, Hawai'i
Tax Map Key: (4) 3-8-002: 016

Dear Mr. Fujikawa:

Thank you for your letter dated January 8, 2013. We appreciate your statement that you have no objections to the proposed project and acknowledge that water service for any additional development at Island School will depend on the adequacy of source, storage and transmission facilities available at that time. With regard to your numbered comments, we offer the following responses in their respective order:

1. A formal request for water service will be made to your department as the various master-planned projects proceed. The request will include the supporting information specified in your comment.
2. Construction drawings for the necessary water system facilities, as specified in your comment, will be submitted for DOW's approval.
3. We acknowledge that Facility Reserve Charge (FRC) offsets may apply to Island School in accordance with the DOW Rules and Regulations.
4. We acknowledge the need for a "Certification of Completion" notice from the DOW for the construction of necessary water system facilities.

Your letter, along with this response, will be included in the forthcoming Final EA. We appreciate your time and effort in reviewing the subject EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

EM/fy

cc: Mr. David Pratt, Island School

Appendix A

Biological Surveys of the
Island School Campus
Prepared by
Rana Biological Consulting, Inc.
And
AECOS Consultants
September 24, 2010

**Biological Surveys of the Island School Campus
Tax Map Key: (4) 3-8-02: 16
Puhi, Island of Kaua'i.**

Prepared by:

**Reginald E. David
Rana Biological Consulting, Inc.
P.O. Box 1371
Kailua-Kona, Hawai'i 96745**

&

**Eric Guinther
AECOS Consultants
45-309 Akimela Pl.
Kāne'ohe, Hawai'i 96744**

Prepared for:

**Wilson Okamoto Corporation
1907 South Beretania Street,
Suite 400
Honolulu, Hawai'i 96826**

September 24, 2010

Table of Contents

Introduction and Background	3
General Site Description	3
Botanical Survey Methods	6
Botanical Survey Results	6
Avian Survey Methods	14
Avian Survey Results	14
Mammalian Survey Methods	16
Mammalian Survey Results	16
Discussion	17
Botanical Resources	17
Avian Resources	17
Mammalian Resources	18
Potential Impacts to Protected Species	19
Botanical Resources	19
Nēnē	19
Hawaiian Petrel and Newell's Shearwater	19
Hawaiian Hoary Bat	19
Critical Habitat	20
Recommendations	20
Glossary	21
Literature Cited	22

Introduction and Background

The Island School is an existing Pre-Kindergarten through Grade 12 private school located on an approximately 38,448-acre site in Puhī, Island of Kaua'i. The Island School site, identified as Tax Map Key: (4) 3-8-02: 16, is located adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus (KCC). To meet increased enrollment projections, Island School has prepared a development master plan for the 38,448-acre campus, which includes new classrooms and other school facilities. This report describes the methods used and the results of the botanical, avian and mammalian surveys conducted on the subject property as part of the environmental disclosure process associated with the school; development master plan.

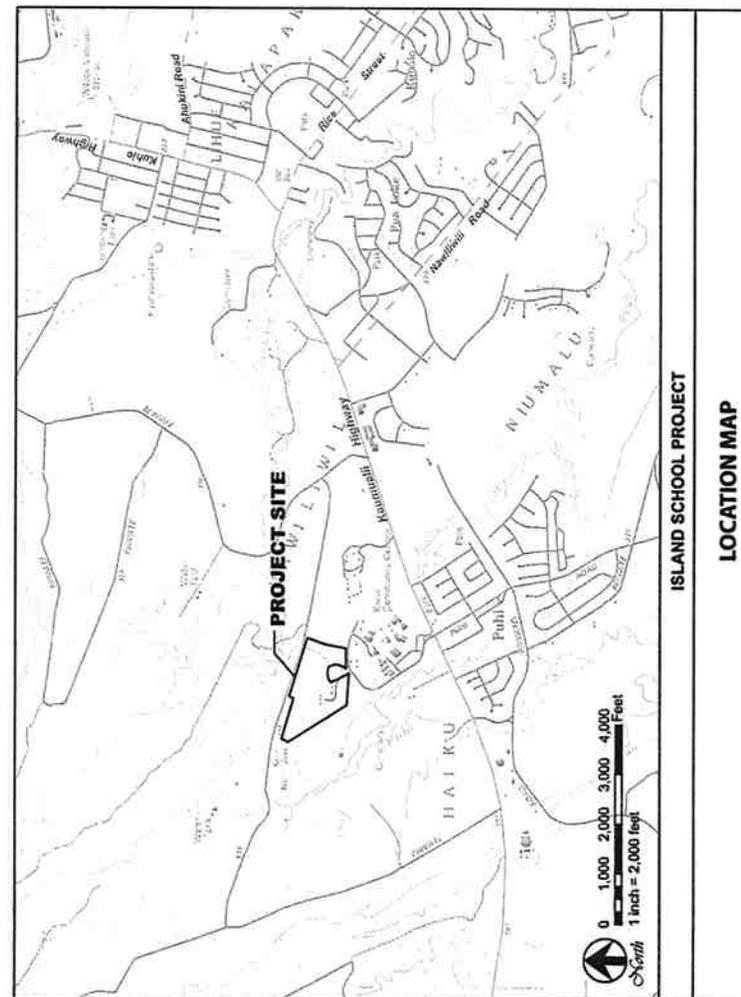
The primary purpose of the surveys was to determine if there are any botanical, avian or mammalian species currently listed, or proposed for listing under either federal or State of Hawai'i endangered species statutes within or adjacent to the study area. We were also asked to evaluate the potential impacts that the development of the project might pose to any sensitive or protected native botanical, avian or mammalian species, and to propose appropriate minimization and or mitigative measures that could be implemented to reduce or eliminate any such impacts. The federal and State of Hawai'i listed species status follows species identified in the following referenced documents, Department of Land and Natural Resources (DLNR) 1998, U. S. Fish & Wildlife Service (USFWS) 2005a, 2005b, 2010). Fieldwork was conducted on August 10 and 12, 2010.

The avian phylogenetic order and nomenclature used in this report follows the *AOU Check-List of North American Birds* (American Ornithologists' Union 1998), and the 42nd through the 51st supplements to the Check-List (American Ornithologists' Union 2000; Banks et al. 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010). Mammal scientific names follow (Tomich 1986). Plant names follow (Palmer, 2003) for ferns, (Wagner et al., 1990, 1999) for native and naturalized flowering plants, and (Staples and Herbst, 2005) for crop and ornamental plants. Place names follow (Pukui et al. 1974).

Hawaiian and scientific names are italicized in the text. A glossary of technical terms and acronyms used in the document, which may be unfamiliar to the reader, are included at the end of the narrative text.

General Site Description

The approximately 38,448 - acre site is mostly covered with the existing Island School campus which includes parking lots, paved driveways, school buildings and associated infrastructure. There are a series of sports fields to the north of the campus buildings as well as a garden, and a relatively small area of undeveloped land surrounding the north, east and southwestern edges of the site. The school is bordered to the west and south by the KCC campus (Figure 1).



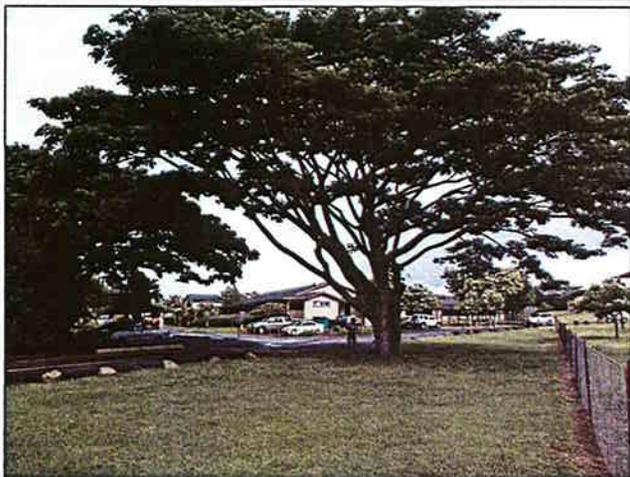


Figure 2 – Entrance to the Island School campus looking north from the front gate

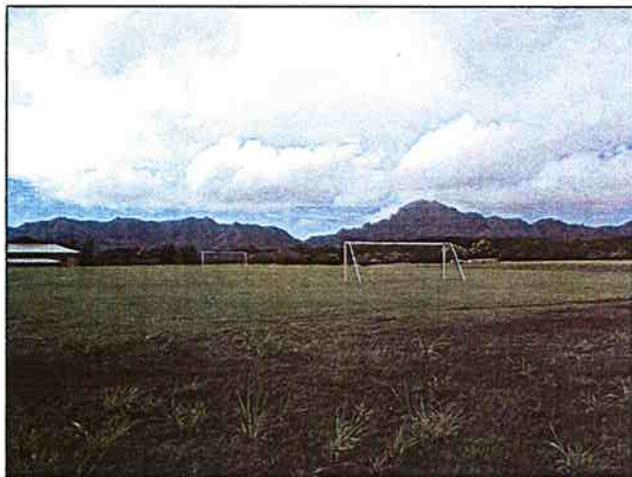


Figure 3 – Soccer field looking south from northern end of campus towards school

Environments present within the survey area can be divided into two major types: school grounds with maintained ornamental plantings, and unmaintained areas of grasses, shrubs, and trees on previously disturbed ground. The former is reflected in Figures 2 and 3. Presumably, disturbed areas that are not presently maintained were once developed as agricultural fields.

Botanical Survey Methods

The botanical survey was undertaken on August 10, 2010. A pedestrian or wandering transect method was used, entailing the botanist covering the survey area on foot and noting plant species as they were encountered. As the survey progressed, notes were made on the relative abundances of each species (e.g., rare, common, abundant, etc.). Photographs were taken, or specimens collected for closer inspection, of plants not readily identified in the field. In a few cases (typically grasses), plants could not be identified due to a lack of flowering or fruiting at the time of the survey. Conditions with respect to the dry season appeared not to be adverse, as this windward area has experienced sufficient recent rainfall to support the natural vegetation on the site.

Botanical Survey Results

A plant checklist (Table 1) was compiled from field observations, with entries arranged alphabetically under plant family names (standard practice). Included in the list are scientific name, common name, and status (whether native or non-native) for each species observed during the survey. Qualitative estimates of plant abundance are included in column 4. These are coded in the table as explained in the Legend to Table 1 and apply to observations made during the present survey. For some species, a two-level system of abundance is used: the letter-number codes indicating species that have a limited distribution (e.g., found in only one small area of the property), but present there in numbers exceeding just a few individuals. For example, an abundance rating of "R" indicates a plant encountered only once or twice during the entire survey. An "R2" indicates a plant encountered in just one or two places, but with several to many individuals present where encountered. An "R3" would be a plant seldom encountered (i.e., rare), but locally abundant in at least one of the locations where it was encountered.

The project area supports two basic vegetation areas: 1) landscaping around the existing school buildings, roads, and other appurtenances such as athletic fields, and 2) minimally or unmaintained areas representing potential campus expansion areas. Abundance scale values in Table 1 are given only for the undeveloped areas. Species observed on the landscaped campus are marked in Table 1 with note (1). If an abundance value is given for a species indicated as occurring in the landscaped area, it occurred in both environments and the abundance given is for the undeveloped land only. Species associated only with aquatic areas (irrigation ditch and ponds) are indicated in Table 1 by note (2). For plant status, Indigenous (Ind) and endemic (End) indicate native plants; naturalized (Nat), ornamental (Orn), and Polynesian introduced (Pol) indicate non-natives. The latter (so-called "canoe plants") were introduced to the Hawaiian Islands by Polynesian settlers prior

to 1778. A majority of the native species recorded is planted on the campus as ornamentals; thus, "status" reflects their relationship generally in the Hawaiian Islands and not their use in the present situation. This distinction is important, because some of the natives are rare, and at least three (*Brighamia insignis*, *Hibiscus brackenridgei*, and *H. clayi*) are listed species (USFWS, 2010). Subspecies of *Hibiscus waimeae* and *H. arnotianus* are also listed, although these subspecies are not found naturally on Kaua'i.

Table 1. Flora Recorded – The Island School, Puhi, Kaua'i

Species	Common name	Status	Abundance	Notes
FUNGI				
AGARICACEAE				
<i>Leucocoprinus fragilissimus</i> (Ravenel) Pat.			R	
FERNS and FERN ALLIES				
DENNSTAEDTIACEAE				
<i>Microlepia strigosa</i> (Thunb.) C. Presl.	<i>palapala</i>	Ind	--	1
DICKSONIACEAE				
<i>Cibotium</i> sp.	<i>hāpu'u</i>	End	--	1
NEPHROLEPIDACEAE				
<i>Nephrolepis cordifolia</i>			--	1
<i>Nephrolepis multiflora</i> L.		Nat	A	1
POLYPODIACEAE				
<i>Phymatosorus grossus</i> (Langsd. & Fisch.) Brownlie	<i>kaue</i>	Nat	U3	1
<i>Platynerium bifurcatum</i> (Cav.) C. Chr.	common staghorn fern	Nat	--	1
PSILOTAACEAE				
<i>Psilotum nudum</i> (L.) P. Beauv.	<i>moa</i>	Ind	R	
THELYPTERIDACEAE				
<i>Christella dentata</i> (Forsk.) Brownsey & Jermy	wood fern	Nat	U	
<i>Christella parasitica</i> (L.) H. Lév	wood fern	Nat	O2	
FLOWERING PLANTS				
DICOTYLEDONE				
ACANTHACEAE				
<i>Graptophyllum pictum</i> (L.) Griff.	caracature plant	Orn	--	1
<i>Thunbergia fragrans</i> Roxb.	sweet clockvine	Nat	U	
AMARANTHACEAE				
<i>Amaranthus viridis</i> L.	slender amaranth	Nat	--	1
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat	R	
ANACARDIACEAE				
<i>Shinus terebinthifolius</i> Raddi	Christmas berry	Nat	O	

Table 1 continued.

Species	Common name	Status	Abundance	Notes
ARALIACEAE				
<i>Munroidendron recemosum</i> (C. Forbes) Sherff		End	--	1
<i>Schefflera actinophylla</i> (Endl.) Harms	octopus or umbrella tree	Nat	O	1
<i>Schefflera arboricola</i> (Hayata) Merr.	dwarf umbrella tree	Orn	--	1
ASTERACEAE (COMPOSITAE)				
<i>Ageratum conyzoides</i> L.	<i>maile hohono</i>	Nat	O	
<i>Bidens pilosa</i> L.	<i>ki</i>	Nat	U2	1
<i>Calypocarpus vialis</i> Less.		Nat	--	1
<i>Conyza</i> sp.	horseweed	Nat	O	1
<i>Crassocephalum crepidioides</i> (Benth.) S. Moore		Nat	U	
<i>Erigeron bellioides</i> DC	fleabane	Nat	--	1
<i>Parthenium hysterophorus</i> L.	false ragweed	Nat	O	
<i>Emilia fosbergii</i> Nicolson	Flora's paintbrush	Nat	U	1
<i>Pluchea carolinensis</i> (Jacq.) G. Don	sourbush	Nat	U2	
<i>Sigsbeckia orientalis</i> L.	sm. yellow crownbeard	Nat	R	
<i>Sonchus oleraceus</i> L.	sow thistle	Nat	U	
<i>Sphagnetica triloba</i> (L.) Pruski	wedelia	Nat	A	1
<i>Synedrella nodiflora</i> (L.) Gaertn.	nodeweed	Nat	U2	1
<i>Tridax procumbens</i> L.	coat buttons	Nat	--	1
<i>Verbesina encelioides</i> (Cav.) Benth. & Hook.	golden crown-beard	Nat	--	1
<i>Youngia japonica</i> (L.) DC	oriental hawksbeard	Nat		1
BIGNONIACEAE				
<i>Spathodea campanulata</i> P. Beauv.	African-tulip tree	Nat	U	1
BORAGINACEAE				
<i>Cordia sebastena</i> L.	Geiger tree	Orn	--	1
<i>Cordia subcordata</i> Lam.	kou	Pol	--	1
<i>Heliotropium procumbens</i> Mill.		Nat	R	
CAMPANULACEAE				
<i>Brighamia cf. insignis</i> A. Gray	'ōlulu	End*	--	1,3
CARICACEAE				
<i>Carica papaya</i> L.	<i>papaya</i>	Nat	--	1
CARYOPHYLLACEAE				
<i>Drymaria cordata</i> (L.) Willd. ex Roem.	<i>pipili</i>	Nat	--	1
CASUARINACEAE				
<i>Casuarina equisetifolia</i> L.	ironwood	Nat	U1	
CLUSIACEAE				
<i>Calophyllum inophyllum</i> L.	<i>kamani</i>	Pol	--	1
CONVOLVULACEAE				
<i>Ipomoea batatas</i> (L.) Lam.	'uala	Pol	--	1
<i>Ipomoea obscura</i> (L.) Ker-Gawl.		Nat	R	

Table 1 continued.

Species	Common name	Status	Abundance	Notes
<i>Ipomoea triloba</i> L.	little bell	Nat	U3	1
<i>Merremia tuberosa</i> (L.) Rendle	wood rose	Nat	U	
CUCURBITACEAE				
<i>Cucurbita</i> sp.	squash	Om	R	3
EBENACEAE				
<i>Diospyros</i> sp.	<i>lama</i>	End	--	1,3
EUPHORBIACEAE				
<i>Aleurites moluccana</i> (L.) Willd.	<i>kukui</i>	Pol	--	1
<i>Chamaesyce albomarginata</i> (Torr.) & A. Gray Small	rattlesnake weed	Nat	--	1
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat	U3	
<i>Chamaesyce hypericifolia</i> (L.) Millsp.	graceful spurge	Nat	--	1
<i>Chamaesyce hyssopifolia</i> (L.) Small	--	Nat	U	1
<i>Codiaeum variegatum</i> (L.) Blume	croton	Om	--	1
<i>Macaranga tanarius</i> (L.) Müll. Arg	--	Nat	A	1
<i>Phyllanthus debilis</i> Klein ex Willd.	<i>niuri</i>	Nat	U2	1
<i>Phyllanthus tenellus</i> Roxb.	--	Nat	--	1
<i>Ricinus communis</i> L.	castor bean	Nat	--	1
FABACEAE				
<i>Acacia confusa</i> Merr.	Formosan <i>koa</i>	Nat	R	
<i>Acacia koa</i> A. Gray	<i>koa</i>	End	--	1
<i>Alysicarpus vaginalis</i> (L.) DC	Alyce clover	Nat	U	
<i>Canavalia cathartica</i> Thoures	<i>maunaloa</i>	Nat	C	1
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	Nat	C	
<i>Crotalaria incana</i> L.	fuzzy rattlepod	Nat	U	
<i>Desmanthus pernambucanus</i> (L.) Thellung	virgate mimosa	Nat	R2	
<i>Desmodium incanum</i> DC	Spanish clover	Nat	U	
<i>Desmodium triflorum</i> (L.) DC	--	Nat	C3	1
<i>Desmodium sandwicense</i> E. May	chili clover	Nat	R2	
<i>Falcataria moluccana</i> (Miq.) Barneby & Grimes	albizia	Nat	C	1
<i>Indigofera hendecaphylla</i> Jacq.	prostrate indigo	Nat	--	1
<i>Indigofera suffruticosa</i> Mill.	indigo	Nat	U2	
<i>Leucaena leucocephala</i> (Lam.) deWit	<i>koa haole</i>	Nat	U2	
<i>Mimosa pudica</i> L.	sensitive plant	Nat	C	1
<i>Neonotonia wightii</i> (Wight & Arnott) Lackey	glycine	Nat	U3	1,3
<i>Samanea saman</i> (Jacq.) Merr.	monkeypod	Nat	--	1
<i>Senna occidentalis</i> (L.) Link	coffee senna	Nat	R	3
GOODINACEAE				
<i>Scaevola taccada</i> (J. Gaert.) Roxb.	<i>naupaka kahakai</i>	Ind	--	1
LAMIACEAE				
<i>Leonotis nepetifolia</i> (L.) R.Br.	lion's ear	Nat	R2	

Table 1 continued.

Species	Common name	Status	Abundance	Notes
LAURACEAE				
<i>Cinnamomum burmanni</i> (Nees) Blume	Padang cassia	Nat	R	3
LYTHRACEAE				
<i>Cuphea carthagenensis</i> (Jacq.) J. F. Macbr.	Colombian waxweed	Nat	R	
MALVACEAE				
<i>Hibiscus clayi</i> Degener & Degener	--	End*	--	1
<i>Hibiscus arnottianus</i> A. Gray	<i>koki'o ke'okeo</i>	End	--	1
<i>Hibiscus brackenridgei</i> A. Gray	<i>m'ao hau hele</i>	End*	--	1
<i>Hibiscus kokio</i> Hilleb.	<i>koki'o 'ula'ula</i>	End	--	1
<i>Hibiscus ovalifolius</i> (Forssk.) Vahl	Rock's hibiscus	Om	--	1
<i>Hibiscus rosa-sinensis</i> L. cultivars	Chinese hibiscus	Om	--	1
<i>Hibiscus waimeae</i> A. Heller	<i>koki'o ke'oke'o</i>	End*	--	1
<i>Sida acuta</i> N.L. Burm.	--	Nat	U2	
<i>Sida rhombifolia</i> L.	Cuba jute	Nat	--	1
<i>Sida spinosa</i> L.	prickly sida	Nat	R	
<i>Sida</i> sp.	--		O	
<i>Thespesia populnea</i> (L.) Sol. ex Correa	<i>milo</i>	Ind	--	1
MORACEAE				
<i>Artocarpus altilis</i> (Z) Fosberg	'ulu; breadfruit	Pol	--	1
<i>Ficus microcarpa</i> L. fil.	Chinese banyan	Nat	--	1
MYOPORACEAE				
<i>Bontia daphnoides</i> L.	--	Om	--	1
<i>Myoporum sandwicense</i> A. Gray	<i>naio</i>	Ind	--	1
MYRTACEAE				
<i>Metrosideros polymorpha</i> Gaud.	'ohi'a	End	--	1
<i>Psidium cattleianum</i> Sabine	strawberry guava	Nat	U	
<i>Psidium guajava</i> L.	common guava	Nat	U	1
<i>Rhodomyrtus tomentosa</i> (Aitum) Hassk.	downy myrtle	Nat	O2	1
<i>Syzygium cumini</i> (L.) Skeels.	Java plum	Nat	O	1
ONAGRACEAE				
<i>Ludwigia octovalvis</i> (Jacq.) Raven	primrose willow	Nat	U2	2
OXALIDACEAE				
<i>Oxalis corniculata</i> L.	yellow wood sorrel	Pol	U	1
<i>Oxalis corymbosa</i> DC	pink wood sorrel	Nat	U	1,3
PASSIFLORACEAE				
<i>Passiflora laurifolia</i> L.	yellow granadilla	Nat	C	1
PITTOSPORACEAE				
<i>Pittosporum</i> sp.	<i>ho'awa</i>	End	--	1,3
PLANTAGINACEAE				
<i>Plantago lanceolata</i> L.	nrv-lvd plantain	Nat	U	1
<i>Plantago major</i> L.	brd-lvd plantain	Nat	--	1
POLYGALACEAE				
<i>Polygala paniculata</i> L.	bubblegum plant	Nat	U2	

Table 1 continued.

Species	Common name	Status	Abundance	Notes
PROTEACEAE				
<i>Grevillea robusta</i> A. Cunn ex R.Br.	silk oak	Nat	R	
ROSACEAE				
<i>Osteomeles anthyllidifolia</i> (Sm.) Lindl.	'ūlei	Ind	—	1
RUBIACEAE				
<i>Gardenia</i> sp.	gardenia	Orn	—	1
<i>Morinda citrifolia</i> L.	noni	Pol	—	1
<i>Paederia foetida</i> L.	maile pilau	Nat	U	
<i>Spermacoce assurgens</i> Ruiz. & Pav.	buttonweed	Nat	O2	1
SAPINDACEAE				
<i>Dodonaea viscosa</i> Jacq.	'a'ali'i	Ind	—	1
SAPOTACEAE				
<i>Chrysophyllum oliviforme</i> L.	satin leaf	Nat	R	
SCROPHULARIACEAE				
<i>Bacopa monnieri</i> (L.) Pennell	'ae'ae	Ind	—	1
SOLANACEAE				
<i>Solanum americanum</i> P. Miller	pōpolo	Pol	R2	
<i>Solanum lycopersicum</i> var. <i>carasiforme</i> (Dunal) G. Spooner	cherry tomato	Nat	—	1
THYMELAEACEAE				
<i>Wikstroemia uva-ursi</i> A. Gray	'akia	End	—	1
URTICACEAE				
<i>Pilea microphylla</i> (L.) Liebn.	artillery plant	Nat	—	1
<i>Pipturus albidus</i> (Hook. & Arnott) A. Gray	māmaki	End	—	1
VERBINACEAE				
<i>Lantana camara</i> L.	lantana	Nat	R	
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	nettle-leaved vervain	Nat	U	
<i>Verbena litoralis</i> Kunth	ōwi	Nat	U2	1
<i>Vitex rotundifolia</i> L. fil.	pōhinahina	Ind	—	1
MONOCOTYLEDONES				
AGAVACEAE				
<i>Cordyline fruticosa</i> (L.) A. Chev.	ki	Pol	--	1
<i>Cordyline fruticosa</i> (L.) A. Chev.	ti cultivars	Orn	--	1
<i>Pleomele cf. aurea</i> (H. Mann) N.E. Brown	hala pepe	End	--	1,3
ARACEAE				
<i>Colocasia esculenta</i> L.	kalo	Pol	--	1
<i>Philodendron bipinnatifidum</i> Endl.	selloum	Orn	--	1
<i>Syngonium</i> sp.	nephthytia	Orn	R	
ARECACEAE				
<i>Chamaedora</i> sp.		Orn	--	1

Table 1 continued.

Species	Common name	Status	Abundance	Notes
COCCOGRAMMACEAE				
<i>Cocos nucifera</i> L.	coconut palm	Nat	R	1
<i>Dypsis decaryi</i> (Jumelle) Beentje & Dransf.	Madagascar triangle palm	Orn	--	1
<i>Dypsis lutescens</i> (H. Wendl.) Beentje & Dransfield	golden-fruited palm	Orn	--	1
<i>Latania loddigesii</i> Mart.	blue latan palm	Orn	--	1
<i>Pritchardia thurstonii</i> F. Muell. & Drude	Fiji fan palm	Orn	--	1
<i>Pritchardia</i> sp.	—	End	--	1
<i>Ptychosperma macarthurii</i> (Veitch) J. D. Hook.	Macarthur palm	Orn		
COMMELINACEAE				
<i>Commelina diffusa</i> N. L. Burm.	dayflower	Nat	U	
CYPERACEAE				
<i>Cyperus polystachyos</i> Roth.	—	Ind	O	1
<i>Cyperus</i> sp.			R	2
<i>Kyllinga brevifolia</i> Rottb.	kili'o'opu	Nat	--	1
<i>Kyllinga nemoralis</i> (J.R. Forster & G. Forster) Dandy ex Hutchinson & Dalziel	kili'o'opu	Nat	--	1
LILIACEAE				
<i>Chlorophytum comosum</i> (Thunb.) Jacq.	spider plant	Orn	--	1
<i>Ophiopogon cf. jaburan</i> (Sieb.) Loddiges	variagated mondo	Orn	--	1
<i>Ophiopogon planiscapus</i> Nakai	mondo grass	Orn	--	
MUSACEAE				
<i>Musa hybrid</i>	banana	Orn	--	1
ORCHIDACEAE				
<i>Spathoglottis plicata</i> Blume	Philippine ground orchid	Nat	U	--
PANDANACEAE				
<i>Pandanus tectorius</i> S. Parkinson ex Z	hala	Ind	U	1
POACEAE (GRAMINEAE)				
<i>Axonopus compressus</i> (Sw.) P.Beauv.	brd-lvd. carpetgrass	Nat	--	1
<i>Chloris barbata</i> (L.) Sw.	swollen fingergrass	Nat	R2	
<i>Coix lacryma-jobi</i> L.	Job's tears	Nat	R1	2
<i>Cynodon dactylon</i> (L.) Pers.	Bermuda grass	Nat	U	1
<i>Dactyloctenium aegyptium</i> (L.) Willd.	beach wiregrass	Nat	R	1
<i>Digitaria ciliaris</i> (Retz.) Koeler	Henry's crabgrass	Nat	U	1
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	Nat	R	
<i>Eleusine indica</i> (L.) Gaertn.	wiregrass	Nat	O2	1
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	Nat	U3	1
<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult.		Nat	--	1
<i>Melinis minutiflora</i> P. Beauv.	molasses grass	Nat	C3	1
<i>Paspalum conjugatum</i> Bergius	Hilo grass	Nat	A	1
<i>Paspalum dilatatum</i> Poir.	Dallis grass	Mat	--	1
<i>Paspalum fimbriatum</i> Kunth	fimbriate paspalum	Nat	U	1
<i>Paspalum cf. scrobiculatum</i> L.		Ind	R	
<i>Paspalum</i> sp.	indet.	Nat	--	1

Table 1 continued.

Species	Common name	Status	Abundance	Notes
<i>Saccharum officinarum</i> L.	sugar cane	Pol	R	
<i>Sacciolepis indica</i> (L.) Chase	Glenwood grass	Nat	O	
<i>Setaria gracilis</i> Kunth	yellow foxtail	Nat	R	
<i>Sporobolus cf. africanus</i> (Poir.) Robyns & Tournay	smutgrass	Nat	O3	1
<i>Urochloa maxima</i> (Jacq.) Webster	Guinea grass	Nat	A	1
<i>Urochloa mutica</i> (Forsk.) Nguyen	California grass	Nat	O3	1,2
ZYNGIBERACEAE				
<i>Hedychium flavescens</i> N. Carey ex Roscoe	yellow ginger	Orn	--	1
<i>Zingiber zerumbet</i> (L.) Sm.	'awapuhi	Pol	--	1

Legend to Table 1

Status = distributional status

- End. = endemic; native to Hawai'i and found naturally nowhere else.
 End* = species is listed as threatened or endangered (USFWS, 2010).
 Ind. = indigenous; native to Hawai'i, but not unique to the Hawaiian Islands.
 Nat. = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
 Orn. = exotic, ornamental or cultivated crop; plant not naturalized (not well-established outside of cultivation).
 Pol. = Polynesian introduction; brought to the Hawaiian Islands before 1778.

Abundance = occurrence ratings for plants on property in August 2010

- R - Rare - only one or two plants seen.
 U - Uncommon - several to a dozen plants observed.
 O - Occasional - found regularly, but not abundant anywhere.
 C - Common - considered an important part of the vegetation and observed numerous times.
 A - Abundant - found in large numbers; may be locally dominant.
 AA - Abundant - very abundant and dominant; defining vegetation type.
 Numbers (as in R3) offset occurrence ratings (1 - several plants; 2 - many plants; 3 - abundant in a limited area) in cases where distribution across the survey area may be limited, but individuals seen are more than indicated by the occurrence rating alone.

Notes:

- <1> Developed campus (abundance, if given, relates to the presence on undeveloped land)
 <2> Associated with water features (irrigation canals, ponds)
 <3> Plant lacking flowers or fruit; identification uncertain.

In all, one mushroom, nine ferns and 167 species of flowering plants were recorded in the Island School survey area (Table 1). Considering only those flowering plants and ferns found outside the landscaped areas (95 species), only four are natives - 4 percent, all four are indigenous to the Hawaiian Islands and relatively common in the lowlands. No endemics were recorded except as part of the landscaping.

The vegetation found in the undeveloped parts of the property consists of mixed areas of moderately open to closed forest, shrubland, and grassland. Forest tends to predominate, with mostly mature macaranga (*Macaranga tanarius*) and albizia (*Falcataria moluccana*) trees. Other conspicuous but generally not numerous species are Christmas berry (*Schinus terebinthifolius*), octopus plant (*Schefflera actinophylla*), and Java plum (*Syzygium cumini*). Ground cover and understory shrubs and vines varied considerably from place to place. Additional detail on the vegetation in this area is provided in David and Guinther (2010).

Avian Survey Methods

Four avian count stations spaced approximately equidistant from each other were sited within the campus. Eight-minute point counts were made at each station. Stations were each counted once. Field observations were made with the aid of Leica 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated in the early morning hours, the peak of daily bird activity. Additionally, we conducted two 30-minute time dependant waterbird counts at the reservoir which is located immediately adjacent to the entrance driveway but which is not included in this proposed project, but from which waterbirds wander onto the property as is evidenced by the recording of waterbirds in the middle of the road during avian point counts. Time not spent counting stations was used to search the rest of the site for species and habitats not detected during count sessions.

Avian Survey Results

A total of 221 individual birds of 22 species, representing 16 separate families, were recorded during station counts (Table 2). Three of the species recorded, Hawaiian Goose, or Nēnē (*Branta sandvicensis*), Common Moorhen (*Gallinula chloropus sandvicensis*), and Hawaiian Coot (*Fulica alai*) are listed as endangered species under both Federal and State of Hawai'i endangered species statutes. One other species recorded, Pacific Golden-Plover (*Pluvialis fulva*), is an indigenous migratory shorebird species. And one other, Black-crowned Night-Heron (*Nycticorax nycticorax hoactli*) is an indigenous resident breeding species. The remaining 17 species recorded are all considered to be alien to the Hawaiian Islands.

Avian diversity and densities were in keeping with the highly manicured nature of the bulk of the site, and it's location in the lowlands of the Island of Kauai. Three species, Chestnut Munia (*Lonchura atricapilla*), Zebra Dove (*Geopelia striata*), and Common Myna (*Acridotheris tristis*), accounted for slightly less than 52 percent of all birds recorded during station counts. The most commonly recorded species was Chestnut Munia, which accounted for slightly more than 21 percent of the total number of individual birds recorded. An average of 55 birds were detected per station count.

Table 2 - Avian Species Detected - Island School Campus

Common Name	Scientific Name	ST	RA
ANSERIFORMES			
ANATIDAE - Ducks, Geese & Swans			
Anserinae - Geese & Swans			
Hawaiian Goose (Nēnē)	<i>Branta sandvicensis</i>	EE	2.00

Table 2 continued.

Common Name	Scientific Name	ST	RA
GALLIFORMES			
PHASIANIDAE - Pheasants & Partridges			
Phasianinae - Pheasants & Allies			
Black Francolin	<i>Francolinus francolinus</i>	A	0.50
Red Junglefowl	<i>Gallus gallus</i>	A	4.25
CICONIIFORMES			
ARDEIDAE - Herons, Bitterns & Allies			
Cattle Egret	<i>Bubulcus ibis</i>	A	1.75
Black-crowned Night-Heron	<i>Nycticorax nycticorax hoactli</i>	IR	0.25
GRUIFORMES			
RALLIDAE - Rails & Allies			
Common Moorhen	<i>Gallinula chloropus sandvicensis</i>	EE	0.5
Hawaiian Coot	<i>Fulica alai</i>	EE	0.5
CHARADRIIFORMES			
CHARADRIIDAE - Lapwings & Plovers			
Charadriinae - Plovers			
Pacific Golden-Plover	<i>Pluvialis fulva</i>	IM	0.25
COLUMBIFORMES			
COLUMBIDAE - Pigeons & Doves			
Rock Pigeon	<i>Columba livia</i>	A	0.25
Spotted Dove	<i>Streptopelia chinensis</i>	A	0.75
Zebra Dove	<i>Geopelia striata</i>	A	9.75
PSITTACIFORMES			
PSITTACIDAE - Lories Parakeets, Macaws & Parrots			
Psittacinae - Typical Parrots			
Rose-ringed Parakeet	<i>Psittacula krameri</i>		0.25
PASSERIFORMES			
CETTIIDAE - Cettia Warblers & Allies			
Japanese Bush-Warbler	<i>Cettia diphone</i>	A	0.75
ZOSTEROPIDAE - White-eyes			
Japanese White-eye	<i>Zosterops japonicus</i>	A	4.25
TIMALIIDAE - Babblers			
Hwamei	<i>Garrulax canorus</i>	A	0.25
STURNIDAE - Starlings			
Common Myna	<i>Acridotheres tristis</i>	A	7.25
EMBERIZIDAE - Emberizids			
Red-crested Cardinal	<i>Paroaria coronata</i>	A	1.75

Table 2 continued.

Common Name	Scientific Name	ST	RA
CARDINALIDAE - Cardinals Saltators & Allies			
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	1.00
FRINGILLIDAE - Fringilline And Cardueline Finches & Allies			
Carduelinae - Carduline Finches			
House Finch	<i>Carpodacus mexicanus</i>	A	2.75
PASSERIDAE - Old World Sparrows			
House Sparrow	<i>Passer domesticus</i>	A	1.25
ESTRILDIDAE - Estrildid Finches			
Estrildinae - Estrildine Finches			
Nutmeg Mannikin	<i>Lonchura punctulata</i>	A	5.50
Chestnut Munia	<i>Lonchura atricapilla</i>	A	11.75

Key to Table 2.

ST	Status
EE	Endangered Endemic species -
A	Alien species - introduced to Hawai'i by humans, and have become established in the wild
IM	Indigenous Migratory species -
RA	Relative Abundance: Number of birds detected divided by the number of count stations (4)

During the time dependant waterbird counts we recorded three Common Moorhen, and three Hawaiian Coots. Both species were represented by a pair of adult birds and a sub-adult, indicating that successful nesting is occurring either at the pond or within one of the 'auwai's that run through portions of this site and the adjacent Kaua'i Community College property.

Mammalian Survey Methods

With the exception of the endangered Hawaiian hoary bat (*Lasius c. c. semotus*), or 'ōpe'ape'a as it is known locally, all terrestrial mammals currently found on the Island of Kaua'i are alien species, and most are ubiquitous. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the project area.

Mammalian Survey Results

Three mammalian species were detected during the course of this survey. One dead cat (*Felis c. catus*) was encountered on the eastern side of the playing field. Tracks and sign of both dog (*Canis f. familiaris*) and pig (*Sus s. scrofa*) were observed in several locations within the study area. The endangered Hawaiian hoary bat was not seen during the course of this survey.

No mammalian species protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected during the course of this survey (DLNR 1998, USFWS 2005a, 2005b, 2010).

Discussion

Botanical Resources

The proposed expansion area for Island School is devoid of botanical resources that would merit special concern. All species are common to lowland windward Kaua'i, nearly exclusively non-native, and not requiring or deserving of preservation on this property. Landscaping after completion of project building plans would hold more promise for creating valuable botanical resources than the present weedy growth. The two most common trees, macaranga and albizia, are fast growing species that do not make good landscaping trees, particularly in park and school ground settings, because of their tendency to shed large branches in moderately strong winds.

Avian Resources

The findings of the avian survey are consistent with the location of the property, and the habitat present on the site. Additionally, the findings are consistent with at least one other avian survey conducted on the Kaua'i Community College campus, which is located immediately adjacent to the Island School site (David and Guinther 2010).

Five of the 22 avian species detected during the course of this survey, Hawaiian Goose, Nēnē, Common Moorhen, Hawaiian Coot, Pacific Golden-Plover and Black-crowned Night-Heron are native species. Nēnē, Common Moorhen and Hawaiian Coot are listed as endangered species under both the state and federal endangered species statutes. We recorded a total of eight separate Nēnē, and three each Common Moorhen and Hawaiian Coot on the site. The Nēnē population on Kaua'i is increasing at a fairly rapid pace, and is likely that if this increase continues that human - Nēnē interactions will continue to rise on the Island over time. Common Moorhen and Hawaiian Coot are relatively abundant and wide spread on the Island of Kaua'i. They can be found in association with just about any kind of standing or running water no matter how ephemeral in nature. We also recorded one Pacific Golden-Plover during station counts. This species is an indigenous migratory shorebird species that nests in the high Arctic during the late spring and summer months, returning to Hawai'i and the Tropical Pacific to spend the fall and winter months each year. They usually leave Hawai'i for their trip back to the Arctic in late April or the very early part of May each year. The remaining 17 avian species detected during this survey are all considered to be alien to the Hawaiian Islands (Table 2).

Although not detected during this survey, it is probable that the Hawaiian endemic sub-species of the Short-eared Owl, or Pueo (*Asio flammeus sandwichensis*) use resources in the

general project area, as they are regularly seen foraging over open fields in the low-to-mid elevation areas on the Island (David 2010).

Two other species not detected during this survey, Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened endemic sub-species of the Newell's Shearwater (*Puffinus auricularis newelli*) have been recorded over-flying the project site between April and the end of November each year (David 1995, Morgan *et al.*, 2003, 2004, David and Planning Solutions 2008). Additionally, the Save Our Shearwaters Program has recovered both species from the general project area on an annual basis over the past three decades (Morgan *et al.*, 2003, 2004, David and Planning Solutions 2008, DLNR, Division of Forestry and Wildlife (DOFAW) 2009).

The petrel is listed as endangered, and the shearwater as threatened under both federal and State of Hawai'i endangered species statutes. The primary cause of mortality in both Hawaiian Petrels and Newell's Shearwaters is thought to be predation by alien mammalian species at the nesting colonies (USFWS 1983, Simons and Hodges 1998, Ainley *et al.*, 2001). Collision with man-made structures is considered to be the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. When disoriented, seabirds often collide with manmade structures, and if they are not killed outright, the dazed or injured birds are easy targets of opportunity for feral mammals (Hadley 1961, Telfer 1979, Sincock 1981, Reed *et al.*, 1985, Telfer *et al.*, 1987, Cooper and Day 1994, 1998, Podolsky *et al.*, 1998, Ainley *et al.*, 2001).

There are no nesting colonies nor appropriate nesting habitat for either of these listed seabird species within or close to the school site. The closest currently active Newell's Shearwater colony is located above Kalāheo, which is located approximately 9.5-kilometers southwest of the site (David *et al.*, 2002). The closest known Hawaiian Petrel nesting colonies are located at the back of Limahuli, Wainiha, Lumaha'i, and probably Hanalei Valleys (David *et al.*, 2002, DOFAW 2009).

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and the habitat currently present on the site. Although no Hawaiian hoary bats were detected during the course of this survey, bats have been recorded within the general project area, on a regular basis (David 2010). Hawaiian hoary bats are widely distributed in the lowland areas on the Island of Kaua'i, and have been documented in and around almost all areas that still have some dense vegetation (Tomich 1986, USFWS 1998, David 2010).

Although no rodents were detected during the course of this survey, it is likely that the four established alien *muridae* fund on Kaua'i, roof rat (*Rattus r. rattus*), Norway rat (*Rattus norvegicus*), European house mouse (*Mus musculus domesticus*) and possibly Polynesian rats (*Rattus exulans hawaiiensis*) use various resources found within the general project

area. All of these introduced rodents are deleterious to native ecosystems and the native faunal species dependant on them.

Potential Impacts to Protected Species

Botanical Resources

No plant species currently listed as endangered, threatened, or proposed for listing under either the federal or the State of Hawai'i's endangered species programs were recorded as growing naturally on the Island School property. Several listed species observed were ornamentals in a Hawaiian native plant garden. Therefore, it is not expected that proposed expansion of the campus will result in deleterious impacts to any plant species currently listed as endangered, threatened, or proposed for listing under either federal or State of Hawai'i endangered species statutes (DLNR 1998, USFWS 2005, 2010).

Nēnē

The principal potential impacts that the additional development of the site poses to Nēnē is during the construction phase of the project, and following build-out by the increased number of humans and associated school activities. Although Nēnē on Kaua'i tend to show a remarkable disregard of human activity, fatalities have occurred on construction sites, along roads, and numerous nests have failed due to human disturbance and as a direct result of predators taking eggs and goslings (David 2010, Ebbin Moser + Skaggs, and Rana Biological Consulting, Inc. 2010).

Hawaiian Petrel and Newell's Shearwater

The principal potential impact that the development of the site poses to Hawaiian Petrels and Newell's Shearwaters is the increased threat that birds will be downed after becoming disoriented by outdoor lighting associated with possible night-time construction activity, and following build-out with exterior lighting associated with the structures and appurtenances that are built on the property.

Hawaiian Hoary Bat

The principal potential impact that the further development of the site poses to Hawaiian hoary bats is during the clearing and grubbing phases of the project. Areas that currently have dense vegetation are likely used to some degree by roosting bats; normally it is not thought that the availability of roosting habitat is a limiting factor in this species survival (Bonaccorso 2009). The principal threat that clearing potential roosting habitat poses to this species is between May and July when female bats may be carrying pups and potentially may not be able to flee vegetation clearing activity quickly enough to avoid harm (Bonaccorso 2005, 2007, 2009).

Following build-out of the project, lighting associated with the school, and landscaping vegetation will likely attract volant insects to the site, which in turn will provide bats with additional foraging opportunities.

Critical Habitat

There is no federally delineated Critical Habitat present on the school site or adjacent to the property. Thus the further development of the school will not result in impacts to federally designated Critical Habitat. There is no equivalent statute under State law.

Recommendations

- Since it is likely that endangered Nēnē will use resources on the site, and both Newell's Shearwaters and Hawaiian Petrels may fallout onto the site during the construction phase of the project, we recommend that an endangered species awareness program be developed which includes general information on the endangered species act and protected species, specific restrictions that will be in force on the job site to protect endangered species, and a set of protocols on who, and how job site personnel will respond to any downed or injured endangered species that may occur on the site. All construction personnel should be required to be familiar with the program; it's guidelines, restrictions and protocols that will need to be followed. Similar programs have been developed and are being used at several construction project sites, and resorts on the Island of Kaua'i.
- If construction activity is planned to occur during the Nēnē nesting season, which typically runs from October through March on Kaua'i, the project site should be surveyed by a qualified biologist before the onset of the construction, to determine if any active Nēnē nesting activity is occurring on the site.
- If active Nēnē nesting does occur while construction is ongoing, it may be advisable to have a Nēnē monitor on site during such activity to ensure that no harm befalls the birds.
- If nighttime work will be required in conjunction with the construction of the project, it is recommended that lights be shielded to reduce the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures (Reed et al. 1985, Telfer et al. 1987).
- It is also recommended that all exterior lighting associated with the operation of the proposed facility be shielded so as to reduce the potential for interactions of nocturnally flying Hawaiian Petrels and Newell's Shearwaters with external lights and man-made structures (Reed et al. 1985, Telfer et al. 1987).
- It is recommended that if heavy vegetation on the periphery of the existing developed school site needs to be cleared, that clearing not occur between May 15 and July 15, when bats may be carrying young (pups) and potentially could be placed at risk by such clearing.

Glossary

Alien – Introduced to Hawai'i by humans

'*Auwai* – Irrigation flume usually left over from sugar cultivation days

Commensal – Animals that share human food and lodgings, such as rats, mice, cats and dogs.

Endangered – Listed and protected under the Endangered Species Act of 1973, as amended (ESA) as an endangered species

Endemic – Native to the Hawaiian Islands and unique to Hawai'i

Indigenous – Native to the Hawaiian Islands, but also found elsewhere naturally

muridae – Rodents, including rats, mice and voles, one of the most diverse family of mammals.

Nēnē – Hawaiian Goose (*Branta sandvicensis*) and endangered endemic species

Naturalized – A plant or animal that has become established in an area that it is not indigenous to

Nocturnal – Night-time, after dark

Ornamental – Usually referring to a plant or tree grown for its attractive appearance, usually a non-native species

Ōpe'ape'a – Endemic endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*)

Pelagic – An animal that spends its life at sea – in this case seabirds that only return to land to nest and rear their young

Phylogenetic – The evolutionary order that organisms are taxonomically arranged by

Threatened – Listed and protected under the ESA as a threatened species

Volant – Flying, capable of flight - as in flying insect.

DLNR – Hawai'i State Department of Land & Natural Resources

DOFAW – Division of Forestry and Wildlife

ESA – Federal Endangered Species Act of 1973, as amended

USFWS – United State Fish & Wildlife Service

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Appendix B

Archaeological Literature Review and
Field Inspection for the
Island School
State Land Use District Boundary Amendment Project
Prepared by
Cultural Surveys Hawai'i, Inc.
January 2013 (revised)
And
Letter from the State Department of Land and
Natural Resources, Historic Preservation Division
Dated October 26, 2012

**Archaeological Literature Review and Field Inspection
for the Island School
State Land Use District Boundary Amendment Project,
Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island
TMK: [4] 3-8-002:016**

Prepared for
Wilson Okamoto Corporation

Prepared by
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Management Summary

Reference	Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island, TMK: [4] 3-8-002:016
Date	January 2013
Project Number (s)	NAWILIWILI 5
Investigation Permit Number	The field inspection was conducted under archaeological permit number 10-10 issued by the Hawai'i State Historic Preservation Division (SHPD/DLNR), Department of Land and Natural Resources, per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Project Location	The project area consists of the 38.448 -acre Island School campus as shown on the U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e (1996) Quadrangle
Project Funding and Land Jurisdiction	The proposed project is privately funded
Agencies	SHPD/DLNR
Project Description	The Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre site in Pūhi, Island of Kaua'i. The Island School site, identified as Tax Map Key: (4) 3-8-02: 16, is located adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for the 38.448-acre campus that includes new classrooms and other school facilities.
Project Acreage	38.448 acres
Document Purpose	This archaeological literature review and field inspection study was prepared as an aid to planning. The study is intended to facilitate planning involving the State Land Use Commission and SHPD/DLNR. This revised study addresses comments in an October 26, 2012 (Log No. 2011.0117, Doc No. 1210SL44) SHPD/DLNR Chapter 6E-42 review of an earlier draft.
Fieldwork Effort	The fieldwork component of the archaeological literature review and field inspection study was accomplished on August 12, and 13, 2010, by CSH archaeologists Gerald K. Ida, B.A. and Nancine "Missy" Kamai, B.A., under the general supervision of Principal Investigator Hallett H. Hammatt, Ph.D. The fieldwork required four person-days to complete.

Summary of Findings	One site, SIHP (State Inventory of Historic Properties) # 50-30-11-2179, consisting of a total of four historic surface features related to the Lihue Plantation, was observed during the pedestrian inspection. SIHP # -2179 consists of a reservoir (Feature A) that is within the same parcel, but outside of and surrounded by the project area, and three associated irrigation ditches (Features B-D).
Recommendations	The proposed project may have an adverse effect on SIHP # 50-30-11-2179, plantation era infrastructure features. Consultation with SHPD/DLNR (October 26, 2012; Log No. 2011.0117, Doc No. 1210SL44 SHPD/DLNR Chapter 6E-42 review of an earlier draft) has led to the determination of the need for an archaeological inventory survey with additional documentation of features.

Table of Contents

Management Summary i

Section 1 Introduction 1

1.1 Project Background 1

1.2 Scope of Work 1

1.3 Environmental Setting 1

 1.3.1 Natural Environment 1

 1.3.2 Built Environment 2

Section 2 Methods 9

2.1 Document Review 9

2.2 Field Methods 9

Section 3 Background Research 10

3.1 Traditional and Historical Background 10

 3.1.1 Mythological and Traditional Accounts 10

 3.1.2 Early Historic Period 10

 3.1.3 The Māhele (Land Divisions) 13

 3.1.4 Mid- to late-1800s 14

 3.1.5 1900s 16

 3.1.6 Modern Land Use 16

3.2 Previous Archaeological Research 22

 3.2.1 Early Archaeological Studies 22

 3.2.2 Studies within or adjacent to the project area 25

Section 4 Results of Fieldwork 28

4.1 Survey Findings 28

4.2 Historic Property Description 30

 4.2.1 SIHP 50-30-11-2179 30

Section 5 Significance Assessments 35

Section 6 Summary and Recommendations 36

6.1 Summary 36

6.2 Recommendations 36

Section 7 References Cited 37

Appendix A SHPD/DLNR Correspondence A-1

List of Figures

Figure 1. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the project area.....	3
Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing the location of the project area.....	4
Figure 3. Tax Map Key 3-8-02, showing the project area.....	5
Figure 4. Plan showing existing buildings and new buildings (provided by client).....	6
Figure 5. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, with overlay of the Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating sediment types within the project area.....	7
Figure 6. Entrance to Island School, school buildings in background, view to north.....	8
Figure 7. Island School grounds, gym to left, <i>hālau</i> to right, athletic fields in foreground, view to north.....	8
Figure 8. 1878 Government Survey map by W.D. Alexander, showing location of project area.....	15
Figure 9. Portion of 1910 U.S. Geological Survey Map, Līhu'e quadrangle, showing the project area.....	17
Figure 10. Portion of 1941 Lihue Plantation Co. map showing the location of the project area primarily within field 39B and extending into 39A.....	18
Figure 11. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the project area. Note that Upper Lihue Ditch extends northeast/southwest through the project area.....	19
Figure 12. 1965 aerial photograph (from Foote et al. 1972) showing sugar cane cultivation within the project area and its vicinity.....	20
Figure 13. 1977-1978 U.S. Geological Survey aerial of Līhu'e showing the project area and its vicinity.....	21
Figure 14. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle showing previous archaeological studies in vicinity of the project area.....	24
Figure 15. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing SIHP 50-30-11-2179 and the project area boundaries.....	29
Figure 16. SIHP 2179 Feature A, reservoir adjacent to project area, view to south.....	31
Figure 17. SIHP 2179 Feature A, reservoir showing its outlet at a concrete gate frame, view to west.....	31
Figure 18. SIHP 2179 Feature B, earthen irrigation ditch, view to east.....	32
Figure 19. SIHP 2179 Feature C, earthen irrigation ditch showing mounded berms on both sides, view to northwest.....	33
Figure 20. SIHP 2179 Feature C, irrigation ditch gate frame, view to north.....	34
Figure 21. Feature D, irrigation ditch, view to east.....	34

List of Tables

Table 1. Previous Archaeological Studies Conducted within the Vicinity of the Project Area.....	22
Table 2. SIHP 50-30-11-2179 Historic Features.....	28

Section 1 Introduction

1.1 Project Background

At the request of Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. (CSH) completed an archaeological literature review and field inspection study for the Island School State Land Use State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island (Figure 1 and Figure 2). The Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre parcel in Puhī, Island of Kaua'i. The Island School campus, identified as Tax Map Key: [4] 3-8-02:16 (Figure 3), is located adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for the 38.448-acre campus that includes new classrooms and other school facilities (Figure 4).

This revised study addresses comments in an October 26, 2012 (Log No. 2011.0117, Doc No. 1210SL44) SHPD/DLNR Chapter 6E-42 review of an earlier draft.

1.2 Scope of Work

The scope of work for this archaeological literature review and field inspection study was as follows:

1. Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.
2. Limited field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites. This assessment will identify any sensitive areas that may require further investigation or mitigation before the project proceeds.
3. Preparation of a report to include the results of the historical research and the limited fieldwork with an assessment of archaeological potential based on that research, with recommendations for further archaeological work, if appropriate. It will also provide mitigation recommendations if there are archaeologically sensitive areas that need to be taken into consideration.

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is located approximately 3.2 km (kilometers; 2 miles) west of Līhu'e, *mauka* (inland) of Kaumuali'i Highway in Nāwiliwili Ahupua'a, Līhu'e District, in the southeastern quadrant of the island of Kaua'i. The parcel is fairly far inland, about 4.8 km (3 miles) from the southeastern coast. The project area is exposed to the prevailing northeast trade winds, and receives up to 254 cm (100 inches) of rainfall annually (Giambelluca et al. 1986). The project area lies on level to gently sloping lands that range from approximately 360 feet to 400 feet

above mean annual sea level with a tributary of Nāwiliwili Stream to the east. A tributary of Puhi Stream is approximately 250 meters to the west.

Project area soils predominately consist of Puhi silty clay loam, 3 to 8 percent slopes (PnB) with a ribbon of Puhi silty clay loam, 8 to 15 percent slopes (PnC), running along its southwestern boundary. Rough broken land (rRR) abuts the north boundary and extends into the northeastern portion of the project area (Figure 5).

Puhi silty clay loam consists of well-drained soils on uplands. These soils developed in material derived from igneous rock. Slope ranges primarily from 3-15 percent. The run-off of the Puhi silty clay loam is slow, creating an only slight erosion hazard. Puhi silty clay loam is used for sugar cane, pasture, pineapple, orchards, wildlife habitat, and woodland

Rough broken land (rRR) consists of very steep land broken by frequent intermittent drainage channels. Slope is 40-70 percent, runoff and geologic erosion are both rapid. (Foote et al. 1972:62, 75, 118; Sheet 22).

1.3.2 Built Environment

Development within the project area consists of existing school and administrative buildings (Figure 6 and Figure 7). The University of Hawai'i's Kaua'i Community College campus is adjacent to the south. The residential community of Puhi lies just south across Kaumuali'i Highway. The lands to the west, north and east are relatively undeveloped.

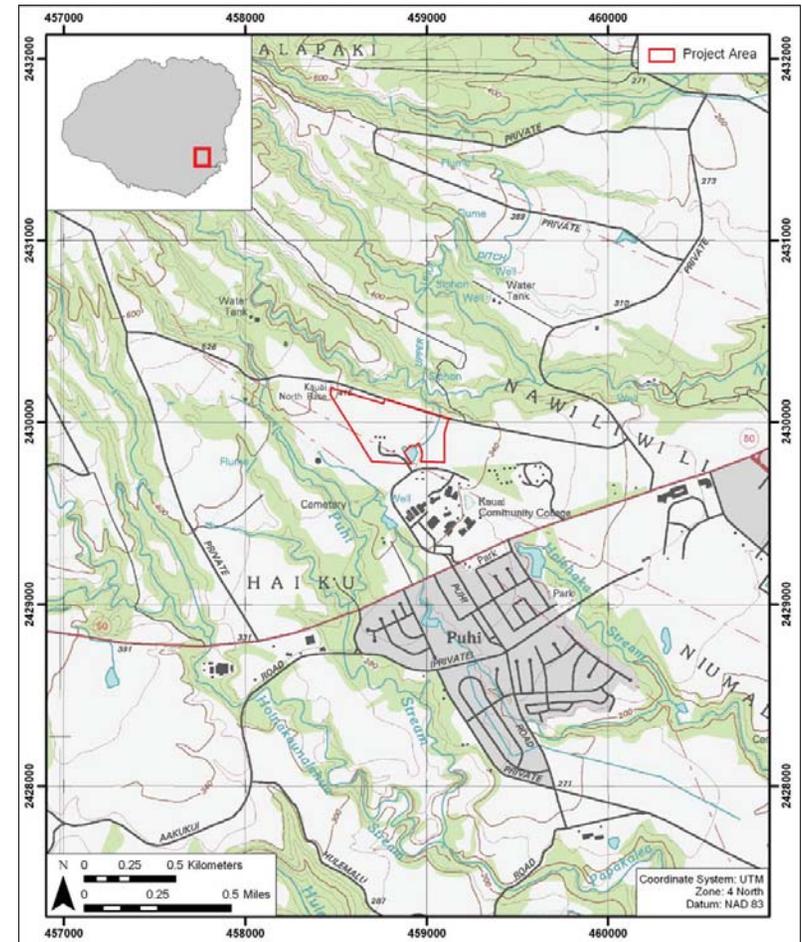


Figure 1. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the project area



Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing the location of the project area

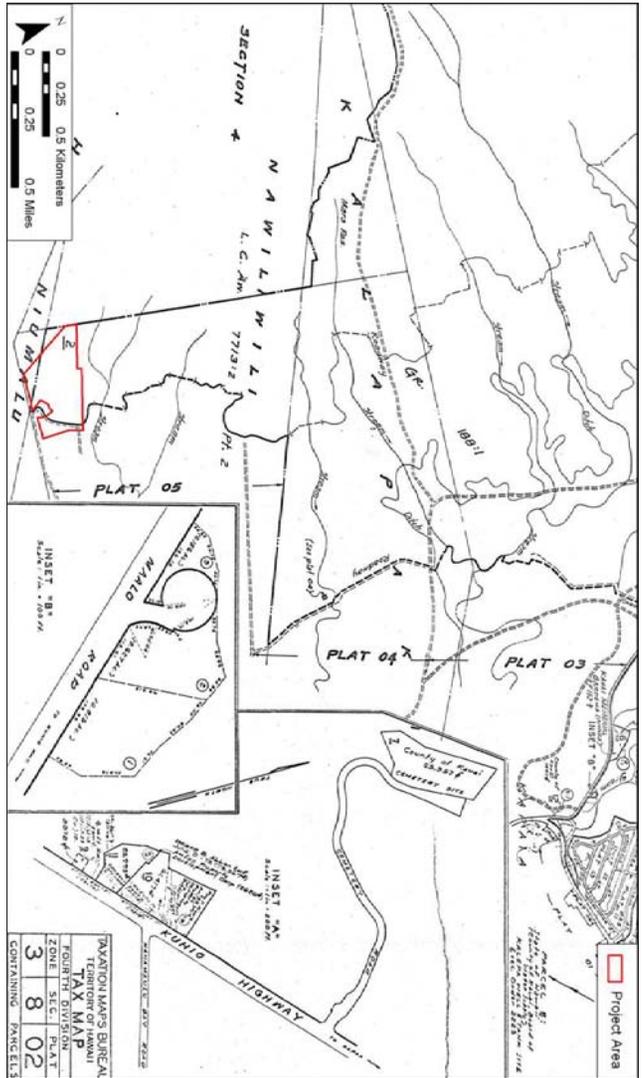


Figure 3. Tax Map Key 3-8-02, showing the project area

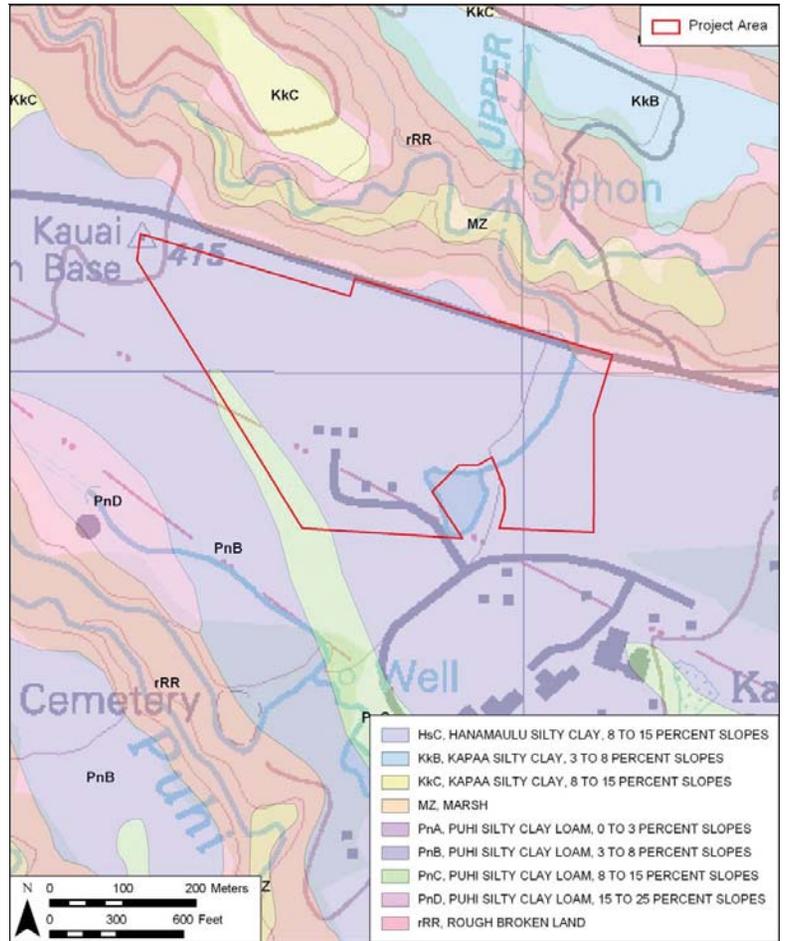


Figure 5. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihū'e quadrangle, with overlay of the Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating sediment types within the project area



Figure 4. Plan showing existing buildings and new buildings (provided by client)



Figure 6. Entrance to Island School, school buildings in background, view to north



Figure 7. Island School grounds, gym to left, *hālau* to right, athletic fields in foreground, view to north

Section 2 Methods

2.1 Document Review

Historic and archival research included information obtained from the University of Hawai'i at Mānoa's Hamilton Library, the State Historic Preservation Division Library, the Hawai'i State Archives, the State Land Survey Division, and the Archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Commission Awards was accessed through Waihona 'Āina Corporation's Māhele Data Base (www.waihona.com) and Ulukau: The Hawaiian Electronic Library's Māhele Data Base (<http://ulukau.org/cgi-bin/vicki?!=en>).

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

2.2 Field Methods

The fieldwork component of the archaeological literature review and field inspection was conducted on August 12, and 13, 2010 by CSH archaeologists Gerald K. Ida, B.A. and Nancine "Missy" Kamai, B.A., under the general supervision of Hallett H. Hammatt Ph.D. (principal investigator). The fieldwork required four person-days to complete.

In general, the purpose of the field inspection was to develop data on the nature, density, and distribution of archaeological sites within the project area, and also to develop information on the degree of difficulty that vegetation and terrain create for future archaeological studies. The field inspection consisted of a walk-through reconnaissance of the project area. The spacing between the archaeologists was generally 5-10 m. Potential archaeological sites or site areas were documented with written descriptions, maps, and photographs.

Section 3 Background Research

3.1 Traditional and Historical Background

Nāwiliwili Ahupua'a is located in the ancient *moku*, or district of Puna and is probably best known in a traditional sense for its *heiau* at Kuhiau, reportedly at least four acres in size, and its associated *pōhaku* (rock) called Paukini, located in the bay.

3.1.1 Mythological and Traditional Accounts

Many sources suggest Nāwiliwili takes its name from the *wiliwili* tree (*nā* is the plural article, as in "the *wiliwili* trees" or "place of the *wiliwili* trees"). According to Pukui and Elbert (1986), the *wiliwili* (*Erythrina sandwicensis*) is a native leguminous tree whose flowers and pods are used for *lei*, and whose light wood was once used for surfboards, outriggers, and net floats. Handy (1940:67) suggests a *kaona* (hidden meaning) for the name Nāwiliwili based on a duplication of the word *wili*, which means "twisted," as in the meandering Nāwiliwili Stream.

According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a was known as Papalinahoa. Kikuchi (1973) states this was the name of "an early chief (*mo'o*)," but Hammatt and Creed (1993) suggest it may also have been the name of an *'ili* (land division) or of the *konohiki* (headman of an *ahupua'a* land division). Papalinahoa was also the name of an *'auwai* (irrigation ditch) on the south side of Nāwiliwili Stream, associated with Land Commission Award (LCA) 3566 (Hammatt and Creed 1993).

The *menehune* (legendary race of small people) were known to live in the Nāwiliwili area:

It was one of the favorite playgrounds of the tribe of Menehune, the little brown work-people who played as hard as they worked. And again it is William Hyde Rice, who, more than any other teller of stories, has kept for us old tales of this happy playground...(Damon 1931:395-396)

Handy (1940:67) describes Nāwiliwili Valley in his chapter on the main *kalo* (taro) growing locations in Puna, Kaua'i:

[Nāwiliwili] For 3 miles inland from the sea the Nāwiliwili River twists (*wiliwili*) through a flat valley bottom which was formerly all in terraces. Inland, just above the bay, three Hawaiian taro planters cultivate wet taro in a few small terraces. Most of the land is [now] in pasture.

The *lo'i* terraces are south of the project area. Due to the concentration of *lo'i* within the vicinity of the coast, as well as the availability of aquatic resources, the coastal area contained a majority of the population of the *ahupua'a* of Nāwiliwili.

3.1.2 Early Historic Period

Western homesteading and commerce were established on the lands above Nāwiliwili Bay that would evolve into Līhu'e Town within a few years after the establishment of the missionary and business activities at Kōloa in the mid 1830s. Accounts of 19th century travelers on the trail

between Kōloa and Līhu'e present the first record of the lands surrounding Līhu'e and therefore also Nāwiliwili. William DeWitt Alexander, son of the former Waioli missionary William P. Alexander, described a return visit to Kaua'i in 1849, six years after his family had left the island. Traveling on horseback from Kōloa to Wailua, Alexander noted in his diary:

We then rode through a gap in the hills, leading out from Kōloa. The scenery was very fine, and worthy of Kaua'i. Mauna Kāhili was close on the left, & on the right a beautiful range of hills extending towards the northeast, and terminating in an abrupt peak which goes by the name of "Hoary Head" [Hā'upu]. We rode on over a beautiful undulating table land, dotted with groves of lauhala and kukui. After riding about five miles, we crossed a stream fitly called Stoney Brook. We afterwards crossed many other streams on our way. Five miles further we passed Dr. Lafon's former residence. Here we began to descend towards the sea. (Alexander 1991:122)

Apparently, Alexander observed no conspicuous Hawaiian settlements between the Gap and Dr. Lafon's residence in the Līhu'e area. It may be, however, that substantial settlement down in the Hulē'ia Stream valley was largely obscured from his view.

In the 1830s, the Governor of Kaua'i (Kaikio'ewa) founded a village at Nāwiliwili that eventually developed into Līhu'e. According to Hammatt and Creed (1993), the name Līhu'e was not consistently used until the establishment of commercial sugar cane agriculture in the middle 19th century. From the 1830s to the Māhele, the names Nāwiliwili and Līhu'e were used interchangeably to some extent to refer to a settlement along Nāwiliwili Bay. Some sources attribute the decision to call this area Līhu'e (literally translated as "cold chill") to the ruling chief Kaikio'ewa, who apparently named it after his nearby upcountry home (see below). Waimea and Kōloa were preferred anchorages compared with Nāwiliwili, which opens directly east to the trade winds. Gales were known to blow ships onto the rocks. During the whaling era, Kōloa, which was home to the earliest major commercial operations in the Hawaiian Islands, was the preferred anchorage because of the ready supply of nearby food stuffs for resupply of the ships. Forty to sixty whaling ships would call at Kōloa in one season (Smith 1991:77).

By 1830, the sandalwood trade had waned and the whaling industry was just beginning. At the same time, commercial agriculture was being established on Kaua'i. When the first crop of sugar cane was harvested at Kōloa, the king himself commanded that portions of his private land be planted in cane. In 1839, Governor Kaikio'ewa began farming the slopes of Nāwiliwili Bay where there was more rain than at Kōloa (Dorrance and Morgan 2000). He also built a house and church in Nāwiliwili Ahupua'a.

Donohugh (2001:94) describes Kaikio'ewa's attempt to establish the first commercial sugar mill and plantation in Līhu'e in 1839:

During the early decades of Kōloa Plantation, other sugar plantations had started up on the island. One was to result in the ascendancy of Līhu'e to the principal town and seat of government on Kaua'i, replacing Wailua. When Kaikio'ewa was appointed governor, he located his home in what is now the Līhu'e District. He planned to grow sugar cane but died in 1839 before his plans could be realized.

Kaikio'ewa was responsible for the name [Līhu'e], which means "cold chill," the name of his previous home at a higher and chillier altitude on O'ahu.

Donohugh (2001:94) describes observations by James Jarves, who passed through Līhu'e in 1838:

... [He] found only a church built by Kaikio'ewa and a few grass houses. He commented the governor had selected Hanamā'ulu Bay as the harbor, "entirely overlooking the fact that it opened directly to the windward."

Following Kaikio'ewa's death in 1839 shortly after the establishment of the sugar plantation, the plantation closed down in 1840 (Dorrance and Morgan 2000).

Around this time, perhaps as late as 1842, the first missionaries settled in the Līhu'e area led by Dr. and Mrs. Thomas Lafon, and assisted by Rev. and Mrs. Peter Gulick from Kōloa. Schools were established, and some missionaries attempted to grow cotton as the first intensive cash crop, but were unsuccessful (Damon 1931).

An account of the United States Exploring Expedition that passed through Līhu'e in 1840, described the area.

At noon they reached Lihui [sic], a settlement lately undertaken by the Rev. Mr. Lafon, for the purpose of inducing the natives to remove from the sea-coast, thus abandoning their poor lands to cultivate the rich plains above. Mr. Lafon has the charge of the mission district lying between those of Koloa and Waioli. This district [Līhu'e] was a short time ago formed out of the other two.

The principal village is Nawiliwili, ten miles east of Koloa. This district contains about forty square miles, being twenty miles long by two broad. The soil is rich: it produces sugar-cane, taro, sweet-potatoes, beans, etc. The only market is that of Koloa. The cane suffers somewhat from the high winds on the plains.

The temperature of Lihui [sic] has much the same range as that of Koloa, and the climate is pleasant: the trade-winds sweep over it uninterruptedly, and sufficient rain falls to keep the vegetation green throughout the year...

On the fertile places, although the pasturage was good, yet no cattle were to be seen. (Wilkes 1845:67-68)

With the death of Kaikio'ewa, governorship of Kaua'i was transferred for a brief period to his widow Keaweamahi. Then followed the brief tenure of Chiefess Kekauonohi and her husband Keali'iahonui (son of King Kaumuali'i) after which the governorship passed to Paulo Kanoa in 1848. Kanoa had two houses overlooking Nāwiliwili Bay: one on the bluff south of Nāwiliwili Stream (the present location of Kaua'i High School) and another at Papalinaloa, north of the bay (Damon 1931).

One of the last vestiges of the pre-cash crop landscape is depicted in the diary entry for the Rice family's arrival on Kaua'i in 1854. During the second half of the nineteenth century, western settlers and entrepreneurs set their sights on southeast Kaua'i. Damon describes the Līhu'e landscape at the time of the family's arrival at Nāwiliwili Bay:

From the deck of their river craft in 1854 Mrs. Rice and the children could plainly see above the rocky shore and ruins of Kuhiau, the old heiau, or temple, and nearby on the bluff the flaming blossoms of a great wili-wili tree among koa trees which then grew almost down to the water's edge. (Damon 1931:17-18)

3.1.3 The Māhele (Land Divisions)

In 1845, the Board of Commissioners to Quiet Land Titles, also called the Land Commission, was established "for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property" (Chinen 1958:8). This led to the Māhele, the division of lands between the king of Hawaii, the *ali'i* (chiefs), and the common people, which introduced the concept of private property into the Hawaiian society. In 1848, Kamehameha III divided the land into four categories: certain lands to be reserved for himself and the royal house were known as Crown Lands; lands set aside to generate revenue for the government were known as Government Lands; lands claimed by *ali'i* and their *konoiki* (land manager for the *ali'i*) were called Konoiki Lands; and habitation and agricultural plots claimed by the common people were called *kuleana* (Chinen 1958:8-15).

Victoria Kamāmalu was awarded LCA 7713, which included over two thousand acres of Nāwiliwili Ahupua'a. She was the daughter of Kīna'u, and thus the granddaughter of Kamehameha I; her brothers were Kamehameha IV and Kamehameha V.

In addition to Kamāmalu's large award at Nāwiliwili, there were many smaller *kuleana* awards. According to Hammatt and Creed (1993):

Within the valley floor and adjacent to the alluvial plain [in Nāwiliwili] ... are 14 land Commission Awards for which there are testimonies available in the Land Commission records ... The awards vary in size between one to two acres and are generally around one acre. The majority of land recorded is for *lo'i* (wetland agriculture) but *kula* (dryland plots) are present as are a few houselots.

In all there are 54 *lo'i* recorded. Each award is generally two to three *lo'i* plots. The largest award comprised eight *lo'i*; a single award consisted of one *lo'i*. All awards contained *lo'i* and nine of the fifteen total awards had *kula* lots. Without exception, the nine awards containing *kula* mention only one *kula* per award. This is of interest because it shows that the alluvial plain was not entirely dedicated to wetland planting and that a small *kula* lot was essential for subsistence agriculture.

Some awards at Nāwiliwili mention houselots along the shoreline.

According to Kikuchi (1973), Nāwiliwili was home to at least five (5) other fishponds in addition to Alekoko (Menehune) Loko. The names of two of these were unknown, but the others are Kalalalehua (near a *mo'o* of the same name), Lokoponu, and Papalinaloa (near a *mo'o* of the same name). Land Commission documents identify the *konoiki* for Nāwiliwili at the time of the Māhele as Daniela Oleloa; in testimony and register documents, claimants and their witnesses trace the right to live and work the lands from the *konoiki*.

No *kuleana* LCAs were awarded within the project area or its vicinity. There were a few scattered houselots sites in the higher portions of the valley floor and along the lower slopes

bordering the *lo'i* and *kula*. However, most of the habitation sites appear to be along the shoreline with a pattern of clustering in villages, a typical settlement pattern for Hawaiian valleys.

3.1.4 Mid- to late-1800s

Māhele records indicate that taro continued to be cultivated in Nāwiliwili Valley through the middle 19th century. However, later in that century, much of the taro lands in Nāwiliwili, as in other wetland regions of the Hawaiian Islands, were converted to rice cultivation. This shift was dictated by changes in the ethnic make-up of the islands' population and economic demands. Little is known of the rice industry in Nāwiliwili.

As a direct result of the availability of large tracts of land for sale during the Māhele, in 1849, Lihue Plantation "was established on the site Kaikio'ewa had chosen, and the cluster of homes and stores around it was the start of the town of Līhu'e" (Donohugh 2001:94). The plantation began as a partnership between Henry A. Pierce, Judge William Little Lee, chairman of the Land Commission, and Charles Reed Bishop, doing business as Henry A Pierce and Company (Damon 1931).

The first 3,000 acres were purchased in Nāwiliwili and an additional 300 acres were purchased in Ahukini in 1866. The Lihue Plantation became the most modern plantation at that time in all Hawai'i. It featured a steam-powered mill built in 1853, the first use of steam power on a Hawaiian sugar plantation, and the ten-mile-long Hanamā'ulu Ditch built in 1856 by plantation manager William H. Rice. The ditch was the first large-scale irrigation project utilized by the sugar plantations (Moffatt and Fitzpatrick 1995:103). Dorrance and Morgan (2000:28) provide a slightly different list of achievements for Lihue Plantation: "The first irrigation ditch in Hawai'i was dug in 1857 [at Līhu'e], and in 1859 the first steam engine in a Hawai'i mill was installed at Lihue Plantation."

The residential and administrative heart of Lihue Plantation was located east of the subject project area, now downtown Līhu'e, Kaua'i's political center and most developed area.

The success of the Lihue Plantation allowed it to continue to expand. When the owner of Hanamā'ulu Ahupua'a, Victoria Kamāmalu, died in 1870, all 9,177 acres in the *ahupua'a* were purchased by Paul Isenberg, the manager of Lihue Plantation from 1862-1878 (Damon 1931:742-747). By 1870, the plantation owned 17,000 acres in Hanamā'ulu. A total of 30,000 leased acres in Wailua were later added in 1878. Lihue Plantation built a second mill in 1877, north and west of the present airport. This mill operated until 1920, when it was converted into housing for laborers.

An 1878 Government Survey map (Figure 8) shows little development within the project area vicinity and sugar plantations have not expanded to their later extent; Lihue Plantation fields are to the east, and Grove Farm fields are to the southeast. Kaumuali'i Highway appears to be an unimproved or dirt road.

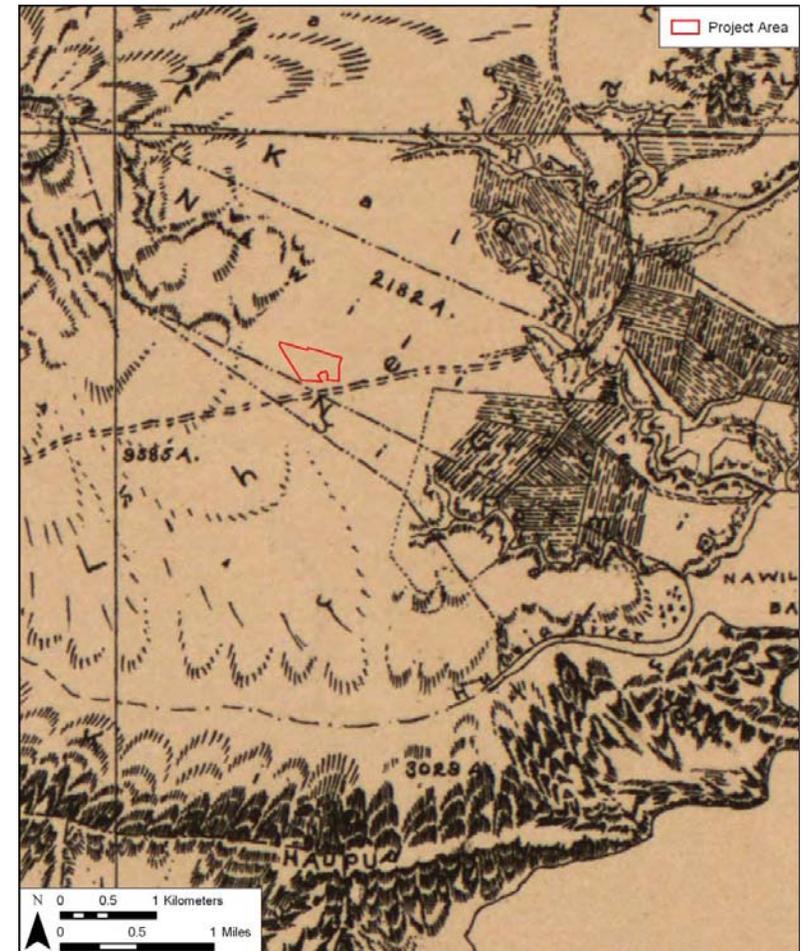


Figure 8. 1878 Government Survey map by W.D. Alexander, showing location of project area

3.1.5 1900s

Lihue Plantation remained a vibrant and successful commercial operation throughout most of the 20th century, in part, because of a continued interest in technological innovation. By 1910 little development had occurred within the project area and its vicinity as shown on the 1910 U.S. Geological Survey map (Figure 9). An unpaved road or trail extends more or less southeast to northwest and is adjacent to the western boundary of the project area.

Lihue Plantation's technological innovations include the 1912 installation of two 240-kilowatt generators above the cane fields on the slopes of Kilohana Crater. The plantation became one of the first hydroelectric power producers (along with Kekaha, Kaua'i) in the Hawaiian Islands with the generator installation (Dorrance and Morgan 2000). In 1919 Lihue Plantation began the development of an extensive irrigation water system that eventually "spanned and connected several watersheds from Hanalei to Koloa" (Wilcox 1998:70).

Lihue Plantation Co.'s irrigation ditches rivaled those of the East Kauai Irrigation Company, which was established in 1924. The two entities oversaw 51 miles of ditches. Wilcox (1998:68) relates that "Lihue Plantation had more ditches than ditch records, so only a rough chronology of its water development can be pieced together." The first irrigation ditch, originally constructed in 1856 by William Hyde Rice, eventually "metamorphosed into the Lower Lihue Ditch" (Wilcox 1998:70).

Figure 10, a 1941 map of Lihue Plantation Co., shows the project area primarily within field 39B and extending into 39A. Grove Farm abuts these fields to the southwest. The 1963 U.S. Geological Survey map (Figure 11) shows a portion of the "Upper Lihue Ditch" extending into the project area. The location of the ditch corresponds with the separation between field 39A and 39B (Figure 10). Unfortunately, Wilcox's (1998:764-65) Table 4 does not include a construction date for Upper Lihue Ditch. The ditch does not appear to be visible on the 1910 U.S. Geological Survey (Figure 9) but is evident in 1941. The ditch therefore dates to the early 20th century.

3.1.6 Modern Land Use

A 1965 aerial photograph (from Foote et al. 1972) (Figure 12) and a 1977-1978 aerial (Figure 13) both show sugar cane cultivation within the project area and its immediate vicinity prior to the construction of Island School.

Lihue Plantation continued commercial sugar cane cultivation in Lihue until 2000, when it finally shut down (Dorrance and Morgan 2000).

Island School's (2009) website details the history of the school, relating the concept of the school originated in 1975 and was implemented on January 27th, 1977 in Keālia. In 1989 American Factors, Inc., (AMFAC) donated 10 acres in Puhi, in an area described as "behind Kaua'i Community College," for the present location of Island School. Pre-kindergarten through fourth-grade classrooms were constructed in 1990. Two large buildings donated by Hawaiian Dredging were reconfigured into the current Administration Building and Main Hall. Three portable classrooms from Keālia completed the new campus that opened in September 1991.

On September 11th, 1992, Hurricane Iniki demolished the three portable buildings, and other buildings lost their roofs or were severely damaged. However, Island School reopened within

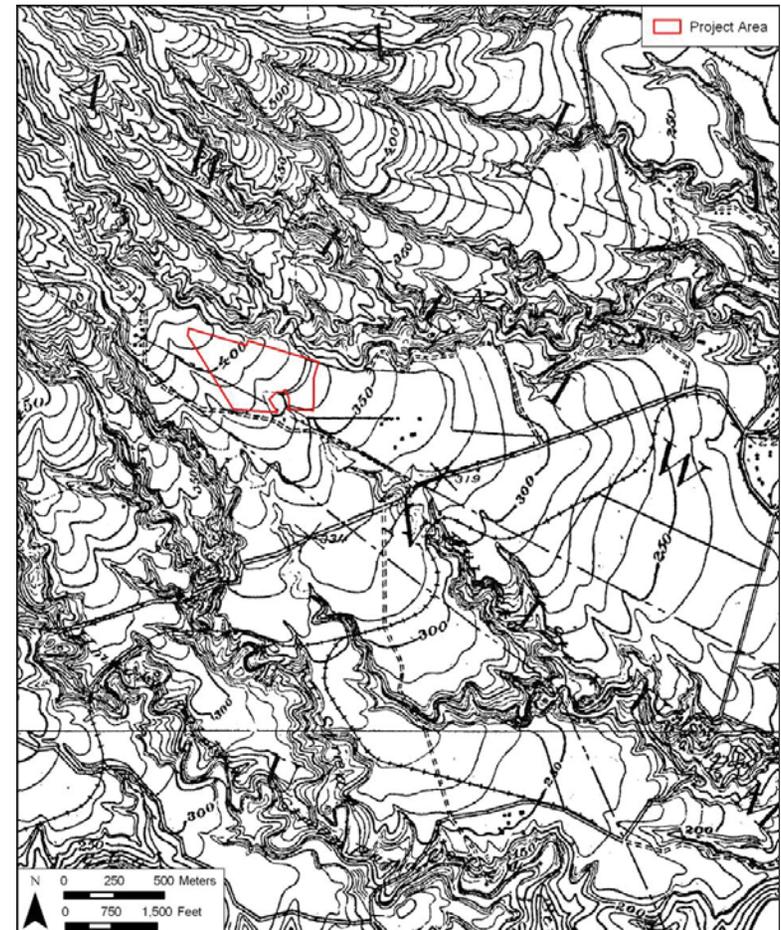


Figure 9. Portion of 1910 U.S. Geological Survey Map, Lihue quadrangle, showing the project area



Figure 10. Portion of 1941 Lihue Plantation Co. map showing the location of the project area primarily within field 39B and extending into 39A

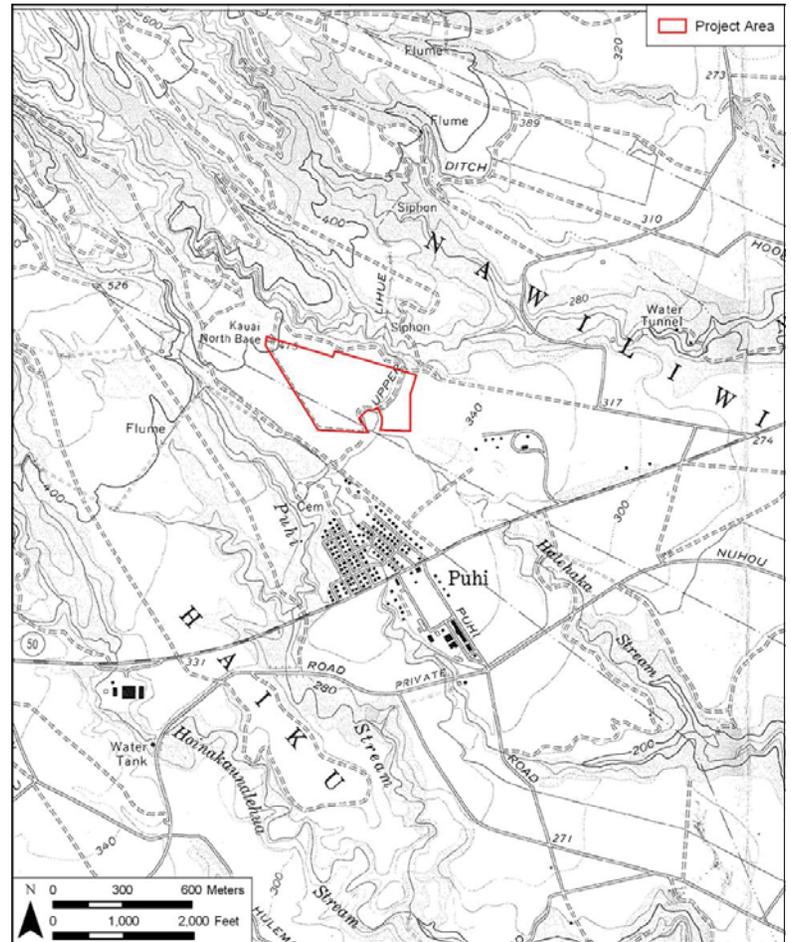


Figure 11. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhū'e quadrangle, showing the project area. Note that Upper Lihue Ditch extends northeast/southwest through the project area

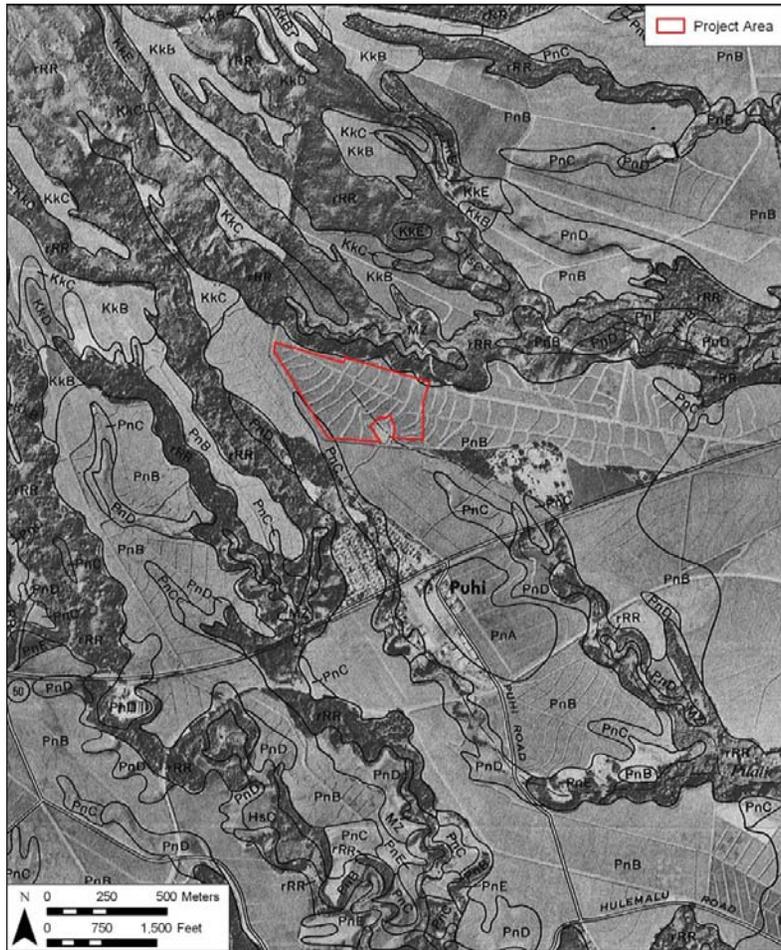


Figure 12. 1965 aerial photograph (from Foote et al. 1972) showing sugar cane cultivation within the project area and its vicinity

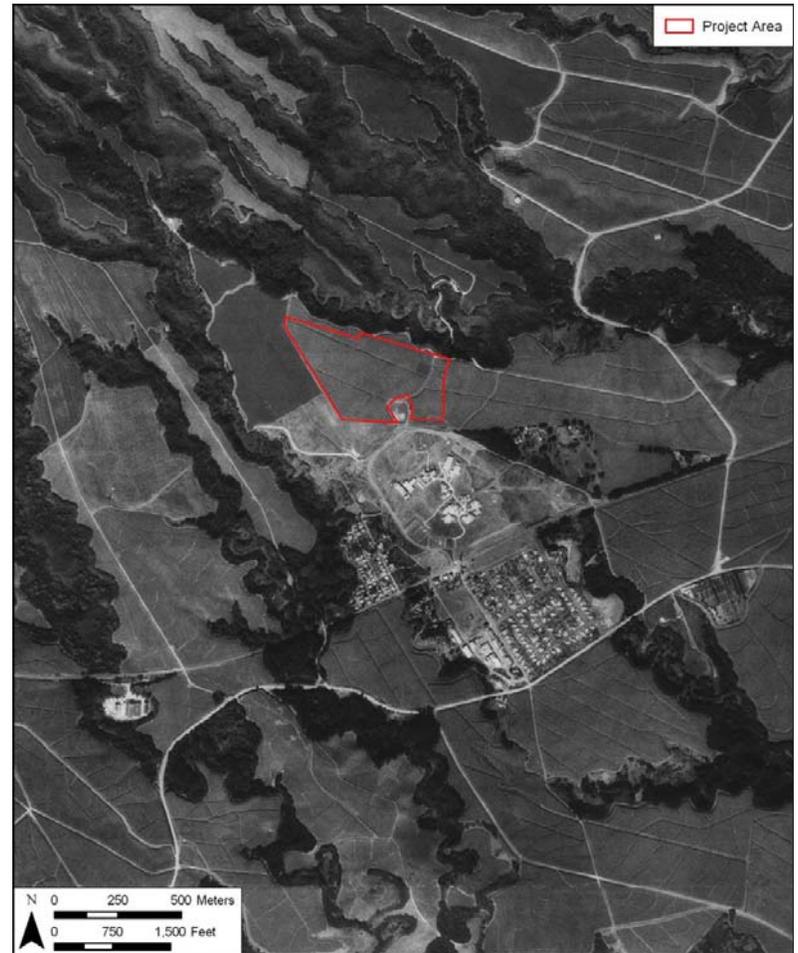


Figure 13. 1977-1978 U.S. Geological Survey aerial of Līhu'e showing the project area and its vicinity

eleven days of the hurricane. Some classrooms were housed in other facilities until the Fall of 1993, “when all was again in order, with old facilities repaired and new facilities finished” (Island School 2009).

New construction on the campus since the early 1990s includes: the Weinberg Enrichment Center, constructed in 1995-96; Purdy Hall, constructed in 1998; and new soccer fields and a grass track on half of a 20-acre parcel purchased in 2000 (Island School 2009).

3.2 Previous Archaeological Research

3.2.1 Early Archaeological Studies

The first attempt at a comprehensive archaeological survey of Kaua'i was undertaken by Wendell Bennett (1931) of the Bishop Museum. Bennett's survey report identifies no archaeological sites within or in the vicinity of the present project area. The “Niamalu” or “Menehune” Fishpond (Bennett Site 98), approximately 3 km (kilometers) to the southwest is the closest.

An overview of archaeological studies conducted in the vicinity of the current project area is summarized in Table 1 and indicated on Figure 14. A discussion of the archaeological findings that are relevant to the current project area follows.

Table 1. Previous Archaeological Studies Conducted within the Vicinity of the Project Area

Study	Location	Type	Findings
Bennett 1931	Island Wide Survey	Recordation of Major Pre-contact Sites	Identified 1 site in the area (Site 98)
Palama 1973	Kaua'i Community College area	Reconnaissance Survey	Noted portions of 'auwai, possible lo'i, and an historic military complex
Neller and Palama 1973	Lower portion of the Hulē'ia River	Reconnaissance Survey	31 sites identified including 1 historic human burial
Walker and Rosendahl 1988	Grove Farm Lihue/Puhi Project	Surface and Sub-surface Survey	Identified two historic properties, Japanese cemetery SIHP -503; and historic residence SIHP -9390
Kido 1986	Alekoko Fishpond and Hulē'ia Estuary	Preliminary Survey	Mangrove encroachment on pond wall, breaks in wall and rubbish used to fortify wall. Recommends a more comprehensive survey
Rosendahl 1989	Additional Areas of the Grove Farm Lihue/Puhi Project	Archaeological Inventory Survey	No cultural material observed
McMahon 1990	Lihue	Archaeological Fieldcheck	3 previously-identified historic residential sites (50-30-9390, -9401, -9402)

Study	Location	Type	Findings
Walker et al. 1991	Lihue District	Archaeological Inventory Survey	Identified 10 historic properties; 3 pre-contact, 7 historic including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery
Henry et al. 1993	590-acre Grove Farm Lihue/Puhi Project Site	Inventory Survey w/ Subsurface Testing	2 historic properties identified including a cemetery and residence (revised report same as Walker and Rosendahl 1988)
O'Hare et al. 1993	100-acre Puakea Golf and Country Club	Inventory Survey w/ Subsurface Testing	No cultural material observed
Hammatt and Chiogioji 1998	11.5 km portion of Kaumuali'i Highway corridor	Archaeological Assessment	4 historic properties identified: Grove Farm office building in Puhi, the Lihue Mill Bridge, the Ho'omana Overpass Bridge, and the Lihue Public Cemetery
Hammatt and Shideler 2004	One-Stop Center at KCC	Archaeological and Cultural Impact Evaluation Study	No cultural material observed and no cultural impacts anticipated

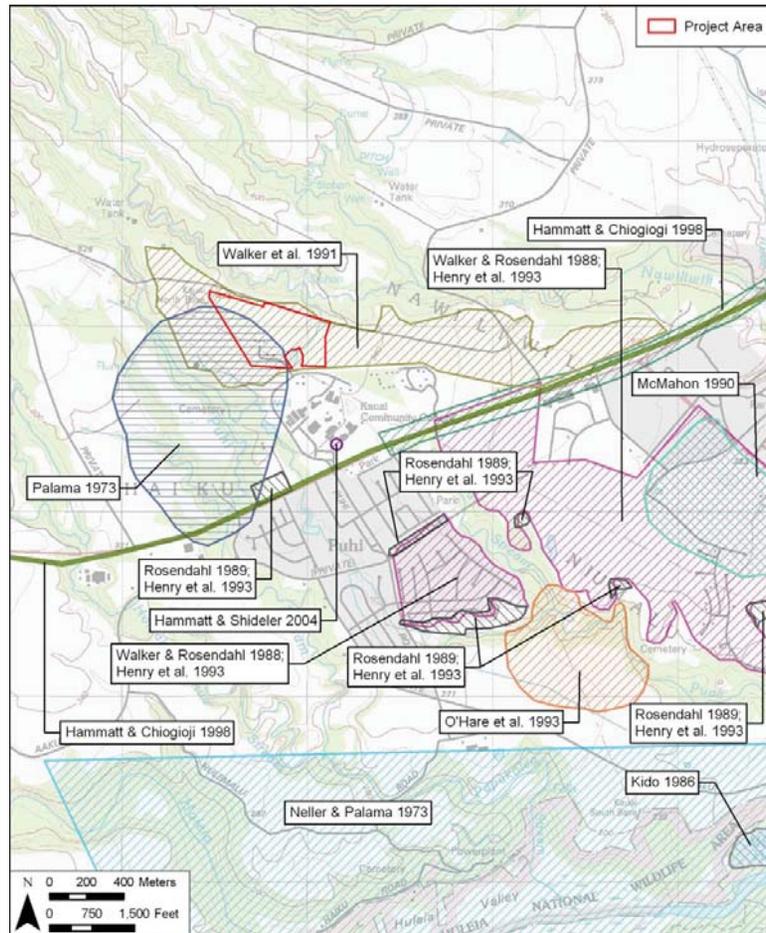


Figure 14. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle showing previous archaeological studies in vicinity of the project area

Neller and Palama (1973) carried out an archaeological reconnaissance of the lower portion of the Hulē'ia River and vicinity recording a number of historic properties. The archaeological richness of that area from the "Menehune Fishpond" downstream and near the crest of the trail to Kīpū Kai is clear. They did, however, also document four historic properties upstream of the Menehune Fishpond, the nearest of which (SIHP -3010) consists of contiguous rock wall enclosures and several other features. This historic property is described as:

...a compound, probably belonging to a chief or other important person. Nearby there are stone-faced river terraces, irrigation ditch (auwai), and a stone bridge crossing the auwai. The area is worth restoring to its prehistoric condition. It is an impressive site. (Neller and Palama 1973:3)

Site -3009, also identified by Neller and Palama, is approximately 2.4 km from the current project area, and consists of an "agricultural area along both sides of the river, including rock-walled terraces and irrigation ditches (auwai). Also includes cement covered grave of G. Kalili, died Dec. 17, 1898" (Neller and Palama 1973:11).

Ching et al. (1973) conducted detailed research on Alekoko (Menehune) Fishpond and its vicinity. Nine archaeological features and feature complexes were identified and documented, including three fishpond features (*loko kuapā* and two *loko wai*), two *'auwai*, and four *lo'i* complexes. Although located well to the south of the present study area the Alekoko (Menehune) Fishpond is an important historical property of the general vicinity and a testament to the organization and initiative of the Native Hawaiian population of the area.

Walker and Rosendahl (1988) conducted an archaeological surface and subsurface inventory survey of 450-acre Grove Farm Līhu'e/Puhi that extended from Puhi Town, south of Kaunali'i Highway nearly to Nāwiliwili Bay. A total of two historic properties were identified, a historic Japanese cemetery SIHP -503, and a historic residence SIHP -9390. The following year, Paul Rosendahl (1989) produced an addendum report covering eight additional separate small adjacent areas. No historic properties or cultural material were identified. Henry et al. (1993) covers the same project area and is the final archaeological inventory survey for this area.

O'Hare et al. (1993) carried out an archaeological inventory survey on a 100-acre Puakea Golf and Country Club project area located approximately one km south east of Puhi Town. No historic properties or cultural materials were identified.

CSH (Hammatt and Chiogioji 1998) conducted an archaeological assessment of an approximately 11.5 kilometer-long portion of the Kaunali'i Highway corridor, a portion of which is 500 m south of the project area. During the reconnaissance survey no historic properties were found in the vicinity of the school campus. No surface traditional Hawaiian archaeological sites were observed during the entire survey although four historic sites (two bridges, a cemetery and an office building) were noted. No state site numbers were assigned.

3.2.2 Studies within or adjacent to the project area

3.2.2.1 KCC Archaeological Reconnaissance (Palama 1973)

In 1973, the Archaeological Research Center Hawaii conducted an archaeological reconnaissance of approximately 57 acres of KCC that also included the southwestern portion of

the current project area (Palama 1973). Portions of an “old *'auwai*” (conforming to Grove Farm’s Mauka Ditch), an old military complex, a Japanese Cemetery, plantation camp remains, and possible *lo'i* were found but nothing was deemed to warrant further investigation (Palama 1973). Palama (1973:2) “recommended that no further work is warranted” for the historic features he identified and no state site numbers were assigned. The “old *'auwai*” is approximately 100 m west of the northern portion of the project area.

3.2.2.2 Walker et al. (1991) AIS

The entire proposed project area was included in the 1,550 acre Lihue/Puhi/Hanamaulu Master Plan AIS (Walker et al. 1991). Designated as Section No. 1, it is described as:

...bounded on the north and east by the Nawiliwili Stream gulch, on the south by Kauai Community College and Kaunualii Highway, and on the west by the Puhi Stream gulch. This entire parcel has been modified and is presently in sugar cane (*Saccharum officinarum* L. hybrid) cultivation. (Walker et al. 1991:2)

The report states that

areas in sugar cane were only sampled ... [and] were not generally surveyed because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits. (Walker et al. 1991:7)

While Section No. 1 is listed as an area subjected to “inventory-level survey” in the Conclusion section of the report, this statement is further explained that “only very limited surface survey was done in sugar cane fields ... [and] no subsurface testing was performed in sugar cane fields” (Walker et al. 1991:18). No historic properties were identified in or within the vicinity of the current project area during the Walker et al. (1991) inventory survey. Additionally, none of the ten historic properties (SIHP -1838 through -1847) identified during the Walker et al. (1991) study, including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery, was identified in or within close proximity to the project area.

3.2.2.3 2004 KCC One-Stop Center AIS and CIA (Hammatt and Shideler 2004)

In 2004, CSH (Hammatt and Shideler 2004) conducted an archaeological and cultural impact evaluation study for the One-Stop Center at KCC approximately 600 m south of the project area. The proposed project involved construction of a two-story building of approximately 35-40,000 net square feet (about 55-60,000 gross square feet) in the southwest (Kaunualii Highway) side of the existing KCC campus. A field inspection of the vicinity of the proposed project was conducted and observed to be a graded, established lawn with no observed indicators of any archaeological concern. As the project area was under sugar cane cultivation for many decades and the location of the project area was observed to be graded with an established lawn, it was concluded that there were unlikely to be any cultural impact issues associated with the “one-stop” project.

A summary of the proposed project and findings was mailed to Dr. Pua Aiu (then) of the Office of Hawaiian Affairs and to Mr. Dennis Chun of the Hawaiian Studies program of Kaua'i Community College on December 23, 2003. Follow-up telephone consultation was held with Mr. Chun of February 19, 2004 and with Dr. Aiu on February 24, 2004. A brief telephone conversation on the subject was also held with Ms. LaFrance Kapaka-Arboleda of the Kaua'i Office of Hawaiian Affairs and the Kaua'i/Ni'ihau Islands Burial Council on February 20, 2004. None of these parties expressed any concerns for adverse impacts to cultural practices by the proposed project as described. SHPD/DLNR concluded “No further archaeological work is needed for the project” (see Appendix A).

Section 4 Results of Fieldwork

4.1 Survey Findings

CSH archaeologists Gerald K. Ida, B.A. and Nancine “Missy” Kamai, B.A., completed the field inspection on August 12, and 13, 2010, which required four person-days. All fieldwork was conducted under CSH’s annual archaeological permit No. 10-10 issued by SHPD/DLNR per HAR Chapter 13-282, and also under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

The field inspection consisted of a pedestrian inspection of the Island School campus. No access restrictions impeded the inspection, however, ground visibility is somewhat obstructed by landscaped grass and previous development.

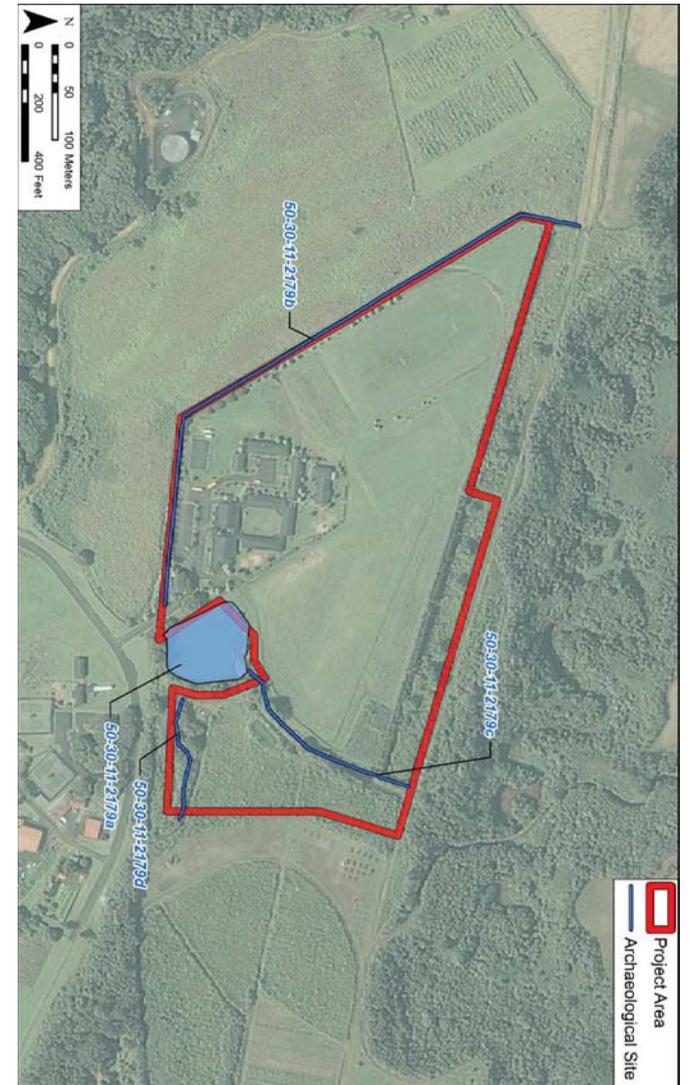
No evidence of Palama’s (1973) findings that were outside of and within the vicinity of the project area including the “old *‘auwai*” (conforming to Grove Farm’s Mauka Ditch), an old military complex, a Japanese Cemetery, plantation camp remains, and possible *lo’i* were found. Additionally, no evidence of ten historic properties (SIHP -1838 through -1847), including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery that were identified by Walker et al. (1991) in the general vicinity of the project area were found.

During the pedestrian inspection, several surface features were observed that are related to the Lihue Plantation (Table 2 and Figure 15). The surface features consist of a reservoir that is adjacent to and surrounded by the project area, and three irrigation ditches. All three of the irrigation ditches are associated with the adjacent reservoir. The four historic surface features related to the Lihue Plantation are designated as SIHP 50-30-11-2179 Features A through D. Descriptions and photograph documentation for SIHP 50-30-11-2179 is presented in section 4.2.

Table 2. SIHP 50-30-11-2179 Historic Features

Feature	Feature Type	Function	Age	Notes
A	Reservoir	Water control	Plantation era	Outside of project area
B	Irrigation ditch	Water control	Plantation era	Currently in use for run-off
C	Irrigation ditch	Water control	Plantation era	Currently in use
D	Irrigation ditch	Water control	Plantation era	Currently in use

Figure 15. Aerial photograph (source: U.S. Geological Survey Orthomimagery 2005), showing SIHP 50-30-11-2179 and the project area boundaries



4.2 Historic Property Description

4.2.1 SIHP 50-30-11-2179

FORMAL TYPE: Reservoir/Ditches

MEASUREMENTS: 660 m long (E-W); 410 m wide (N-S)

FUNCTIONAL INTERPRETATION: Water Control (Agriculture)

CONDITION: Very Good

TEMPORAL INTERPRETATION: Historic-Plantation-related

DESCRIPTION: SIHP 50-30-11-2179 consists of a total of four water control features related to the Lihue Plantation: Feature A is a reservoir, and Features B through D are associated irrigation ditches (see Figure 15). The 1963 U.S. Geological Survey map (see Figure 11) shows Upper Lihue Ditch, which dates to the early 20th century, extending into Feature A.

Feature A, reservoir (Figure 16), is located adjacent to and northeast of the gate at the Island School campus road entrance. The reservoir is within the same parcel but outside of the project area, and almost completely surrounded by the project area.

The reservoir measures 88.5 m by 82.3 m with a constructed berm on the east and south sides. A wooden catwalk extends from the east bank out over the water for 2 m. The end of the catwalk has a metal, mechanical device for opening and closing an underground drain pipe. A formed, slotted concrete gate frame (Figure 17) is at the southwest side of the reservoir. The wooden gate is missing. Water flows from the reservoir through the gate frame to the west to an area outside of the project area and within the Kaua'i Community College campus. This is the reservoir's only outlet. A modern concrete pipe storm drain outlet from the school campus enters the reservoir at the northwest side.

A 1941 map of Lihue Plantation Co. (see Figure 10) shows Feature A between the boundaries of fields 39A and 39B. The 1963 U.S. Geological Survey map (see Figure 11) shows a portion of the "Upper Lihue Ditch" that corresponds with the separation between field 39A and 39B, indicating Feature A was likely associated with the Upper Lihue Ditch. The reservoir also appears on the 1910 U.S. Geological Survey (see Figure 9) although its associated ditches are not evident.

Feature B, irrigation ditch (Figure 18), forms the west, southwest, and a portion of the south boundary of the project area. The earthen ditch is 703 m long, 0.9 m deep with a maximum width of 2.0 m. The ditch walls are sloped resulting in a bottom width of 1.0 m. The ditch is not currently used for irrigation but collects storm drainage and surface run-off from the Island School campus and its athletic fields.

A 1941 map of Lihue Plantation Co. (see Figure 10) shows Feature B forming the western boundary of field 39B, separating Lihue Plantation and Grove Farm. Although the ditch does not currently extend to Feature A, the Lihue Plantation Co. map shows a connection.



Figure 16. SIHP 2179 Feature A, reservoir adjacent to project area, view to south



Figure 17. SIHP 2179 Feature A, reservoir showing its outlet at a concrete gate frame, view to west



Figure 18. SIHP 2179 Feature B, earthen irrigation ditch, view to east

Feature C, section of an irrigation ditch (Figure 19), enters the project area from the north, near the parcel's northwest corner. The portion of the ditch within the project area is 209 m long. Water flowing through the ditch feeds SIHP 2179 Feature A, reservoir adjacent to the project area. The irrigation ditch has mounded earthen berms on each side that measure 2.0 m wide and are from 0.5 to 0.7 m high. The water channel is 2.5 m wide and approximately 1.2 m deep. The ditch has two concrete gate frames that lack gates (Figure 20).

A 1941 map of Lihue Plantation Co. (see Figure 10) shows that Feature C is the boundary between fields 39A and 39B. Irrigation ditches frequently formed the boundaries of fields. The 1963 U.S. Geological Survey map (see Figure 11) depicts a portion of the "Upper Lihue Ditch" whose location corresponds with the separation between field 39A and 39B (see Figure 10) indicating SIHP 2179 Feature C is associated with the Upper Lihue Ditch.

Feature D, portion of an irrigation ditch (Figure 21), would have bordered the southwest portion of field 39A, as shown on a 1941 map of Lihue Plantation Co map (see Figure 10). Feature D is also evident on the 1965 and 1977-1978 aeriels (see Figure 12 and Figure 13). Based on its association with Feature A, Feature D also appears to have been associated with the Upper Lihue Ditch.



Figure 19. SIHP 2179 Feature C, earthen irrigation ditch showing mounded berms on both sides, view to northwest



Figure 20. SIHP 2179 Feature C, irrigation ditch gate frame, view to north



Figure 21. Feature D, irrigation ditch, view to east

Section 5 Significance Assessments

SIHP 50-30-11-2179, consisting of a total of four historic water control features related to the Lihue Plantation, was evaluated for significance according to the broad criteria established for the Hawai'i Register of Historic Places (see discussion below). The five criteria are:

- A Associated with events that have made an important contribution to the broad patterns of our history;
- B Associated with the lives of persons important in our past;
- C Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value;
- D Have yielded, or is likely to yield information important for research on prehistory or history;
- E Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history and cultural identity.

SIHP 50-30-11-2179 has been assessed as significant under Criterion D, meaning that this historic property has “yielded, or is likely to yield, information important for research on prehistory or history.” This reflects its value to our understanding of Plantation-era infrastructure. Water control was essential to Lihue Plantation, as evidenced by the fact that water was transferred from as far away as Hanalei to the plantation (Wilcox 1996:70). SIHP 50-30-11-2179 is associated with the Upper Lihue Ditch, which dates to the early 20th century, and extends more than 7 kilometers (4 miles) inland. The ditch, which corresponds with SIHP 2179 Feature C, empties into SIHP 23179 Feature A, and bordered Lihue Plantation fields 39A and 39B (see Figure 10). Features B and D also bordered portions of Lihue Plantation fields 39A and 39B.

The proposed project may have an adverse effect on these historic features. In accordance with the SHPD/DLNR review of October 26, 2012 of an earlier draft of this study an archaeological inventory survey is recommended to provide additional documentation of these features.

Section 6 Summary and Recommendations

6.1 Summary

At the request of Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. has conducted this Literature and Field Inspection for the Island School State Land Use District Boundary Amendment Project and proposed Island School expansion that includes construction of new classrooms and other school facilities within its existing 38.448-acre campus.

Few access restrictions impeded the field inspection, however, ground visibility is somewhat obstructed by vegetation and previous development. During the pedestrian inspection, SIHP 50-30-11-2179, consisting of four water control features related to the Lihue Plantation (Table 2 and Figure 15), was identified. Research also indicates that all of the features are also associated with the Upper Lihue Ditch which extends more than 7 kilometers (4 miles) inland.

6.2 Recommendations

The proposed project may have an adverse effect on the plantation era infrastructure features of SIHP 2179 that are documented within this study. Consultation with SHPD/DLNR (October 26, 2012; Log No. 2011.0117, Doc No. 1210SL44 SHPD/DLNR Chapter 6E-42 review of an earlier draft; Appendix A) has led to the determination of the need for an archaeological inventory survey with additional documentation of features. In accordance with that SHPD/DLNR review of October 26, 2012 the current recommendation for the features documented here-in is preservation. This recommendation may change following completion of an archaeological inventory survey. Should development plans be proposed that may adversely affect this historic property, further documentation is recommended to mitigate these possible effects.

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Appendix A SHPD/DLNR Correspondence



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KARLUHEVA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96734

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CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.H. LAU
DEPUTY DIRECTOR - WATER

AGRICULTURE RESOURCES
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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

LINDA LINGLE
GOVERNOR OF HAWAII



January 13, 2004

Mr. David Shideler
Cultural Surveys Hawaii
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 2004.0039
DOC NO: 0401NM05

Dear Mr. Shideler:

SUBJECT: Chapter 6E-8 Historic Preservation Review – Request for Determination of the Need for Archaeological Study in Support of Development of the “One-Stop Center Kauai Community College” Project, (Shideler, CSH, 2003) [State/University of Hawai’i] TMK: 3-4-5: 9 Puhii, Lihue, Kauai

Thank you for submitting the above letter report. We received the request for determination and the attached letter report on December 26, 2003, and provide the following comments (Shideler, 2003. *Request for Determination of the Need for Archaeological Study in Support of Development of the “One-Stop Center Kauai Community College” Project* (TMK: 3-4-5: 9) CSH ms.).

Based on your research and the brief field inspection, no historic sites were found nor are any likely to be present, given the extent of past land alterations and development. No further archaeological work is needed for this project.

We would only ask that a copy of the letter report be provided to our O’ahu office. If you have any questions, please call Nancy McMahon (808) 742-7033.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Administrator
State Historic Preservation Division

c. Ian Costa, Planning Department
Chair, Kaua’i Historic Preservation Review Commission

NM.ak



HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES

601 Kamokila Boulevard, Suite 555
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NEIL AMERCOMBIE
GOVERNOR OF HAWAII



WILLIAM F. AHA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KUYER KAWAOKA
DEPUTY DEPUTY

WILLIAM M. TAM
DEPUTY DEPUTY

AGRICULTURE RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONSERVANCIES
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

October 26, 2012

David Shideler
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734
dshideler@culturalsurveys.com

LOG NO: 2011.0117
DOC NO: 1210SL44
Archaeology

Dear Mr. Shideler:

SUBJECT: Chapter 6E-42 Historic Preservation Review – Archaeological Literature Review and Field Inspection for the Island School Project Nāwiliwili Ahupua’a, Lihue’s District, Island of Kaua’i TMK: (4) 3-8-002:016

Thank you for the opportunity to review this draft report titled *Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua’a, Lihue’s District, Kaua’i Island TMK: (4) 3-8-002:016* (Groom and Hammati, October 2010). Our office received this submittal on January 11, 2011; we apologize for the delay and thank you for your patience. An archaeological literature review and field inspection study was requested by Wilson Okamoto Corporation to assist in identifying historic properties and to provide mitigation recommendations in advance of proposed development. The project area consists of the 38.448-acre campus of the Island School in Puhii, Kaua’i.

The literature review provides a sufficient discussion of the environmental setting but requires additional discussion of the historical context, particularly the development of irrigation systems and technology within Lihue Plantation in order to better assess the age and significance of the irrigation features identified during the field inspection (see also attached section of map 1900 Monsarrat map of Lihue Plantation). This historic context discussion should incorporate plantation features identified in previous studies conducted within the vicinity, particularly features related to the several reservoirs and to various irrigation and water diversion projects (see also O’Hara and Monahan, Sept 2012, Job Code NAWILIWILI 11, AIS for Ho’omana Road Alignment for recently recorded irrigation and water diversion features within Lihue Plantation).

One reservoir and three irrigation ditches associated with Lihue Plantation were identified and briefly described. These features comprise components of a historic property that requires assignment of a state site number, completion of a historic property description, and an assessment of historic significance. SHPD requests that this historic property not be adversely affected by any proposed Island School development without prior consultation with and concurrence from SHPD. In addition, we believe the present documentation is not sufficient to mitigate any potential adverse effect to this historic property and request that an archaeological inventory survey be completed.

We have included an attachment that identifies the issues and concerns that are in need of revision prior to the acceptance of this literature review and field assessment pursuant to Hawaii Administrative Rule §13-276(5)(a) and (c) and §13-284(b)(5)(A). To aid in rapid review of the subsequent revision please include a cover letter that specifies the changes made to this document and their page numbers.

Please contact Susan A. Lebo at (808) 692-8019 or Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Theresa K. Donham

Theresa K. Donham, Archaeology Branch Chief

Mr. Shideler
October 26, 2012
Page 2

Attachment

Comments and Questions: *Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island*
TMK: (4) 3-8-002:016 (Grosa and Hammett, October 2010).

Management Summary

- (1) Revise (page i) field work effort to state (principal investigator).
- (2) Revise (page ii) summary of findings to insert SIHP numbers for temporary site numbers

Environmental Setting

- (3) Revise (page 1) last paragraph to state "...District, in the southeastern quadrant..."
- (4) Revise (page 2) last paragraph to state "...of existing school and administrative buildings..."

Background Research

- (5) Revise (page 11) end of 4th paragraph to provide citation for statement that "During the whaling era, ...for resupply of the ships."
- (6) Revise (page 16) 1st paragraph to state "An unpaved road..."
- (7) Revise (page 22) 4th paragraph to state "A discussion of the archaeological findings that are relevant..."
- (8) Revise (page 22) Table 1 Ching et al. 1973 is not shown in Fig14.
- (9) Revise (page 27) last sentence to read "...for the project" (see Appendix A)." [no need to say current Appendix A unless you make reference to a previous one]

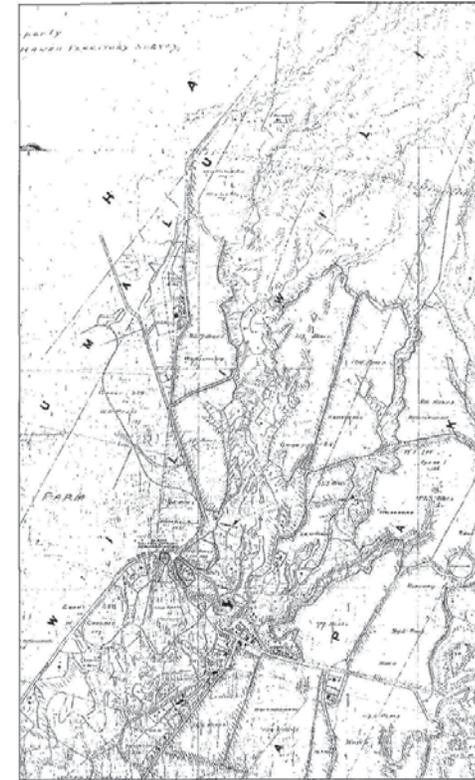
Significance Assessments

- (10) Revise (page 36) to include SIHP for this historic property
- (11) Revise (page 36) to insert a Historic Property Description for this historic property. This description should describe these features in a broad historic context that includes the Līhu'e Plantation and the other related features identified in the previous archaeological studies in the vicinity.
- (12) Revise (page 36) last paragraph and Table 3 to indicate that additional documentation is recommended. First, none of these features have been sufficiently described. Some do not have dimensions, none are described in terms of when they were constructed, how long were they in use, what is their current use, how have they been altered, what is their integrity, and so forth. This needs to be done. The current recommendation should be preservation.

Recommendations

- (13) Revise (page 37) to state that preservation is recommended. Should development plans be proposed that may adversely affect this historic property, further documentation is recommended to mitigate these possible effects.

Mr. Shideler
October 26, 2012
Page 3



Cropped section of 1900 Monsarrat Map of Līhu'e Plantation

NEIL ABECHROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

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ESTHER KILA'ADNA
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CONSERVATION AND RESOURCE ENFORCEMENT
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
POLYMER AND SOILS
LAND
STATE PARKS

October 26, 2012

David Shideler
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734
dshideler@culturalsurveys.com

Dear Mr. Shideler:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Literature Review and Field Inspection for the Island School Project
Nāwiliwili Ahupua'a, Līhu'e District, Island of Kaua'i
TMK: (4) 3-8-002:016**

LOG NO: 2011.0117
DOC NO: 1210SL44
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Aloha,

Theresa K. Donham, Archaeology Branch Chief

Mr. Shideler
October 26, 2012
Page 2

Attachment

Comments and Questions: *Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island TMK: (4) 3-8-002:016* (Groza and Hammat, October 2010).

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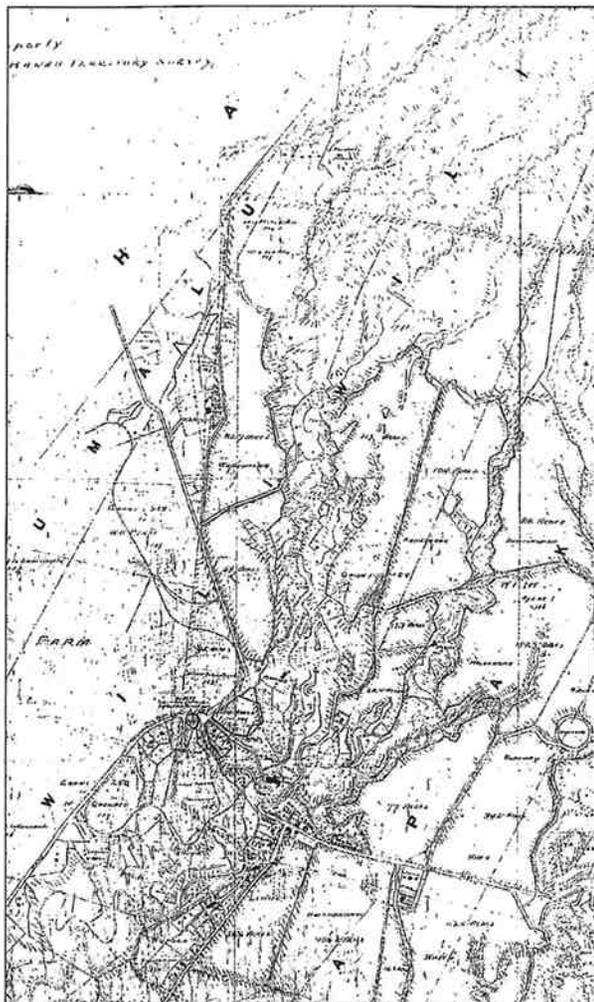
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Recommendations

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NAWILIWILI 5



Cropped section of 1900 Monsarrat Map of Lihue Plantation

Appendix C

Cultural Impact Assessment for the
Kaua'i Community College
Redesignation to Urban District Project
Prepared by
Cultural Surveys Hawai'i, Inc.
April 2012

**Cultural Impact Assessment for the
Kaua'i Community College Redesignation to Urban
District Project, Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a,
Lihū'e District, Kaua'i Island:
TMK: [4]-3-4-007-001, [4]-3-4-007-002,
[4]-3-4-007-003, and [4]-3-4-007-006**

Prepared for
Wilson Okamoto Corporation

Prepared by
Angela I. Fa'anunu, M.S.P.H.,
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Prefatory Remarks on Language and Style

A Note about Hawaiian and other non-English Words:

Cultural Surveys Hawai'i (CSH) recognizes that the Hawaiian language is an official language of the State of Hawai'i. Hawaiian Language is important to daily life, and using it is essential to conveying a sense of place and identity. As such, CSH does not follow the conventional use of italics to identify and highlight Hawaiian words. However, other non-English words in this report are still presented in italics unless citing from a previous document that does not italicize them. CSH parenthetically translates or defines in the text the non-English words at first mention, and the commonly-used non-English words and their translations are also listed in the *Glossary* (Appendix A) for reference. However, translations of Hawaiian and other non-English words for plants and animals mentioned by community participants are referenced separately (see explanation below).

A Note about Plant and Animal Names:

When community participants mention specific plants and animals by Hawaiian, other non-English, or common names, CSH provides their possible scientific names (Genus and species) in the *Common and Scientific Names of Plants and Animals Mentioned by Community Participants* (Appendix B). CSH derives these possible names from authoritative sources, but since the community participants only name the organisms and do not taxonomically identify them, CSH cannot positively ascertain their scientific identifications. CSH does not attempt in this report to verify the possible scientific names of plants and animals in previously published documents; however, citations of previously published works that include both common and scientific names of plants and animals appear as in the original texts.

Abbreviations

AD	Anno Domini referring to the year of Christ's birth
AI	Archaeological Inventory Survey
APE	Area of Potential Effect
BC	Boundary Certificate No.
BCT	Boundary Commission Testimony
CIA	Cultural Impact Assessment
CSH	Cultural Surveys Hawai'i
DOH/OEQC	Department of Health/Office of Environmental Quality Control
FB	Field Book Register
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
HSPA	Hawaiian Sugar Planters' Association
HSRM	Hawai'i Survey Registered Maps
KCC	Kaua'i Community College
LCA	Land Commission Award
NHPA	National Historic Preservation Act
NR	Land Commission, National Register
NT	Land Commission, Native Testimony
OHA	Office of Hawaiian Affairs
RM	Registered Map
RPG	Royal Patent Grant
KNIBC	Kaua'i/Ni'ihau Island Burial Council
SIHP	State Inventory of Historic Properties
SHPD	State Historic Preservation Division
TCP	Traditional Cultural Property
TMK	Tax Map Key
UHCC	University of Hawai'i Community College
USGS	United States Geological Survey

Management Summary

Reference	Cultural Impact Assessment (CIA) for the Kaua'i Community College (KCC) Redesignation to Urban District Project, Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, Kaua'i Island, TMK: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006 (Fa'anunu, Magat, and Hammatt 2012)
Date	April 2012
Project Number	CSH (Cultural Surveys Hawai'i) Job Code: NIUMALU 2
Agencies	State of Hawai'i Department of Health/Office of Environmental Quality Control (DOH/OEQC)
Project Location	This study is located in the ahupua'a (Land division usually extending from the uplands to the sea in the district of Līhu'e, on the island of Kaua'i. The TMK parcels for the proposed site are: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006
Land Jurisdiction	Public, University of Hawai'i
Project Description	The University of Hawai'i Community Colleges (UHCC) proposes to amend the State Land Use District Boundary to re-designate the entire 199-acre KCC campus from its existing land use classification of Agricultural District to Urban District. The Project consists of the re-designation of land, as well as the construction of new buildings, additions to buildings, and new parking. A Special Permit was granted by the State Land Use Commission in 1973 for construction of the college campus within an approximately 99-acre parcel situated within TMK [4]-3-4-07:003. Most of the additional approximately 100 acres (within TMK [4]-3-4-07:01, :002 and :006) are undeveloped, except for two Hawaiian Language Immersion schools, Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School
Project Acreage	Approximately 199 acres
Area of Potential Effect (APE) and Survey Acreage	For the purposes of this CIA, the APE is defined as the 199-acre Project area. While this investigation focuses on the Project APE, the study area also includes the three ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū
Document Purpose	The Project requires compliance with the State of Hawai'i environmental review process (Hawai'i Revised Statutes [HRS])

	<p>Chapter 343), which requires consideration of a proposed project's effect on cultural practices and resources. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed Project's impacts to cultural practices and resources (per the <i>Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts</i>), which may include Traditional Cultural Properties (TCP) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places, in accordance with Hawai'i State Historic Preservation Statute (Chapter 6E) guidelines for significance criteria according to Hawai'i Administrative Rules (HAR) §13–275 under Criterion E. The document is intended to support the Project's environmental review and may also serve to support the Project's historic preservation review under HRS Chapter 6E and HAR Chapter 13–275</p>
<p>Consultation Effort</p>	<p>Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the Project area and the vicinity. Outreach included efforts to contact 32 individuals and agencies. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the Kaua'i/Ni'ihau Island Burial Council (KNIBC), the Hui Mālama I Kūpuna 'O Hawai'i Nei, the Kaua'i /Ni'ihau Ho'okipa Network, the Kaumuali'i Hawaiian Civic Club, the Kaua'i Historical Society, Mālama Kaua'i, and community members of the Līhu'e District.</p>
<p>Results of Background Research</p>	<p>Background research for the proposed Project indicates that the Project area, which lies approximately two miles southwest of Līhu'e Town, is part of a traditional region encompassing the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū. Early accounts describe the region as an open, grass-covered land that was dotted with trees and streams that flowed down from lush mountains on the way to the sea, with soils that bore a variety of crops like sugar-cane, taro, sweet-potatoes, beans and groves of kukui, (candlenut), hau (beach hibiscus), koa, hala (pandanus), and wiliwili. The abundance of water and water systems, presence of famed fishponds on the coast, along with the concentration of permanent house sites, temporary shelters, and heiau suggests early settlement along coastal areas, with a radiocarbon date of A.D. 1170 to 1400 near the mouth of Hanamā'ulu Stream, north of Nāwiliwili.</p> <p>In the mid-19th century, the Project area became associated with the establishment of the commercial sugar cane agriculture which required foreign indentured labor imported from Japan, China, and the Philippines. The Project area was part of the Grove Farm Plantation before the farm stopped its sugar business in 1974. Within the Project</p>

	<p>area lies remnants of the Old Puhī Camp, which housed plantation workers of Grove Farm. The camp was built around 1920 along the present Kaumuali'i Highway and contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events. Most of the Puhī Camp housing was removed in the 1970s prior to the construction of KCC and the last homes of the camp were dismantled in the 1980s.</p> <p>The Project area is also linked to many mo'olelo (stories, oral histories) and wahi pana (storied places) that suggests early settlement of the area by a viable Native Hawaiian population. These include mo'olelo about Kuhiau Heiau, the largest heiau in Kaua'i, Ninini and Ahukini Heiau in Kalapakī, the Menehune, wiliwili trees, and the many well-known chiefs, heros, and gods such as the chief Papalinaloa, the three sons of La'a Maikahiki, the hero Lohiau; the contest of Kemamo the sling-thrower and Kapūnohu, the ravishing of Pele by Kamapua'a, demi-god Pōhaku-o-Kaua'i (Hoary Head), as well as a Kaua'i chief sent by Ka'umuali'i to placate Kamehameha I on O'ahu. Mo'olelo with associated bodies of water within the Project area are also plentiful which include Alekoko, the largest fishpond in Kaua'i (also known as 'Alekoko, Alakoko, Pēpē'awa), Hulēia (Hulā'ia) Stream, Kilohana, and Nāwiliwili Bay. Many wahi pana of settled areas, such as Puhī, Līhu'e, and various pu'u (hills, ridges) are also associated with the Project area.</p> <p>Other important findings from background research are presented and emphasized in more detail:</p> <ol style="list-style-type: none"> 1. The traditional moku or districts of Kaua'i were replaced in the mid-to-late 19th century. Līhu'e became the modern district that includes the ahupua'a of the proposed Project, previously under the Puna District. "Līhu'e," which literally translates as "cold chill," was not consistently used until the establishment of commercial sugar cane agriculture in the mid-19th century (Creed et al. 1999). Between the 1830s and the Māhele, the names Nāwiliwili and Līhu'e were used somewhat interchangeably to refer to a settlement along Nāwiliwili Bay. 2. No known heiau currently exists within the study area although Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua'i, existed along the coast of Nāwiliwili Ahupua'a (Damon 1931). Listed by Bennett (1931) as Site No. 99, this heiau is reported to have been about four acres and associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua'a.
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	<p>3. After the Māhele, Victoria Kamāmālu was awarded over two thousand acres of Nāwiliwili Ahupua'a, along with much of Niumalu and Ha'ikū. Land Commission Awards (LCAs) describe many lo'i (irrigated taro, especially for taro) and kula (plain, field, open country, pasture) lands within the study area particularly as being in the same 'āpana (piece, slice, portion), a pattern common to the Puna District of Kaua'i, but uncommon elsewhere in Hawai'i. Maka'āinana (commoner) in the Puna District were referring to lands in valley bottoms as kula.</p> <p>4. Many loko i'a (fishponds) were prevalent in the study area. LCAs document six in Nāwiliwili, seven in Niumalu, and claimants describe loko (pond) or kiowai (water hole) in Ha'ikū. 'Alekoko Fishpond, also known as Menehune Fishpond, or Niumalu Fishpond, is the largest fishpond on Kaua'i and still exists in the study area. It is also known as SIHP No. 50-30-11-501.</p> <p>5. The Project area was initially part of the Grove Farm Plantation—so named after an old stand of kukui trees. The plantation was established in 1850 and taken over by Mr. George Wilcox in 1863. He bought the farm in 1870 for \$12,000 and it flourished under his leadership. In the mid-1960s, Grove Farm donated 200 acres of former sugar land to the State of Hawai'i for KCC. Grove Farm ended its sugar business in 1974 (Wilcox 1998:76).</p> <p>6. The Old Puhī Camp, which housed plantation workers of Grove Farm, extended into the Project area and consisted of about 600 homes for about 1,200 workers and their families. At the forefront of housing reforms, Puhī Camp dwellings became the standard for the plantation industry in the 1920s (Riznik 1999).</p> <p>7. An archaeological reconnaissance by Palama in 1973 identified the Puhī Camp Cemetery, State Inventory of Historic Places (SIHP) No. 50-30-11-B006, old plantation camp remains associated with Puhī Camp, Puhī Camp, and an area containing possible lo'i. A field inspection of the Project area in August, 2010, found ten historic surface features, including two previously identified historic features (CSH 9, CSH 10) by Palama (1973). An "old 'auwai" that conforms to a portion of Grove Farm's "Mauka Ditch", corresponds to CSH 9 and the Puhī Cemetery corresponds to CSH 10. However, the Puhī cemetery is outside of but surrounded by the Project area. The</p>
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	<p>remaining features found appear to be related to Grove Farm and date to the plantation era. The historic surface features consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7) of which CSH 3 is abandoned; and an abandoned wooden flume (CSH 8)</p>
Results of Community Consultation	<p>CSH attempted to contact 32 community members, government agencies, community organizations, and individuals, including residents, "recognized" (either cultural or lineal) descendants, and cultural practitioners. Community consultations began in September, 2011 until February, 2012. Of the 22 people that responded, eight kūpuna (elders) and/or kama'āina (Native-born) participated in formal interviews for more in-depth contributions to the CIA and two people provided a statement via e-mail and telephone.</p> <p>This community consultation indicates that additional significant cultural resources, namely streams and watersheds as well as the Hulē'ia National Wildlife Refuge near and downstream from the Project area, have not been adequately documented and assessed for their ecological relationship with natural and cultural resources within and near the Project area. The study area and environs, in particular the lo'i, kula or lands in valley bottoms in this particular context, rivers, streams and Nāwiliwili Bay, has a long history of use by Kānaka Maoli (Native Hawaiians) and other kama'āina groups for a variety of past and present cultural activities and gathering practices. Participants consulted reveal their knowledge of these practices and resources.</p> <p>At least two community contacts, Mr. Pereira, and Mr. Chun, discuss fishing, gathering 'opihi (limpets) and limu (seaweed, algae) in Nāwiliwili Bay, and crabbing along Hulē'ia River which still continue today among residents of the area. Both participants discuss spear and throw-net fishing which for Mr. Pereira consisted in part of catching akule (big-eye scad), manini (convict tang), and squid using his own throw net which he creates and sells to others. Several participants (Mr. Robert White, Mr. Pereira and Mr. Chun) narrate he'enalu (surfing) practices and associated mo'olelo in the past and in the present. At least two participants note the abundance of freshwater resources and the watershed near the Project area and highlight the ecological relationship of natural and cultural resources within or near the Project area.</p> <p>Participants also relate mo'olelo about the practice of hukilau (fish with the seine), the origin of the name "Puhī" which is connected to the cave of a shark god in Ha'ikū, as well as the presence of spirits in the</p>

	<p>Project area in the form of fireballs. At least five participants relate the gathering of plants such as bamboo shoots, papaya, mangoes, passionfruit, guava and pepeiao (cloud ear fungus) in the Project area along with the catching of crayfish, 'o'opu, and frogs in the irrigation ditches and reservoirs while at least two community contacts related about the hunting of pheasants and wild boars. Participants also discuss burials and note the existence of a historic cemetery surrounded by the Project area, and another cemetery nearby. Many participants stress the importance of respecting and sharing resources with one another, the ecological relationship that shapes natural and cultural resources, and the need to keep the ecological balance by keeping contaminants away from the watershed upon which the Project area is built to ensure a healthy environment for Nāwiliwili Bay and the wildlife refuge area downstream of the Project area.</p> <p>Other important findings from community consultations are presented and emphasized in more detail:</p> <ol style="list-style-type: none"> 1. In the 1960s and 70s, the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū, consisted of small rural towns with taro cultivated relatively close to the ocean. Mr. Chun describes Nāwiliwili Valley as having had many taro fields which later turned into cattle pastures and grassland. Today, he tells of only one family in Nāwiliwili and a few in the back of Niumalu who continue the practice. Mr. Pereira speaks of growing up in Niumalu with no electricity and using kerosene for cooking. 2. The Project area is agricultural land formally owned by Grove Farm where pineapple, cattle, and later sugar cane, were farmed. Plantations provided a livelihood for many residents of Kaua'i like Mr. Pereira and Kupuna Makanani. Mr. Pereira worked in the sugar and pineapple plantations during the summertime as a young boy, which paid for his schooling. Mr. Chun and Mr. Pereira recall the predominance of the sugar industry which included the establishment of a sugar mill in Nāwiliwili. A railway system brought cane from the fields to the mill which later became replaced by trucks. 3. The Project area includes the former Old Puhi Camp, a plantation camp for the workers of Grove Farm Plantation and their families. Since Puhi Camp was a significant part of the Project area's history, Puhi Camp is described in more detail: <ul style="list-style-type: none"> • Participants remember Puhi as a self-sufficient plantation camp with its own stores, doctors, and medical facilities. Families shopped for groceries in plantation stores, and bought items using credit, to be paid for on payday. Plantation workers lived at Puhi for
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	<p>cheap rent, received kerosene for cooking, and hot water for bathing. Land was also given to anyone who wished to grow vegetables and crops were shared with each other.</p> <ul style="list-style-type: none"> • While various accounts portray plantation life as harsh and unfulfilling, Mr. Takahashi relates that the Wilcox family treated their workers very well and life was enjoyable at Puhi. Workers were provided the opportunity to own their own homes. Those raised on the camp fondly reminisce of a simple life and special place—a close-knit community where everybody recognized and took care of each other despite their differences. “For me, growing up in Puhi was great!”, says Kupuna Makanani. • The culture of Puhi Camp was diverse. According to Kupuna Makanani, the homes in Puhi were arranged by race though “everybody lived as one people.” Participants raised in the camp, appreciate their multi-cultural upbringing through the sharing of cultural practices, folk dances, foodways, and folklife. • Participants recalled other cultural activities at Puhi Camp such as the ‘Social Box’ which was a dance held by the Filipinos once a month. Mr. Pereira also describes an annual Filipino carnival called the “Holy Ghost” that occurred every December. On Tuesdays, fresh bread and <i>malasadas</i> (Portuguese pastry) were baked and children collected firewood to keep the fire alive for baking. • The transition to unionization of workers in 1946 brought many changes to Puhi Camp. Kupuna Makanani explains that before the union, though wages were low, housing and water were free and Grove Farm provided equipment and toys for the children. Several strikes ensued but the strikes were peaceful, unlike the massacre at Hanapēpē in 1924. During the strikes, a soup kitchen run by the union, provided food for workers on strike and their families. <ol style="list-style-type: none"> 4. Two graveyards, known to Puhi residents as “Old Puhi Cemetery” (SIHP No. 50-30-11-B0006) and “Cement Pond,” are located outside of but within 200 meters of the Project area. The cemetery is divided into two sections for Japanese and Filipino families despite the multi-cultural makeup of Puhi. According to Mr. Takahashi, other ethnicities chose to be buried elsewhere and many graves were removed by their
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	<p>families. "Cement Pond," exists approximately 200 meters north of the Project area and consists of three burials. Participants speculate that these burials are not of Puhī Camp residents but possibly of affluent Japanese. Kupuna Makanani recalls how it was possible to bury family members around one's residence when she was growing up.</p> <ol style="list-style-type: none"> 5. Filipino migrants came to Hawai'i in the early 1900s as contract laborers or "sakadas," searching for a better place to live, relates Mr. Takahashi and Kupuna Makanani. Some graves at Old Puhī Cemetery are of Filipino veterans who have no known family with only crosses in the ground for their burial, according to Mr. Takahashi. He wishes that relatives of these veterans could find them, allowing younger generations to continue their ties to their culture and family tree. 6. Mr. Chun reiterates that the sugarcane plantations would have displaced features of cultural significance within the Project area and also points out that the population centers would have been concentrated along the coast or along the Hulē'ia River. Therefore, the likelihood of finding heiau and other cultural features would be higher along the coast than within the Project area. No participants had knowledge of any heiau within the study area. However, one participant noted a mo'olelo about fireballs, which reflect the presence of spirits in Native Hawaiian culture, near the Project area. 7. Participants describe an abundance of water in the Project area. From Kilohana, water collects in reservoirs that once fed the plantations. Reservoirs and ditches were utilized by Puhī residents as food sources, and for recreational swimming. Mr. Takahashi asserts that a gate that controlled water flow to these water sources and regulated flow to prevent floods, still exists. Water subsequently flowed down through streams and rivers into Nāwiliwili Bay. The Hulē'ia National Wildlife Refuge, which includes the Menehune Fishpond, is part of a watershed downstream of the Project area. 8. Mr. Chun and Mr. White indicate that development has changed water flow patterns, as well as water quality. Mr. Chun attributes muddy water in Nāwiliwili Bay not only to heavy rains flooding the Hulē'ia River but to development and land-based activities upstream, such as the previous sugar mill and the existing Marriott Hotel. Mr. Chun believes that fresh water has shaped the ecology of Nāwiliwili Bay in that corals do not grow in the presence of fresh water. He speculates that the sandy bottoms of the bay and the location of the coral reef further out in the bay, is due to the decreased salinity from the
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	<p>influx of fresh water. Residents like Mr. White do not eat fish from the coast because of degraded water quality.</p> <ol style="list-style-type: none"> 9. The traditional practice of lei (necklace of flowers)-making was and continues to be practiced by residents of the study area
<p>Impacts and Recommendations</p>	<p>The following cultural impacts and recommendations are based on a synthesis of all information gathered during preparation of the CIA. To help mitigate the potential adverse impacts of the proposed Project on cultural beliefs, practices, and resources, recommendations should be faithfully considered and the development of the appropriate measures to address each concern should be implemented.</p> <ol style="list-style-type: none"> 1. In light of statements made by several participants in this study over the potential impact of future development at KCC on the historical remnants of the Old Puhī Camp, especially the Puhī Cemetery, it is recommended that: <ol style="list-style-type: none"> i. Large trees near the graves should be removed to prevent further destruction of headstones from falling branches. Although the cemetery is outside of the Project area, it is completely surrounded by the Project area. ii. Participants recommend that KCC should assume the responsibility of protecting and maintaining the cemetery, including any financial obligations that incur. Regarding a burial treatment and preservation plan, Mrs. Sakoda prefers that burials be preserved in place. If burials must be removed, Mrs. Sakoda, Mr. Takahashi and Kupuna Makanani agree that a columbarium containing all the burials be built on site. The columbarium would protect the burials of The Puhī Cemetery and solve the problem of graveyard maintenance. iii. Participants recommend that all families with ties to the cemetery and Project area should be consulted and included in any discussions regarding the The Puhī Cemetery. 2. Kupuna Makanani remembers from her childhood how it was possible to bury family members around one's residence, hinting to the possibility of discovering inadvertent burials in future development. Should cultural or burial sites be identified during future ground disturbance in the Project area, all work should immediately cease and the appropriate agencies notified pursuant to applicable law. Kūpuna from the study area and former residents of Puhī Camp should also be consulted to

	<p>ensure proper cultural protocols are addressed.</p> <p>3. As there continues to be concern from former Puhi residents about the loss of the history and memories of Puhi Camp as the campus expands, it is recommended that a replica of a bulletin board used in the everyday life of Puhi Camp and containing the history of the camp be built and installed on KCC campus. The bulletin board continues to be a traditional cultural property in the memories of the study participants, who cherish its significance.</p> <p>4. Due to concerns expressed by participants about the possible impacts of the KCC expansion to the ecology and its interrelationship with the natural and cultural resources within and near the Project area, including consideration of the mauka-makai connection of the land, the possible impacts of land-based activities stemming from the college on water resources, Nāwiliwili Bay, and the ocean, as well as the potential contamination of the watershed and of the Hulē'ia National Wildlife Refuge from the use of herbicides and methods of weed control at KCC, it is recommended that KCC limit or consider the use of non-toxic pesticides and employ the appropriate best management practices.</p> <p>5. Due to the current traffic congestion directly in front of the KCC campus attributed in part to vehicles turning into the Chevron gas station, and the likelihood that the traffic will likely be exacerbated by the KCC expansion, it is recommended that KCC work with the County or the State to install "the necessary signage or asphalt marking" as well as other safe means to improve the intersection flow.</p>
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Table of Contents

Prefatory Remarks on Language and Style	ii
Abbreviations	iii
Management Summary	iv
Section 1 Introduction	1
1.1 Project Background	1
1.2 Document Purpose.....	1
1.3 Scope of Work	2
1.4 Environmental Setting	2
1.4.1 Natural Environment.....	2
1.4.2 Built Environment.....	3
Section 2 Methods	8
2.1 Archival Research.....	8
2.2 Community Consultation.....	8
2.2.1 Sampling and Recruitment.....	8
2.2.2 Informed Consent Protocol.....	9
2.2.3 Interview Techniques.....	10
2.2.4 Study Limitations.....	10
2.3 Compensation and Contributions to Community	11
Section 3 Traditional Background	12
3.1 Overview.....	12
3.2 Wahi Pana.....	12
3.3 Mo'olelo	14
3.3.1 Nāwiliwili	14
3.3.2 Ahukini and Ninini	14
3.3.3 Kemamo and Kapūnohu	15
3.3.4 Niumalu and Hulē'ia.....	15
3.3.5 Menehune Fishpond.....	15
3.3.6 Kuhiau and Paukini.....	16
3.3.7 Kalanipu'u	16
3.3.8 Kilohana.....	16
3.3.9 The Winds of Kaua'i.....	17
3.4 Mele (Songs).....	17
3.4.1 Mele associating Nāwiliwili with the mokihana (<i>Pelea anisata</i>) flower.....	17
3.4.2 Līhu'e.....	19
3.5 Heiau.....	19
3.5.1 Kuhiau Heiau and Paukini Rock.....	19
3.5.2 Heiau at Kūki'i Point, Ninini and Ahukini	19
3.6 Freshwater Resources and Fishponds.....	21
3.6.1 Streams	21
3.6.2 Fishponds.....	22

3.7 Settlement and Subsistence.....	24
Section 4 Historical Background	27
4.1 Overview.....	27
4.2 Early Post-Contact Period.....	27
4.3 The Māhele (1848)	30
4.3.1 Nāwiliwili Ahupua‘a.....	31
4.3.2 Niumalu Ahupua‘a.....	31
4.3.3 Ha‘ikū Ahupua‘a.....	32
4.4 Mid Nineteenth to Twentieth Century	32
4.4.1 Population.....	32
4.4.2 Changing District Names.....	34
4.4.3 Commercial Sugar Cane Agriculture.....	34
4.5 Modern Land Use	39
Section 5 Archaeology.....	48
5.1 Previous Archaeological Research	48
5.1.1 Previous archaeological studies in the study area.....	48
5.1.2 Previous archaeological studies within or adjacent to the Project area	51
5.2 Archaeological study for the proposed Project.....	53
Section 6 Community Consultation.....	57
6.1 SHPD Response.....	63
6.2 OHA Response	63
6.3 Statement by Mr. Frederic Ellamar.....	63
6.4 Statement by Ms. Amber McClure.....	63
Section 7 Interviews	64
7.1 Acknowledgements.....	64
7.2 Site Interview with Ms. Audrey Kawado, Kupuna Mabel Makanani, Mrs. Hirokane McClure, Ms. Amber McClure, and Mr. Dennis Takahashi	64
7.2.1 Strikes and Unions.....	70
7.2.2 Everyday Life in Puhi Camp	71
7.2.3 Foodways in Puhi Camp	75
7.2.4 Puhi Camp Memories	81
7.2.5 More Foodways	87
7.2.6 The Social Box or Box Dance	87
7.2.7 Recommendations.....	88
7.3 Mr. Charlie Pereira	90
7.4 Mr. Dennis Chun	93
7.5 Mr. Robert White.....	98
Section 8 Cultural Landscape	100
8.1 Hawaiian Habitation and Agriculture	100
8.2 Wahi Pana and Mo‘olelo	102
8.3 Burials.....	102
8.4 Heiau.....	102
8.5 Marine and Freshwater Resources.....	103

8.5.1 Streams	103
8.5.2 Fishing	103
8.5.3 Loko I‘a	104
8.5.4 He‘enalu.....	105
Section 9 Summary and Recommendations	106
9.1 Results of Background Research	106
9.2 Results of Community Consultation.....	108
9.3 Impacts and Recommendations	111
Section 10 References Cited	113
Appendix A Glossary	A-1
Appendix B Common and Scientific Names for Plants and Animals Mentioned by Community Participants	B-1
Appendix C Authorization and Release Form	C-1
Appendix D Community Consultation Letter	D-1
Appendix E SHPD Response Letter	E-1
Appendix F OHA Response Letter	F-1

List of Figures

Figure 1. 1996 U.S. Geological Survey 7.5 minute topographic map showing the Project area.....	4
Figure 2. Aerial photograph showing the Project area (GeoEye 2001).....	5
Figure 3. Tax Map Key showing the Project area (Hawai'i TMK Service 1984).....	6
Figure 4. U.S. Department of Agriculture soil classification map of the Project area (Sato et al. 1973).....	7
Figure 5. An 1881 map of Nāwiliwili Harbor by Lt. George G. Jackson, showing remnant of ancient heiau near Kūki'i Point; also note the area called “Kuhiau” near the courthouse (left-hand side), previous location of Kuhiau Heiau.....	20
Figure 6. Map showing heiau along the coastal areas within and near the study area (adapted from Damon 1931).....	21
Figure 7. Kalapakī Bay, showing two streams with red Xs marking their mauka locations and outlets to Kalapakī Bay; Koena'awa-nui Stream is on the left (Source: Kauai Historical Society n.d.).....	22
Figure 8. Menehune Fishpond, 1912 (Bishop Museum; Photographer, Ray Jerome Baker).....	23
Figure 9. Menehune Fishpond still in use in 1934 (Kauai Historical Society 1934).....	24
Figure 10. Niumalu Flats: Pond fields and fishponds (Source: Kaua'i Historical Society, Date Unknown).....	26
Figure 11. An 1820s map of Kaua'i made by Hiram Bingham showing some place names from the Project area (courtesy of Kaua'i Museum).....	28
Figure 12. Taro terraces in Nāwiliwili Valley (Kauai Historical Society, n.d.).....	32
Figure 13. Taro cultivated in the vicinity of Pu'ali Stream in 1905 (Kaua'i Historical Society, 1905).....	33
Figure 14. Map showing population estimate for Kaua'i in 1853 (adapted from Coulter 1931:16).....	33
Figure 15. 1936 map of the political districts of the County of Kaua'i, Territory of Hawai'i.....	34
Figure 16. Lihue Plantation Sugar Mill, 1941 (U.S. National Archives and Records Administration).....	35
Figure 17. Portion of 1878 Government Survey map by W.D. Alexander, showing location of the Project area and Grove Farm (shaded).....	40
Figure 18. Grove Farm showing its approximate location to the Project area, Līhu'e, Kōloa, and larger southwestern Kaua'i (adapted from Krauss and Alexander 1984).....	41
Figure 19. Plantation housing at Puhi Camp (Adapted from Riznik 1999).....	42
Figure 20. Single family plantation style house at Puhi Camp, 1920 (adapted from Riznik 1999).....	42
Figure 21. Portion of 1910 U.S. Geological Survey Map, Līhu'e quadrangle, showing the Project area.....	43
Figure 22. Portion of 1941 Lihue Plantation map showing the location of the Project area adjacent to the plantation and within Grove Farm.....	44
Figure 23. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the Project area.....	45
Figure 24. A 1965 aerial photograph showing the extent of sugar cane within the Project area and its vicinity (adapted from Foote et al. 1972).....	46
Figure 25. 1977-1978 U.S. Geological Survey aerial photograph of Līhu'e and vicinity showing the Project area.....	47

Figure 26. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing previous archaeological studies in vicinity of the Project area.....	50
Figure 27. Locations of historic resources found within portions of the Project area during a 1973 archaeological reconnaissance (adapted from Palama 1973:4).....	55
Figure 28. Locations of historic resources found within the Project area during 1973 archaeological reconnaissance (adapted from Palama 1973:4; base map Google Earth 2012).....	56
Figure 29. Mr. Takahashi shows Old Puhi Camp Cemetery (CSH 12/05/2011).....	66
Figure 30. Headstones at Japanese side of Puhi cemetery (CSH 12/05/2011).....	66
Figure 31. Mrs. Daphne Hirokane McClure discovers her cousin Alice's grave in Puhi Cemetery (CSH 12/05/2011).....	68
Figure 32. Grave of a two-month old baby in Puhi Cemetery (CSH 12/05/2011).....	69
Figure 33. Mr. Takahashi shows the type of vines he used as a child (CSH 12/05/2011).....	71
Figure 34. Kupuna Makanani tells of her childhood home, marked by mango tree in background (CSH 12/05/2011).....	74
Figure 35. A passion fruit flower grows in the Project area (CSH 12/05/2011).....	76
Figure 36. A picture of <i>takenoko</i> growing in the Project area (CSH 12/05/2011).....	78
Figure 37. Mr. Takahashi and Mrs. McClure indicate the irrigation ditch that leads to a tunnel which they explored as children (CSH 12/05/2011).....	78
Figure 38. Kupuna Makanani points out papaya flowers she used in lei (CSH 12/05/2011).....	80
Figure 39. A non-native orchid growing near Project area identified by Dr. Lisa Gollin, a CSH ethnobotanist and researcher, to mostly likely be <i>Spathoglottis plicata</i> (Philippine ground orchid) (CSH 12/05/2011).....	80
Figure 40. Aerial map with location of both Puhi Camp Cemetery and the “Cement Pond” cemetery, just outside the Project area (base map Google Earth 2012).....	83
Figure 41. One of three graves in the Cement Pond cemetery (CSH 12/05/2011).....	84
Figure 42. Mr. Pereira weaving a fishing net (CSH 12/08/2011).....	90
Figure 43. Mr. Pereira with his first fishing net at the age of 12 (Courtesy of Mr. Pereira).....	92
Figure 44. Taro was grown along the Nāwiliwili Stream to half a mile up above the mill. (Bishop Museum 1886).....	101
Figure 45. Menehune (‘Alekoko) Fishpond today (Boynton n.d.).....	105

List of Tables

Table 1. Kapu resources mentioned in Land Commission documents from the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū (source: Ching et al. 1973).....	26
Table 2. Previous archaeological studies within and near the Project area	48
Table 3. Historic Features Identified Within and Adjacent to the Project Area	54
Table 4. Results of Community Consultation.....	57

Section 1 Introduction

1.1 Project Background

At the request of Wilson Okamoto Corporation and the University of Hawai'i Community Colleges, CSH conducted a CIA for the Kaua'i Community College Rezone Campus Project. The proposed Project is located in Puhi, in the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū, approximately two miles southwest of the County seat in Līhu'e District, Kaua'i Island, on TMK parcels: [4]-3-4-007:001, [4]-3-4-007:002, [4]-3-4-007:003, and [4]-3-4-007:006. Figures 1 and 2 show the Project area.

The UHCC proposes to amend the State Land Use Boundary to re-designate the entire 199-acre KCC campus from its existing land use classification of Agricultural District to Urban District. The Project consists of the re-designation of land, as well as the construction of new buildings, additions to buildings, and new parking. A Special Permit was granted by the State Land Use Commission in 1973 for construction of the college campus within an approximately 99-acre parcel situated within TMK [4]-3-4-07:003. Most of the additional approximately 100 acres (within TMK [4]-3-4-07:01, :002, and :006) are undeveloped, except for two Hawaiian Language Immersion schools, Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School.

The 199-acre campus, built on former sugar cane land, is owned by the State of Hawai'i's University of Hawai'i. The KCC is a two-year public community college and the only public institution of higher learning on the island of Kaua'i. It provides community services in addition to its educational mission. The KCC was originally established in 1929 as Kalaheo Vocational School and over time, the institution has developed into a comprehensive community college. In 1999, a Long Range Development Plan for the college was published which provides guidelines for the development of the campus to accommodate a population of 3,000 full-time students. Currently, the KCC has a population of approximately 700 full-time students; thus, much of the planned campus development has yet to be implemented. The land use re-designation of the KCC campus from Agricultural District to Urban District would be more consistent with its developed character.

1.2 Document Purpose

The Project requires compliance with the State of Hawai'i environmental review process (Hawai'i Revised Statutes [HRS] Chapter 343), which requires consideration of a proposed Project's effect on cultural practices. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed Project's impacts to cultural practices and resources (per the *Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts*). The impacts may include Traditional Cultural Properties (TCPs) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places. In accordance with Hawai'i State Historic Preservation Statute (Chapter 6E) guidelines for significance criteria in the Hawai'i Administrative Rules (HAR) §13-275 under Criterion E, an historic property determined to be significant shall:

Have an important value to the Native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

The document is intended to support the Project's environmental review and may also serve to support the Project's historic preservation review under HRS Chapter 6E and HAR Chapter 13–275.

1.3 Scope of Work

The scope of work for this CIA includes:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.
4. Preparation of a report that summarizes the results of these research activities and provides recommendations based on findings.

1.4 Environmental Setting

1.4.1 Natural Environment

The Project area is located approximately 2 miles west of Līhu'e, mauka (inland) of Kaumuali'i Highway in Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, on the southeastern quadrant of the island of Kaua'i. The parcel is fairly inland, approximately 3 miles from the southeastern coast. The Project area is exposed to the prevailing northeast trade winds, and receives up to 254 cm (100 inches) of rainfall annually (Giambelluca et al. 1986). The Project area lies on moderately sloping lands that range from approximately 300 to 400 feet above mean annual sea level.

The Project area is composed of five different soil types as depicted in Figure 4. These are Puhī Salty Clay Loam, 0 to 3 percent slopes (PnB), Puhī Salty Clay Loam, 3 to 8 percent slopes (PnC), Puhī Salty Clay Loam (PnD), Marsh (MZ), and rough broken land (rRR). The majority of the Project area is made up of PnC while PnD, MZ, and rRR soils are found along the western border of the property. The developed region of the school is composed of mostly PnB and PnC soils.

In pre-Contact times, vegetation in the Project area consisted of lowland mesic (relatively moist) forest, woodland and shrubland (Juvik and Juvik 1998). Most of this native ecosystem was disturbed and severely diminished by early historic activities, including commercial agriculture and ranching. According to Hammatt and Creed (1993), Land Commission documents describe middle 19th century Nāwiliwili Ahupua'a as having native vegetation of hau and wauke (paper mulberry) (See Appendix B for scientific names).

1.4.2 Built Environment

Development within the Project area consists of school and administrative buildings for KCC, Pūnana Leo o Kaua'i Pre-School, and Kawaikini New Century Public Charter School, and associated parking and roadways (Figure 2). The town of Puhī lies immediately to the south across Kaumuali'i Highway.

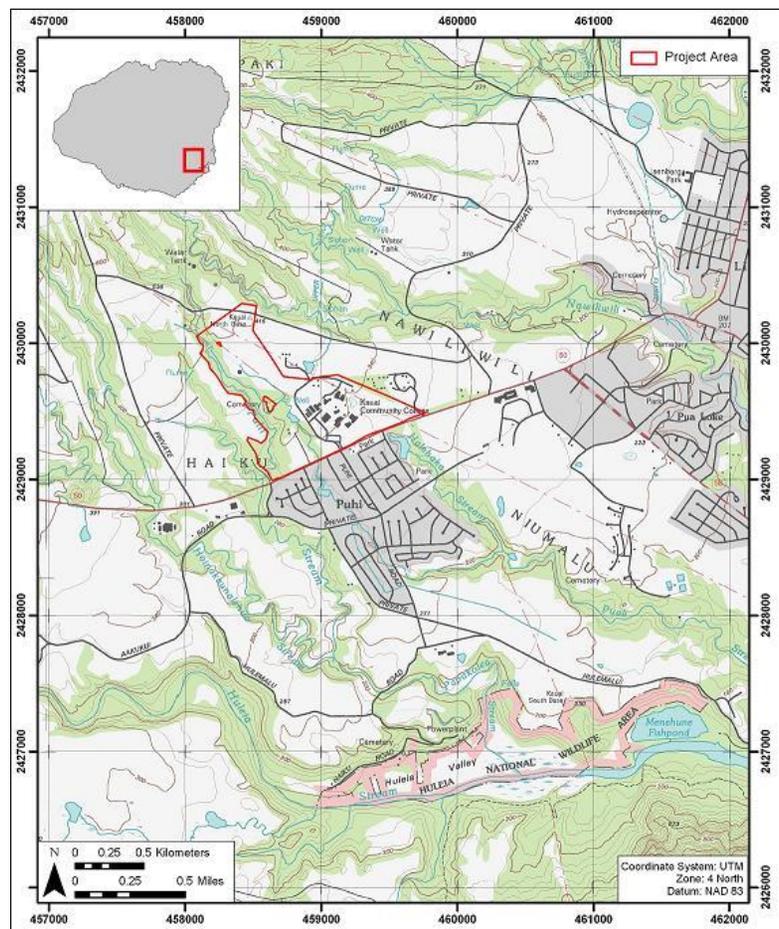


Figure 1. 1996 U.S. Geological Survey 7.5 minute topographic map showing the Project area



Figure 2. Aerial photograph showing the Project area (GeoEye 2001)

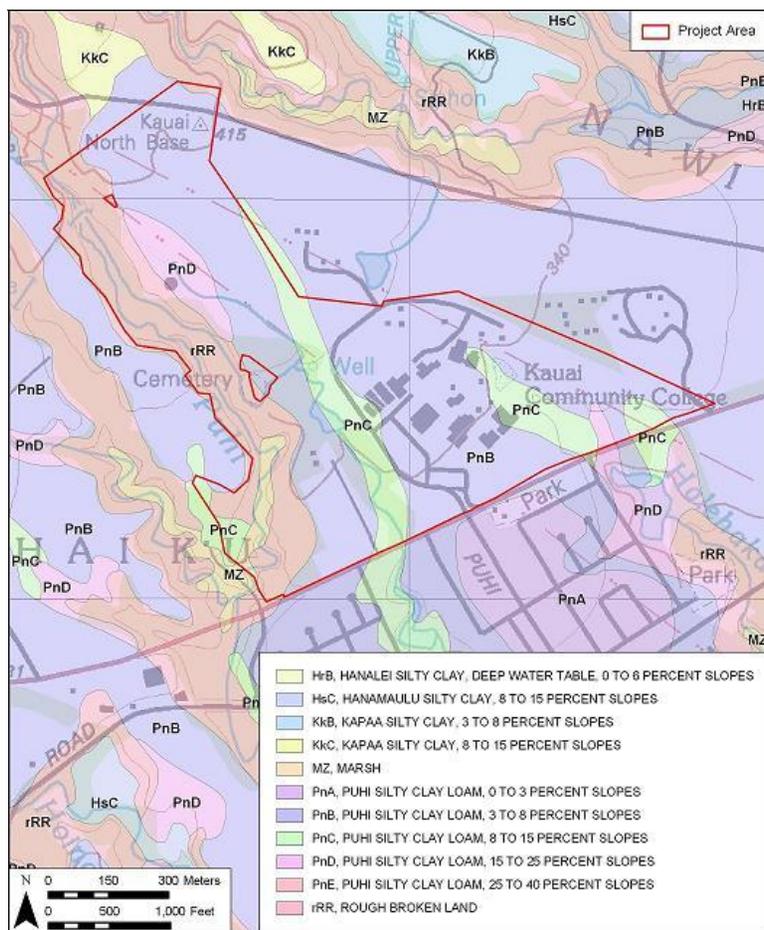


Figure 4. U.S. Department of Agriculture soil classification map of the Project area (Sato et al. 1973)

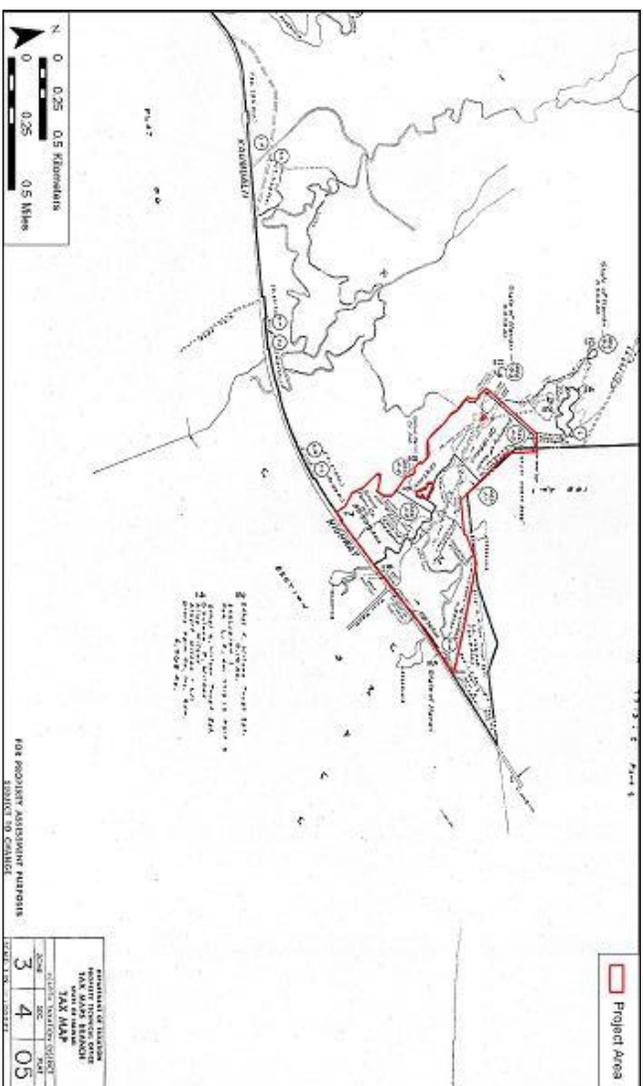


Figure 3. Tax Map Key showing the Project area (Hawai'i TMK Service 1984)

Section 2 Methods

2.1 Archival Research

Historical documents, maps and existing archaeological information pertaining to the Project area were researched at the CSH library and other archives including the University of Hawai'i at Mānoa's Hamilton Library, the State Historic Preservation Division (SHPD) library, the Hawai'i State Archives, the State Land Survey Division, and the archives of the Bishop Museum. Previous archaeological reports for the area were reviewed, as were historic maps and photographs and primary and secondary historical sources. Information on LCAs was accessed through Waihona 'Aina Corporation's Māhele Data Base (www.waihona.com) as well as a selection of CSH library references.

For cultural studies, research for the Traditional Background section centered on Hawaiian activities including: religious and ceremonial knowledge and practices; traditional subsistence land use and settlement patterns; gathering practices and agricultural pursuits; as well as Hawaiian place names and mo'olelo, mele (songs), oli (chants), 'ōlelo no'ēau (proverbs) and more. For the Historic Background section, research focuses on land transformation, development and population changes beginning in the early post-European Contact era to the present day (see Scope of Work above).

2.2 Community Consultation

2.2.1 Sampling and Recruitment

A combination of qualitative methods, including purposive, snowball, and expert (or judgment) sampling, were used to identify and invite potential participants to the study. These methods are used for intensive case studies, such as CIAs, to recruit people that are hard to identify, or are members of elite groups (Bernard 2006:190). Our purpose is not to establish a representative or random sample. It is to "identify specific groups of people who either possess characteristics or live in circumstances relevant to the social phenomenon being studied.... This approach to sampling allows the researcher deliberately to include a wide range of types of informants and also to select key informants with access to important sources of knowledge" (Mays and Pope 1995:110).

We began with purposive sampling informed by referrals from known specialists and relevant agencies. For example, we contacted the SHPD, Office of Hawaiian Affairs (OHA), Kaua'i/Ni'ihau Island Burial Council (KNIBC), and community and cultural organizations in the Līhu'e District for their brief response/review of the Project and to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and vicinity, cultural and lineal descendants of study area, and other appropriate community representatives and members. Based on their in-depth knowledge and experiences, these key respondents then referred CSH to additional potential participants who were added to the pool of invited participants. This is snowball sampling, a chain referral method that entails asking a few key individuals (including agency and organization representatives) to provide their comments

and referrals to other locally recognized experts or stakeholders who would be likely candidates for the study (Bernard 2006:192). CSH also employs expert or judgment sampling which involves assembling a group of people with recognized experience and expertise in a specific area (Bernard 2006:189–191). CSH maintains a database that draws on over two decades of established relationships with community consultants: cultural practitioners and specialists, community representatives and cultural and lineal descendants. The names of new potential contacts were also provided by colleagues at CSH and from the researchers' familiarity with people who live in or around the study area. Researchers often attend public forums (e.g., Neighborhood Board, Burial Council and Civic Club meetings) in (or near) the study area to scope for participants. Please refer to Table 4, Section 6, for a complete list of individuals and organizations contacted for this CIA.

CSH focuses on obtaining in-depth information with a high level of validity from a targeted group of relevant stakeholders and local experts. Our qualitative methods do not aim to survey an entire population or subgroup. A depth of understanding about complex issues cannot be gained through comprehensive surveying. Our qualitative methodologies do not include quantitative (statistical) analyses, yet they are recognized as rigorous and thorough. Bernard (2006:25) describes the qualitative methods as "a kind of measurement, an integral part of the complex whole that comprises scientific research." Depending on the size and complexity of the project, CSH reports include in-depth contributions from about one-third of all participating respondents. Typically this means three to twelve interviews.

2.2.2 Informed Consent Protocol

An informed consent process was conducted as follows: (1) before beginning the interview the CSH researcher explained to the participant how the consent process works, the Project purpose, the intent of the study and how his/her information will be used; (2) the researcher gave him/her a copy of the Authorization and Release Form to read and sign (Appendix C); (3) if the person agreed to participate by way of signing the consent form or providing oral consent, the researcher started the interview; (4) the interviewee received a copy of the Authorization and Release Form for his/her records, while the original is stored at CSH; (5) after the interview was summarized at CSH (and possibly transcribed in full), the study participant was afforded an opportunity to review the interview notes (or transcription) and summary and to make any corrections, deletions or additions to the substance of their testimony/oral history interview; this was accomplished either via phone, post or email or through a follow-up visit with the participant; (6) the participant received the final approved interview and any photographs taken for the study for record. If the participant was interested in receiving a copy of the full transcript of the interview (if there is one, as not all interviews are audio-recorded and transcribed), a copy was provided. Participants were also given information on how to view the report on the OEQC website and offered a hardcopy of the report once the report is a public document.

If an interviewee agreed to participate on the condition that his/her name is withheld, procedures are taken to maintain his/her confidentiality (see Protection of Sensitive Information below).

2.2.3 Interview Techniques

To assist in discussion of natural and cultural resources and cultural practices specific to the study area, CSH initiated semi-structured interviews (as described by Bernard 2006), asking questions from the following broad categories: gathering practices and mauka and makai resources, burials, trails, historic properties and wahi pana. The interview protocol is tailored to the specific natural and cultural features of the landscape in the study area, identified through archival research and community consultation. These interviews and oral histories supplement and provide depth to consultations from government agencies and community organizations that may provide brief responses, reviews and/or referrals gathered via phone, email and occasionally face-to-face commentary.

2.2.3.1 In-depth Interviews and Oral Histories

Interviews were conducted initially at a place of the study participant's choosing (usually at the participant's home or at a public meeting place) and/or—whenever feasible—during site visits to the Project area. Generally, CSH's preference is to interview a participant individually or in small groups (two–four); occasionally participants are interviewed in focus groups (six–eight). Following the consent protocol outlined above, interviews may be recorded on tape and in handwritten notes, and the participant photographed. The interview typically lasts one to four hours, and records the—who, what, when and where of the interview. In addition to questions outlined above, the interviewee is asked to provide biographical information (e.g., connection to the study area, genealogy, professional and volunteer affiliations, etc.).

2.2.3.2 Field Interviews

Field interviews are conducted with individuals or in focus groups comprised of kūpuna and kama'āina who have a similar experience or background (e.g., the members of an area club, elders, fishermen, hula dancers) who are physically able and interested in visiting the Project area. In some cases, field visits are preceded with an off-site interview to gather basic biographical, affiliation and other information about the participant. Initially, CSH researchers usually visit the Project area to become familiar with the land and recognized (or potential) cultural places and historic properties in preparation for field interviews. All field activities are performed in a manner so as to minimize impact to the natural and cultural environment in the Project area. Where appropriate, Hawaiian protocol may be used before going on to the study area and may include the ho'okupu (offering) of pule (prayer), and oli. All participants on field visits are asked to respect the integrity of natural and cultural features of the landscape and not remove any cultural artifacts or other resources from the area.

2.2.4 Study Limitations

Cultural impact assessments are limited by the time frame and costs of the study as well as community participation. Often, researchers have little control over the time frame or budget available for a project but may have more discretion over study design and the methodologies employed to illicit public participation. Various factors may affect participation, such as the availability of contact information for community members during the recruitment process, the interest of the community in the project, and the commitment of participants through several

phases of the interview process. For example, once an interview is scheduled and conducted, CSH engages the interviewee at least one more time (in person or by emails or phone calls) to gain their approval of the interview transcript or summary and to incorporate any changes they make. The voluntary nature of community participation in this process, combined with restraints on time and costs, often limits the number of interviews and the depth of information gathered during the interviews.

2.3 Compensation and Contributions to Community

Many individuals and communities have generously worked with CSH over the years to identify and document the rich natural and cultural resources of these islands for cultural impact, ethno-historical and, more recently, TCP studies. CSH makes every effort to provide some form of compensation to individuals and communities who contribute to cultural studies. This is done in a variety of ways: individual interview participants are compensated for their time in the form of a small honorarium and/or other makana (gift); community organization representatives (who may not be allowed to receive a gift) are asked if they would like a donation to a Hawaiian charter school or nonprofit of their choice to be made anonymously or in the name of the individual or organization participating in the study; contributors are provided their transcripts, interview summaries, photographs and—when possible—a copy of the CIA report; CSH is working to identify a public repository for all cultural studies that will allow easy access to current and past reports; CSH staff do volunteer work for community initiatives that serve to preserve and protect historic and cultural resources (for example in, Lāna'i and Kaho'olawe). Generally our goal is to provide educational opportunities to students through internships, share our knowledge of historic preservation and cultural resources and the State and Federal laws that guide the historic preservation process, and through involvement in an ongoing working group of public and private stakeholders collaborating to improve and strengthen the Chapter 343 environmental review process.

Section 3 Traditional Background

3.1 Overview

This section focuses on the traditional background of the study area which includes the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū, within the Līhu'e District. Traditionally, the Island of Kaua'i was divided into five moku: Halele'a, Kona, Ko'olau, Nāpali, and Puna. The traditional moku were replaced in the middle to latter part of the 19th century by the modern political district names of Hanalei, Kawaihau, Līhu'e, Kōloa, and Waimea. Under the old district classification, the ahupua'a of the study area were in the moku of Puna which became replaced by Līhu'e under the new classification.

3.2 Wahi Pana

A Hawaiian wahi pana, also referred to as a place name, “physically and poetically describes an area while revealing its historical or legendary significance” (Landgraf 1994:v). Wahi pana can refer to natural geographic locations, such as streams, peaks, rock formations, ridges, and offshore islands and reefs, or they can refer to Hawaiian divisions, such as ahupua'a and 'ili (land section usually a subdivision of an ahupua'a), and man-made structures, such as fish ponds. In this way, the wahi pana of Niumalu, Nāwiliwili, and Ha'ikū, tangibly link the kama'āina of these ahupua'a to their past.

The source for place names in this section is the online database of Lloyd Soehren's *Hawaiian Place Names* (2010) and Fredrick B. Wichman's *Kaua'i, Ancient Place-Names and Their Stories* (1998). Soehren compiled all names from mid-nineteenth century land documents, such as Land Commission Awards and Boundary Commission Testimony (BCT) reports. The BCT lists boundary points for many of the ahupua'a. The names of 'ili 'āina (land units within an ahupua'a) and 'ili kū (land units awarded separately from a specific ahupua'a) are compiled from the testimony in Māhele Land Commission Awards, from both awards successfully claimed and from those rejected. Place names found by authors on United States Geological Service (USGS) maps and Hawai'i Survey Registered Maps (HSRM) were also added to the database. The Soehren database includes place name meanings from the definitive book on Hawaiian place names, *Place Names of Hawai'i* (Pukui et al. 1974). For cases in which Pukui et al. (1974) did not provide a meaning, Soehren suggested meanings for simple names from the *Hawaiian Dictionary* (Pukui and Elbert 1986).

Many sources suggest Nāwiliwili takes its name from the wiliwili tree (nā is the plural article, as in “the wiliwili trees” or “place of the wiliwili trees”). According to Pukui and Elbert (1986), the wiliwili (*Erythrina sandwicensis*) is a native leguminous tree whose flowers and pods are used for lei, and whose light wood was once used for surfboards, outriggers, and net floats. Handy (1940:67) suggests a kaona (hidden meaning) for the name Nāwiliwili based on a reduplication of the word wili, which means “twisted,” as in the meandering Nāwiliwili Stream.

According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a was known as **Papalياهو**. Kikuchi (1973) states this was the name of “an early chief,” but Hammatt and Creed (1993)

suggests it may also have been an 'ili or the konohiki (headman of of an ahupua'a land division under the chief). Papalياهو was also the name of an 'auwai (ditch, canal) on the south side of Nāwiliwili Stream, associated with LCA 3566 (Hammatt and Creed 1993).

Pukui et al. (1974) list but do not translate **Kalapakī**, defined simply as a “beach” in Līhu'e district. Pukui and Elbert (1986) define the word kalapakī (with a small “k”) as “double-yolked egg, Kaua'i.” Aside from its beach and landing, Kalapakī is probably best known in a traditional sense for its heiau of **Ahukini** and **Ninini** (and possibly another at Kūki'i). Ahukini has been translated as “altar [for] many [blessings]” (brackets inserted by Pukui et al. 1974), and this was also the name of a heiau in Kāne'ohe, O'ahu. Ninini has been translated as “pour,” as in ninini wai (to pour water), while Kalapakī was also the name of a village located along the coast. According to Hammatt and Creed (1993:22), Land Commission documents demonstrate that the “village of Kalapakī” was synonymous with the “'ili of Kuuhai.”

Niumalu literally translates as “shade [of] coconut trees,” but the word malu can also refer to “protection” or “shelter.” Niumalu's famous fishpond (also called erroneously Niamalu in some older publications) is traditionally known as either **Alekoko** (or 'Alekokoko) or Alakoko depending on the source. According to Kikuchi (1973), **Pēpē'awa** is yet another name for this loko. Pukui et al. (1974) do not include either of these names for the loko at Niumalu, but there are well known mo'olelo references to a pair of brother and sister shark guardian spirits named **Alekoko** and Kahalalehue (see below).

Niumalu is known for a series of pu'u along the high ridge forming the south side of Nāwiliwili Bay and stretching back to Hā'upu. **Kalanipu'u** (779 ft elevation), located right above the entrance to the harbor, translates literally as “the royal hill.” Traditionally, it is known as a pu'u kāheha (“calling hill”) from which the locations and movements of fish were monitored. Further mauka (up the ridge) is Kepaweo (1167 ft elevation) and **Hōkūnui** (1608 ft elevation). Pukui et al. (1974) translated the latter literally as “large star,” but nui can also mean “supreme” or “greatest.”

Pukui et al.'s (1974) entry for **Hulē'ia** refers the reader to **Hulā'ia**, described as an old name for Hulē'ia Stream, which drains into Nāwiliwili Bay. The authors (p. 53) provide this additional intriguing information regarding the literal translation of Hulā'ia: “pushed through (Kama-pua'a ravished Pele here).” A survey map of the boundaries of Niumalu Ahupua'a from the middle 19th century (Ching et al. 1973:102) depicts a stream between Nāwiliwili and Hulē'ia Streams identified as “Waikonui Stream.” Pukui and Elbert (1986) define waikō as “water with a very strong current.” This stream is today named Pu'ali on current USGS maps. The broad delta of the **Hulē'ia** river is 1.5 miles long and in the ahupua'a of **Ha'ikū** which is the ahupua'a south of Niumalu. **Ha'ikū** literally translates as, “speak abruptly or sharp break.”

Hanamā'ulu has been translated as “tired (as from walking) bay,” which may be related to mo'olelo and 'ōlelo no'eau about the stingy people of this place. **Kīpū** is the southern-most ahupua'a of the Puna District and literally translates as, “to hold back”. An interesting feature of the landscape in this area is “**Hā'upu** peak. The ridge is associated with several well-known 'ōlelo no'eau about observing and predicting weather phenomena in and around Nāwiliwili (see below). **Hā'upu** translates literally as “recollection,” and Pukui et al. (1974) also suggest it may be named for a demi-god named Pōhaku-o-Kaua'i, also known as Hoary Head. The great native

Hawaiian historian Samuel Kamakau (1961) identified **Hā'upu** as a Kaua'i chief sent by Ka'umuali'i to placate Kamehameha I on O'ahu.

Līhu'e, literally translated as “cold chill”, became the modern political name for the traditional moku of Puna. Historical documents suggest the name Līhu'e was first applied to this area by Kaikioewa (Governor of Kaua'i) in the 1830s, perhaps after Kaikioewa's upcountry residence on the island. On the other hand, Nathaniel Emerson's translation of the famous oli cycle of Hi'iaka and Pele mentions Līhu'e with the other main place names of this area. It is also well known that Līhu'e was a traditional settlement area near the current Schofield Barracks on O'ahu.

Kilohana, source of Nāwiliwili and Hulē'ia Streams, is associated with mo'olelo of a boy named Lahi and his uncle; there are multiple possible meanings of the name Kilohana (Pukui et al. 1974 list three: “lookout point,” “outer tapa,” or “best, superior.”

Puhi is a village and stream in the Līhu'e District that literally translates as, “blow.” Ka-holi-a-Kāne (the sprouting [made] by Kāne), was a shark god who lived in a cave in Puhi.

3.3 Mo'olelo

The presence of many mo'olelo in the study area suggest that the place was once well-populated. The following section presents mo'olelo from the region.

3.3.1 Nāwiliwili

The menehune were known to live in the Nāwiliwili area:

It was one of the favorite playgrounds of the tribe of Menehune, the little brown work-people who played as hard as they worked. And again it is William Hyde Rice, who, more than any other teller of stories, has kept for us old tales of this happy playground. (Damon 1931:395-396)

3.3.2 Ahukini and Ninini

According to Wichman (1998), Ahukini Heiau, located near the study area, was named for Ahukini-a-la'a (who lived about A.D. 1250), one of three sons of La'a-mai-kahiki. An ancestor of the Kaua'i chiefly lines, with a close relationship to O'ahu, Ahukini was also ali'i nui (supreme chief) of the Puna District of Kaua'i (Wichman 2003).

In the 1920s, the Hawaiian legend chronicler Rice (1974), a life-long resident of Kaua'i, published this mo'olelo about Ahukini in the story of “The Goddess Pele”:

Two brothers of Pele, who had come from foreign lands, saw Lohiau's body lying as a stone where the lava flow had overtaken him. Pity welled up in their heart and they brought Lohiau to life again. One of these brothers made his own body into a canoe and carried the unfortunate Lohiau to Kauai, where he was put ashore at Ahukini. (Rice 1974: 14)

3.3.3 Kemamo and Kapūnohu

Niumalu translates as “shaded coconut trees” and derives from the mo'olelo involving Kemamo and Kapūnohu (Wichman 1998:57). Kemamo, known for his ability to shoot a rock from his sling five miles and never missing a shot, is said to have resided on the Kona/Puna Districts boundary. During Kapūnohu's travels through the islands he was warned of Kemamo's challenges to travelers. Upon their meeting, Kapūnohu agreed to a contest with Kemamo, each betting his most prized possession. Kapūnohu bet his spear and Kemamo his sling. Kalalea peak, visible from their location, was the target. Kemamo slung a rock that failed to reach Kalalea and fell near Anahola. Kapūnohu's spear shaded the coconut trees, which led to the naming of Niumalu, “dipped into the Wailua River, hence the name Waiehu, and finally pierces the mountain at Kalalea leaving a large hole that was visible until just a few years ago” (Wichman 1998:57).

3.3.4 Niumalu and Hulē'ia

Ching et al. (1973:28) recount, without attribution, the following mo'olelo about the origins of 'Alekoko Fishpond in Niumalu Ahupua'a:

Living in the valley between the Kipu River [Hulē'ia] and Niumalu resided Alekoko, the brother, and Ka-lala-lehua, the sister, young chiefs of handsome countenance, who agreed together to construct a fishpond each for themselves. The work on these fishponds was done by the menehunes, it was done in one night (during the night of akua, on which there was a full moon). Stones for the walls were gathered from as far away as the sea beach of Makalii.

(The pond of the brother was built on one side of the river, while the pond of the sister was built in the opposite bend in the river below Kalaekapapa Point. The menehune women built the sister's pond, and the menehune men built the brother's pond.) As dawn approached the menehunes fled to the mountains. (The sister's pond was never completed.)

The sister, seeing her fishpond was incomplete, was grieved and wept at its unfinished state, while the brother rejoiced at the completion of his. The stones gathered for the sister's pond still remain in the stream to this day.

Ching et al. (1974) describe mo'olelo associated with Hulē'ia, suggesting its close pili (association) with O'ahu:

The earliest mention of the [Niumalu] area is legendary dating to 1785. After Kahekili defeated Oahu a number of chiefesses of highest rank were killed. Kekelaokalani made her escape to Kaua'i bringing with her some Oahu soil, part of which she deposited at Hulaia [Huleia].

3.3.5 Menehune Fishpond

'Alekoko Fishpond was named after Chief 'Alekoko. Today, it is known as Menehune Fishpond and its walls are believed to have been built in one night by menehune (legendary race of small people who worked at night, building fishponds). Chief 'Alekoko and his sister,

Chiefess Ka-lālā-lehua, requested the construction of the fishpond across the Hulē'ia River. The menehune agreed to construct the 825-meter dirt stone-faced dam only if Chief 'Alekoko and his sister promised to stay in their home and not watch the menehune at work. The two agreed. The menehune formed two lines stretching from the Wahiawa Plains to the Hulē'ia River and passed stone blocks through the night. Before morning, Chief 'Alekoko could no longer just listen to the menehune at work and the shifting of the stone. He made a small hole in the house's grass thatch and peeked through. The menehune dropped their stones, washed their hands, and left the fishpond incomplete as a reminder that promises are not to be broken. The chief's name and that of the fishpond, 'Ale-koko, translates as "rippling blood" and is said to refer to the bleeding hands of the Menehune from passing the rough stone that they did not have time to polish (Wichman 1998:57-58). The pond was later completed by Chinese (Rice 1923:37).

3.3.6 Kuhiau and Paukini

Several historic documents discuss the close connection between Kuhiau Heiau, reportedly the largest heiau in Kaua'i, and the pōhaku (rock) known as Paukini, which marks the ahupua'a boundary between Nāwiliwili and Kalapakī. Damon (1931:393) writes:

[Kuhiau Heiau] ... was in its day the largest and most far-famed temple on the island. Below it, in the bay, is still the rock called Paukini, which was said to be its companion or sister heiau, and was probably also the home of the kahuna [priest], or priest, of Kuhiau. In ancient times this rock was connected with the shore near the site of the former boat landing.

3.3.7 Kalanipu'u

This pu'u kāhea directly above Nāwiliwili Bay is associated with mo'olelo about Pele's older sister Nā-maka-o-Kaha'i, who planted 'awa (kava) and mai'a (bananas) upon it (Pukui et al. 1974).

3.3.8 Kilohana

Damon (1931) described Kilohana as a famous nesting place of 'uwa'u (dark-rumped petrel), a chiefly delicacy. The top of Mauna Kahili, the peak to the west of Kilohana, was a sacred burial place of Hawaiian chiefs. Kilohana is also associated with the menehune:

One of their favorite play places was the little hill of Po-po-pii, Rounded-for climbing-up. This they had themselves built on the top of Kilohana and never were they more delighted than when they could climb it over and over again for the sheer fun of rolling down its sides, frolicking and laughing as they rolled. It was such a sport that their gleeful shouts carried clear across the Kauai channel to the southeast and startled birds at Kahuku on the island of Oahu.

Once, a Menehune called Ka-uki-uki, The-man-of-wrath, boasted that he could climb to the top of this hill at Kilohana and snare the legs of the moon. Ridiculed by his fellow tribesmen, he valiantly attempted to make good his boast, and was turned into a stone when he failed of achievement. For many years this stone was recognized by Hawaiians as a kupua, or demigod, and offerings of lehua-

blossoms and fragrant maile [a native twining shrub] leaves were laid upon it in passing, that rain and fog might not hinder the errand which carried the people into the mountains. (Damon 1931:395-396)

Beckwith (1970:331) *Hawaiian Mythology* recounts Rice's (1923) telling of the "Wainiha Story," a mo'olelo about bird hunters who lure a giant to his death; and koa (warriors) who come to avenge the giant's murder only to be thrown to their deaths by the young bird hunter Lahi:

Lahi and his uncle Kane-alohi live in the Wainiha valley and go up to Kilohana to catch uwa'u birds for food, a kind of bird that seeks its nest in the cliffs by day, blinded by the light. Their first enemy is a "giant" whom they lure into a hole and kill. Their next is the chief with "four hundred" soldiers who objects to the depredations among the birds. They sit on a rock eating birds and watching the rippling of the water below for men approaching... The boy hides at the pass and throws all four hundred men over the cliff. The chief comes last and, recognizing Lahi as his own son, invites him to the village. He prepares a trap, but this boy discovers and, burning down the house with his treacherous father and followers within, takes over the rule of the land.

3.3.9 The Winds of Kaua'i

One of the oldest and most famous mo'olelo in Hawaiian oral tradition describes the travels and exploits of Pele, the Hawaiian volcano goddess, and one of her sisters, Hi'iakaikapoliopele (more commonly known simply as Hi'iaka). Pele, in her lengthy oli of literally hundreds of named winds of Kaua'i, lists those of Nāwiliwili, Kalapakī, Ahukini, Līhu'e, Kapaia, and Hanamā'ulu (Nogelmeier 2006):

He Hu'eone ka makani o Nāwiliwili	The wind of Nāwiliwili is a Hu'eone
He Wāmua ka makani o Kalapakī	The wind of Kalapakī is a Wāmua
He 'Ehukai ka makani o Ahukini	The wind of Ahukini is an 'Ehukai
He Pāhola ke kiu ho o kii makani lele kula o Līhu'e	A Pāhola wind is the scout that fetches the winds sweeping the Līhu'e plains
He Kuli'āhiu ka makani o Kapaia	The wind of Kapaia is a Kuli'āhiu
He Ho'oluako'inehe ka makani o Hanamā'ulu	The wind of Hanamā'ulu is a Ho'oluako'inehe

3.4 Mele (Songs)

3.4.1 Mele associating Nāwiliwili with the mokihana (*Pelea anisata*) flower

Bowers (1984) compiled the lyrics (in Hawaiian and English) to over two dozen mele about Kaua'i, several of which mention Nāwiliwili, Līhu'e, and Niumalu. These mele are attributed to a variety of composers (sometimes there is no specific person listed); most of these songs were

probably written in the 20th century, based on their style (e.g., the second song below uses the term “uapo,” also spelled in some sources as “uwapo,” defined by Pukui and Elbert 1986 as a historically-introduced (i.e., “pidgin”) term for “wharf”). Regardless of their age—whether they are decades or centuries old—these songs are cherished by many people, and speak to a great love for the beauty of Nāwiliwili, in particular.

The following song (Bowers 1984:3), attributed to “Haunani Kahalewai’s Trio with the Waikiki Serenaders” (Kamehameha School Hawaiian Music Collection Record No. 574), associates Nāwiliwili with the nearby Hā’upu and the mokihana flower:

Kaulana mai nei a’o Nāwiliwili He nani nō ninini He nani maoli nō	Renowned is Nāwiliwili Attractive even to Ninini A beauty unsurpassed.
Kuahiwi nani ‘oe a’o hā’upu Ka pua mokihana ‘ea Ka pua nani o Kaua’i	Splendid ridge of Hā’upu The mokihana flower The beautiful flower of Kaua’i.
Ho’ohihi ka mana’o iā Kaua’i Eō mai k oleo aloha Ke kani a’o pi’ilani	The mind is entranced with Kaua’i Let your beloved voice respond The sound of Pi’ilani.
Ha’ina ‘ia mai ana ka puana Kaulana mai nei Nāwiliwili He nani maoli nō	The refrain has been told Renowned is Nāwiliwili A beauty unsurpassed.

Another mele entitled “Kaulana ka inoa a’o Kaua’i” (Bowers 1984:2), attributed to a recording (*Music of Old Hawaii*) by the famous Sons of Hawai’i, again mentions the mokihana:

Kaulana ka inoa a’o Kaua’i Ku’u lei mokihana poina ‘ole.	Famous is the name of Kaua’i My unforgettable mokihana lei.
Ku kilakila ‘oe Wai’ale’ale Me ka nani kaulana ‘o Nāwiliwili.	Wai’ale’ale you stand majestic With the famous beauty of Nāwiliwili.
Laua’e o makana ka’u aloha Me ka uapo nani a’o Niumalu	I love the fragrant fern of Makana With the fine wharf of Niumalu.
E pi’ina I ke ‘ike a’o Kipu <i>Me ka wai ‘anapanapa e kaulana nei.</i>	Ascending to see Kipu With the famous glittering waterfall.
I aloha ia noa’o Waimea Me ke one kani la a’o Nohili	Beloved is Waimea With the barking sands of Nohili.
Pu’ili kou aloha ma ku’u poli Honehone kou leo me he ipo ala.	Your love is held fast in my heart Sweet your voice like a sweetheart.
Hea aku no au, e o mai ‘oe Lei ana Kaua’i ka mokihana	I call, you answer Kaua’i, decked in mokihana.

The mokihana is a native (endemic) tree, found only on Kaua’i, considered traditionally to be a variety of ‘alani (a general term for citrus tree). The lei made of mokihana is a traditional symbol of the island of Kaua’i. According to Abbott (1992), the mokihana were used to make the most treasured and rare seed lei in the Hawaiian Islands.

3.4.2 Līhu’e

The song, “Līhu’e” speaks of the rustling leaves of Niumalu:

Aloha ‘ia no au Līhu’e	Beloved is Līhu’e
I ka ne’e mai a ka ua Paupili	When the Paupili rain comes.
Ua pili no au me ku’u aloha	I cling to my beloved
Me ke kau nehe mai au Niumalu. 1990:2].	Under the soft rustling [leaves] of Niumalu [Clark

3.5 Heiau

Historic maps show that only one heiau, Kuhiau Heiau, existed along the shoreline of the study area (Figures 5 and 6) in Nāwiliwili Ahupua’a. This heiau is thought to be associated with its sister heiau, Paukini Rock, which marks the boundary between Nāwiliwili and Kalapakī. Three other heiau nearby, as shown in Figures 5 and 6, were located in Kalapakī Ahupua’a, directly north of Nāwiliwili. These include remnants of an unknown heiau at Kūki’i Point, and two heiau along rocky points at Ninini and Ahukini. Physical evidence of these heiau have been obliterated by historic activities and more recent development. Nevertheless, the sacred nature of the landscape in and around these heiau, are still appreciated.

3.5.1 Kuhiau Heiau and Paukini Rock

Kuhiau Heiau, also known as SIHP No. 99, was recorded in Bennett’s (1931) archaeological survey in the late 1920s. Figure 5 shows that Kuhiau Heiau was located near the courthouse, near the ocean. Two decades prior to Bennett’s study, Thrum had described this heiau as already “long since destroyed” (Bennett 1931:124). According to Thrum:

[a] large paved heiau, whose enclosure covered an area of about four acres...The rock Paukini, now separated from but formerly connected with the shore, was where the kahuna lived. This is said to have been the largest and most famous on Kauai in its day. (Bennett 1931:124)

Damon (1931) describes Kuhiau Heiau’s close connection with Paukini, the pōhaku that marks the boundary between Nāwiliwili and Kalapakī. He writes:

[Kuhiau Heiau] ... was in its day the largest and most far-famed temple on the island. Below it, in the bay, is still the rock called Paukini, which was said to be its companion or sister heiau, and was probably also the home of the kahuna, or priest, of Kuhiau. In ancient times this rock was connected with the shore near the site of the former boat landing. Damon (1931:393)

3.5.2 Heiau at Kūki’i Point, Ninini and Ahukini

An 1881 map of Nāwiliwili Harbor in Figure 5, depicts “remnants of an ancient heiau” near Kūki’i Point. Ninini Heiau (SIHP No. 100) and Ahukini Heiau (SIHP No. 101) were both

described by Bennett as totally destroyed. According to Thrum (Bennett 1931:125), Ahukini was “[a] heiau of medium size; foundations only now remain.”

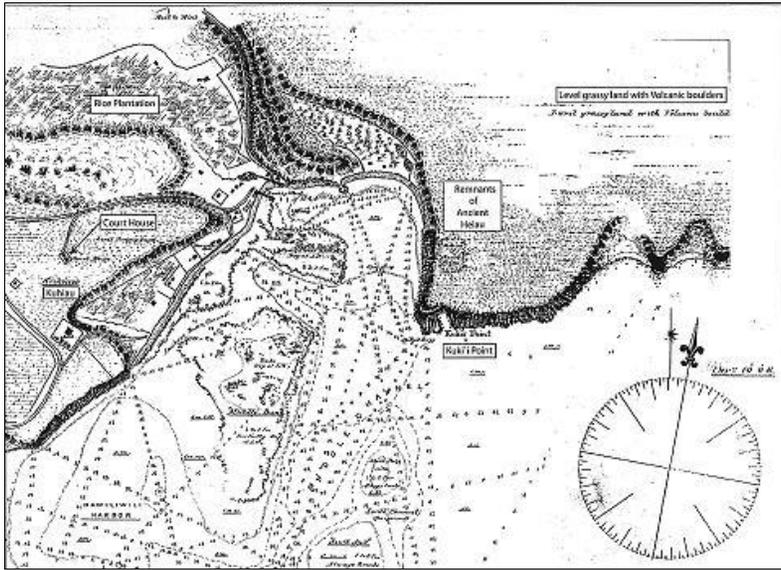


Figure 5. An 1881 map of Nāwiliwili Harbor by Lt. George G. Jackson, showing remnant of ancient heiau near Kūki'i Point; also note the area called “Kuhiau” near the courthouse (left-hand side), previous location of Kuhiau Heiau

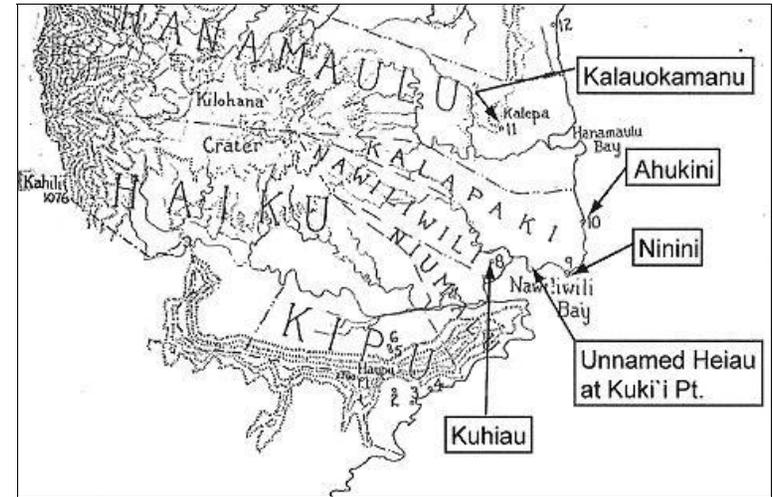


Figure 6. Map showing heiau along the coastal areas within and near the study area (adapted from Damon 1931)

3.6 Freshwater Resources and Fishponds

3.6.1 Streams

Nāwiliwili and Hulē'ia Streams originate on the slopes of Kilohana Crater, and (Hulē'ia only) upon more distant Wai'ale'ale. The meandering streams of Nāwiliwili and Hulē'ia have formed extensive natural (alluvial) terraces along their lengths. These abundant terraces consist of small level areas formed along major meanders that could be planted with relatively little preparation of the landscape. Higher terraces were irrigated by diverting some of the stream flow, which was carefully managed by community leaders or konohiki. It is likely that there were once other smaller drainages between the Nāwiliwili and Hulē'ia Streams and that native Hawaiian planters used and modified these as 'auwai. Most of these smaller drainages have been changed beyond recognition by historic and modern land use and development. However, it appears that some of these smaller streams were still flowing into the early 20th century. For example, two smaller streams, Koena'awa nui and Koena'awa iki, are identified in Land Commission documents as draining into Kalapakī Bay (Figure 7).



Figure 7. Kalapakī Bay, showing two streams with red Xs marking their mauka locations and outlets to Kalapakī Bay; Koena'awa-nui Stream is on the left (Source: Kauai Historical Society n.d.)

3.6.2 Fishponds

3.6.2.1 Menehune Fishpond/ Niumalu Fishpond/'Alekoko Fishpond

Menehune Fishpond, also known as Alakoko in Land Commission documents and alternatively, Alekoko or 'Alekoko in other sources (Kikuchi 1987), was first described and mapped scientifically by Bennett in the late 1920s. According to Handy and Handy (1972:426), Bennett incorrectly named this site Niamalu (Niumalu) Fishpond probably due to the proximity of nearby Niumalu Ahupua'a. It is located along the Hulē'ia Stream near its mouth to Nāwiliwili Bay. Kikuchi (1973, 1987) considered it a loko wai (fresh-water pond or lake) class fishpond because of its inland location along a meander of the Hulē'ia Stream; other sources (perhaps inaccurately) consider it a loko kuapā (fishpond made by building a wall on a reef). The overall area of the pond has apparently varied through time from as small as 32 acres to as large as 39 acres. Figure 8 shows the fishpond in 1912 and by 1934, it was still in use (Figure 9). Menehune Fishpond was placed on the National Register of Historic Places in 1973 as SIHP No. 50-30-11-501.

Bennett (1931:124) describes the dimensions and construction features of Niamalu [sic] Fishpond:

The Niamalu [sic] fish pond consists principally of a stone-faced, dirt wall that runs for over 900 yards and cuts off a large bend in the river for use as a fish pond. It is today [in the early 1930s] used both for fish and ducks. Cement walls and iron gates have obscured any old method of controlling the water or the fish.

This fishpond is associated with the mo'olelo of the brother and sister shark guardian spirits named 'Alekoko and Kahalalehue, who were said to have given the task of construction to the menehune (Kaiwi 1921). According to Rice (1974), it is said the menehune failed to completely finish their task, thus leaving a small opening that was later finished by people who did an inferior job of it; this inferior stone-work being still visible in historic times. See Section 3.3.5 for a more detailed description of the mo'olelo associated with the fishpond.

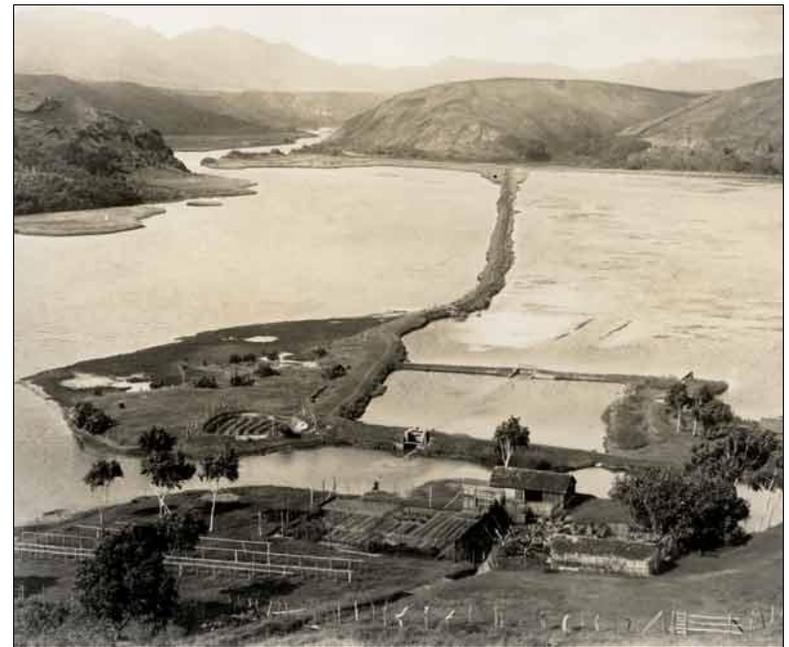


Figure 8. Menehune Fishpond, 1912 (Bishop Museum; Photographer, Ray Jerome Baker)



Figure 9. Menehune Fishpond still in use in 1934 (Kauai Historical Society 1934)

3.7 Settlement and Subsistence

The ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū were permanently inhabited and intensively used in pre-Contact and early historic times, based on archaeological, historical, and oral-history documentation. The archaeological record of early Hawaiian occupation in this area indicates a date range of c. A.D. 1100 to 1650 for pre-Contact Hawaiian habitations (Walker et al. 1991). A radiocarbon date of A.D. 1170-1400 was obtained from excavated sediments near the mouth of Hanamā'ulu Stream, north of Nāwiliwili. Mo'olelo associated with the study area are also plentiful suggesting early settlement of the area by a viable Native Hawaiian population. The abundance of water and the presence of distinguished fishponds along the coast and water systems is testament to early settlement.

The coastal areas were the concentration of permanent house sites and temporary shelters, heiau, including ko'a (shrine) and kū'ula (both types of relatively small shrines dedicated to fishing gods), numerous trails, and fishponds. There were numerous house sites and intensive cultivation areas within the valley bottoms of Nāwiliwili and Hulē'ia Streams. According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a, known as Papalياهو. Kikuchi (1973) states this was the name of "an early chief," but Hammatt and Creed (1993) suggest it may also have been the name of an 'ili or of the konohiki. Papalياهو was also the name of an 'auwai on the south side of Nāwiliwili Stream, associated with LCA 3566 (Hammatt and Creed 1993). Before the historic era, there was a village at Kalapakī (probably between Kalapakī Beach and Ahukini), and another, likely larger, at Nāwiliwili to the southwest. Another village was located near the mouth of the Hanamā'ulu Stream.

Land Commission documents indicate a land use pattern that may be unique to this part of the island, or to Kaua'i, in general, in which lo'i and kula lands are described in the same 'āpana, with houselots in a separate portion. In most places, kula lands are defined as drier landscapes and they do not typically occur next to, and among, wetter lo'i lands. The dryland areas (kula) of these ahupua'a contained native forests and were cultivated with crops of wauke, 'uala (sweet potatoes), and ipu (bottle gourd). According to Hammatt and Creed (1993:23), "there are several [LCA] references to other lo'i next to the beach which indicate wetland cultivation extending right to the shoreline." This is a type of land use that seems to be fairly unique to Kaua'i.

Handy describes the study area in 1935 as a land with many lo'i and good fishing. Handy (1940:67) describes Nāwiliwili Valley in his chapter on the main kalo (taro) growing locations in Puna, Kaua'i:

For 3 miles inland from the sea the Nāwiliwili River twists (*wiliwili*) through a flat valley bottom which was formerly all in terraces. Inland, just above the bay, three Hawaiian taro planters cultivate wet taro in a few small terraces. Most of the land is [now] in pasture. There are one small cotton plantation and several small garden plots. For about a half mile below and a half mile above the mill the valley is mostly filled with plantation camp and other structures, with many small clumps of bananas, some garden plots, and a few old breadfruit trees. The old terrace area extended half a mile up into the small valley that opens out northwest just above the mill. Approximately the last mile of flat valley bottom, before the river beds becomes a narrow gulch, used to be in terraces but is now pasture and ranch land.

Handy describes Niumalu Ahupua'a as having among the best fishing grounds on the island of Kaua'i. Handy relates:

Niumalu is a tiny ahupua'a, a mere wedge between Nāwiliwili and Haiku, but it was, and is, one of the most important fishing localities on Kauai, and contained a fairly large area of terraces along the lower mile of Puali Stream. There were a few terraces at the lower end of Halehaka Stream where it joins the Puali about 1.5 miles inland. (1940:67)

Handy and Handy (1972:427) additionally note:

....southward of the Huleia River and harbor [Niumalu] ... had fairly large lo'i areas at the seaward ends of its two streams, Puali and Halehaka. Niumalu was noted in the past, as it is today, for being one of the most important fishing localities on Kauai.

Hulē'ia Valley, which is defined by Kīpū Ahupua'a (south bank) and Ha'ikū Ahupua'a (north bank), is also described:

[Ha'ikū] contains the broad delta plain of the Huleia River, 1.5 miles long and about a half wide at its widest point. This area was all in terraces. One large section is now in rice, and four small terraces belonging to four Hawaiian taro planters are in wet taro... Small terrace areas existed along the course of the

Huleia for at least 2.5 miles above the delta area... Where the highway crossed the Huleia River at Halfway Bridge, there are groups of old terraces, old breadfruit, and mango trees, indicating that here was a group of *kuleana* something over 6 miles inland from the mouth of the river. (Handy 1940:66)

Ching et al. (1973: Appendix 6) list kapu (prohibited) resources for the ahupua'a of the study area (Table 1) which were gleaned from Land Commission documents on these areas. These were akule for Nāwiliwili and Niumalu Ahupua'a and 'opihī (limpet) for Ha'ikū Ahupua'a. Kapu wood was koa for Nāwiliwili, 'ōhi'a for Niumalu, and none was listed for Ha'ikū.

Table 1. Kapu resources mentioned in Land Commission documents from the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū (source: Ching et al. 1973)

Ahupua'a	Kapu fish	Kapu wood
Nāwiliwili	Akule	Koa
Niumalu	Akule	'Ōhi'a
Ha'ikū	'Opihī	



Figure 10. Niumalu Flats: Pond fields and fishponds (Source: Kaua'i Historical Society, Date Unknown)

Section 4 Historical Background

4.1 Overview

This section briefly summarizes the historical background of the study area from the time of the arrival of Captain Cook in Hawai'i in 1778 or the early post-Contact period, to modern times.

4.2 Early Post-Contact Period

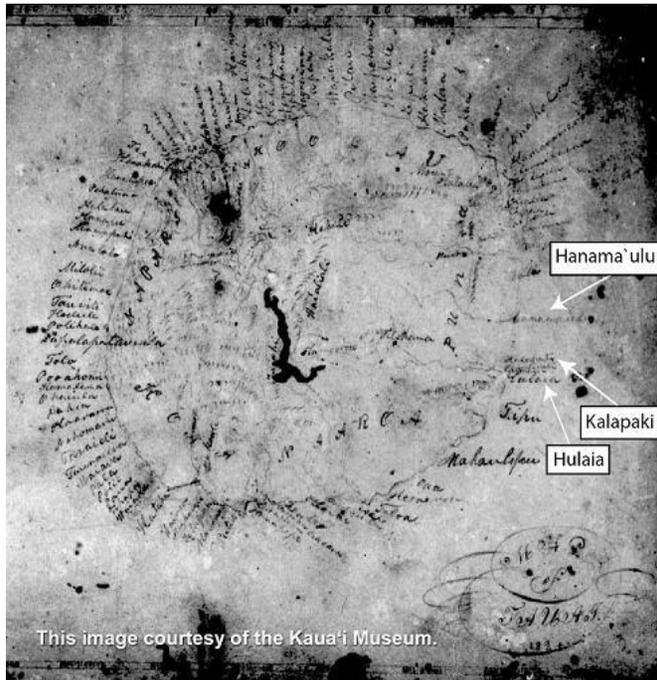
The first written accounts of Kaua'i are from travelers, missionaries, and surveying expeditions. Missionary accounts of the first half of the nineteenth century provide the majority of the early written records for this region of Kaua'i. Hiram Bingham's 1820s map (Figure 11) of the island identifies the place names Hulaia [Hulē'ia], Niumaru [Niumalu], Haitu [Ha'ikū], and Tipu [Kīpū].

Damon (1931:401) wrote about Bingham's 1824 observations from his memoir, *A Residence of Twenty-One Years in the Sandwich Islands*, published in 1847. According to Damon, Bingham described the lands near Kilohana, a summit and crater in the Līhu'e District near the Project area, as "finer country than the western part of the island." He describes:

In 1824, when walking around the island from Waimea to counsel the people after the wreck of *The Cleopatra's Barge*, Rev. Hiram Bingham crossed from Hanapēpē, as has been seen, over the old upland trail back of Kilohana, and wrote of it as 'a country of good land, mostly open, unoccupied and covered with grass, sprinkled with trees, and watered with lively streams that descend from the forest-covered mountains and wind their way along ravines to the sea, —a much finer country than the western part of the island.'

In the 1830s, another missionary, Rev. Peter Gulick, was living on Kaua'i at Waimea and Kōloa. He made the following observation about the kind of provisions one could find in Hanamā'ulu, a place immediately north of the study area, at the time:

...The governor [Kaikioewa] reached Hanamaulu in his canoe just as we entered on horse back... This is the governor's custom, when he travels. A man is sent before to give notice that provision may be made, at the different stopping places, for him and his train: which frequently amounts to two hundred [people]... I with a few natives had a comfortable house at Hanamaulu. The inhabitants brought us fish fresh from the ocean, fowls, taro, potatoes, and a pig, all except the fish roasted or baked in the ground... A youth who went with me for the purpose prepared my food. My bed, which was made with mats, was covered with ten tapas; these were the bed clothes which according to custom were presented to the guest for whom they were spread. (Damon 1931:360)



This image courtesy of the Kaua'i Museum.

Figure 11. An 1820s map of Kaua'i made by Hiram Bingham showing some place names from the Project area (courtesy of Kaua'i Museum)

Also at this time in the 1830s, Governor Kaikioewa founded a village at Nāwiliwili that eventually developed into Līhu'e. According to Hammatt and Creed (1993), the name Līhu'e was not consistently used until the establishment of commercial sugar cane agriculture in the middle 19th century; and from the 1830s to the Māhele, the names Nāwiliwili and Līhu'e were used interchangeably to some extent to refer to a settlement along Nāwiliwili Bay. Some sources attribute the decision to call this area Līhu'e to Kaikioewa, who apparently named it after his nearby upcountry home. Waimea and Kōloa were preferred anchorages compared with Nāwiliwili, which opens directly east to the trade winds. Gales were known to blow ships onto the rocks. During the whaling era, Kōloa, which was home to the earliest major commercial operations in the Hawaiian Islands, was the preferred anchorage because of the ready supply of nearby food stuffs for resupplying the ships.

By 1830, the sandalwood trade had waned and the whaling industry was just beginning. At the same time, commercial agriculture was being established on Kaua'i. When the first crop of sugar cane was harvested at Kōloa, the king himself commanded that portions of his private land be planted in cane. In 1839, Governor Kaikioewa began farming the slopes of Nāwiliwili Bay where there was more rain than at Kōloa (Dorrance and Morgan 2000). He also built a house and church in Nāwiliwili Ahupua'a.

Donohugh (2001:94) describes Governor Kaikioewa's attempt to establish the first commercial sugar mill and plantation in Līhu'e in 1839:

During the early decades of Kōloa Plantation, other sugar plantations had started up on the island. One was to result in the ascendancy of Līhu'e to the principal town and seat of government on Kaua'i, replacing Wailua. When Kaikio'ewa was appointed governor, he located his home in what is now the Līhu'e District. He planned to grow sugar cane but died in 1839 before his plans could be realized. Kaikio'ewa was responsible for the name [Līhu'e], which means "cold chill," the name of his previous home at a higher and chillier altitude on O'ahu.

Donohugh (2001:94) describes observations by James Jarves, who passed through Līhu'e in 1838:

... [He] found only a church built by Kaikio'ewa and a few grass houses. He commented the governor had selected Hanama'ulu Bay as the harbor, "entirely overlooking the fact that it opened directly to the windward."

As mentioned by Donohugh (2001:4), Kaikioewa died in 1839 soon after the start of the sugar plantation, which lasted only one year and closed down in 1840 (Dorrance and Morgan 2000).

Around this time, perhaps as late as 1842, the first missionaries settled in the Līhu'e area led by Dr. and Mrs. Thomas Lafon, and assisted by Rev. and Mrs. Peter Gulick from Kōloa. Schools were opened, and some missionaries attempted to grow cotton as the first intensive cash crop, but were unsuccessful (Damon 1931).

An account of the United States Exploring Expedition, which passed through Līhu'e in 1840, talks about the area, but also mentions the forced removal of kama'āina from the coastal areas:

At noon they reached Lihui, a settlement lately undertaken by the Rev. Mr. Lafon, for the purpose of inducing the natives to remove from the sea-coast, thus abandoning their poor lands to cultivate the rich plains above. Mr. Lafon has the charge of the mission district lying between those of Koloa and Waioli. This district [Līhu'e] was a short time ago formed out of the other two.

The principal village is Nāwiliwili, ten miles east of Koloa. This district contains about forty square miles, being twenty miles long by two broad. The soil is rich: it produces sugar-cane, taro, sweet-potatoes, beans, etc. The only market is that of Koloa. The cane suffers somewhat from the high winds on the plains.

The temperature of Lihui has much the same range as that of Koloa, and the climate is pleasant: the trade-winds sweep over it uninterruptedly, and sufficient

rain falls to keep the vegetation green throughout the year. No cattle are to be seen, although the pasturage is good. (Wilkes 1845:67-68)

With the death of Kaikioewa, governorship of Kaua'i was transferred for a brief period to his widow Keaweamahi. The brief tenure of Chiefess Kekauonohi and her husband Kealiihonui (son of King Kaumuali'i) followed after which the governorship passed to Paulo Kanoa in 1848. Kanoa had two houses overlooking Nāwiliwili Bay: one on the bluff south of Nāwiliwili Stream (the present site of Kaua'i High School) and another at Papalinaloa, north of the bay (Damon 1931).

William DeWitt Alexander, son of Waioli missionary William P. Alexander, traveling from Kōloa to the north shore of Kaua'i in 1849 recorded some descriptive notes of Hanamā'ulu, north of the Project area:

A few miles further on we crossed the picturesque valley of Hanamaulu. This valley is prettily bordered by groves of Kukui, koa, & hala trees, and is well cultivated with taro. A fine stream flows through the midst of it, which makes a remarkable bend at this place like a horse shoe. We then traveled along the seashore at the foot of a range of hills through groves of hau, & among hills of sand. It was now after dark, but the moon shone brightly, and there was no difficulty in finding our way. About eight o'clock we arrived at the banks of the Wailua river. (Kauai Historical Society 1991:121)

One of the last vestiges of the pre-cash crop landscape is depicted in the diary entry for the Rice family's arrival on Kaua'i in 1854. During the second half of the nineteenth century, western settlers and entrepreneurs set their sights on southeast Kaua'i. Damon describes the Līhu'e landscape at the time of the family's arrival at Nāwiliwili Bay:

From the deck of their river craft in 1854 Mrs. Rice and the children could plainly see above the rocky shore and ruins of Kuhiau, the old heiau, or temple, and nearby on the bluff the flaming blossoms of a great wili-wili tree among koa trees which ten grew almost down to the water's edge. (Damon 1931:17-18)

4.3 The Māhele (1848)

Prior to 1848, all land belonged to the akua (gods), held in trust for them by the paramount chief and managed by subordinate chiefs. In the mid-1800s, Kamehameha III decreed a division of lands called the Māhele, which divided land for private land ownership in Hawaiian society (Chinen 1958). In 1848, lands were divided into three portions: crown lands, government lands, and lands set aside for the chiefs. Individual plots, called kuleana (Native Hawaiian land rights) awards, were granted within these divided lands to native inhabitants who lived on and farmed these plots and came forward to claim them. The chiefs and konohiki were required to pay a commutation fee for their lands, usually about one-third the value of any unimproved lands. Awardees usually "returned" a portion of the lands awarded to pay the commutation fee for the lands they "retained." The returned lands usually became government lands (Chinen 1958:13).

The Kuleana Act was legislated in 1950 allowing maka'āinana (folk; commoners) to own land parcels which they were currently and actively cultivating and/or residing. In theory, this 'set aside' hundreds of thousands of acres as potential kuleana parcels which led to about 10,000 claimants obtaining approximately 30,000 acres. The konohiki, 252 chiefs, divided up about a million acres. Many Hawaiians were disenfranchised by these acts (Cordy et al. 1991).

4.3.1 Nāwiliwili Ahupua'a

Victoria Kamāmalu was awarded over two thousand acres of Nāwiliwili Ahupua'a (LCA 7713), along with much of Niumalu, Ha'ikū and Kīpū, as well as Kalapakī and Hanamā'ulu. In addition to Kamāmalu's large award at Nāwiliwili, there were many smaller kuleana awards. Within the ahupua'a of Nāwiliwili, there were 33 LCAs of which 20 were awarded (Waihona 'Aina 2000). A study by Hammatt and Creed (1993) describes LCAs in Nāwiliwili Valley:

Within the valley floor and adjacent to the alluvial plain [in Nāwiliwili] ... are 14 land Commission Awards for which there are testimonies available in the Land Commission records ... The awards vary in size between one to two acres and are generally around one acre. The majority of land recorded is for lo'i (wetland agriculture) but kula (dryland plots) are present as are a few house lots.

In all there are 54 lo'i recorded. Each award is generally two to three lo'i plots. The largest award comprised eight lo'i; a single award consisted of one lo'i. All awards contained lo'i and nine of the fifteen total awards had kula lots. Without exception, the nine awards containing kula mention only one kula per award. This is of interest because it shows that the alluvial plain was not entirely dedicated to wetland planting and that a small kula lot was essential for subsistence agriculture.

Some awards at Nāwiliwili mention house lots along the shoreline. Figure 12 depicts Nāwiliwili Valley with its many lo'i near the ocean.

According to Kikuchi (1973), Nāwiliwili was home to at least five other fishponds in addition to Alekoko (Menehune) Loko. The names of two of these were unknown, but the others are Kalalalehua, Lokoponu and Papalinaloa. LCA documents identify the konohiki for Nāwiliwili at the time of the Māhele as Daniela Oleloa.

4.3.2 Niumalu Ahupua'a

As described earlier, Victoria Kamāmalu was awarded much land in Niumalu Ahupua'a. According to Ching et al. (1973), there are 21 LCAs for Niumalu which contained 80 lo'i. Many lo'i and kula lands are described as being in the same 'āpana, a pattern that is common to Puna District of Kaua'i, but not common elsewhere in Hawai'i. Perhaps maka'āinana were creating kula lands by piling up soil adjacent to wet lands. Throughout most of the Hawaiian Islands, kula lands refer specifically to dry sloping lands between the mountains and the sea. However, maka'āinana were referring to lands in valley bottoms as kula in the Puna District of Kaua'i. Some claimants describe their lands as being trampled by cattle.

Niumalu had seven other ponds in the vicinity of the well-known Alekoko (Menehune) Loko. Survey notes (Ching et al. 1973:105) for Niumalu Ahupua'a state that "[t]he fishing privilege

4.4.2 Changing District Names

The traditional moku or districts of Kaua'i were replaced in the middle to latter part of the 19th century by modern political district names (Figure 15). Given its economic importance to the island, Līhu'e became the modern district name and includes the ahupua'a of the proposed Project, previously under the Puna District. Rice describes:

The name, Lihue, applied in a larger sense, included the districts of what are now Kawaihau and Lihue, reaching from Anahola to the Gap, being made so by law in about the year 1861, according to early court records, but some years later divided into the present two districts. The large district was also known as the Puna district, and is found on early maps as such. It was August thirteenth, 1880, that the district was divided into two, by act of Legislature with King Kalākaua's signature.... Lihue, in a local sense, and from which the name of the district was derived meant only that little portion of land upon which the present village, as consisting of bank, post office and store, now stands. (Rice 1914:46)

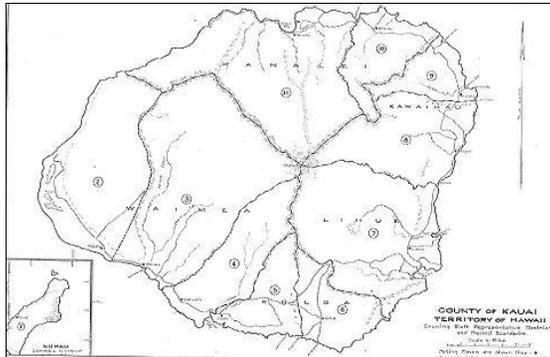


Figure 15. 1936 map of the political districts of the County of Kaua'i, Territory of Hawai'i

4.4.3 Commercial Sugar Cane Agriculture

As Western dominance grew in Hawai'i, sugar came to dominate economic, political, and social life in the islands. In 1835, commercial cultivation of sugar began at Kōloa on Kaua'i which created needs for a larger supply of indentured, contract laborers (Riznik, 1999). Plantations were established throughout Hawai'i, but by the beginning of the mid-nineteenth century, reduced Native Hawaiian populations could no longer meet plantations' needs for a constant supply of cheap labor. Thus, foreign labor was imported by plantations particularly from Japan, China, and the Philippines (Riznik, 1999).

4.4.3.1 Lihue Plantation

Following the Māhele and the availability of large tracts of land for sale, Līhu'e Plantation "was established on the site Kaikio'ewa had chosen, and the cluster of homes and stores around it was the start of the town of Līhu'e." (Donohugh 2001:94). Situated adjacent to the Project area, Līhu'e Plantation began as a partnership between Henry Augustus Pierce, Judge William Little Lee and Charles R. Bishop in 1849 (Damon 1931). The first 3,000 acres were purchased in Nāwiliwili and an additional 300 acres were purchased in Ahukini in 1866. The Lihue Plantation became the most modern plantation at that time in all Hawai'i. It featured a steam-powered mill built in 1853, the first use of steam power on a Hawaiian sugar plantation. The ten-mile-long Hanamā'ulu Ditch was also built in 1856 by plantation manager, William H. Rice, the first large-scale irrigation project for any of the sugar plantations (Moffatt and Fitzpatrick 1995:103).

Hawaiians made up the labor force of Lihue Plantation, and many built their homes on the land surrounding the mill (Figure 16). Planting began in 1850 and the first crop was ground in 1853 (Joesting 1984:173). From 1854 to 1862, under the management of William Harrison Rice, the plantation invested heavily in irrigation ditch infrastructure known initially as "Rice's Folly" (Krauss and Alexander 1984:67). George Norton Wilcox, son of the ABCFM teacher Abner Wilcox, was raised on Kaua'i and observed Rice's successful utilization of irrigation. Wilcox attended Yale University and studied engineering and surveying, earning a certificate in 1862. Upon returning to Kaua'i in 1863 he soon began work as a surveyor for Judge Herman Widemann, owner of the Grove Farm Plantation at the time.



Figure 16. Lihue Plantation Sugar Mill, 1941 (U.S. National Archives and Records Administration)

Commercial sugar cane agriculture continued in Līhu'e until 2000, when Lihue Plantation and the Kekaha Sugar Co. finally shut down and terminated approximately 400 workers. The nearby Kīpū Plantation, founded in 1907, operated until 1942 (Dorrance and Morgan 2000).

Lihue Plantation remained a vibrant and successful commercial operation throughout most of the 20th century, in part, because of a continued interest in technological innovation. For example, in 1912, Lihue Plantation installed two 240-kilowatt generators above the cane fields on the slopes of Kilohana Crater, becoming one of the first hydroelectric power producers (along with Kekaha, Kaua'i) in the Hawaiian Islands (Dorrance and Morgan 2000).

First-hand recollections about life in the early 20th century plantation days of Līhu'e are documented and archived at the Grove Farm Museum. The following example, which appeared in the *Honolulu Advertiser* on April 24, 2000, describes the struggles of 78-year-old Tadeo Suemori to keep his house at the so-called Rice Camp (TenBruggencate 2000:B-1). Mr. Suemori was born and lived his whole life at this house, which was previously one of a total of 18 plantation cottages on a 14-acre parcel owned by Wm. Hyde Rice, Ltd. When the landowner began moving people out in 1989 to sell the property to the museum, Mr. Suemori refused to vacate: "They never evicted me. I said, "I ain't moving out" (TenBruggencate 2000:B-1). He was eventually allowed to rent the place for the remainder of his life, but had wished to restore and rehabilitate the old Rice Camp. Mr. Suemori shared his concerns:

He is concerned about the environment, and particularly about pollution in Nawiliwili Stream, which runs below his house. It was clean when he and his childhood friends skinny dipped there while the U.S. stock market was crashing in 1929. It was the place where they caught prawns and 'o'opu and frogs...Today the streams runs brown and smells bad. Only a few frogs and mosquito fish live there. That angers Suemori. He wants someone to clean it up. (TenBruggencate 2000:B-2)

4.4.3.2 Grove Farm Plantation (1864-1974)

Grove Farm Plantation, which was named after an old stand of kukui trees, was established by Warren Goodale after acquiring the land in 1850. He sold the property the same year to James F. B. Marshall for \$3,000 who sold it to Judge Widemann for \$8,000 in 1856. At the end of 1863 Judge Widemann asked George Wilcox to undertake the supervision of the cutting of a water lead or irrigation ditch for the Grove Farm Plantation using Hawaiian labor. The following year, Wilcox leased Grove Farm Plantation from Widemann and rapidly expanded development of the irrigation infrastructure.

Western commerce between Kōloa and Līhu'e took off during the second half of the 19th century. A visitor to Kaua'i in 1865, William T. Brigham, described the route between Līhu'e and Kōloa:

From Līhu'e the road led over the plain with the mountains on the left. A ditch crossed and recrossed the road as it wound along the hills from the mountains to the canefields below. Owls (pueo) were very abundant. The Pass over the mountains was very good and not at all steep, and all the way which was some

twelve miles, the road was very good, in fact a carriage road. Two hours riding brought me to Dr. Smith's [in Kōloa] at eight. (Lydgate 1991:143)

The "ditch" Brigham described probably included "1st Ditch" excavated in 1864 and "2nd Ditch" which was completed in 1865. Prior to the completion of 1st Ditch, Krauss and Alexander write that Wilcox:

...drove an ox cart to the beach and around the bay to a Hawaiian settlement called Niumalu where the natives grew sugar cane, as a supplementary food crop, on the earthen dams that separated their taro patches, George carefully chose stands of healthy cane, making sure that they were original plantings and not rations. (Krauss and Alexander 1984:133)

In 1870, Wilcox bought Grove Farm from Widemann for \$12,000, three-quarters of which was borrowed. Four years later he had 200 acres under cultivation. The cane was milled at the Līhu'e Mill and exported from Nāwiliwili. In 1874, Wilcox renewed a 25-year lease with Princess Ruth Ke'elikōlani, for 25 years, for a 10,000-acre tract of Ha'ikū Ahupua'a (Krauss and Alexander 1984:179). On April 1, 1881 George Wilcox bought 10,500 acres of Ha'ikū Ahupua'a from Princess Ruth increasing the acreage of Grove Farm nearly ten-fold (Krauss and Alexander 1984:206). The sale was part of a package deal whereby Mr. Rice also received Kīpū and Kīpū Kai for a total price of \$27,500—money that Princess Ruth used to build her palace that rivaled Kalākaua's palace, on Emma Street in Honolulu.

An 1878 Government Survey map (Figure 17) also shows little development within the Project area vicinity and sugar plantations which have not expanded to their later extent; Grove Farm fields are to the southeast, and Lihue Plantation is to the east. Kaumuali'i Highway appears to be an un-improved or dirt road.

4.4.3.3 Puhi Camp

Grove Farm (Figure 18) operated under Mr. George Wilcox until 1933 when he died. During that time, the plantation flourished and many innovations like new cultivation and planting methods developed. Grove Farm was also at the forefront of housing improvements during a time when plantation housing throughout the Hawaiian Islands was inadequate (Riznik, 1999). Unsanitary and crowded housing for workers compounded the spread of infectious diseases which spurred interest in housing reform on individual plantations. Between 1917 to 1920, Grove Farm built 120 houses in a single new camp for workers which became known as Puhi Camp. The new housing at Puhi attracted the attention of the Hawaiian Sugar Planters' Association (HSPA) and the dwellings became the standard for the plantation industry in the 1920s (Figures 19 and 20).

In 1917, Robert S. Thurston, the Experiment Station's associate agriculturalist described the buildings at Grove Farm:

The buildings being erected are of three types: (1) Two or three rooms in a row, all under an inverted V roof, without a kitchen. (2) Two rooms under the same kind of roof, but with a kitchen adjoining in the rear. (3) A three room bungalow [sic] with adjoining kitchen in the rear. The first type is for bachelors; the second for a couple and one or two children; and the third for larger families. The kitchen

floors are of concrete. The stove is built of concrete and cast iron and has a concrete smoke stack, thereby reducing to a minimum the chance of fire. Just outside the kitchen is a concrete floor about 4' x 5' on which a wash tub may be set. This floor drains into a concrete gutter which runs past and drains all the houses.

The buildings are of wood and are set out in 3 double rows, each row front on a street. Cross walks will be put in, making a double row of 8 buildings, or 16 buildings per block. Each building is set on a lot 50' x 75'. Running water is piped to each kitchen and an open concrete ditch is furnished for drainage from the kitchens. If the laborers wish to cultivate their gardens the plantation will furnish a team and plow with which to plow up the land. (Riznik 1999:134)

In the 1920s, Grove Farm began a new building program at Puhi, along the route of the present Kaumuali'i Highway and just south of the Project area. The continuing lack of development in the area prior to this is evident on the 1910 U.S. Geological Survey map (Figure 21).

About 1920 George Wilcox began construction of a completely modern camp at Puhi in the heart of the expanding plantation. Instead of building houses haphazardly as new families moved in, a complete village was laid out with streets, a playground, room for gardens, and lawns. The houses had proper kitchens equipped with running water and enough bedrooms for each family depending upon the number of children. (Krauss and Alexander 1984:310)

Puhi Camp also extended into the current Project area, adjacent to Kaumuali'i Highway. The plantation camp consisted of some 600 homes occupied by up to 1,200 workers and their families. Puhi Camp also contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events (Chang 2007).

At the beginning of the 20th century, Grove Farm developed agreements to secure sufficient water and also to sell any surplus. A right of way with Koloa Plantation was secured in 1906 that provided water from Kuia Stream. Grove Farm's "Upper Ditch" was constructed between 1914 and 1917 and by the 1920s "Grove Farm had 16 miles of ditches delivering 26 mgd" (Wilcox 1998:74).

During the 1930s, federal funds became available to assist the Territory of Hawai'i's highway construction program. Between 1933 and 1937, the reconstruction of the Belt Road, or what is now the present Kaumuali'i Highway, was completed incrementally. Ho'omana Overpass (Ho'omana Road Bridge) was constructed in 1928, Waihohonu Bridge was built in 1934, the Lihue Mill Bridge was constructed in 1936, and the Weoweopilau Bridge was built in 1937.

At the same time that the Belt Road construction program was underway, during the mid-1930s, Grove Farm was further expanding into Puhi with its new headquarters and the construction of a new office building, shop and stables. Figure 22 shows the 1941 location of Grove Farm in relation to Lihue Plantation. At that time, Grove Farm was still dependent on Lihue Plantation's mill for processing its sugar.

In 1948, Grove Farm purchased Koloa Plantation. This doubled the size of Grove Farm, gave Grove Farm its own sugar mill for the first time, and eliminated duplication in manpower, equipment and administrative costs. In 1948-1949, a cane haul truck tunnel (the Wilcox Tunnel) was excavated under the Hoary Head Range connecting the sugar cane fields of Ha'ikū to the Kōloa Mill (Krauss and Alexander 1984:366-368). Figure 18 shows Grove Farm, identifying the plantation's original areas and subsequent acquisitions. The graphic also shows "Mauka Ditch" extending north to south through the center of the Project area.

In 1954, an airstrip was developed at Ha'ikū for aerial spraying of fertilizer and herbicides. In the early 1960s, the nearly one mile long Kuia-Waita Tunnel was completed bringing Ha'ikū water to the drier Kōloa side. Development within the Project area and its vicinity can be seen on the 1963 U.S. Geological Survey map (Figure 23). The symbols for buildings adjacent to Kaumuali'i Highway on Figure 23 are the homes within Puhi Camp.

Wilcox (1998:76) reports that despite almost 100 years of irrigation ditch construction, "Grove Farm's ditch system was a modest one not known for any outstanding technical or physical achievements. This may reflect the limited watershed available to Grove Farm, the small size of the plantation's acreage, or G.N.'s [Wilcox] personal sense of scale."

4.5 Modern Land Use

In the mid-1960s, Sam Wilcox of Grove Farm donated 200 acres of former sugar land to the state for KCC. A 1965 aerial photograph (from Foote et al. 1972) (Figure 24) shows the extent of sugar cane cultivation within the Project area and vicinity prior to the construction of KCC (Kamins and Potter 1998:275). Grove Farm ended its sugar business in 1974, setting aside lands for development and also for the continuation of sugar cultivation by leasing its Lihue lands to Lihue Plantation, and its Koloa lands to McBryde Sugar (Wilcox 1998:76). A 1977-1978 aerial (Figure 25) shows the new college campus and development within its vicinity although the northern- and western-most portions of the approximately 200-acre campus still appear to be undeveloped.

Most of the Puhi Camp housing was removed in the 1970s prior to the construction of KCC. In the 1980s, the last homes in Puhi Camp were dismantled (Chang 2007). Currently, newer buildings for the Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School, and a few agricultural plots occupy some of the former Puhi Camp lands.

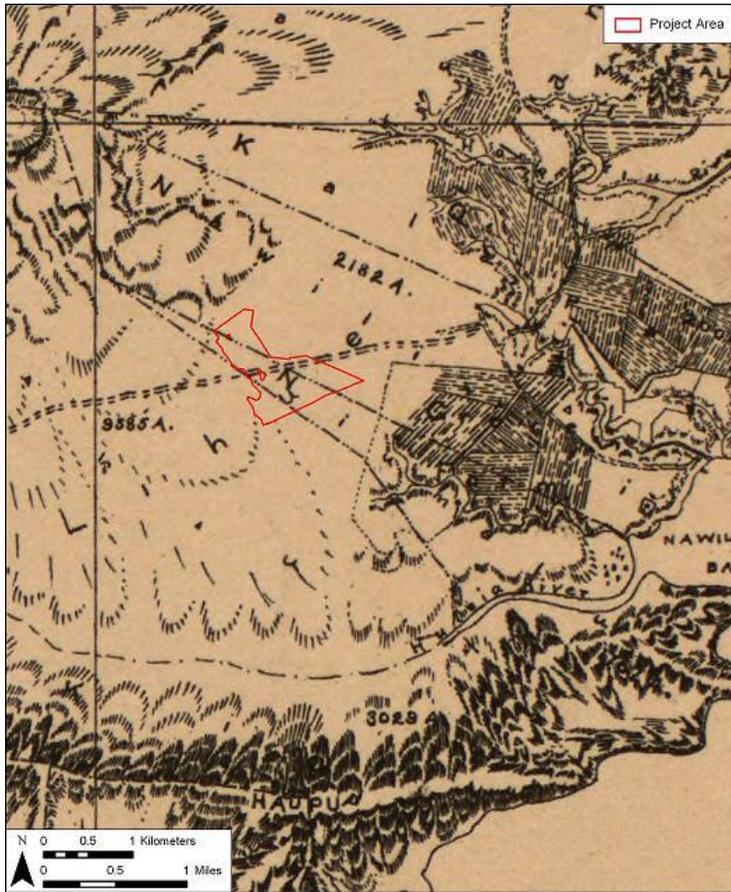


Figure 17. Portion of 1878 Government Survey map by W.D. Alexander, showing location of the Project area and Grove Farm (shaded)

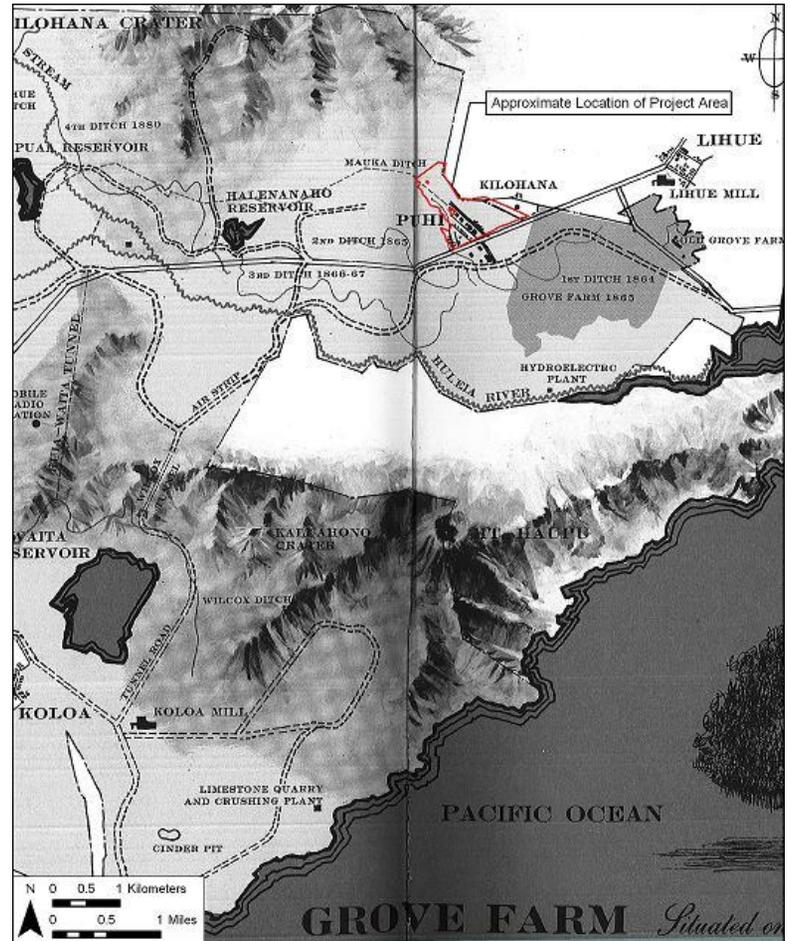


Figure 18. Grove Farm showing its approximate location to the Project area, Līhu'e, Kōloa, and larger southwestern Kaua'i (adapted from Krauss and Alexander 1984).



Figure 19. Plantation housing at Puhī Camp (Adapted from Riznik 1999)

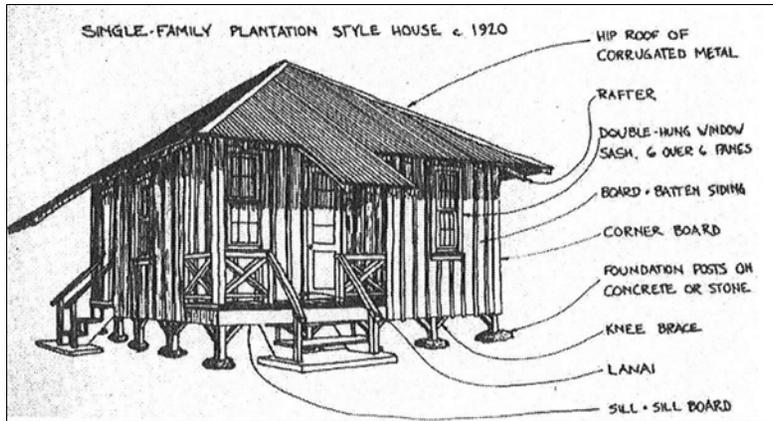


Figure 20. Single family plantation style house at Puhī Camp, 1920 (adapted from Riznik 1999)

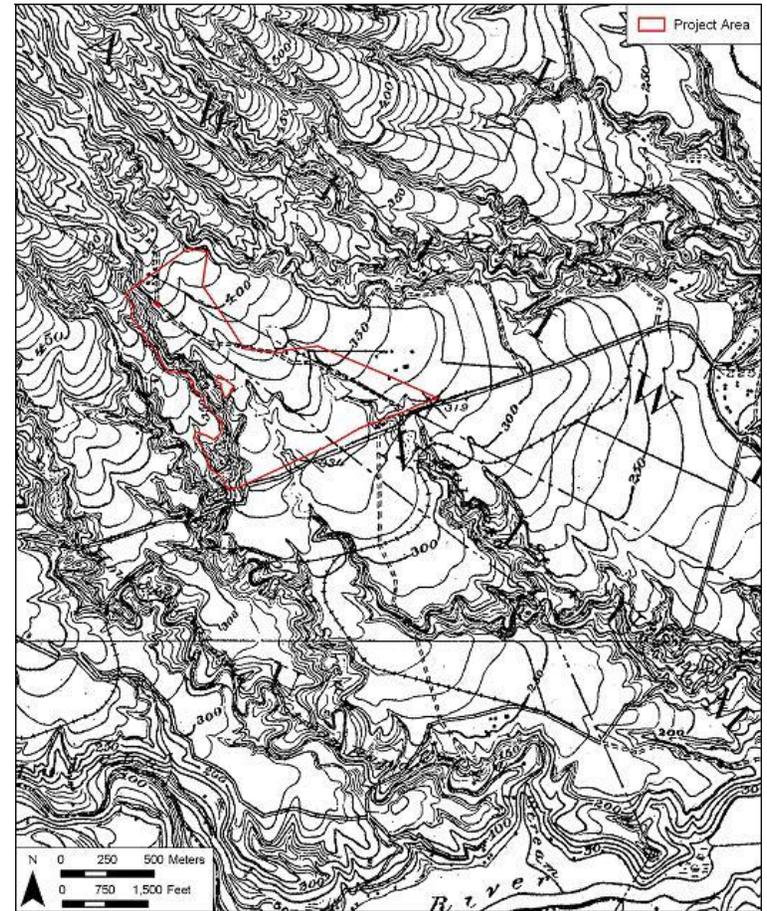


Figure 21. Portion of 1910 U.S. Geological Survey Map, Līhu'e quadrangle, showing the Project area



Figure 22. Portion of 1941 Lihue Plantation map showing the location of the Project area adjacent to the plantation and within Grove Farm

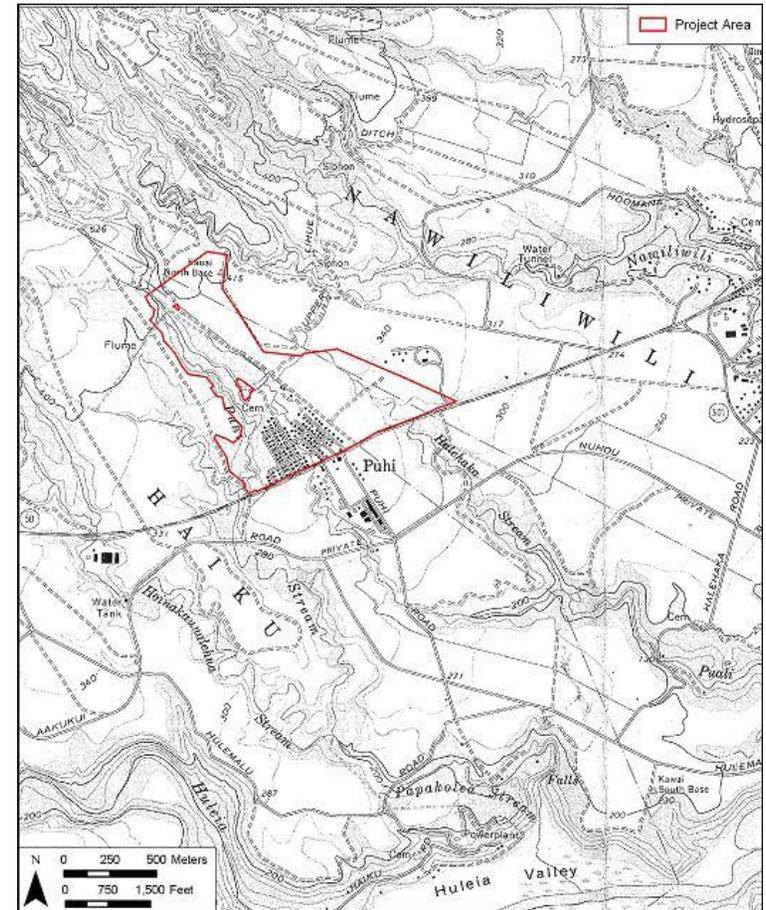


Figure 23. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the Project area

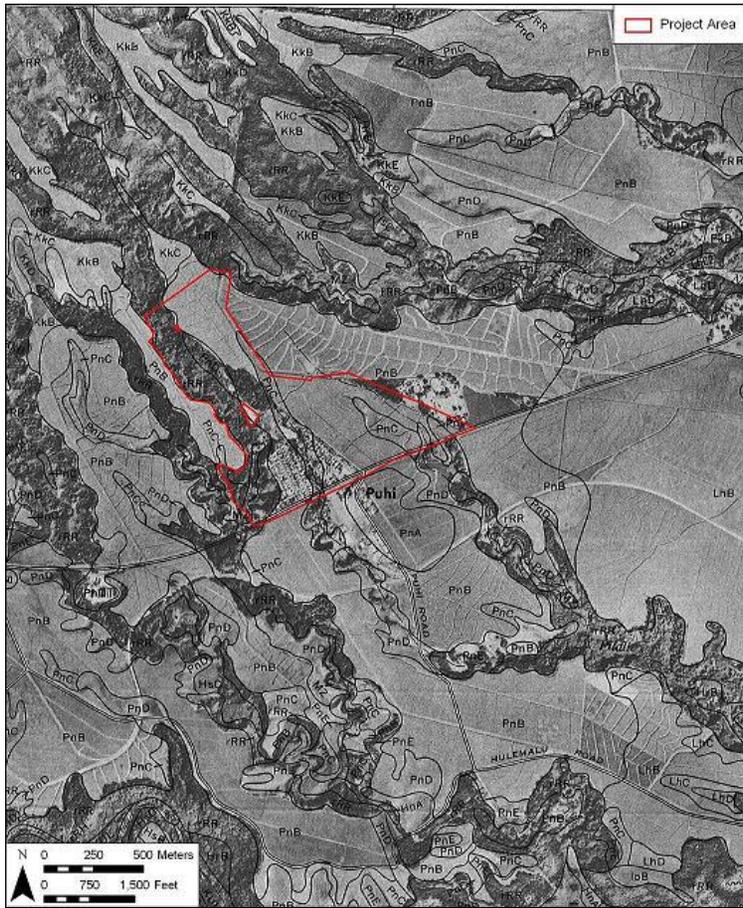


Figure 24. A 1965 aerial photograph showing the extent of sugar cane within the Project area and its vicinity (adapted from Foote et al. 1972)

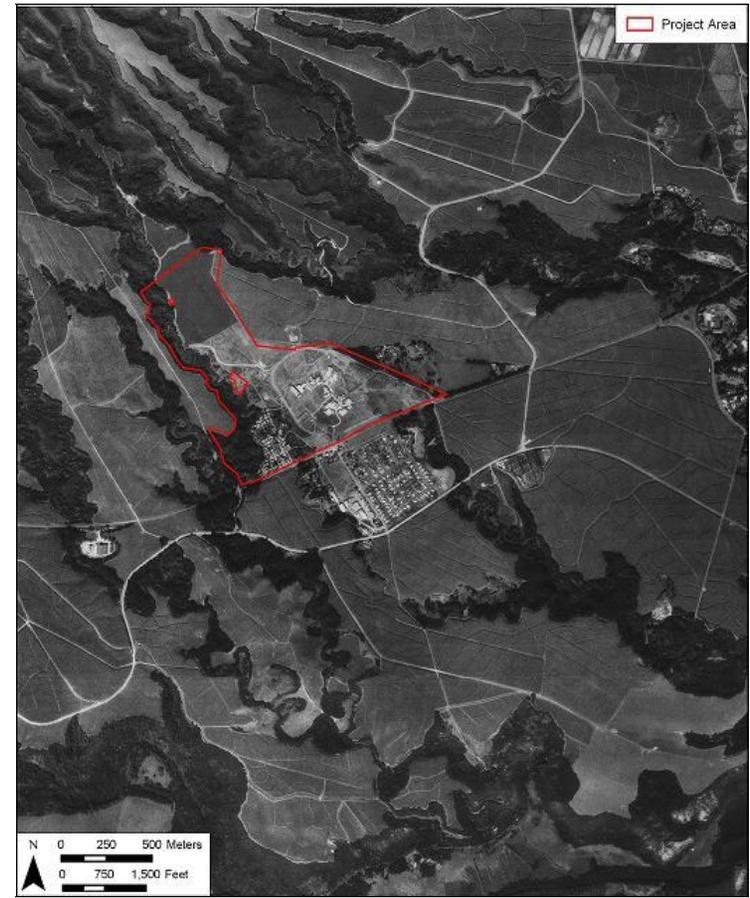


Figure 25. 1977-1978 U.S. Geological Survey aerial photograph of Līhu'e and vicinity showing the Project area

Section 5 Archaeology

5.1 Previous Archaeological Research

5.1.1 Previous archaeological studies in the study area

The first comprehensive archaeological survey of Kaua'i was conducted by Bennett (1931) of the Bishop Museum. Bennett's survey report identifies no archaeological sites within or in the immediate vicinity of the Project area. The report identifies Bennett Site 98 as the "Niamalu" or "Menehune" Fishpond located approximately 3 kilometers (km) southwest of the Project area. According to Bennett:

The Niamalu [sic] fish pond consists principally of a stone-faced, dirt wall that runs for over 900 yards and cuts off a large bend in the river for use as a fish pond. It is today [in the early 1930s] used both for fish and ducks. Cement walls and iron gates have obscured any old method of controlling the water or the fish. (Bennett 1931:124)

The focus of more recent archaeological studies in the vicinity of the Project area has been along the mouth of the Hulē'ia River, Nāwiliwili Bay, and the associated river banks leading down to Nāwiliwili Bay. The agricultural fields within and surrounding the Project area have been slowly converted to other uses, particularly in the 1990s, and some archaeological work has been undertaken within these areas. Archaeological studies near the Project area are summarized in Table 2 and Figure 26.

Table 2. Previous archaeological studies within and near the Project area

Study	Location	Type	Findings
Bennett 1931	Island-wide Survey	Recordation of Major Pre-contact Sites	Identified one site in the area (Site 98)
Palama 1973	Kaua'i Community College area	Reconnaissance Survey	Noted portions of 'auwai, possible lo'i, a cemetery and a historic military complex
Neller and Palama 1973	Lower portion of the Hulē'ia River	Reconnaissance Survey	31 sites identified including one historic human burial
Ching et al. 1973	Kanoa Estate, Niumalu	Reconnaissance Survey	Nine features associated with the 'Aleko (Menehune) Fishpond were identified and documented
Walker and Rosendahl 1988	Grove Farm Lihu'e/Puhi Project	Surface and Sub-surface Survey	Identified two historic properties, Japanese cemetery SIHP -503; and historic residence SIHP -9390

Study	Location	Type	Findings
Kido 1986	Aleko Fishpond and Hulē'ia Estuary	Preliminary Survey	Mangrove encroachment on pond wall, breaks in wall and rubbish used to fortify wall. Recommends a more comprehensive survey
Rosendahl 1989	Eight Additional Areas of the Grove Farm Lihu'e/Puhi Project	Archaeological Inventory Survey	No cultural material observed
McMahon 1990	Lihu'e	Archaeological Fieldcheck	Three previously identified historic residential sites (50-30-9390, -9401, -9402)
Walker et al. 1991	Lihu'e District	Archaeological Inventory Survey	Identified ten historic properties; three pre-Contact, seven historic including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery
Henry et al. 1993	590-acre Grove Farm Lihu'e/Puhi Project Site	Inventory Survey w/ Subsurface Testing	Two historic properties identified including a cemetery and residence (revised report same as Walker and Rosendahl 1988)
O'Hare et al. 1993	100-acre Puakea Golf and Country Club, Lihu'e	Inventory Survey w/ Subsurface Testing	No cultural material observed
Hammatt and Chiogioji 1998	11.5 km portion of Kaumuali'i Highway corridor	Archaeological Assessment	Four historic properties identified: Grove Farm office building in Puhi, the Lihu'e Mill Bridge, the Ho'omana Overpass Bridge, and the Lihu'e Public Cemetery
Hammatt and Shideler 2004	One-Stop Center at KCC	Archaeological and Cultural Impact Evaluation Study	No cultural material observed and no cultural impacts anticipated

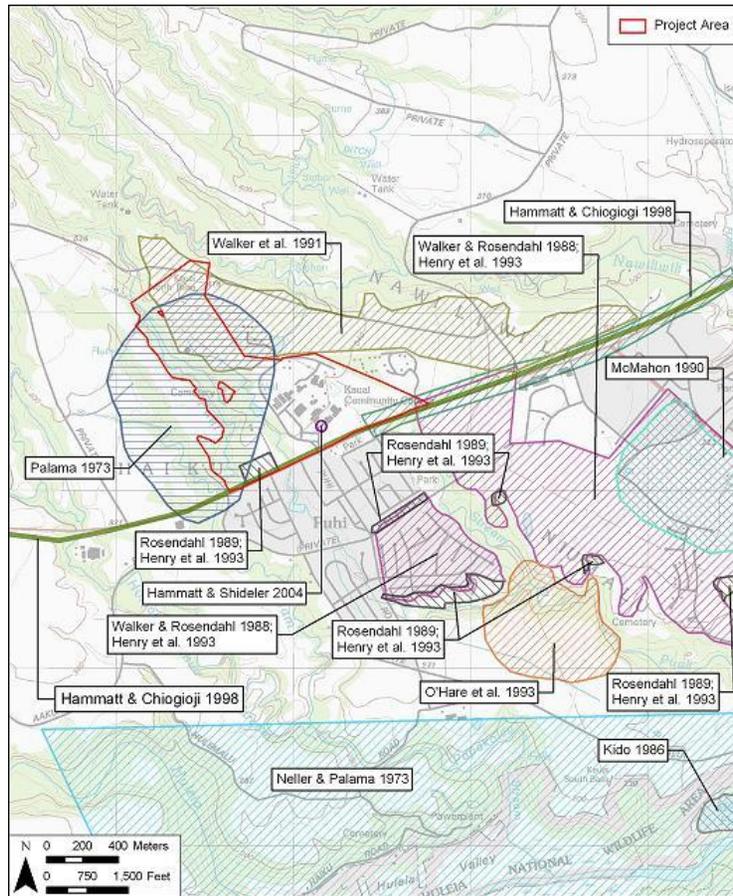


Figure 26. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing previous archaeological studies in vicinity of the Project area

Neller and Palama (1973) carried out an archaeological reconnaissance of the lower portion of the Hulē'ia River and its vicinity recording a number of historic properties. The archaeological richness of that area from the "Menehune Fishpond" downstream and near the crest of the trail to Kīpū Kai is clear. They did, however, also document four historic properties upstream of the Menehune Fishpond, the nearest of which (SIHP -3010) consists of contiguous rock wall enclosures and several other features. This historic property is described as:

... a compound, probably belonging to a chief or other important person. Nearby there are stone-faced river terraces, irrigation ditch (auwai), and a stone bridge crossing the auwai. The area is worth restoring to its prehistoric condition. It is an impressive site. (Neller and Palama 1973:3)

SIHP -3009, also identified by Neller and Palama, is approximately 1.6 km from the current Project area, and consists of an "agricultural area along both sides of the river, including rock-walled terraces and irrigation ditches (auwai). Also includes cement covered grave of G. Kalili, died Dec. 17, 1898" (Neller and Palama 1973:11).

Ching et al. (1973) conducted detailed research on Alekoko (Menehune) Fishpond and its vicinity. Nine archaeological features and feature complexes were identified and documented, including three fishpond features (loko kuapā and two loko wai), two 'auwai, and four lo'i complexes.

Walker and Rosendahl (1988) conducted an archaeological surface and subsurface inventory survey of 450-acre Grove Farm from Puhi Town, south of Kaumuali'i Highway nearly to Nāwiliwili Bay. A total of two historic properties were identified, a historic Japanese cemetery SIHP -503, and a historic residence SIHP -9390. The following year, Paul Rosendahl (1989) produced an addendum report covering eight additional separate small adjacent areas. No historic properties or cultural material were identified. Henry et al. (1993) covers the same project area and is the final archaeological inventory survey for this area.

O'Hare et al. (1993) carried out an archaeological inventory survey on a 100-acre Puakea Golf and Country Club project area located approximately one km south east of Puhi Town. No historic properties or cultural materials were identified.

5.1.2 Previous archaeological studies within or adjacent to the Project area

5.1.2.1 KCC Archaeological Reconnaissance (Palama 1973)

In 1973, the Archaeological Research Center Hawaii conducted an archaeological reconnaissance of approximately 57 acres of the gully portion of KCC (Palama 1973), an area north and west of the currently developed portion of KCC. During the archaeological reconnaissance an "old 'auwai", an old military complex, a Japanese Cemetery, old plantation camp remains, an extant plantation camp, and possible lo'i were found (Figure 27). Palama (1973:2) asked plantation camp residents whether they ever found evidence of taro cultivation or if they farmed within the gully in the western-most portion of the current Project area. Apparently only very limited farming had ever been conducted in the gully, and the plantation workers were not aware of any taro cultivation. Palama (1973:2) "recommended that no further work is warranted" for the historic features he identified and no state site numbers were assigned.

5.1.2.2 Rosendahl (1989)/ Henry et al. (1993) Archaeological Inventory Survey

One of the eight additional separate small adjacent areas surveyed by Paul Rosendahl (1989) in the addendum report described above, is within the southwestern portion of the Project area and adjacent to Kaumuali'i Highway. Designated as Area 1, it is described as consisting of "residential homesteads and yards" (Henry et al. 1993:18).

5.1.2.3 Līhu'e/Puhi/Hanamaulu Master Plan (Walker et al. 1991)

Approximately 220 acres within and adjacent to the Project area were included in the 1,550 acre Lihue/Puhi/Hanamaulu Master Plan (Walker et al. 1991). Designated as Section No. 1, this area is described as:

...bounded on the north and east by the Nawiliwili Stream gulch, on the south by Kauai Community College and Kaumuali Highway, and on the west by the Puhi Stream gulch. This entire parcel has been modified and is presently in sugar cane (*Saccharum officinarum* L. hybrid) cultivation. (Walker et al. 1991:2)

The report states that:

areas in sugar cane were only sampled ... [and] were not generally surveyed ...because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits. (Walker et al. 1991:7)

While Section No. 1 is listed as an area subjected to "inventory-level survey" in the report, this statement is further explained that "only very limited surface survey was done in sugar cane fields [and] no subsurface testing was performed in sugar cane fields" (Walker et al. 1991:18). No additional descriptions of the Project area and its vicinity are included in the report. Additionally, none of the ten historic properties (SIHP -1838 through -1847) identified during the Walker et al. (1991) study, including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery, was identified in or within close proximity to the Project area.

5.1.2.4 Kaumuali'i Highway Archaeological Assessment (Hammatt and Chiogioji 1998)

CSH (Hammatt and Chiogioji 1998) conducted an archaeological assessment of an approximately 11.5 km-long portion of the Kaumuali'i Highway corridor, a portion of which is adjacent to the southern boundary of KCC. During the reconnaissance survey, no historic properties were found in the vicinity of the school campus. No surface traditional Hawaiian archaeological sites were observed during the entire survey although four historic properties (two bridges, a cemetery and an office building) were noted. No state site numbers were assigned.

5.1.2.5 2004 KCC One-Stop Center AIS and CIA (Hammatt and Shideler 2004)

In 2004, CSH conducted an archaeological and cultural impact evaluation study for the One-Stop Center at KCC (Hammatt and Shideler 2004). The project involved construction of a two-story building of approximately 35-40,000 net square feet (about 55-60,000 gross square feet)

located in the southwest side of the existing KCC campus. A field inspection of the vicinity of the proposed project was conducted and observed to be a graded, established lawn with no observed indicators of any archaeological concern. As the area for that project was under sugar cane cultivation for many decades and its location observed to be graded with an established lawn, the study concluded that cultural impacts associated with the proposed project was unlikely.

A summary of the proposed project and its findings was mailed to Dr. Pua Aiu (then) of the Office of Hawaiian Affairs and to Mr. Dennis Chun of the Hawaiian Studies program of KCC on December 23, 2003. Follow-up telephone consultation was held with Mr. Chun on February 19, 2004 and with Dr. Aiu on February 24, 2004. A brief telephone conversation on the subject was also held with Ms. LaFrance Kapaka-Arboleda of the Kaua'i Office of Hawaiian Affairs and the Kaua'i/Ni'ihau Islands Burial Council on February 20, 2004. None of these parties expressed any concerns for adverse impacts to cultural practices by the proposed project. Subsequently, the SHPD concluded that: "No further archaeological work [was] needed for the project."

5.2 Archaeological study for the proposed Project

CSH archaeologists, Gerald K. Ida, B.A. and Nancine "Missy" Kamai, B.A., completed the field inspection for the proposed Project at KCC between August 18 and August 25, 2010, which required eight person-days. On two of the days, only one archaeologist carried out documentation. All fieldwork was conducted under CSH's annual archaeological permit No. 10-10 issued by SHPD per HAR Chapter 13-282, under the general supervision of the principal investigator, Hallett H. Hammatt, Ph.D.

The field inspection consisted of a pedestrian inspection of the KCC campus. Few access restrictions impeded the inspection, however, ground visibility was somewhat obstructed by vegetation and previous development. A total of ten historic surface features, including two previously identified historic features (CSH 9, CSH 10), were found during the field inspection. CSH 9, an "old 'auwai" that conforms to a portion of Grove Farm's "Mauka Ditch", (see Figure 27) was previously found during an archaeological reconnaissance (Palama 1973) of the western portion of the Project area. Palama (1973) also recorded the location of a cemetery that was identified during the current field inspection as CSH 10. The Puhi Camp Cemetery, SIHP # 50-30-11-B006 / CSH 10, is outside of but surrounded by the Project area.

The nine features found within the Project area appear to be related to Grove Farm and date to the plantation era. The historic surface features consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7) of which CSH 3 is abandoned; and an abandoned wooden flume (CSH 8).

Palama's (1973) archaeological reconnaissance had identified old plantation camp remains associated with Puhi Camp, Puhi Camp, and an area containing possible lo'i. These features were not present during the current field inspection. An old military complex identified by Palama (1973) is outside of the current Project area, and no evidence of the complex was found during the field inspection.

As discussed in Section 4.5, all Puihi Camp plantation housing was removed by the 1980s. Currently, newer buildings for the Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School, and a few agricultural plots occupy some of the former Puihi Camp lands.

Descriptions and photograph documentation of each of the historic features identified during the field inspection are shown in Table 3 and Figure 28.

Table 3. Historic Features Identified Within and Adjacent to the Project Area

Feature	Feature Type	Function	Age	Notes
CSH 1	Irrigation ditch	Water control	Plantation era	Abandoned
CSH 2	Irrigation ditch	Water control	Plantation era	Currently in use for run-off
CSH 3	Reservoir	Water control	Plantation era	Abandoned
CSH 4	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 5	Reservoir	Water control	Plantation era	Currently in use
CSH 6	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 7	Reservoir	Water control	Plantation era	Currently in use
CSH 8	Flume	Water control	Plantation era	Abandoned
CSH 9	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 10/ SIHP – B006	Cemetery	Burial	1920-1977	Designated as SIHP # 50-30-11-B006 (Kikuchi and Remoaldo 1992:134)

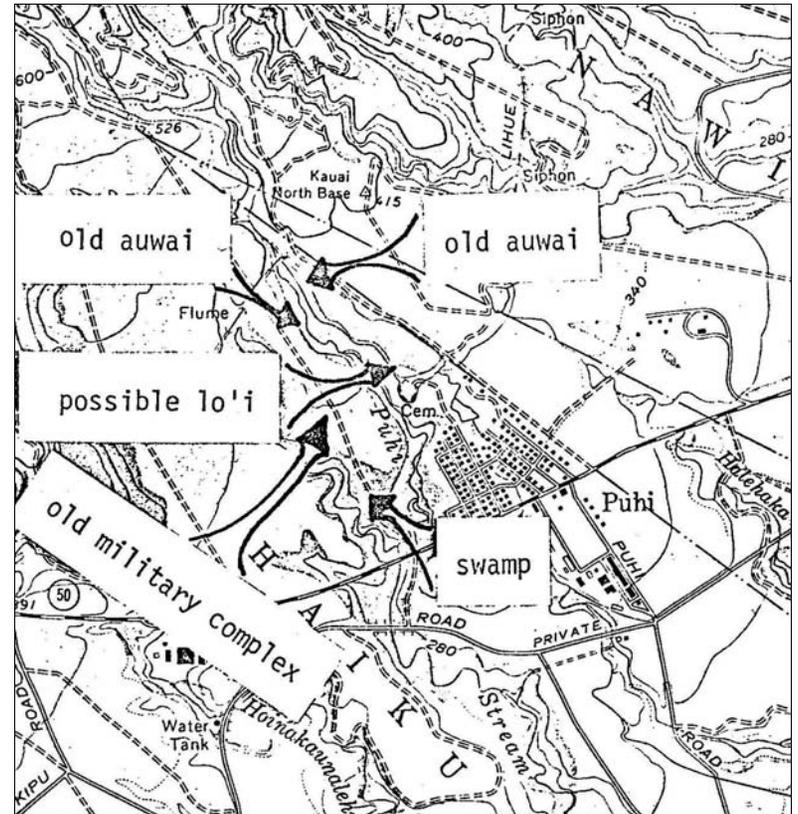


Figure 27. Locations of historic resources found within portions of the Project area during a 1973 archaeological reconnaissance (adapted from Palama 1973:4)

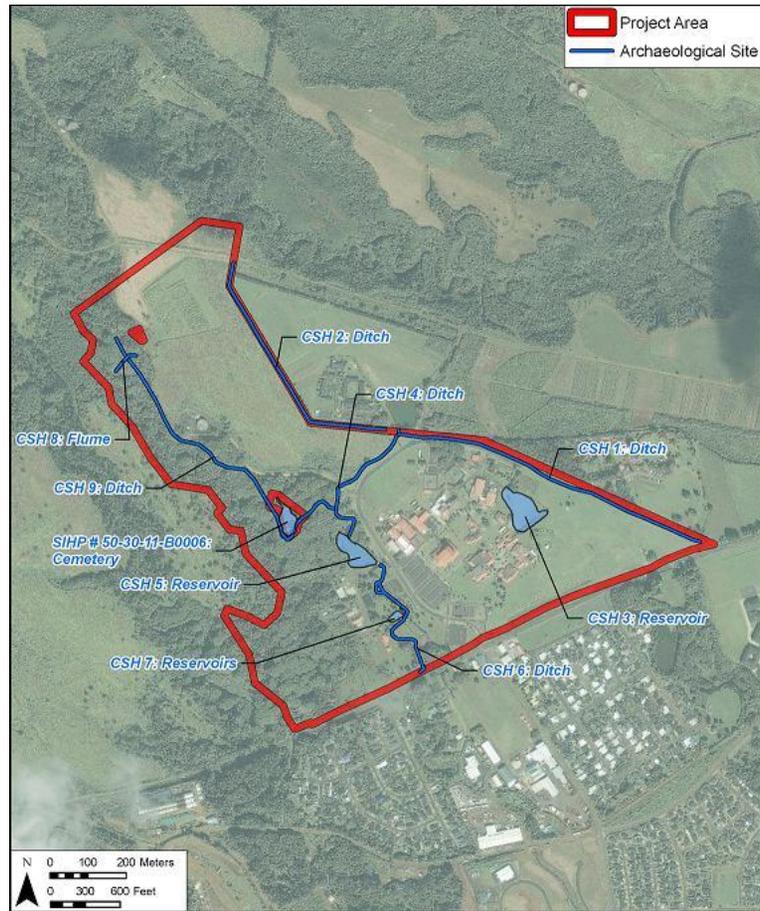


Figure 28. Locations of historic resources found within the Project area during 1973 archaeological reconnaissance (adapted from Palama 1973:4; base map Google Earth 2012)

Section 6 Community Consultation

Throughout the course of this assessment, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the study area. This effort was made by letter, e-mail, telephone and in person contact. The initial outreach effort began in September, 2011, and community consultation was completed in February, 2012.

In the majority of cases, a letter (Appendix D), map, and an aerial photograph of the Project area were mailed. In most cases, one to multiple attempts were made to contact individuals, organizations, and agencies apposite to the CIA for the Project. The results of the community consultation process are presented in Table 4. Written statements from organizations, agencies, and community members are presented in Sections 6.1–6.3 below and summaries of interviews with individuals are presented in Section 7.

Table 4. Results of Community Consultation

Name	Affiliation, Background	Comments
Agena, Mr. Robert "Bobby"	Former Puhi Camp resident	Mr. Agena was referred to CSH by Mr. Madayag. CSH called Mr. Agena on 10/21/2011 and left a message. Mr. Agena returned the call on the same day and asked for more information. CSH mailed the initial contact letter on 11/24/2011. CSH called to follow-up on 11/2/2011 and left a message. CSH called Mr. Agena on 11/22/2011 again and left a message inviting him to join a planned site visit to the Old Puhi Camp on 12/05/2011
Aiu, Ms. Pua	Staff, SHPD	CSH mailed the initial contact letter on 09/29/2011 and a second letter on 11/03/2011. Ms. Cayan responded on behalf of the SHPD with a letter on 1/03/2012 recommending several community members from Kaua'i. Refer to Appendix E
Ako, Mr. Val	Kupuna	CSH mailed the initial contact letter on 10/08/2011. CSH called to follow up on 11/02/2011 and talked with Mr. Ako but he stated that he is not familiar with the Project area
Ayau, Mr. Halealoha	Hui Mālama I Nā Kupuna O Hawai'i Nei	CSH e-mailed the initial contact letter to Mr. Ayau on 10/04/2011. Mr. Ayau e-mailed CSH on 10/08/2011 stating that he had no

Name	Affiliation, Background	Comments
		comments on the Project but would forward the information to his wife whose 'ohana is from Nāwiliwili. CSH responded to Mr. Ayau on 10/09/2011 and asked for his wife's contact information
Cataluna, Mr. Donald	OHA Trustee, Kaua'i /Ni'ihau Ho'okipa Network	CSH mailed the initial contact letter on 09/29/2011. A follow-up letter was sent on 11/03/2011
Chun, Mr. Dennis	Chair, Department of Hawaiian Studies, Kaua'i Community College	CSH sent the initial contact letter on 11/15/2011. CSH called Mr. Chun on 11/18/2011 and left message. Mr. Chun called CSH on 11/21/2011 and left a message. CSH responded on the same day and left message. CSH also emailed Mr. Chun on 11/21/2011 to request an interview. Mr. Chun was interviewed on 12/05/2012. Refer to his interview transcript in Section 7.4
Dacay, Mr. Manny	Former Puhi Camp resident	CSH sent the initial contact letter on 10/15/2011. The letter was returned on 10/25/2011. CSH called on 11/08/2011 but could not leave message
Ellamar, Mr. Frederic	Former Puhi Camp resident	CSH called Mr. Ellamar on 10/14/2011 and on 10/21/2011. CSH mailed the initial contact letter on 10/24/2011. CSH called on 10/26/2011 and talked with Mr. Ellamar. He called CSH on 10/28/2011 with a statement (Refer to Section 5.3)
Grove Farm Company	Former landowner of the Project area	CSH sent the initial contact letter on 09/29/2011. CSH sent a second letter on 11/03/2011
Hussey-Albao, Mrs. Liberta	President, Queen Deborah Kapule Hawaiian Civic Club	CSH sent the initial contact letter on 09/29/2011. Mrs. Hussey-Albao emailed CSH on 10/04/2011 and referred Mary Requilman of the Kaua'i Historical Society. She also indicated that the proposed Project will be discussed at the next Queen Deborah Kapule Hawaiian Civic Club meeting. CSH responded to Ms. Hussey-Albao on

Name	Affiliation, Background	Comments
		10/05/2011 via e-mail and thanked her for her participation and mana'o (thought, idea)
Kajiwara, Dr. Robert	Head Librarian, Kaua'i Community College	CSH mailed the initial contact letter on 11/05/2011
Kamai, Ms. Missy	Archaeological Monitor, Cultural Surveys Hawai'i.	CSH called Missy Kamai on 09/23/2011, who recommended Cheryl Obatake-Lovell and Kaliko Santos as community contacts for the proposed Project. CSH e-mailed Ms. Kamai the contact letter on 10/04/2011.
Kaumuali'i Hawaiian Civic Club		CSH e-mailed the initial contact letter on 11/08/2011
Kealoha, Mr. Keone	Executive Director, Mālama Kaua'i	CSH mailed the initial contact letter on 09/29/2011. CSH sent a second letter on 11/03/2011
Kelekoma, Mr. Kalen	Site, Facilities and Program Manager, Waipā Foundation	CSH e-mailed Mr. Kelekoma on 11/18/2011 about the Project and for contact information for Mr. Charlie Pereira. Mr. Kelekoma emailed CSH on November 21, 2011 with information
Lovell-Obatake, Ms. Cheryl	Kupuna	Ms. Lovell-Obatake was referred to CSH by Ms. Kamai. CSH mailed the initial contact letter on 10/08/2011. CSH sent a second letter on 11/03/2011
Madayag, Mr. Moises	Curator, Grove Farm Homestead Museum	CSH called Mr. Madayag on 10/17/2011. CSH e-mailed the community contact letter on 10/17/2011. CSH called Mr. Madayag on 11/22/2011 who indicated that he was compiling information for CSH including maps and the 2003-2007 Puhi Camp reunion. He also provided referrals. Mr. Madayag e-mailed some information to CSH on 11/10/2011 and 11/11/2011. CSH responded via e-mail on 11/11/2011. CSH e-mailed Mr. Madayag again on 11/17/2011 and called to follow-up on 11/22/2011
Makanani, Kupuna Mabel	Former Puhi Camp resident	CSH called and left a message on 10/16/2011. CSH called and talked to Mrs. Makanani on 10/21/2011. She asked CSH to

Name	Affiliation, Background	Comments
		contact her in November and interview her after Thanksgiving and/or the first week of December. CSH mailed the initial contact letter on 10/24/2011. CSH called on 11/22/2011 and invited Mrs. Makanani for a site visit on 12/05/2011. Mrs. Makanani asked to be called and reminded of the visit again. See Section 7.2 for the site visit transcript
McClure, Ms. Amber	Kama'āina	CSH called on 10/21/2011 and again on 10/26/2011 and left messages. Ms. McClure called on 11/02/2011 and left her address. CSH mailed the initial contact letter on 11/03/2011. CSH called on 11/08/2011 to follow-up and Ms. McClure referred her mother, Daphne Hirokane McClure, who has family buried in the cemetery located next to the Project area. Ms. McClure also sent e-mails to CSH on 11/08/2011, 11/09/2011, and 11/12/2011. CSH called Ms. McClure on 11/16/2011 to verify a meeting on 11/05/2011. Ms. McClure provided a brief statement shown in Section 6.4. Refer to Section 7.2 for the site visit transcript
McClure, Mrs. Hirokane	Former Puhi Camp resident	CSH called Mrs. McClure on 11/09/2011. Mrs. McClure received Project information from her daughter, Amber McClure. Mrs. McClure stated she has her father and brother, as well as close family members buried in the cemetery located next to the Project area. She indicated that she will contact others (Robert Agena, James Amimoto) familiar with the area and that she is available to be interviewed on 12/04/2011. Mrs. McClure noted she will call CSH to confirm. CSH called on 11/16/2011 but could not leave message. CSH called on 11/22/2011 and spoke with Mrs. McClure about the 12/05/2011 site visit. See Section 7.2 for site visit transcript

Name	Affiliation, Background	Comments
Nāmu'ō, Mr. Clyde	Office of Hawaiian Affairs	CSH mailed the initial contact letter on 09/29/2011. CSH sent a second letter on 11/03/2011. OHA responded with letter dated 11/17/2011. Refer to Appendix F
Okubo, Mr. Suemi	Old Puhi Camp Reunion Participant	CSH mailed the first contact letter on 10/15/2011 but the letter was returned to CSH on 10/25/2011
Pereira, Mr. Charlie	Kupuna who grew up in Niumalu	CSH mailed the initial contact letter on 11/15/2011. With assistance of Kalen Kelekoma, Mr. Pereira was contacted on 11/18/2011 for an interview on 05/08/2011. Refer to Section 7.3 for his interview transcript
Pratt, Mr. David	Treasurer, Niu Pia Land Company Acquainted with residents associated with Puhi Camp.	Mr. Pratt wrote on 08/24/2011 in a letter to Mr. Earl Matsukawa of Wilson Okamoto Corporation that he would be happy to help Mr. Hal Hammatt connect with people at Grove Farm Company, Inc., or Grove Farm Homestead Museum. CSH mailed the initial contact letter on 09/29/2011. Mr. Pratt replied on 10/21/2011
Requilman, Ms. Mary	Director, Kaua'i Historical Society	CSH mailed the initial contact letter on 10/08/2011. CSH sent a second letter on 11/3/2011
Rossi, Ms. Pualiliimaikalani	Instructor, Department of Hawaiian Studies, Kaua'i Community College	CSH sent the initial contact letter on 11/15/2011
Sakoda, Mrs. Bernie	Former Puhi Camp resident	CSH mailed the initial contact letter on 10/08/2011. CSH sent a second letter on 11/03/2011. Mrs. Sakoda replied via e-mail on 11/4/2011. CSH emailed Mrs. Sakoda on 11/08/2011. Mrs. Sakoda responded on the same day. CSH emailed Mrs. Sakoda again on 11/08/2011 regarding possibility for interview. CSH called Mrs. Sakoda on 11/15/2011 and again on 11/16/2011. Mrs. Sakoda verified her availability for the 12/05/2011 meeting. Refer to Section 7.2 for site visit transcript

Name	Affiliation, Background	Comments
Santos, Ms. Kaliko	Office of Hawaiian Affairs	CSH mailed the initial contact letter on 09/29/2011. Ms. Santos e-mailed CSH on 10/03/2011 and provided several referrals
Sasaki, Mr. Henry	Former Puhi Camp resident	CSH mailed the initial contact letter on 10/15/2011. CSH sent a second letter on 11/03/2011. CSH received a returned letter on 11/14/2011, stating that Mr. Sasaki had passed away
Takahashi, Mr. Dennis		Mr. Takahashi received Project information from Mrs. McClure. CSH met Mr. Dennis Takahashi on 12/05/ 2011 during the site visit and CSH sent him a follow-up letter on December 21, 2011. Refer to Section 7.2 for site visit transcript
White, Mr. Robert	Niumalu resident	CSH e-mailed the initial contact letter and maps on 11/16/2011. Mr. White responded via e-mail to CSH on 11/18/2011 about availability for a phone interview. CSH interviewed Mr. White on 12/07/2011 at his residence. Refer to Section 7.5 for his interview transcript
Yap, Mr. Keith	Vice Chair, Kaua'i/ Ni'ihau Island Burial Council	CSH sent letter on 10/08/2011. CSH sent a second letter on 11/03/2011

6.1 SHPD Response

CSH mailed the initial contact letter on 09/29/2011 and a second letter on 11/03/2011 to Ms. Piu Aiu of the SHPD. Ms. Cayan responded on behalf of the SHPD with a letter dated 1/03/2012. The letter stated that, "the rezoning from agriculture to urban district always raise concern that range from cultural practices for access and gathering to spirituality at sacred sites, to protecting ancient burials—all potential issues should the project expose or degrade such cultural resources and/or sites in this very large area."

The SHPD recommended consulting with as many Kaua'i groups/folks as possible and provided names of potential community members with their contact information. Refer to Appendix E for a copy of the response letter from SHPD.

6.2 OHA Response

CSH mailed the initial contact letter to Mr. Clyde Nāmu'ō, Administrator of OHA, on 09/29/2011. In a written response to CSH dated 11/17/2011, Mr. Nāmu'ō recommended consulting with two Hawaiian Immersion Schools located on the KCC campus, Pūnana Leo o Kaua'i and Kawaikini New Century Public Charter School (see Appendix F)." The letter also identified the Puhi Camp Cemetery and stated that, "while it appears this cemetery is excluded from or outside of the DBA petition area, OHA believes it should be considered because of its location." OHA recommended consulting with lineal descendants of those buried in the cemetery.

6.3 Statement by Mr. Frederic Ellamar

CSH initially contacted Mr. Ellamar by telephone on 10/14/2011 and on 10/21/2011 and mailed the initial contact letter on 10/24/2011. CSH called on 10/26/2011 and spoke with Mr. Ellamar who stated that there is an old graveyard inside the camp [Puhi], very close to a reservoir. He explained that there is a reservoir inside as well as outside the camp and the burials are near the inside reservoir. He noted that, "You can't stop progress. Kaua'i is overcrowded." He grew up in the 1950s and can remember life back then. Now, he describes Kaua'i as having cars bumper-to-bumper, and overflowing with people. Mr. Ellamar called CSH on 10/28/2011 and stated that, "My concern is just about the graveyard and [to] put one plaque or something to signify the Old Puhi Camp. I don't want no other discussion already. That is my final input on this matter."

6.4 Statement by Ms. Amber McClure

CSH initially contacted Ms. McClure by telephone on 10/21/2011 and again on 10/26/2011 and left messages. Ms. McClure called on 11/02/2011 and left her address. CSH mailed the initial contact letter on 11/03/2011. CSH called on 11/08/2011 to follow-up and Ms. McClure referred her mother, Daphne Hirokane McClure, who has family buried in the cemetery located next to the Project area. She also provided the following statement: "The area [cemetery] needs to be taken care of, and if there are any plans to disturb or alter that area, the family should be notified."

Section 7 Interviews

Kama'āina and kūpuna with knowledge of the proposed Project and study area participated in semi-structured interviews for this CIA. CSH attempted to contact 32 individuals of which 22 responded and eight participated in formal interviews from September, 2011, to February, 2012. CSH initiated the interviews with questions from broad categories such as wahi pana and mo'olelo, agriculture and gathering practices, freshwater and marine resources, trails, cultural and historic properties, and burials. Participants' biographical backgrounds, comments, and concerns about the proposed development and study area and environs are presented below.

7.1 Acknowledgements

The authors and researchers of this report extend our deep appreciation to everyone who took time to speak and share their mana'o with CSH whether in interviews or brief consultations. We request that if these interviews are used in future documents, the words of contributors are reproduced accurately and not in any way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

7.2 Site Interview with Ms. Audrey Kawado, Kupuna Mabel Makanani, Mrs. Hirokane McClure, Ms. Amber McClure, and Mr. Dennis Takahashi

CSH met with and accompanied five community contacts, Ms. Audrey Hirokane Kawado, Kupuna Mabel Makaniōle Makanani, Mrs. Daphne Hirokane McClure, her daughter Ms. Amber McClure, and Mr. Dennis Takahashi, on December 5, 2011, to tour several sites of the former Puhi Plantation Camp, now part of the Kaua'i Community College, in Līhu'e, Kaua'i. The entire group, with the exception of CSH staff and Ms. Amber McClure, was raised in Puhi Camp. As mentioned above, Puhi Camp was built for Grove Farm plantation workers in the early 1920s. In 1974, an area consisting of about 200 acres of the camp became part of what is now KCC.

At 84 years old, Kupuna Mabel Makanani was the oldest member of the group. With the possible exception of one other family, Kupuna Makanani's family was the only Native Hawaiian family in Puhi Camp. At the start of the site visit, she provided CSH with a written statement where she summed up her life in Puhi Camp. The following is entirely Kupuna Makanani's words, with the exception of two words in brackets included by CSH for clarity:

This is what I remember as a child growing up in Puhi. It was a typical plantation-style camp. We all grew up together as one people, although we lived in homes by race. I think my dad was the only pure Hawaiian in the camp, with the exception of Mr. Malaia, I'm not sure if he was pure, but he spoke the language, I often heard them together. We lived in rows by race and shared cultural practices in music, dance and games, even movie nights, where we had a Hall for movies and monthly events--Filipino movies, Japanese, English, etc. The only people that

lived away from us were the Chinese--they lived in a valley close by, called "Pake Valley."

We lived simple lives. Grove Farm gave us [land], who ever wanted a piece of land to grow vegetables and we shared what we grew with each other. We bought from our crops.

Someone in the camps also raised (bee) hives. Going swimming up in the hills, called "Cement Pond," we passed the bee hives and if the owner was there, he'd give us some honey dripping from the wax and it was a treat for us.

We learned a lot growing up in a camp especially the different kinds of instruments different races used and their cultural customs and dances; for me, born and raised in Puhi was great, [I] learned the background of my mother and was amazed at all the instruments my dad could play. My mom taught me everything she knew from her mom. I was raised as a Catholic and followed all.

Stating that her heart is here in Puhi Camp, Kupuna Makanani explains what made it special:

I was born and raised here. It was a different lifestyle. It was one people. A generation of one people. No matter who you were, you recognized each other. It is not like today.

The first stop of the Project site tour was at the Old Puhi Camp Cemetery, which is divided into two sections, a Japanese cemetery and a Filipino cemetery. Although there were other ethnicities such as Portuguese people who worked in Puhi camp, most of them chose to be buried elsewhere. As she looked over the old graves, Kupuna Makanani voiced her concern about the protection of the remaining Puhi Camp places, especially the cemetery.

Beside her was Mr. Takahashi who also expressed his worry that no one will be left to take care of the cemetery (Figure 29). Although many of the graves were removed by families already, there are still some that remain. He recalled that when he was a young boy, a group of Japanese workers kept a community fund to be used to maintain the graves. Once a year, before the Obon festival, the designated group would come and clean up the graves using hoes and rakes. Mr. Takahashi would assist in caring for the graves, something which he continues to do so even now.

While at the Puhi Camp Cemetery, Mr. Takahashi pointed to a proposed Project area aerial map and asked if the proposed re-zoning would affect the cemetery and caused a disturbance of burials. To him, it seemed from the aerial map that the Project would be developed very close if not in the actual area where the cemetery is. Both Kupuna Makanani and Mr. Takahashi stressed the need for Puhi Cemetery to be taken care of, as the current volunteer caretaker, Mr. James Kazuo Amimoto, is getting older. In addition, both sides of the cemetery need to be maintained, including the Filipino side which contained more weeds than the Japanese section.



Figure 29. Mr. Takahashi shows Old Puhi Camp Cemetery (CSH 12/05/2011)



Figure 30. Headstones at Japanese side of Puhi cemetery (CSH 12/05/2011)

Besides some of the graves in the Japanese cemetery are vases for flowers (see Figure 30 above). Mr. Takahashi admits that one of his goals is to get all the headstones cleaned and then translated by a Buddhist priest. He has always been interested in learning about Kaua'i history and genealogy. Since he was young, he has made it a point to read old newspapers and spend time with elders. "You know after the older generation pass on, the younger ones, they [are] not gonna know nothing, yeah," Mr. Takahashi states.

Kupuna Makanani's father drove Grove Farm's train. According to her, men had the freedom to move all over the place. Her father was George Makaniole, and he drove Train Number 1. When the plantation days were over, his train was sold to China. Somewhere possibly in Grove Museum, there is a nice picture of her father posing with the Number 1 train.

Mr. Takahashi's father was Takeshi Takahashi, who was a machinist for Grove Farm, and his mother was Katsuko Takahashi, who worked for Kaua'i Inn and Kaua'i Surf Hotel. His parents had three boys, and Mr. Takahashi was the middle child. He was born in 1945, in Līhu'e, and his family moved to the camp in the early 1950s. Although his parents did not attend college as they were too busy working for their families starting from a young age, they instilled the importance of a college education and as a result, all of the Takahashi boys went on to college, with Mr. Takahashi obtaining a degree in business management. He later worked for Times Supermarket in Honolulu, and retired in 2007.

Although Mr. Takahashi noted that he understands the school has to grow, he considers the preservation of the Puhi Camp cemetery to be of utmost importance. After pointing out to CSH how erosion is causing some of the headstones to be close to toppling over, Mr. Takahashi also remarked how big trees near the graves should be removed in case a big storm could cause the tree or its branches to fall and destroy the headstones.

When asked about the proposed Project, Mr. Takahashi commented:

...The development is okay, but they should preserve you know the past, yeah. Because this is supposed to be the final resting place of the people, ah. You know, who worked on our plantation...so they shouldn't be disturbed.

The significance of the continuing relevance of the Puhi Camp cemetery to the living community was underscored during the site visit, when shortly after Mr. Takahashi expressed his recommendation for preservation, Mrs. McClure discovered the grave of a relative, Alice, located in the cemetery (Figure 31). Up until that point, she had no idea that her cousin was buried in the cemetery, and using the headstone as a guide, she narrated to the group about her family ties and memories of her cousin Alice, who passed away at 30 years old and who was married to Tomas. Kupuna Makanani also shared her memory of Alice as a young girl and how much she enjoyed playing with paper dolls.



Figure 31. Mrs. Daphne Hirokane McClure discovers her cousin Alice's grave in Puhī Cemetery (CSH 12/05/2011)

Like Mr. Takahashi, Kupuna Makanani would like the place to be preserved, relating an additional recommendation that in her opinion, families who still have ties to the cemetery and Project area should be consulted before anyone else, and that Project proponents should take care of the preservation financially:

... I would go along with whatever the people who live here, the people who have families here, their concerns would be number one...If ever in time that they would still continue to develop, then I think the community should make an amendment where whoever is building, would provide a separate place for them and take care of all the finances to remove and to preserve and to set up.

Kupuna Makanani recollected that when she was growing up, she remembers how it was possible to bury family members around one's residence. It does not surprise her that now, burials are found whenever there is a construction being done or building being renovated. The only people who would know and who should be consulted are those who lived in the area, and if graves are unknown, it illustrates the need to continue to care for the place and for the new generation to have the information to do it. This makes it even more crucial to have meetings and exchange of cultural information, much like the site visit tour for the Project CIA. States Kupuna Makanani:

That the people would...get together like how we're meeting, cultural...It's the ones that [are] left behind that plant the importance of their ancestors to upkeep.

Mr. Takahashi pointed out how some of the graves in the Filipino side of the family are those of Filipino veterans who have no known family, and only crosses in the ground were put for their

burial. It would be ideal if somehow, relatives of these veterans would be able to find them and be reunited. He decried the forgetting of one's roots and expressed his hopes that the younger generation would continue their ties to their culture and family tree.

Indicating a grave with an "Unknown" in the marker, Mr. Takahashi stated the following:

Maybe...whoever this is, has relatives in the Philippines. Maybe they've been over here but they have no family here and he died. But, we don't know who this person is.

Both Kupuna Makanani and Mr. Takahashi related the history of Filipino migrants to Hawai'i, how Filipinos came to Hawai'i starting in the early 1900s as contract laborers, "sakadas," searching for a better place to live. They remarked on how Filipinos maintain their ties to the Philippines by supporting their families through remittances. The group found one Filipino veteran's grave that dated back to World War I. In addition, there are children also buried in the graveyard. One grave was that of a two month old baby buried in the Filipino side of the Puhī Cemetery (Figure 32).



Figure 32. Grave of a two-month old baby in Puhī Cemetery (CSH 12/05/2011)

Given this example and others, Kupuna Makanani emphasized that whatever can be preserved should be done so because soon, people are not going to be able to have control of what they know. She cites the example of Mrs. McClure finding the grave of her cousin. Although the toll of time has taken its toll, finding her grave is a good example of the value of conserving one's past.

Like Kupuna Makanani, Mr. Takahashi remembers the old days with fondness, describing when everybody was like one big family. For him, it was the close-knit feeling of community and family, where people knew each other and looked after one another.

...All the different nationalities...you know all the da kids, eh? We were so close. You know we go to each others' homes...people just open up their home, [share] da food. You normally have like weddings, birthday parties, all kinds [of] parties you know. We intermingle with all different nationalities. Everybody was on an equal basis, eh. Which is, you know, rare today, eh.

Despite the fact that various accounts of plantation life portrayed it as a harsh, unfulfilling life, Mr. Takahashi relates that the Wilcox family treated their workers very well and life was enjoyable in Puhī Camp. According to Mr. Takahashi, everyone who was a Grove Farm worker agreed that they were looked after by the Wilcox family, and people were provided the opportunity to own their own home.

Families shopped for groceries in plantation stores, and bought items using credit, to be paid for when payday came. As a young child, Mr. Takahashi was given the specific job of tending to the vegetable garden. For extra money, he cleaned the yards of neighbors. The Takahashi family moved out of Puhī Camp in 1969 when Grove Farm built a subdivision across the road from what is now KCC, selling the lots to workers.

7.2.1 Strikes and Unions

Both Mr. Takahashi and Kupuna Makanani described the strikes and the effects of unionization on Puhī Camp. During one strike in the 1960s, plantation workers had a soup kitchen provided by the union that was able to provide them food. Mr. Takahashi relates how each dinner time, each family would be given their allotted share of rice and main dish. Workers would bring their pot so it could be filled with rice as well as the viands for the day. If the family had several children, the soup kitchen provided enough for each member. The soup kitchen lasted as long as the strike. Mr. Takahashi recalled one particularly long strike, which lasted six months.

The strikes of Grove Farm plantation workers were mostly peaceful affairs that did not turn bloody as the one in Hanapēpē in 1924, when 16 Filipino workers were killed along with four local policemen. Mr. Takahashi put it this way:

Yeah, they would picket, but in the meantime you know everybody had to report and then take care of the garden because no more food!

Although most Puhī Camp residents had their own garden they used to supplement their meals, the main source of food during strikes was the soup kitchen, which Mr. Takahashi noted as a "real humble experience." But those were the times too, when the community came together, and when all the workers from different nationalities would "chip in" and work "side by side." Life during strikes was undeniably difficult, according to Kupuna Makanani:

It was hard, but you know, because we lived simple lives you know we survived. It was like, "Oh my goodness, what's gonna happen now...we have no food!" But we were...we were standing in line for food.

The transition from non-union to union came in 1946 and was not without controversy. With unionization came changes, some as major as housing which no longer was provided free to workers. Kupuna Makanani asserts:

We had free water, free house, we had everything free! Our equipment to play was free, the plantation would provide bats and balls and everything that the kids needed...

Once the union came in, there were stipulations that were made. Kupuna Makanani listed some of the advantages before the unionization of workers:

You don't have to pay house rent...you don't have to pay water, you could use as much water as you can, you know...there it was. The pay was very small but you learned to live without...You don't go over it, you live without...And everybody trusted each other. Not like today...you gotta lock doors and lock windows and put alarms and you see these people doing that in the house and it's sad because who do you trust? There's no trust.

7.2.2 Everyday Life in Puhī Camp

The group also reminisced about life each day in the camp. Some of Mr. Takahashi's favorite memories of growing up at Puhī Camp included making swords from straight tree branches and swimming in one of the three reservoir ponds, which were clean. Pointing out the type of vines he once used, Mr. Takahashi shared how he would cling to the vines to swing about and imagine he was Tarzan (Figure 33).



Figure 33. Mr. Takahashi shows the type of vines he used as a child (CSH 12/05/2011)

He recalled searching for special V-shaped branches from guava or strawberry guava trees and breaking it off in order to make homemade slingshots using the inner tube from wheels of old cars. With the slingshot, he and his friends would practice by shooting pebbles at bottles before attempting to hunt for birds. Laughing at the memory, he admitted he failed catching birds with his slingshot.

It was a great childhood for Mr. Takahashi. For him, a typical day involved attending Līhu'e School in the morning, and after school, he did chores such as chopping firewood to heat up water. He collected firewood from eucalyptus trees surrounding the camp which were planted by the Wilcox family years ago. The Wilcox family allowed their employees to utilize the trees for their firewood.

After chores and school, he would visit friends, and they would then go around to visit other houses. One of his former neighbors was a Filipino family who had one of the first televisions in the camp. Mr. Takahashi chuckled at the memory of how he and all the other children in the camp would go to the house with the television and watch shows during the 1950s.

Mr. Takahashi also explored the irrigation tunnels with friends such as Mrs. Kawado and Mrs. McClure, who are sisters. Mrs. McClure was born in 1948 and her memories of Puhi Camp in the 1950s remain clear. She vividly described the days when houses stood side-by-side where current roads now run and when the road to the Puhi cemetery was once covered with camp buildings. Mrs. McClure lived in the camp until she went away to college in 1966, and by the time she came back, the camp was already gone. However, her daughter Amber, helped capture some of the memories on film when she recorded the oral histories of former Puhi Camp residents for her ethnographic film *From Where We Come*, in fulfillment of a master's degree for University of London.

Kupuna Makanani was the youngest of three siblings and had two older brothers. When she was growing up, she was raised differently from them in the sense that it was a more protective manner. However, she did enjoy activities such as swimming in the irrigation ditches with her school friends. She remembered:

All of the kids swam. I remember Shigeno Amimoto...behind where they lived, there was an irrigation ditch... we would put on our swimsuit and swim in the ditch because it wasn't polluted, you know...and we would go down the stream together.

She recalled that there were softball teams for boys and girls, with different ethnic groups having their own games. For example, Filipinos had "sipa," which consists of the player continuously trying to hit a designated "mark" on the side of their feet without losing the "mark." Kupuna Makanani shared how the games were "so good" and enjoyable.

Like many others in Puhi Camp, Kupuna Makanani attended Līhu'e Grammar School and walked with her brothers to go to school, until the time came when she was forbidden to walk to school. World War II began when she was in high school, and she decided to sneak out and sign up to work in the Kapa'a Pineapple Cannery. Eventually her family, especially her brothers, found out that she was working as the truck from Kōloa came very early to pick up all the workers. By then, however, she had already committed to working:

... I said, "No, but all my friends in high school they fine working...I never wanted to sit and do nothing, I wanted to do something. And so they couldn't do anything---I signed up already.

Kupuna Makanani continued to work while she attended school. She worked only on weekends and during vacations:

...Every summer I would go work. What we had [was] office work at the coffee building, we had different things that you could go. But, because my family didn't want me to go work, I stayed in class. And unless on Fridays, this was every Fridays they could go. The boys would put up barbwire, you know all the kinds at beaches and whatever you had to work and the girls could go work in the office or where ever work was needed. Yeah...so it was like...but it was good because I got to work.

Like the majority in Puhi Camp, her family maintained a vegetable garden. In addition to all kinds of vegetables, Kupuna Makanani shared memories of her mother's flower garden:

My mom loved flowers so we had all kinds of flowers. She had everything from lilies to orchids to ferns, maiden-hair...I remember conifers. We used to come and tell her, "Please we want you to take out your maiden-hair," she had gorgeous maiden-hair...all different varieties, begonias...Our yard was full of flowers, tuberose, roses, [for] my dad every weekend, my mom would make a hat for him...[for] riding or where ever we would go.

Her mother would also make all of her father's leis, using the flowers growing in her garden. Kupuna Makanani recalled fondly how much her father loved roses, and how carnations bloomed along the walkway from the gate to their house in Puhi Camp. There were always two patches of carnations along the path.

One of the few Puhi Camp places that is left is the cement house, which has been converted to become the Pūnana Leo o Kaua'i School. Kupuna Makanani took the group to the site of her former house that once stood in the upper part of Puhi Camp. Although the house is no longer standing, a huge mango tree that once served as a landmark still remains (Figure 34).

She described a valley that went down past her childhood home which was the family's original vegetable garden. Across the street from their house was a vegetable garden for everybody.



Figure 34. Kupuna Makanani tells of her childhood home, marked by mango tree in background (CSH 12/05/2011)

Although Kupuna Makanani's father knew many legends, he did not readily talk about them to the family as he was "very protective" of them. She was raised as a Catholic while her father was born into a Mormon family. She identifies with her Portuguese background, stating:

So we were brought up Catholics, you know to worship God and do all the right things and so my dad was born a Mormon so it's two different lines of worship. Although you are worshipping God, but the rules was different. But, my dad never did stop my mom from raising us as Catholics but he stopped going to Mormon church [temple]. I think he was ordained as an elder. I remember something about him going into the Mormon temple so you have his family, my dad's family were Mormon, very strong Mormon. My mom's family was coming from Portugal so the [maternal] line is Catholic. And my great-grandparents served the priests and took care of the priests and their house and their clothes. And so that tradition came to Hawai'i with my grandmother, so my mom has that tradition. Now I'm born, I do the same thing.

Her Catholic faith is a source of strength and to serve God is the reason why she maintains her involvement in numerous activities helping others:

It's that culture steering me to serve the one God. And so I'm still doing it and...I go back in time and it's telling me that my generation for my ancestors were serving God from the beginning. It's from Portugal coming here. My grandmother lives in Kōloa and goes to that church. It's still that church and that ministry...I'm

born and raised in that same line of service and that's what I do today. I serve the Lord whatever. And it's always in hospitality. You know, it's serving. Making food for the ones who need, taking care of those that don't have nothing, you know you give, that's my life...that's my life.

Sharing her mana'o about the Project area is part of her desire to serve:

I feel for the people because I grew up here in a wonderful time. You know, we didn't steal from each other...if your neighbor needed something, they could come to your house and go through your cabinets and take whatever they need and then the next day they would bring back. Somebody is sick in the camp...so you raise chickens, ducks, pig or whatever you make something and you would bring to their house...You never had to call, "Oh so and so is sick, can you provide a meal?" Not before, before it came natural. You serve your friends, your neighbors and you don't think of their color, creed or whatever. You know they're neighbors, they're friends, you're growing up with them, you learn from them.

Kupuna Makanani lived in Puhi Camp until her early years of marriage, and moved only when her own house was constructed in Wailua Houselots, the first house in that area. Even after she and her husband moved and had a child, her parents remained in Puhi Camp and took care of her daughter during the day. She learned to shoot with a .22 rifle with her husband, and practiced by taking shooting cans with her rifle before hunting for pheasants with her husband when he came home from work. Once they caught a pheasant, they would return home and roast the pheasant. She credits her childhood growing up with many ethnicities for her ability to enjoy eating different kinds of foods and being appreciative of other cultures:

So now, I can eat any other food, I can go to any party and I can say, "I can eat that," not, "I don't like that, it doesn't look good" or you know, "I don't want that." We were brought up different, our generation is really different...to appreciate one another and love them...

These days, Kupuna Makanani's daily diet consists of mostly vegetables and fish. She likes to eat everything, but does not care too much for meat. Her advice is not to overdo eating. She usually bakes her food and sometimes fries it. In particular, she loves baked salmon and fried fish. As for sashimi, she does not eat it probably because when her children were growing up, she gave them sashimi and she did not acquire a taste for it. But she enjoys eating poke which her children did not favor when they were little.

7.2.3 Foodways in Puhi Camp

Throughout the Project area tour, the group freely recalled many memories which involved the tastes of their childhood and how the food incorporated the marine and plant resources around them. Kupuna Makanani shared that whenever her family needed some vegetables, they would go to their garden, or forage for bamboo shoots by the back of the three reservoirs which

were connected and had bamboo on one side. This is where many people in Puhī Camp came to get their bamboo shoots. They also took care of their own chickens as well as ducks.

Mr. Takahashi described foraging during spring for young bamboo shoots, called “*takenoko*” by the Japanese and hunting for a type of fungus called “*pepeiao*” (edible jelly fungus) which were gathered around the camp boundaries. For seafood, he and his friends fished for crayfish by lowering lines with small meat bait, and they also caught fish like bass in the reservoir.

The *pepeiao* was prepared by Mr. Takahashi’s mother to be fried or cooked with chop suey, chicken or pork. Chickens were usually bought from the store as the wild chickens tended to roam in the valley away from Puhī Camp, but there were lots of wild boars that could be hunted, which Mr. Takahashi’s uncle regularly did.

For treats, he and other children would usually enjoy homemade goodies like pickled green mangoes and guava jelly and jam. The children were sent off to pick ripe guavas on the roadside to be used for making preserves and for juice. Mr. Takahashi reminisced how his mother would squeeze the guavas for their juice and freeze the juice in ice trays. Passion fruit juice was also a favorite, which grew in vines all around the Project area (Figure 35). Mr. Takahashi shared his memories:

That passion fruit, you know, that vine that’s growing wild, in the summer time, the thing [fruit] drops, and then we would take ‘em home and squeeze ‘em, eh, and make passion guava and mix the two together, eh.



Figure 35. A passion fruit flower grows in the Project area (CSH 12/05/2011)

As for pickling mango seeds, his grandparents, aunts, and uncles would make these by taking green mangoes, peeling their skin, cutting them and drying them for about two days before boiling them in sugar and adding Chinese spices like five-spice. Mr. Takahashi describes the fibrous seed as the “best part, because all the flavor would soak into that.” He laments that nowadays, hardly anyone makes pickled mango seed from scratch anymore.

There was a small mom-and-pop store in Puhī Camp that was run by the Funada family, and in addition to canned goods and everyday items, there was dried abalone available in glass jars. For about 50 or 60 cents, each child could get a nice chewy slice cut from the big piece that could be chewed for what seemed like hours. “Real delicious, eh. Today so expensive you can’t even buy it now,” Mr. Takahashi notes. The Funada store was located in the Puhī Camp area. There were three stores in Puhī Camp, including a Chinese meat market.

Gathering and hunting for tasty edible food sometimes took on a competitive edge. The search for bamboo shoots or *takenoko* took on a more competitive edge as people came up with ways to try and hide the tender shoots that sprout up after storms. Kupuna Makanani states:

We used to go when it stormed, yeah, when it stormed, the bamboo would grow and so we’d always get our grab bags and a clean knife or a sharp knife and we’d go right across the street. Yeah, we used to wear long sleeves, shirt and then dig and then you cheat because some people know that...maybe [a] couple of weeks more rain...it’s gonna come up so they cover it. Yeah.

The *takenoko* had to be harvested before it got too hard and too bitter, as both characteristics become more pronounced, the older the bamboo shoot. It therefore needs the right time to grow before being picked. To help ensure that, people would cover the place with dirt and hide the shoot until harvest time. The group reminisced how much fun it was to walk around and try to see if there were shoots underneath small piles of freshly dug earth (Figure 36).

The preparation of the *takenoko* involved boiling and changing the water. Kupuna Makanani recalled that her mother boiled and changed the water which was red, and Mr. Takahashi shared that once the water is clear or white, then the *takenoko* is ready to be eaten. Slices were enjoyed in chop suey and other stir fried dishes and also in *nishime*, a Japanese stew made with root vegetables.

The group then walked to an irrigation ditch, where Mr. Takahashi pointed out the minnows and other small fish swimming in the low-level water. He described how he and other children would frequently wade in the water through a tunnel. Mr. Takahashi noted how he used to catch frogs in the ditch and bring them home so they could be fried, “like chicken.” Toads were another matter, though, and when they appeared at night with their big eyes gleaming, the toads scared Mrs. Kawado.

Going through the tunnel was an exciting, scary adventure for the young Mr. Takahashi and his childhood friends Mrs. Kawado and Mrs. McClure (Figure 37). He stated:

Small kid time we used to play. You could walk all the way to outside, yeah. Even when the water is like this, not too bad. You know, you can walk through, eh. This is the tunnel that go under the road... We used to catch frogs over here, too.



Figure 36. A picture of *takenoko* growing in the Project area (CSH 12/05/2011)



Figure 37. Mr. Takahashi and Mrs. McClure indicate the irrigation ditch that leads to a tunnel which they explored as children (CSH 12/05/2011)

He shared that he would make spooky sounds to scare the girls while they were going into the tunnel and they would respond with screams, prompting Mrs. Kawado to remember how she did not like going through the tunnel.

Besides frogs, Mr. Takahashi would also catch crayfish in the irrigation ditches and the reservoirs. According to Mr. Takahashi, crayfish looked and tasted a lot like regular shrimp and was delicious when pan fried with shoyu and sugar. He detailed how he would catch them, employing pieces of meat like pork dangled in the water using a fishing line.

What we do is catch it...and then we'd lure it and then the thing would just grab onto the meat and then roll and pick it up and then we would have a bucket...Little meat fire 'em up through a string or a fishing line, yeah. No hook or anything, but the thing would come out and then with the hook, that pincher they'll go for the meat, eh and get stuck on there. And you gotta be real careful you know and they fall off... Just shake 'em and they fall off 'cause there's no hook, yeah.

'O'opu also flourished in the irrigation ditches and reservoir and were enjoyed by Mr. Takahashi and other Puhi Camp residents. However, he believes that 'o'opu are no longer present. 'O'opu was pan fried, sometimes flavored with shoyu and sugar. "Lot of bones, but the thing was delicious," he recalls.

A gate to control the water flow to the irrigation ditch still exists, indicated by Mr. Takahashi, who noted that Grove Farm still likely owns the water rights. For Mr. Takahashi, the gate remains an integral part of history as it provided water to the ditches and reservoirs and regulated the flow to prevent floods.

At one point during the site tour, the group came upon a papaya tree full of flowers. Kupuna Makanani illustrated how she would use the flowers to make into leis (Figure 38). Both Kupuna Makanani and Mr. Takahashi enjoyed green papaya soup with chicken, or chicken tinola, a Filipino dish. Another fond memory the group shared among one another was the regular baking of fresh bread, which were usually done on Tuesdays along with *malasadas*. Even the yeast was made by hand, with a little piece taken out, used and replaced each baking.

During baking days at Puhi Camp, the job of the children would be to gather the wood and keep the fire going. The children would be given a special kind of bread baked in a long pan, like a muffin pan, made just for them, according to Kupuna Makanani:

And when we were full, we would go out in play. And then the other kids would come, and they would take care [of the fire]. And they would give the kids some bread and butter. And you know because you can smell the bread coming out.

The group took note of plants that grow in and around the Project area, which also include orchids (Figure 39), koa trees, as well as fruit trees like mango, papaya, and others.



Figure 38. Kupuna Makanani points out papaya flowers she used in lei (CSH 12/05/2011)



Figure 39. A non-native orchid growing near Project area identified by Dr. Lisa Gollin, a CSH ethnobotanist and researcher, to mostly likely be *Spathoglottis plicata* (Philippine ground orchid) (CSH 12/05/2011)

7.2.4 Puhi Camp Memories

When the group hiked toward a second cemetery, referred by Mr. Takahashi as being near the "Cement Camp," located in the perimeter just outside the Project area, Mrs. Kawado reminisced about her experiences in Puhi Camp with CSH. Mrs. Kawado was born in 1945 and grew up in Puhi Camp. Her maiden name was Hirokane. She was the eldest child in a family of four children: two girls and two boys. Each child was a year apart and each one had names whose first letter corresponded with the order of their birth. Since she was the oldest, her name was "Audrey," followed by Boyd, her brother, then Chad another brother, and Daphne, the youngest, now Mrs. McClure.

Mrs. Kawado continues to cherish her memories of Puhi Camp:

...The fact that, even though all of us were from families that didn't have a lot of money, it didn't feel like we were missing out on anything because we had good friends, people take care of you...they didn't treat you like you were lacking anything...we didn't have beautiful houses; some of us had out houses, we didn't have toilets that flushed. But still...it was such a special place for me.

Each day as a young child, Mrs. Kawado would walk to Līhu'e School with her friends. During her seventh grade, they built a new school, the Elsie H. Wilcox elementary school. Her mom would prepare hot cocoa for breakfast for her and her siblings. For lunch, she would eat peanut butter sandwiches. At the time, the peanut butter in the jar was very hard to spread, so her mother would dip the spoon in a cup of warm water before using it to spoon the peanut butter spread for sandwiches.

After school, she swam in the reservoirs and fished there too. For after school treats, one of her favorites was called "V apple," a local fruit that was tart and eaten with a mixture of shoyu, vinegar, sugar and pepper. Another treat was slices of dried abalone, bought and eaten like beef jerky, confirming what Mr. Takahashi remembers.

It was Mrs. Kawado's responsibility after school to get the daily newspaper and bread at the store. She recalled the Afong store, which was also a meat market, and another store that was called Puhi store. The post office was also in the store. Her friends were Filipino, Portuguese, Puerto Rican and Japanese, and she grew familiar with their favorite foods, including the tastes and terms for each one. Mrs. Kawado also played the folk games from her friends' culture; one of her favorites was a Filipino children's game called "panio" or "alapanio" where they ran around the cane fields and hid from people designated to find them.

She admitted that it was a hard life with no running water for toilets and baths taken in a "furo" (Japanese bath tub) where water had to be heated up by hand. Before using the *furo*, they all had to scrub and wash up to be clean, since the *furo* water would be used by everyone. After everyone had their baths, the water would be recycled to water the plants. Her father planted lots of vegetables including lima beans which grew on a wire fence. It was a happy childhood where she played with her siblings and helped out with the chores.

When she was 14, the day of her brother's 13th birthday, their father died from a sudden stroke, an event that marked in a way the end of a happy childhood. Mr. Hirokane supplemented

their table with the wild fruits and vegetables that grew around them, in addition to planting their own:

He used to do that, he used to get wild liliko'i, *takenoko*, so we kinda lived off the land in that way...and he never came home one day. So I guess my mom called the police. She was reporting him missing and he had a stroke, he had fallen...some place where they have *takenoko*.

After her father's death, her mother continued to work as a maid for the Wilcox family. The Wilcox family owned the Kilohana Plantation and a 16,000 square foot mansion in the Tudor style close to Puhi Camp. The mansion was built in 1935 by Gaylord Wilcox and his wife, Ethel. According to the Kilohana Plantation website, Gaylord Wilcox was the descendant of Abner Wilcox who was among the first missionaries in Hawai'i. Mr. Gaylord Wilcox was the manager of Grove Farm Plantation at the time the mansion was built.

Each morning, Mrs. Hirokane walked to her work each day as she did not know how to drive and the children were too young. She raised all four of her children singlehandedly, and two of them went to college. Years later, Mrs. Kawado remains in awe of what her mother did for her and her siblings:

Yeah! And you know, we never went on welfare or food stamps. Well we didn't have food stamps in those days, but social security I think saved us. Yeah, my dad had been working many years so he had. He just didn't earn a lot of money because he worked for the plantation, but it was enough for her, she was the one who practically raised me all the way...to go to college. But I said, "You know, I want to go to college, but you know what are the chances?"...And then she made all arrangements, she looked into college, she looked into getting a loan for me and all that! She was amazing! I think she wanted that for her kids, to be self-sufficient.

Mrs. Kawado first went to Maui to Maunaolu Junior college that was surrounded by cane fields and which reminded her of the days in Puhi camp. Then she went on to University of Hawai'i and majored in Sociology. Shortly after she graduated in 1968, she was offered a position with the State of Hawai'i in the Department of Social Services. The year she graduated, Mrs. Kawado married Mr. Alan Kiyoji Kawado, and they had three sons. She would have celebrated her 43rd anniversary with her husband last year but he recently passed away. She recalled with a laugh how her husband was known to everyone as "Mr. Aloha Airlines," and he was fiercely loyal to the airline. If friends ever flew another airline, they knew better than to tell him.

The last site that the group visited is located off a dirt trail some 200 meters north of the Project area (Figure 40). Mr. Takahashi referred to the second graveyard as the "Cement Pond" cemetery. In the 1950s, when he was about 10 or 12 years old, Mr. Takahashi was bicycling with a friend when they came across the cemetery. According to him, the general area where the second cemetery is located is called "Cement Pond" by Puhi Camp residents because there was a

big tank where all the drinking water came from, and when a new tank was built, all the children swam in there.

The Cement Pond cemetery contains at least three graves with headstones (Figure 41). As for the graves, a royal palm tree marks their location on the side of the trail. The tree has been there as a marker ever since Mr. Takahashi was a child.

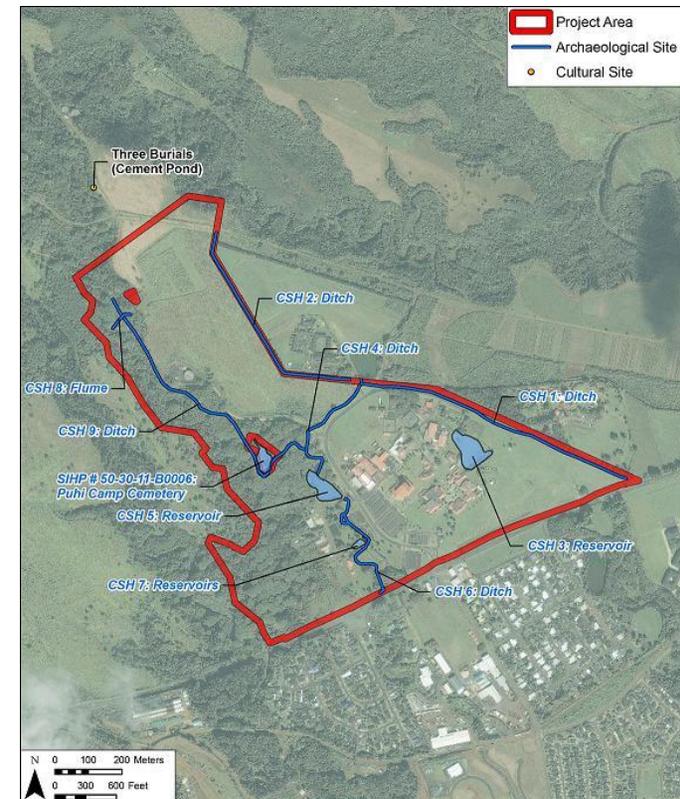


Figure 40. Aerial map with location of both Puhi Camp Cemetery and the "Cement Pond" cemetery, just outside the Project area (base map Google Earth 2012)



Figure 41. One of three graves in the Cement Pond cemetery (CSH 12/05/2011)

It has been at least two years since Mr. Takahashi has been able to clean the graves, and he showed the group the heavy moss covering the headstones and pointed out the need to clean out leaves and debris. He posited that the graves do not look like they belonged to people from Puhī Camp, but rather, someone or some people who may have been well-to-do. The headstones are engraved in Japanese and one of them dates from 1918.

Across the road from the “Cement Pond” cemetery is a field where according to Mr. Takahashi, a fireball once appeared. He narrates the mo’olelo he heard:

..They were plowing the field one day and the tractor operator seen there’s a fireball coming out of ground...and then the guy just took off [Laughs]. And they said there’s a kahuna eh, spirit of a kahuna, that’s what the Hawaiians claim. So that’s an old area too because when I was young, I see lot of broken fragments you know like ceramics, yeah. Dishes or something here so had to have a big camp over here before.

Mr. Takahashi’s story of the fireball led Kupuna Makanani to share her own, similar experience, which did not take place in the Project area, but by Stable Camp, in Kapahi, where she was visiting friends. That day, she decided to take a path that led her past an area by a water tank where she saw white smoke:

The smoke was coming out, was coming out, and it seemed the whole place would be burned down. But no...meantime I was passing, and I never seen that. Only [that] one time I saw it. And so coming back the next day, there’s two ways to go up there, so coming back, I thought to check, because I saw the smoke. There was nothing burned, nothing. It was in the field by a big water tank. The smoke was white, white, white, like a cloud.

The similarity of the environment around Cement Camp and the area around Stable Camp made Kupuna Makanani recall more details about what she saw:

There was also a water tank...I seen the forest and I seen smoke so I said, “Oooh...that’s spooky, they gonna make fires and there’s the trees,” and so I went to my friend’s house and then, I didn’t tell them anything and the next time I went up, I told them, “Oooh, you know, funny there’ smoke, but when I came back the next day, there was nothing burning. But I say, “I seen it.” And then he told me, “Oh we forgot to tell you that that road is “*obake*” [Japanese term for “spirit”]. Yeah. And I said, “What?” So I never wanted to go that time and I usually go in usually when I get to work.

For Kupuna Makanani, both the smoke she witnessed and the fireball are one and the same: they are “spirits” according to the Hawaiian belief system. Mr. Takahashi agreed with her.

Mr. Takahashi pointed out no one knows how old the area is. He noted that Kaua’i is the oldest of islands:

And the first to be probably inhabited so what was here before the missionaries came, nobody know...A lot of the heiau were all run down when the missionaries came, so might have been a heiau up here and nobody knows, you know.

He related that a while back, he had seen some shards of glass and opium bottles as well as pottery bits when he was working on the field. This led to his theory that Chinese people as well as Hawaiians were former inhabitants of the area where the fireball was seen.

After the site visit to Cement Pond cemetery, the group discussed their thoughts about the Project. Mr. Takahashi notes that it would be good for KCC to eventually be a four-year program, in order to attract more students. He sees the need for new buildings, and a new parking lot so the school can grow. He and others like Mrs. Kawado also want to preserve the remnants of Puhī Camp for the education of future generations.

Kupuna Makanani is of the same mindset as Mr. Takahashi. She thinks the expansion of the community college is good, providing there are some limitations. “Your children and your grandchildren will benefit, but if they have nothing, they are going to move,” she states. She wants to know what Project proponents have in mind in order to provide her recommendations.

Kupuna Makanani knows, however, what she doesn’t want. She does not want the burials to be moved but she can see that the reservoir and the graveyard are in the middle of the Project area. Kupuna Makanani appreciates that a CIA is being done.

Later during the day, a smaller group consisting of Kupuna Makanani, Mr. Takahashi, Amber McClure, and CSH visited the offices of Bernie Sakoda, who was instrumental in organizing past Puhī Camp reunions. Born in 1946, Mrs. Sakoda was raised in Puhī Camp and three generations of her family worked for Grove Farm. Her father, Robert Seiyei Tokuda, was a truck driver for Grove Farm while her grandmother, Kama Tokuda, raised ten children as well as did the laundry for the working men, among her many activities.

Mrs. Sakoda recalls her weekly chore of collecting firewood, as well as certain ingredients needed for the homemade pig stew. Ingredients for the stew included honohono grass, papayas, and avocados:

My family thought I was crazy but I thought it was the greatest job, it was hard work but I didn't mind chopping and cooking it. We would cook it once a week and the 50 gallon slop would last the whole week. Everyday, we could re-heat some of it and put it in a can on the wagon and take it to the piggery.

If the pig was slaughtered, all the parts of the pig was used, and nothing was left to waste. Mrs. Sakoda recalled with some pride how her family raised rabbits, ducks, turkeys, and had "a most beautiful garden" in the backyard. "We lived off the land pretty much, we can be very self-sufficient. It was wonderful times, and the community was really a solid community," she relates. Even if her parents were having hard times, she did not realize it because her father would provide meat from the family "mini-farm" as well as produce from the garden.

Kupuna Makanani adds that no one wanted to be on welfare:

You shamed if you were on welfare...You worked and everything went on the table. Nobody said this is mine; there was one pot for everybody. If you had a dollar or 50 cents, you were satisfied. You don't ask questions why, you were satisfied.

All of the group members who were present, including Mr. Takahashi, Kupuna Makanani, and Mrs. Sakoda emphasized the importance of respect that was instilled in them. Mrs. Sakoda narrates that just a stare from her parents was enough to make her stop her misbehavior. But the lack of respect she sees in children brought up today may be due to the different circumstances in the home:

You can't blame the kids, I think both parents are struggling in this age now, and both parents work. In our days, we had someone at home all the time, watching over us. The discipline was so different in the past...We were brought up in the Asian custom of "you listen to adults and you respect the adults." If we answered back, we were sent out of the room. It's so amazing how respectful we were to our parents and when we knew we were doing wrong.

The rod was not spared either, the group agreed. Mrs. Sakoda notes that as older children, they received a spanking and they knew when it was coming. Overall, her childhood was a wonderful experience where she learned the value of not just respect but also the meaning of

sharing with one another. Puhī Camp residents were from all over. For example, she cited how Japanese residents came from different prefectures in Japan as well as from Okinawa.

Everybody's culture was different. We shared. We had "Up" and "Down" camp, and a lot of people in between. In our camp, we had a good mixture of Filipino, Portuguese, Puerto Rican, Chinese... We grew up in the community where everyone shared food...and it's not only the food, but all of their history. For us, it was playing with "taiko" [Japanese percussion instrument] drums and concerts with Okinawans, for the Portuguese, who did all the cooking in the outdoor oven, we baked bread. We ate "kimchi" [Korean fermented spicy cabbage].

7.2.5 More Foodways

Food was an important part of the cultural education for Mrs. Sakoda, and she relates how "miso" was made by fermenting beans in a huge barrel. She also shared the recipe for an Okinawan dish that plantation families enjoyed. It involves boiling down pork fat until it gets crispy. Then *miso*, sugar, and ginger are added so that it is like a paste. The crispy pork pieces are mixed into the paste and the whole thing is served over hot rice.

Food was such an indelible part of life in Puhī Camp that during the camp reunion in 2003, the amount of food prepared was enormous. Dishes that Mrs. Sakoda credits as being part of the Puhī Camp repertoire included Chicken Hekka, Hulihuli chicken, and Chicken Papaya with "malunggay" (*moringa*) leaves. The group then traded stories of foodways, specifically the different ways to prepare dishes from all the ethnic groups, including the taste of "pansit" (a Filipino noodle dish), "pinakbet" (Filipino vegetable stew with vegetables and "bagoong" (fermented shrimp paste) or shrimp with pork as flavoring. There was also mochi rice, adobo, "cascaron" (also known as "bitsu-bitsu" balls, a Filipino dessert usually served on a stick made with mochi flour, coconut and sugar).

Even today, Mrs. Sakoda prepares many of the dishes she ate at Puhī Camp. She relates:

I have a *malunggay* tree in my backyard because we love it so. Wild bitter melon and green beans and squash---we love *pinakbet*. We love *adobo* [Filipino dish involving meat cooked with vinegar, soy sauce, and bay leaves, most likely from Mexico].

7.2.6 The Social Box or Box Dance

An important part of Puhī Camp was the hall provided by Grove Farm, a gathering place near Puhī store, where people would go to have holidays, weddings, and other events. According to the group, Filipinos held an occasion called "the Social Box." At pay day once a month, all the women would prepare whatever delicacy or dish they wanted to make, such as *musubi* (rice with seaweed that usually has something such as spam or another filling), which they place into a box the size of a shoebox. They would then take the box lunches to a dance in the hall. Ostensibly, the dance was held for single Filipino men, but everybody participated because it was a fun evening, according to Mrs. Sakoda:

It was a night to go out and socialize, and we didn't have TV. at that time. The women would auction off their boxed lunch, that's why it was called a "Box Dance." They would auction off their boxed lunch to the highest bidder. The highest bidder gets to dance with them and to eat the lunch...It's like matchmaking.

The women could also have someone prepare lunches for them if they were too busy working in the pineapple field or cannery. Mrs. Kawado and Mrs. McClure's mom, Mrs. Hirokane, was well-known for her cooking and her boxed lunches were in demand among busy, working women. When asked what the primary goal was of the dance, Mrs. Sakoda describes it as a way to socialize where men can dance with women. The boxed lunches were also a way to make some extra money on the side. Kupuna Makanani notes that there was no alcohol that was served but the dance was still fun with music and an emcee. Such social events like these is credited by Mrs. Sakoda for teaching her about other cultural practices:

There was Filipino music, Japanese music from the Japanese and so on...That's why we all know how to do the bamboo dance, we all know how to do the hula, we all could play the 'ukulele. That's what the communities all were [doing] on weekends. If you wanted to take 'ukulele, you could go there, if you wanted to sew, you could go there.

Both Mrs. Sakoda and Mr. Takahashi traded memories of Chinese men who would sell *manapua* (steamed meat buns), and delicious hot saimin. Eggs and milk were delivered to residents. Other vendors included tofu sellers, including one particular lady from Līhu'e. Mrs. Sakoda describes the following:

She had a stick across her back, and the cans, cracker cans would be balanced. The cans had tofu. One would bring one's bowl to buy the tofu. If you wanted bean curd...there was also *nishime*.

The holidays were a special time for the children in Puhi Camp, marked by food. Mrs. Sakoda describes how each Christmas, each child received a gift from Grove Farm:

Every Christmas, we would have a handful of mixed nuts, fruit, an apple, and an orange and some candy. It was so precious for us to get that each Christmas, that little brown bag with just that. If we only could re-create that, it was so valuable to have that apple and orange...we were fortunate. The unions were very good to our camps.

7.2.7 Recommendations

The group then discussed the certain style of plantation homes in Puhi Camp. Old Japanese homes, for example, usually had a "china hutch" that had screens on the doors where food was kept and flies were prevented from coming in. The legs of the china hutch were placed in containers of water to keep ants from climbing up. Although there are no more Puhi Camp houses that remain standing, Mrs. Sakoda drew attention to the Grove Farm Museum where there

are replicas of plantation homes. Preserving the past became an issue for Puhi Camp residents when the 2003 reunion committee pondered on what was valuable to remember. Mrs. Sakoda states:

... It never crossed our minds until we did the [Puhi] camp reunion, and then we realized it was really too late because all the homes were destroyed. When they asked to relocate the remains in the cemetery, that's the first we knew that there were going to be development there...Those days, we were never aware or made aware of all the history that was going to be lost.

The significance of the camp bulletin board and the role it played in the everyday life of the workers was one of the main things that the Puhi Camp reunion committee wanted to preserve. The board contained communication vital to the daily life of the camp, everything from union meetings, holiday events and seasonal announcements. Because there were no computers in those days, the bulletin board was one centralized area that could effectively communicate all upcoming events affecting the camp's residents. .

According to Mrs. Sakoda, the reunion committee had asked Grove Farm to make a replica of the bulletin board as a memorial to Puhi Camp which can then be located somewhere in campus where students and visitors can read about its history. States Mrs. Sakoda:

When we were doing this [2003] reunion, we thought it would be a good idea because we remember our laborers had that bulletin board...We want to use that as a re-created one or restore it to use again. It was a bulletin board with an attached roof, with all the announcements pertinent to the camp life...We know KCC has a carpentry department, and it would nice for them to re-create that bulletin board, and restore our oven. But keep it on campus, so it would remind people [of Puhi Camp], and it has to look the same as when we were growing up.

As for the Puhi Cemetery, Mrs. Sakoda shares that her little brother could still be buried somewhere in the cemetery. Her first preference is that the graves will remain where they are. The group talked about who will clean the graves in the future. In the end, Mrs. Sakoda, Mr. Takahashi and Kupuna Makanani agreed that if it is possible, a columbarium containing all the graves should be built on site. Then it would be able to maintain itself. The columbarium has to be in the area so that people would know it was Puhi Cemetery.

Mrs. Sakoda shares the following question that she would like answered by Project proponents:

What is the intent, their intentions regarding Puhi cemetery? The group is wondering why they have not gotten notification about the Project proponents' intentions regarding the cemetery. They would like to be part of the discussion when a decision has been made.

7.3 Mr. Charlie Pereira

CSH interviewed Mr. Charlie Pereira at the Waipā Foundation site in Hanalei, Kaua'i, on 12/08/2011. Mr. Pereira is from Niimalu Ahupua'a where he spent the majority of his childhood years. He states that it was during those years that he learned to fish. Mr. Pereira is a reknowned fisherman and a master fishing net weaver who was weaving his most recent fishing net during parts of the interview with CSH (Figure 42). As a young boy, Mr. Pereira worked in the sugar and pineapple plantations then at 21 years of age, he was drafted to the U.S. Army. During his time in the military, Mr. Pereira spent 11 years in Scholfield Barracks then worked in Korea, Germany, and Texas. When he retired from the military, Mr. Pereira returned to Kaua'i and worked at Coco Palms for 24 years. He laments that he missed the fishing. He has two daughters, five grandchildren, and five great-grandchildren. He currently lives in Namaholo with his two daughters. On Thursdays, Mr. Pereira volunteers at the Waipā Foundation in Hanalei, making poi.



Figure 42. Mr. Pereira weaving a fishing net (CSH 12/08/2011)

Regarding his connection to the Project area, Mr. Pereira explains that his uncle, Joe Texeria, lived at Puhi Camp, which was formally located on the Project area. Mr. Pereira tells of spending a lot of time with his uncle and would visit him at the camp often. During a flooding event, water reached their home in Niimalu so his family spent the night at Puhi with his uncle.

Mr. Pereira recalls that the location of the KCC was formally agricultural land with pineapple, cattle, and later, sugar cane. He explains that it was a hard life living in the plantation camp. He shares his memories of Puhi:

Where the college is at KCC, that used to be all agriculture and pineapple. They also had cattle grazing there. They only raised cattle and pineapple and then sugar. They got their water from reservoirs. They had ponds. They got them in Puhi. I remember the plantation having the bathrooms outside. They had water running for the bathroom and the plantation gave them kerosene for their cooking and for hot water for baths. Their life was pretty hard. The Filipinos got together once a year around December I think. We'd go too, but it was a Filipino celebration. When I was growing up, they called the celebration the "Holy Ghost." The Catholic Church had a carnival and now they call it "Carnival" but at that time, it was "Holy Ghost." They made sweet bread, you know, *malasadas*. As the years went by they made some pretty good stuff.

Mr. Pereira worked for the sugar and pineapple plantation for many years especially during the summer time as a young boy. He explained:

It was sugar and pineapple. I was twelve years old when I worked for the plantation. I worked there in the summer time. That's how we made our money for school. We had to buy our clothes. I worked in the plantation for a dollar and a quarter a day. I had a German boss. The only thing I didn't do in the sugar cane was irrigate, you know, water the cane, but I was in the fertilizing and the harvesting of the field. There was very little machinery when we first started but as the years went by, they had more improved machinery for cutting the cane.

When asked about fishing practices in Niimalu, Mr. Pereira shares the following recollections. He also tells of his passion for fishing and making nets and shares with CSH a picture of himself casting his first fishing net at the age of 12 (Figure 43):

There was a lot of fishing in Niimalu. There was a guy, Mr. Coney, who caught the akule with the net. We'd go out to catch the akule in the bay. We'd bring it in and take out the fish and we'd sell it and eat some of it too. We were always playing in the bay. I'd be on the break water picking up 'opihi and spear. I did a little spear fishing with the boys but my interest was the net, once I got into the net. We'd catch mostly small fish—manini [convict tang], squid [he'e], and other good fish [See Appendix B for scientific names].

Fishing is my thing. I make the nets. I sell them to whoever wants to buy them. I learnt from my dad and he learnt from the Hawaiian people. My dad was Portuguese. Grandpa and Uncle were fishermen. Commercial fishermen, and now it's my nephew. He uses the nets with the floaters and the weights and surrounds the akule schools of fish. The nets I make are smaller. Throw net they call it

They dredged the harbor [Nāwiliwili] to make it deeper. It was too shallow for the big boats. I have a picture of me there with my fishing net. Where I'm standing in the picture, today, there's gas tanks there. This one here, this is the picture [as he

shows CSH his picture]. I had a bigger one with my net in my folder, but I don't have it in my wallet. This picture was taken when I was twelve years old with my first net. My mom took this picture.

In addition to net fishing, 'opihi-picking, and spear-fishing, Mr. Pereira also used to fish for crab using crab nets:

I used to go crab fishing with the crab net and catch crabs. It's a round net with the wire ring. We used to catch crabs over there at Niumalu Bay. We used to catch a white crab [possibly kūhonu] and the Samoan crab with the blue pinchers. They call it Samoan crab [See Appendix B for scientific names].

Mr. Pereira also used to paddle from Niumalu on his surfboard to surf in Nāwiliwili Bay. He describes the following, "from Niumalu, I'd go on the surf board I went all the way around the harbor to where that Marriott Hotel is, just to catch a couple of waves. I went all the way back too on the surfboard and the surfboards were made out of plywood."



Figure 43. Mr. Pereira with his first fishing net at the age of 12 (Courtesy of Mr. Pereira)

Mr. Pereira reminisces about growing up in Niumalu and portrays a picture of how rural life was like during that time:

We didn't have our electricity until probably after the war—1945 or 1946. We didn't have electricity before that so my mom used kerosene for cooking. Mom was good at making bread. Home-made bread. I used to sell it to the Hawaiians for ten cents and I couldn't collect ten cents. You could buy a loaf of bread for ten cents and an ice-cream for a nickel. I remember those days. We didn't have electricity. Same thing with my wife in Anahola. They didn't get electricity until about 1957 or 1958. Then I lived in Moloaa. Our house is there. My wife got the property through her dad and we didn't get electricity until 1982 over there. Everything was kerosene. My wife was raised with kerosene lamps the same way

I was raised. You know, you had to push it out! If you went too high...what happened? They called it "da chip nail." The glass would get all black.

Mr. Pereira volunteers at Waipā Foundation for the organization's "Poi Day," every Thursday. He shares with CSH how he became involved with the organization and describes the poi-making activities at Waipā:

My wife started coming here before. After the hurricane we had in '92, she came here to make poi and then took it out to the old people. I was in Europe when she did it by herself. My daughters used to help her sometimes. After that, I started coming here and I kinda look forward to it. It's an outing for me to come out here. She was the one coming out here then she passed away. So then my grandson started coming here. He works for the county and he's off Wednesdays and Thursdays so we come here. When I come here, I come in, bring taro, then we get caught up cleaning the taro and start grinding it.

When asked if there are any resources or practices within the Project area that people should be aware of, should there be any development, Mr. Pereira responded that, "I wouldn't know." However, Mr. Pereira is supportive of the Project as he supports education. He states, "The more you have [education], the better it is for you. Mr. Pereira's grandson attended Pūnana Leo, the Hawaiian Language Immersion program at the Kaua'i Community College, for five years.

7.4 Mr. Dennis Chun

CSH met with Mr. Dennis Chun at the KCC on 12/06/2011, where he has been a faculty member in the Department of Hawaiian Studies for 22 years. He, along with several other faculty, was instrumental in establishing the college's Department of Hawaiian Studies. Prior to KCC, Mr. Chun worked in alternative education for Kamehameha Schools. Mr. Chun is an experienced sailor and seaman with almost 40 years of experience in traditional Polynesian navigation. He has been associated with Hōkūle'a, the traditional Hawaiian sailing canoe, since 1974, on which he sailed his first deep-sea voyage to Tahiti, in 1985.

Mr. Chun is connected to the Project area, not only through his experience and familiarity with the KCC campus, but also as a resident of Nāwiliwili Ahupua'a, where he was raised and currently resides. Although his family is originally from O'ahu, Mr. Chun moved to Kaua'i when he was a young boy. He shares with CSH his memories of growing up in Nāwiliwili which portrays the cultural and environmental landscape of the place at the time:

I've been there [Nāwiliwili] since small-kid time. I grew up in that area, in Kupolo, the name of that subdivision just above Nāwiliwili. If you're driving toward Nāwiliwili from Rice Street and the road starts going down the hill, there's a subdivision on the right hand-side. That's it. It overlooks Nāwiliwili Valley between Kaua'i High School, Wailers and the entrance to the Marriott. My grandparents were from O'ahu but we moved here when I was young, eight to ten or something like that, and we were raised here since then.

Mr. Chun describes the valley of Nāwiliwili as a small town when he was growing up where taro was once cultivated and later replaced by pastures for cattle.

It [Nāwiliwili] was a small town at the time. I remember that valley, it's not on these maps [pointing to maps]. The mill is over here and the valley comes around here and goes toward Kalapaki. Down in that valley where we used to live, there were taro patches. Now it's all pastures and grassland but before, they used to be taro patches. Someone is still planting taro there. There's still some taro patches down here. In Niumalu, there's taro way in the back. I remember when we wanted lū'au [young taro tops, especially as baked in coconut cream and chicken or octopus] leaves or taro, we'd go down there. There's only one family I knew who had taro but they got old and didn't continue it. I think the landowner down there was Kanoa Estates. They sold some parcels but they leased out the land for cattle. The Andrades, from Kalaheo, used to have cattle down there. This was around the sixties to mid-seventies. After that, the place just went to grass.

He recalls the sugar cane industry as a child and of a railway that brought sugar from the plantations to a mill in Nāwiliwili. By the seventies, Mr. Chun remembers that trucks replaced the rail system.

Sugar was there when I was a child. In fact, they still had the railway run to the mill and down alongside this valley. They used to bring sugar to the mill. That ended around the seventies. I remember that lasted only for ten years or so and then it stopped. Everything went to trucks after that. Trucks transported sugar from the fields to the mill.

According to Mr. Chun, the land on which the KCC campus is located, was also cultivated in sugar cane. He recalls that Puhī Camp, a plantation camp, was also located within the Project area. He is doubtful that any archeological, historical, or cultural sites remain within the Project area due to the prior cultivation of sugar cane on the property. He states:

This campus used to sit on sugar cane land. I remember as a kid that this side over here [pointing to map], was a plantation camp. The Puhī Camp. It was here and also here. This was all sugar. As far as archaeological, historic, or cultural sites, I don't know if there'd be anything left because this was all sugar cane land.

Mr. Chun shares his memories of Puhī Camp and explains that the camp was predominantly Filipino. He describes life in the plantation camp:

Puhī Camp was all single-family homes. Old style. It was run by Līhu'e Plantation or it may have been Grove Farm. They provided housing for their plantation workers. I think the workers paid for their housing but it was cheap. That was part of the plantation mentality at the time. Workers were brought in, paid the minimum wage, and housing was provided. At that time, most of the camp was Filipino because that was the latest immigration group that was brought in to work the plantations. They were the majority of this plantation camp. They [Puhī Camp] had their own plantation doctor, medical facilities, and plantation store. So the money stayed within the company. It was like that for awhile. You know where the Macy's is located at the Shopping Center? Back then, Liberty House was there. It started off as a plantation store for American Factor's Corporation which was one of the Big Five Corporations. They had their own

plantation stores to supply their own plantation workers so that the money would come back into the corporation. Originally, it was called Heckfield and Sons which is a German family but then during the war, World War I, they didn't want to have any affiliation with something German so they changed the name to Liberty House. Something American.

Mr. Chun explains how water flowed down from Kilohana mountain and fed the plantations. He describes an abundance of water that collected in reservoirs. However, he suggests that developments, such as roads, have changed how water once flowed. He explains:

One of these sites here was a reservoir. The water for that reservoir came from a spring up here...down from Kilohana. There's another reservoir here, and another here and here. So the water fed these reservoirs then the water went out to the sugar cane fields in this area. Now, the water comes down still. This one is dry, right outside of our building [Hawaiian Studies Building]. When it rains, the water runs off and overflows. When there's heavy rain, the water drains and kind of fills up the road that comes out in front of here. This one [reservoir] still runs and goes to this stream that comes down here some place [pointing to map]. They're putting in culverts and all sorts of thing in the road construction in front of the campus so I have no idea where the water all goes. Before, the water used to just go across the road and go down here [pointing to map]. This was all Puhī Camp, plantation camp over here.

Mr. Chun explains that freshwater flows down into Nāwiliwili Bay through rivers and streams, such as the Hule'ia River. He has observed changes in the water quality of Nāwiliwili Bay over time and attributes muddy water in the bay not only to heavy rains flooding the Hule'ia River but to activity upstream at the sugar mill, as well as the development of the Marriott Hotel. He explains:

When there's heavy rains in the Hule'ia River, the whole bay gets muddy. That river flushes. Another stream comes up from the mill up this way and brings water down to Kalapakī side. When I think back, Nāwiliwili Bay wasn't always muddy from rain because it didn't depend on the rain, at least on the Kalapakī side. It depended on what the mill was doing. It didn't depend on the weather. If it rained hard, yeah, then it would get muddy from the Hule'ia River but on this side [Kalapakī], it was more dependent on the mill. I think what happened is that the sugar mill up here used that stream to wash their cane so the stream would get silty and rubbish from the mill would come down into the bay. The water quality used to be junk.

Today, there's another runoff stream that comes up here [pointing to map]. It used to come down on the backside of the Marriott. When the Marriott Hotel was built, they diverted the stream and made underground culverts for the water. Remember those really heavy rains when it rained everyday for a long time? Four years ago? When the dam broke, these culverts they had underground to divert the stream collapsed, and made major damage to the hotel parking area and entrance. It was

major. Because of that, whenever it rains, silt comes down through this and here too and joins and makes this real muddy.

Mr. Chun believes that fresh water has shaped the ecology of Nāwiliwili Bay in that corals do not grow where there is fresh water. He believes that the sandy bottoms of the bay and the location of the coral reef further out in the bay, is due to the decreased salinity of the water from fresh water.

There's a rock here in the middle of the beach where water comes along here and out. That's why it's all sandy in the middle of the bay because coral is not going to grow where there's fresh water. That's why the reef is further out. In between this area, it's all sandy on the bottom because fresh water comes in here and here [pointing to map].

Mr. Chun describes Nāwiliwili Bay during his childhood and shares surfing stories in the bay. He also tells of mo'olelo associated with sharks and shark gods in the bay:

The jetty wasn't like the harbor where it is today. We didn't have the breakwater outside. When they dredged this harbor, they made this jetty. Here's inside lighthouse and outside lighthouse there. There's a rock over here I heard a story about. I don't know the name but they say that one of the shark gods came to this place. When we were kids, we used to surf over here and I'd think, "I don't know if I wanna go surf over there. Sharks come around." See these lighthouse here? There's a break over here. They say that on this side, there's another cave where the sharks give birth. So everytime we'd surf over here, we'd always look around. One time, we're out here surfing as kids, maybe fourteen, fifteen and we looked around behind us and we saw this fin swimming behind us coming around this way. It's all cliff here but there's a little indentation that's kind of low over here so we paddled to it. We climbed up this little indentation and we looked behind us and there's this ten-foot shark behind us. That's why I hardly go surfing there nowadays. They say, and it still holds today with the kids, some of them say, sharks give birth over here. A number of years ago, we're surfing in this area along the rock where the reef is when these guys shout, "shark coming in", so we're all paddling and jump on the wall along here. The shark came. It was a hammerhead shark. The water was only chest-deep but it gave birth so there was a lot of thrashing and blood in the water. They kind of swam around here and went out. That doesn't happen often but that's one of the stories.

Mr. Chun recites previous research that his colleague, Mr. Pila Kikuchi, had conducted a survey in the area which indicates that the place name, "Puhi," even though it means, "to blow," was the name of a cave where a shark god lived. He believes that the cave was located in Ha'ikū, near the Menehune Fishpond. He explains:

The place name, "Puhi," means "to blow." A shark god lived in a cave in the area. The name of the cave was Puhi, therefore, the name of the area. But where? See this? This area is in the ahupua'a of Ha'ikū. So it would have to be down in this area, near the fishpond [Menehune].

Regarding fishing practices in the bay, Mr. Chun recalls seeing a hukilau event at the bay as a child. He shares the story:

The first time I saw a hukilau was over there. It was in front of the Old Kaua'i Surf. It was old style Hawai'i kine of a hotel, part of the Big Five hotel chain. It was pretty low key, like CocoPalms, and open. They'd just started building it when I saw the hukilau. They had it here [pointing to map] and I thought it was so cool. They were just pulling in ropes with leaves tied to it and all these fish were coming in. It was pretty cool. I saw that once and I never saw that again. It was one family. I don't even know whose family it was. Maybe it was Aunty Sarah's family. Kailikea was the family. She passed away already but they were one of the old time Hawaiian families that lived in this area. In fact, they still have one house along here and I think the son still lives there. There was also uncle Gable 'Ii. The Lovells were another one. Those are the families I remember.

Mr. Chun talks more about fishing practices in the bay and states that not too much fishing occurs in the bay today. Instead, people go to Wailua to fish. However, he maintains that people still gather limu and 'opihī inside the bay and go crabbing along the Hulē'ia River. He states:

There's not too much fishing in the bay. There is some but not that much. For us, we'd kind of go this side, to Wailua for fishing. We'd also walk down to Ninini Point, by the outside lighthouse. We'd use the roads and go down, park our cars, and go down along the coastline. Before, I don't know if there still is, but there used to be a dirt road that goes there. You could also go by the airport and go along the coastline to the outside lighthouse. As far as limu and 'opihī, we could get them right inside the bay. It was not a problem. People would go crabbing right along here, the Hule'ia. We used to do that. People still do that. 'Opihī, you can still get all along there in the bay, along the seawall. But, it's so easy, people pick them small because it's convenient. If people just want a handful for eating tonight, they'd go there.

Mr. Chun also mentions Menehune Fishpond as the largest fishpond in Kaua'i and the main one in the vicinity of the Project area:

Menehune Fishpond is probably the largest. There's one in Hanalei that I know of, right behind the Wilcox family house, Hanalei Bay. But, Menehune Fishpond is the main one in this area.

When asked his knowledge of burials and other features of cultural significance within the Project area, Mr. Chun indicates that he knew of a cemetery located near the campus. He identifies the cemetery on the map, which also appears on the map. He reiterates that the sugarcane plantations would have displaced features of cultural significance within the Project area and also points out that the population centers would have been concentrated along the coast or along the Hulē'ia River. Therefore, the likelihood of finding heiau and other cultural features would be higher along the coast than within the Project area. He knows no heiau in the ahupua'a of the Project area:

There's a cemetery up here. It's on the map. It's a separate parcel. That's the only burials that I know of, at least, in recorded times but I don't know as far as pre-history. I haven't heard of anything here. I think because this was all sugar cane fields, everything got reburied, hidden, displaced, or destroyed by the time we came about. If there's anything remaining, it's probably destroyed. I'm sure that were stories. If we go back far enough, we'll find written accounts of things but to find that now is difficult. I know what people would look for in digging around this area. They'd be looking for artifacts like old bottles and things like that. I see that happening more than for Hawaiian artifacts. In those days, I don't think the population centers would have been up here. If anything, it would down along this area along the coast or along Hule'ia. I don't know of any heiau around here. Heiau I know that would've been around the coastline. Not any that I know of in any of these ahupua'a.

7.5 Mr. Robert White

CSH met with Mr. Robert (Bob) White on 12/07/2011 at his residence in Niimalu. Mr. White and his family moved to Kana'i in 1970 and spent most of the summers surfing and camping at the beach in Kalapaki since he was 10 years old. He has lived in Waitua and Oma'o, but moved to his current residence approximately fifteen years ago. His home is located directly adjacent to the Hule'ia River and minutes away from the Menehune Fishpond. Mr. White, therefore, lives within the study area and near the Project area. He and his wife have two children who have grown up in Niimalu and attended Kana'i High School. They have a strong sense of place and love the island and its people. Mr. White expressed the following sentiments about Kana'i, "We have a really strong sense of feeling for this island. So, we're very open to this Project because we love Kana'i. We love the area, and we love the people." He shared with CSH his mana'o regarding the proposed Project.

Mr. White acknowledged the importance of the proposed Project to the well-being of the island of Kana'i and supports the plans to develop the school. He states, "I think it makes perfect sense to develop the school. It's in a great location." Being familiar with the area, Mr. White points out that should the college expand, mitigation plans to ease potential traffic problems attributed to the location of the Chevron Station near the main intersection on Puhii Street, directly in front of the campus, should be addressed. He explains that motor vehicles turning into the Chevron station is currently causing traffic congestion and foresees the problem to exacerbate if the campus expands. He shares his views on the traffic problem:

Numerous times, I have seen dangerous driving behavior and unnecessary traffic congestion at the intersection of Puhii Road and Kaunani'i Highway. The issue is that cars are turning left on Puhii Road into the Chevron station but there are cars generally stopped at the traffic light along Puhii Road. This creates an unnecessary traffic jam as the traffic along Puhii Road blocks the cars attempting to turn left into the station. In terms of easing traffic, it might make sense for Kana'i's Public Works to mark the road "Do not block" so people can make their left turns into the Chevron station without holding up traffic. It would also make ingress and egress into the Chevron station safer for motorists.

98

Mr. White recommends that, "as they expand the school, it would make sense to have that intersection flow better. Even though the State is improving the highway there, there is still going to be a traffic issue at this corner unless the County can install the necessary signage or asphalt marking."

Mr. White also points out that should the college expand, he was concerned about the potential effects of any herbicide usage for weed control on the surrounding areas. Mr. White acknowledges that the study area is a watershed which includes the Hule'ia National Wildlife Refuge near and downstream from the Project area. He states:

One thing that is a valuable point to mention is the County or the State's use of herbicide or weed control. I just wonder how many of those chemicals end up in our watershed and how much that is affecting our aquatic reserves and resources. I would say, they should be sensitive about the fact that this is a watershed and that it is feeding down to the National Wildlife Refuge. This is actually a wildlife refuge, just around the corner. This whole area, where the Menehune Fishpond is, is in a wildlife refuge now. So, all the more reason to consider careful usage of spray or pesticides."

He is concerned about potential contamination of the watershed, particularly that of the Hule'ia National Wildlife Refuge near the Project area, from any use of herbicides and methods of weed control. He recommends careful usage of these substances by the State of Hawai'i and/or the County of Kana'i.

99

Section 8 Cultural Landscape

Discussions of specific aspects of traditional Hawaiian culture as they may relate to the Project area are presented below. This section integrates information from Sections 3–7 in order to examine cultural resources and practices identified within or in proximity to the Project area in the broader context of the encompassing landscape of Nāwiliwili, Niumalu, and Ha'ikū. Excerpts from consultations are incorporated throughout this section where applicable.

8.1 Hawaiian Habitation and Agriculture

As discussed in Section 3.7, the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū were permanently inhabited and intensively used in pre-Contact and early historic times as far back as possibly A.D. 1100 (Walker et al. 1991). Historically, settlement of the study area was predominantly along the coastal areas as evidenced by the concentration of permanent house sites, temporary shelters, heiau, fishponds, and intensive cultivation in these areas. In 1853, Coulter recorded the population around Nāwiliwili Bay to be approximately 1,700 and indicated on his map that settlement was predominantly along the coast, most likely reflecting a high dependence on marine resources for subsistence. A photograph in 1886 of Nāwiliwili, shown in Figure 44, suggests that some 40 years later, the study area was still highly engaged in taro cultivation. However, observations by Handy (1940) of Nāwiliwili in 1935 suggest that major changes to the landscape of the study area occurred between 1886 and 1935 in which lo'i cultivation had significantly decreased and replaced by pastureland and sugar-cane plantation-related activities.

This drastic change in the landscape was likely attributed to the prevalence of the sugar-cane industry particularly in the early twentieth century. Consultations with Mr. Chun, who grew up in Nāwiliwili in the 1960s, describes the valley of Nāwiliwili during his childhood as a small town where taro was once cultivated and later replaced by pastures for cattle. He relates that even during the 1960s, taro was still being cultivated in the area, though probably to a lesser extent than in 1935. Today, taro patches are almost non-existent in the study area with only a few families who still cultivate taro.

Regarding the Project area, Mr. Chun reiterates that, “[i]n those days, I don’t think the population centers would have been up here [around the Project area]. If anything, [they] would be down along this area along the coast or along Hulē'ia.” Thus, it is very likely that the Project area did not support much human habitation until the plantation era with the establishment of Puhi Camp in the early twentieth century. Consultations with residents of the study area and of the former Puhi Camp indicate that the landscape of the Project area was formerly under sugar-cane cultivation though Mr. Pereira also made references to the farming of pineapple and of cattle.

An archaeological study by Palama in 1973, in and around the Project area, found 'auwai and a possible lo'i (Figure 27). Follow-up interviews with plantation workers at the time indicated that none had any knowledge of taro cultivation in the Project area (Palama 1973). Consultations for the proposed Project also indicated no knowledge amongst former Puhi Camp residents or amongst residents of the study area, of taro cultivation in the area. However, literature research

and consultations indicate that Puhi Camp families were given land by Grove Farm Plantation to plant vegetables and crops for subsistence. Therefore, it is possible that taro may have been cultivated during this time.

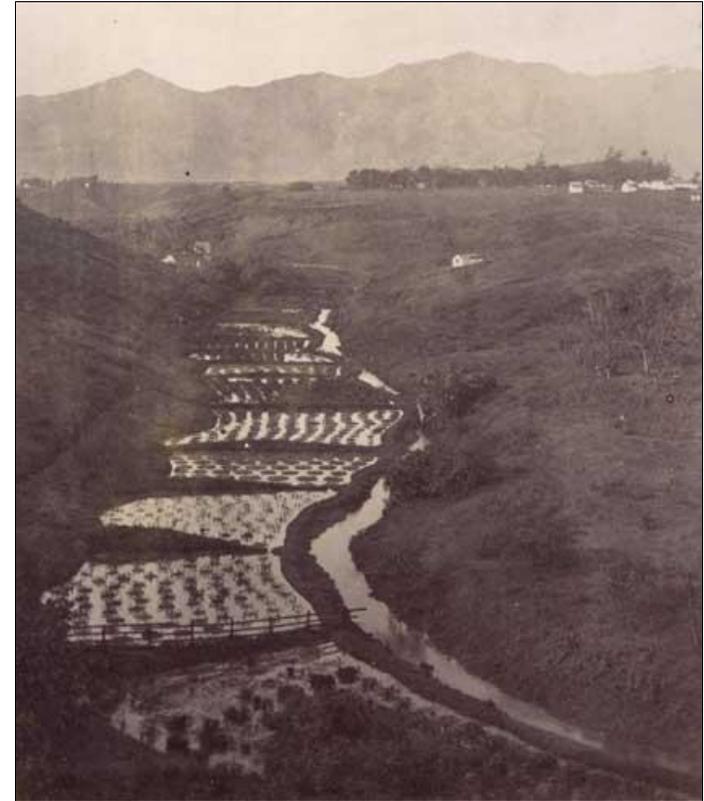


Figure 44. Taro was grown along the Nāwiliwili Stream to half a mile up above the mill. (Bishop Museum 1886)

8.2 Wahi Pana and Mo'olelo

Wahi pana and mo'olelo provide a unique insight into the cultural and natural landscape of the past. Wahi pana and mo'olelo associated with the study area are plentiful suggesting early settlement of the area by a viable Native Hawaiian population. In the case of the Project area, the wahi pana of "Puhi," the name of the area in which the Project area is located, is associated with a shark god. Mr. Chun explains:

The place name, "Puhi," means "to blow." A shark god lived in a cave in the area. The name of the cave was Puhi, therefore, the name of the area. But where? See this? [Pointing to map] This area is in the ahupua'a of Ha'ikū. So it would have to be down in this area, near the fishpond [Menehune].

Thus, Puhi was the cave of a shark god, which is thought to be possibly located within the ahupua'a of Ha'ikū, near the Menehune Fishpond. Though Puhi is located several miles inland from the coast, the association with sharks reflects a culture deeply connected with the ocean and emphasizes the mauka-makai orientation of the land that is central to Native Hawaiian culture. Mr. Chun also shares other mo'olelo (see Section 7.4) associated with sharks and shark gods residing in and around Nāwiliwili Bay.

8.3 Burials

Archaeological studies discussed in Section 5 and consultations presented in Section 6 and 7 indicate that two graveyards, the Puhi Camp Cemetery and Cement Pond, though outside of the Project area, are located within 200 meters of the proposed Project. Thus, known burials in the vicinity of the Project area are historically, relatively recent. Kupuna Makanani recalls how it was possible to bury family members around one's residence when she was growing up; therefore, she expressed that discovering inadvertent burials is possible. Acknowledging the agricultural history of the Project area, Mr. Chun explains that "the sugar cane plantations would have displaced features of cultural significance within the Project area."

8.4 Heiau

Literature research indicates that no known heiau currently exists within the study area though Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua'i, once existed along the coast of Nāwiliwili Ahupua'a (Damon 1931). This heiau is described to have been about four acres and associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua'a. Consultations with participants for the proposed Project revealed that none had any knowledge of heiau in the study area probably because these structures have been physically obliterated.

However, consultations reveal that residents of the study area may still have some knowledge of mo'olelo associated with heiau that existed in the Project area. Mr. Chun describes a rock near the lighthouses along Kalapakī with stories associated with a shark god. The rock that he describes may possibly be Paukini rock, the sister heiau of Kuhiau Heiau described above. Mr. Chun shares his mana'o:

Here's inside lighthouse and outside lighthouse there [pointing to map]. There's a rock over here I heard a story about. I don't know the name but they say that one of the shark gods came to this place.

8.5 Marine and Freshwater Resources

Early accounts describe the study area as a rich land with abundant fresh water and marine resources (Section 4.2). In Section 3.7, Handy describes Niumalu Ahupua'a in the mid-twentieth century as having among the best fishing grounds on the island of Kaua'i. Inhabitants of the study area fished the reefs, farmed fishponds, and utilized the many freshwater streams and rivers flowing seaward from Kilohana not only for lo'i cultivation, but for fishing. During the sugar cane plantation era, which began in the 1830s in Kaua'i, fresh water was utilized to support the largest industry that drove the economy of the Project area at the time. Within the Project area, Grove Farm Plantation diverted freshwater streams to build reservoirs and ditches that supported the life and daily activities of the plantation. The literature and consultations with residents of the study area suggest that since the mid-nineteenth century, demands of population increase and its associated development have negatively affected the health and quality of these water systems.

8.5.1 Streams

Section 3.61 discusses streams within the study area in more detail and affirms that modern development has modified the flow of these water systems. Consultations with residents of the study area reveal the types of changes they have observed over their lifetime. Mr. Chun explains that fresh water flows down into Nāwiliwili Bay through rivers and streams, such as the Hule'ia River. He has observed changes in the water quality of Nāwiliwili Bay over time and attributes muddy water in the bay not only to heavy rains flooding the Hule'ia River but to activity upstream at the sugar mill, as well as the development of the Marriott Hotel.

Mr. Chun's observations highlight the mauka-makai connection of the land in that the impacts of land-based activities are not only localized but may have more far-reaching impacts on distant locations and ecosystems. Streams and rivers act as media that connect points along the land with the ocean. With this knowledge in mind, Mr. White is concerned that should the college expand, herbicide usage for weed control from the college may affect surrounding areas. Mr. White acknowledges that the study area is a watershed which includes the Hulē'ia National Wildlife Refuge located near to and downstream from the Project area. He is concerned about potential contamination of the watershed, particularly of the Hulē'ia National Wildlife Refuge with herbicides and methods of weed control used by KCC.

8.5.2 Fishing

As discussed earlier, the study area was known for being one of the best fishing places in Kaua'i. Handy (1940:67) relates that, "Niumalu is a tiny ahupua'a, a mere wedge between Nāwiliwili and Haiku, but it was, and is, one of the most important fishing localities on Kauai."

Thus, by the mid-twentieth century, fishing within the study area is described to have been widely practiced with an abundance of fish. However, participants consulted for this Project believe that the abundance of marine resources has declined over time and though people continue to gather limu, pick 'opihi in the bay, and crab, many prefer to fish in Wailua, north of the study area. Mr. White no longer eats fish from Niumalu Bay due to pollution.

Mr. Chun, Mr. White, and Mr. Pereira, long-time residents of Niumalu and Nāwiliwili who have spent many years fishing in the area, share their knowledge and experience of fishing. They indicate that fishing mainly occurred along the coastal areas of the study area, particularly at Nāwiliwili Bay. They recall fishing for akule with large nets, picking 'opihi on the break water along the bay, spear-fishing, netting, and crabbing for a white crab (possibly kūhonu) and Samoan crabs along the Hulē'ia River and in Niumalu Bay. Mr. Pereira also recalls catching he'e and fish like manini. Mr. Chun remembers a hukilau event at Nāwiliwili Bay during his childhood but has never seen another in his lifetime.

Mr. Chun believes that fresh water has shaped the ecology of Nāwiliwili Bay in that corals do not grow where there is fresh water. He believes that the sandy bottoms of the bay and the location of the coral reef further out in the bay, is due to the decreased salinity of the water from fresh water. He states:

There's a rock here in the middle of the beach where water comes along here and out. That's why it's all sandy in the middle of the bay because coral is not going to grow where there's fresh water. That's why the reef is further out. In between this area, it's all sandy on the bottom because fresh water comes in here and here [pointing to map].

Within the Project area, Puhi Camp residents fished for 'o'opu and crayfish, and caught frogs in nearby ditches and reservoirs to supplement their diet (See Appendix B for scientific names). It is not clear whether these reservoirs are still utilized by residents of the study area for fishing.

8.5.3 Loko I'a

According to LCA records, fishponds were abundant in the study area with six in Nāwiliwili, seven in Niumalu, and many ki'owai throughout Ha'ikū. Menehune Fishpond, the largest of all fishponds in Kaua'i still exists, as shown in Figure 45. Menehune Fishpond has experienced many changes as documented in Section 3.6.2.1. Comparisons of recent imagery of the fishpond in Figure 45 to those from a century ago (Figures 8 and 9), show that mangroves have encroached upon the fishpond, decreasing its size. Today, the fishpond is a historic property (SIHP No. 50-30-11-501) that is a major tourist attraction in Kaua'i.



Figure 45. Menehune ('Alekoko) Fishpond today (Boynton n.d.)

8.5.4 He'enalu

Consultations for this Project indicate that surfing was and continues to be a Native Hawaiian cultural practice within the coastal areas of the study area. Mr. Chun, Mr. White, and Mr. Pereira all share surfing stories from the bay. Mr. Pereira recalls using surfboards made of plywood. Today, surfing is a significant recreational activity, not only for residents of the study area but for tourism.

Section 9 Summary and Recommendations

CSH undertook this CIA at the request of Wilson Okamoto Corporation. The cultural survey broadly included the entire study area, and more specifically the approximately 199-acre Project area.

9.1 Results of Background Research

Background research for the proposed Project indicates that the Project area, which lies approximately two miles southwest of Līhu'e Town, is part of a traditional region encompassing the ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū. Early accounts describe the region as an open, grass-covered land that was dotted with trees and streams that flowed down from lush mountains on the way to the sea, with soils that bore a variety of crops like sugar-cane, taro, sweet-potatoes, beans and groves of kukui, (candlenut), hau (beach hibiscus), koa, hala (pandanus), and wiliwili. The abundance of water and water systems, presence of famed fishponds on the coast, along with the concentration of permanent house sites, temporary shelters, and heiau suggests early settlement along coastal areas, with a radiocarbon date of A.D. 1170 to 1400 near the mouth of Hanamā'ulu Stream, north of Nāwiliwili.

In the mid-19th century, the Project area became associated with the establishment of the commercial sugar cane agriculture which required foreign indentured labor imported from Japan, China, and the Philippines. The Project area was part of the Grove Farm Plantation before the farm stopped its sugar business in 1974. Within the Project area lies remnants of the Old Puhi Camp, which housed plantation workers of Grove Farm. The camp was built around 1920 along the present Kaunua'i Highway and contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events. Most of the Puhi Camp housing was removed in the 1970s prior to the construction of KCC and the last homes of the camp were dismantled in the 1980s.

The Project area is also linked to many mo'olelo (stories, oral histories) and wahi pana (storied places) that suggests early settlement of the area by a viable Native Hawaiian population. These include mo'olelo about Kuhiau Heiau, the largest heiau in Kaua'i, Ninini and Ahukini Heiau in Kalapakī, the Menehune, wiliwili trees, and the many well-known chiefs, heros, and gods such as the chief Papalinaloa, the three sons of La'a Maikahiki, the hero Lohiau; the contest of Kemamo the sling-thrower and Kapūnohu, the ravishing of Pele by Kamapua'a, demi-god Pōhaku-o-Kaua'i (Hoary Head), as well as a Kaua'i chief sent by Ka'umuali'i to placate Kamehameha I on O'ahu. Mo'olelo with associated bodies of water within the Project area are also plentiful which include Alekoko, the largest fishpond in Kaua'i (also known as 'Alekoko, Alakoko, Pēpē'awa), Hulēia (Hulā'ia) Stream, Kilohana, and Nāwiliwili Bay. Many wahi pana of settled areas, such as Puhi, Līhu'e, and various pu'u (hills, ridges) are also associated with the Project area.

Other important findings from background research are presented and emphasized in more detail:

1. The traditional moku or districts of Kaua'i were replaced in the mid-to-late 19th century. Līhu'e became the modern district that includes the ahupua'a of the proposed Project, previously under the Puna District. "Līhu'e," which literally translates as "cold chill," was not consistently used until the establishment of commercial sugar cane agriculture in the mid-19th century (Creed et al. 1999). Between the 1830s and the Māhele, the names Nāwiliwili and Līhu'e were used somewhat interchangeably to refer to a settlement along Nāwiliwili Bay.
2. No known heiau currently exists within the study area although Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua'i, existed along the coast of Nāwiliwili Ahupua'a (Damon 1931). Listed by Bennett (1931) as Site No. 99, this heiau is reported to have been about four acres and associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua'a.
3. After the Māhele, Victoria Kamāmalu was awarded over two thousand acres of Nāwiliwili Ahupua'a, along with much of Niumalu and Ha'ikū. Land Commission Awards (LCAs) describe many lo'i (irrigated taro, especially for taro) and kula (plain, field, open country, pasture) lands within the study area particularly as being in the same 'āpana (piece, slice, portion), a pattern common to the Puna District of Kaua'i, but uncommon elsewhere in Hawai'i. Maka'āinana (commoner) in the Puna District were referring to lands in valley bottoms as kula.
4. Many loko i'a (fishponds) were prevalent in the study area. LCAs document six in Nāwiliwili, seven in Niumalu, and claimants describe loko (pond) or kiowai (water hole) in Ha'ikū. 'Alekoko Fishpond, also known as Menehune Fishpond, or Niumalu Fishpond, is the largest fishpond on Kaua'i and still exists in the study area. It is also known as SIHP No. 50-30-11-501.
5. The Project area was initially part of the Grove Farm Plantation—so named after an old stand of kukui trees. The plantation was established in 1850 and taken over by Mr. George Wilcox in 1863. He bought the farm in 1870 for \$12,000 and it flourished under his leadership. In the mid-1960s, Grove Farm donated 200 acres of former sugar land to the State of Hawai'i for KCC. Grove Farm ended its sugar business in 1974 (Wilcox 1998:76).
6. The Old Puhi Camp, which housed plantation workers of Grove Farm, extended into the Project area and consisted of about 600 homes for about 1,200 workers and their families. At the forefront of housing reforms, Puhi Camp dwellings became the standard for the plantation industry in the 1920s (Riznik 1999).
7. An archaeological reconnaissance by Palama in 1973 identified the Puhi Camp Cemetery, State Inventory of Historic Places (SIHP) No. 50-30-11-B006, old plantation camp remains associated with Puhi Camp, Puhi Camp, and an area containing possible lo'i. A field inspection of the Project area in August, 2010, found ten historic surface features, including two previously identified historic features (CSH 9, CSH 10) by Palama (1973).

An “old ‘auwai” that conforms to a portion of Grove Farm’s “Mauka Ditch”, corresponds to CSH 9 and the Puhī Cemetery corresponds to CSH 10. However, the Puhī cemetery is outside of but surrounded by the Project area. The remaining features found appear to be related to Grove Farm and date to the plantation era. The historic surface features consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7) of which CSH 3 is abandoned; and an abandoned wooden flume (CSH 8)

9.2 Results of Community Consultation

CSH attempted to contact 32 community members, government agencies, community organizations, and individuals, including residents, “recognized” descendants, and cultural practitioners. Community consultations began in September, 2011 until February, 2012. Of the 22 people that responded, eight kūpuna and/or kama’āina participated in formal interviews for more in-depth contributions to the CIA and two people provided statements via e-mail and telephone.

This community consultation indicates that additional significant cultural resources, namely streams and watersheds as well as the Hulē’ia National Wildlife Refuge near and downstream from the Project area, have not been adequately documented and assessed for their ecological relationship with natural and cultural resources within and near the Project area. The study area and environs, in particular the lo’i, kula or lands in valley bottoms in this particular context, rivers, streams and Nāwiliwili Bay, has a long history of use by Kānaka Maoli (Native Hawaiians) and other kama’āina groups for a variety of past and present cultural activities and gathering practices. Participants consulted reveal their knowledge of these practices and resources.

At least two community contacts, Mr. Pereira, and Mr. Chun, discuss fishing, gathering ‘opihi (limpets) and limu (seaweed, algae) in Nāwiliwili Bay, and crabbing along Hulē’ia River which still continue today among residents of the area. Both participants discuss spear and throw-net fishing which for Mr. Pereira consisted in part of catching akule (big-eye scad), manini (convict tang), and squid using his own throw net which he creates and sells to others. Several participants (Mr. Robert White, Mr. Pereira and Mr. Chun) narrate he’enalu (surfing) practices and associated mo’olelo in the past and in the present. At least two participants note the abundance of freshwater resources and the watershed near the Project area and highlight the ecological relationship of natural and cultural resources within or near the Project area.

Participants also relate mo’olelo about the practice of hukilau (fish with the seine), the origin of the name “Puhī” which is connected to the cave of a shark god in Ha’ikū, as well as the presence of spirits in the Project area in the form of fireballs. At least five participants relate the gathering of plants such as bamboo shoots, papaya, mangoes, passionfruit, guava and pepeiao (cloud ear fungus) in the Project area along with the catching of crayfish, ‘o’opu, and frogs in the irrigation ditches and reservoirs while at least two community contacts related about the hunting of pheasants and wild boars. Participants also discuss burials and note the existence of a historic cemetery surrounded by the Project area, and another cemetery nearby. Many participants stress

the importance of respecting and sharing resources with one another, the ecological relationship that shapes natural and cultural resources, and the need to keep the ecological balance by keeping contaminants away from the watershed upon which the Project area is built to ensure a healthy environment for Nāwiliwili Bay and the wildlife refuge area downstream of the Project area.

Other important findings from community consultations are presented and emphasized in more detail:

1. In the 1960s and 70s, the ahupua’a of Nāwiliwili, Niumalu, and Ha’ikū, consisted of small rural towns with taro cultivated relatively close to the ocean. Mr. Chun describes Nāwiliwili Valley as having had many taro fields which later turned into cattle pastures and grassland. Today, he tells of only one family in Nāwiliwili and a few in the back of Niumalu who continue the practice. Mr. Pereira speaks of growing up in Niumalu with no electricity and using kerosene for cooking.
2. The Project area is agricultural land formally owned by Grove Farm where pineapple, cattle, and later sugar cane, were farmed. Plantations provided a livelihood for many residents of Kaua’i like Mr. Pereira and Kupuna Makanani. Mr. Pereira worked in the sugar and pineapple plantations during the summertime as a young boy, which paid for his schooling. Mr. Chun and Mr. Pereira recall the predominance of the sugar industry which included the establishment of a sugar mill in Nāwiliwili. A railway system brought cane from the fields to the mill which later became replaced by trucks.
3. The Project area includes the former Old Puhī Camp, a plantation camp for the workers of Grove Farm Plantation and their families. Since Puhī Camp was a significant part of the Project area’s history, Puhī Camp is described in more detail:
 - Participants remember Puhī as a self-sufficient plantation camp with its own stores, doctors, and medical facilities. Families shopped for groceries in plantation stores, and bought items using credit, to be paid for on payday. Plantation workers lived at Puhī for cheap rent, received kerosene for cooking, and hot water for bathing. Land was also given to anyone who wished to grow vegetables and crops were shared with each other.
 - While various accounts portray plantation life as harsh and unfulfilling, Mr. Takahashi relates that the Wilcox family treated their workers very well and life was enjoyable at Puhī. Workers were provided the opportunity to own their own homes. Those raised on the camp fondly reminisce of a simple life and special place—a close-knit community where everybody recognized and took care of each other despite their differences. “For me, growing up in Puhī was great!”, says Kupuna Makanani.
 - The culture of Puhī Camp was diverse. According to Kupuna Makanani, the homes in Puhī were arranged by race though “everybody lived as one people.” Participants raised in the camp, appreciate their multi-cultural upbringing through the sharing of cultural practices, folk dances, foodways, and folklife.
 - Participants recalled other cultural activities at Puhī Camp such as the ‘Social Box’ which was a dance held by the Filipinos once a month. Mr. Pereira also describes an annual Filipino carnival called the “Holy Ghost” that occurred every

- December. On Tuesdays, fresh bread and *malasadas* (Portuguese pastry) were baked and children collected firewood to keep the fire alive for baking.
- The transition to unionization of workers in 1946 brought many changes to Puhi Camp. Kupuna Makanani explains that before the union, though wages were low, housing and water were free and Grove Farm provided equipment and toys for the children. Several strikes ensued but the strikes were peaceful, unlike the massacre at Hanapēpē in 1924. During the strikes, a soup kitchen run by the union, provided food for workers on strike and their families.
4. Two graveyards, known to Puhi residents as “Old Puhi Cemetery” (SIHP No. 50-30-11-B0006) and “Cement Pond,” are located outside of but within 200 meters of the Project area. The cemetery is divided into two sections for Japanese and Filipino families despite the multi-cultural makeup of Puhi. According to Mr. Takahashi, other ethnicities chose to be buried elsewhere and many graves were removed by their families. “Cement Pond,” exists approximately 200 meters north of the Project area and consists of three burials. Participants speculate that these burials are not of Puhi Camp residents but possibly of affluent Japanese. Kupuna Makanani recalls how it was possible to bury family members around one’s residence when she was growing up.
 5. Filipino migrants came to Hawai’i in the early 1900s as contract laborers or “*sakadas*,” searching for a better place to live, relates Mr. Takahashi and Kupuna Makanani. Some graves at Old Puhi Cemetery are of Filipino veterans who have no known family with only crosses in the ground for their burial, according to Mr. Takahashi. He wishes that relatives of these veterans could find them, allowing younger generations to continue their ties to their culture and family tree.
 6. Mr. Chun reiterates that the sugarcane plantations would have displaced features of cultural significance within the Project area and also points out that the population centers would have been concentrated along the coast or along the Hulē’ia River. Therefore, the likelihood of finding heiau and other cultural features would be higher along the coast than within the Project area. No participants had knowledge of any heiau within the study area. However, one participant noted a mo’olelo about fireballs, which reflect the presence of spirits in Native Hawaiian culture, near the Project area.
 7. Participants describe an abundance of water in the Project area. From Kilohana, water collects in reservoirs that once fed the plantations. Reservoirs and ditches were utilized by Puhi residents as food sources, and for recreational swimming. Mr. Takahashi asserts that a gate that controlled water flow to these water sources and regulated flow to prevent floods, still exists. Water subsequently flowed down through streams and rivers into Nāwiliwili Bay. The Hulē’ia National Wildlife Refuge, which includes the Menehune Fishpond, is part of a watershed downstream of the Project area.
 8. Mr. Chun and Mr. White indicate that development has changed water flow patterns, as well as water quality. Mr. Chun attributes muddy water in Nāwiliwili Bay not only to heavy rains flooding the Hulē’ia River but to development and land-based activities upstream, such as the previous sugar mill and the existing Marriott Hotel. Mr. Chun believes that fresh water has shaped the ecology of Nāwiliwili Bay in that corals do not grow in the presence of fresh water. He speculates that the sandy bottoms of the bay and the location of the coral reef further out in the bay, is due to the decreased salinity from

- the influx of fresh water. Residents like Mr. White do not eat fish from the coast because of degraded water quality.
9. The traditional practice of lei (necklace of flowers)-making was and continues to be practiced by residents of the study area

9.3 Impacts and Recommendations

The following cultural impacts and recommendations are based on a synthesis of all information gathered during preparation of the CIA. To help mitigate the potential adverse impacts of the proposed Project on cultural beliefs, practices, and resources, recommendations should be faithfully considered and the development of the appropriate measures to address each concern should be implemented.

1. In light of statements made by several participants in this study over the potential impact of future development at KCC on the historical remnants of the Old Puhi Camp, especially the Puhi Cemetery, it is recommended that:
 - i. Large trees near the graves should be removed to prevent further destruction of headstones from falling branches. Although the cemetery is outside of the Project area, it is completely surrounded by the Project area.
 - ii. Participants recommend that KCC should assume the responsibility of protecting and maintaining the cemetery, including any financial obligations that incur. Regarding a burial treatment and preservation plan, Mrs. Sakoda prefers that burials be preserved in place. If burials must be removed, Mrs. Sakoda, Mr. Takahashi and Kupuna Makanani agree that a columbarium containing all the burials be built on site. The columbarium would protect the burials of The Puhi Cemetery and solve the problem of graveyard maintenance.
 - iii. Participants recommend that all families with ties to the cemetery and Project area should be consulted and included in any discussions regarding the The Puhi Cemetery.
2. Kupuna Makanani remembers from her childhood how it was possible to bury family members around one’s residence, hinting to the possibility of discovering inadvertent burials in future development. Should cultural or burial sites be identified during future ground disturbance in the Project area, all work should immediately cease and the appropriate agencies notified pursuant to applicable law. Kūpuna from the study area and former residents of Puhi Camp should also be consulted to ensure proper cultural protocols are addressed.
3. As there continues to be concern from former Puhi residents about the loss of the history and memories of Puhi Camp as the campus expands, it is recommended that a replica of a bulletin board used in the everyday life of Puhi Camp and containing the history of the camp be built and installed on KCC campus. The bulletin board continues to be a traditional cultural property in the memories of the study participants, who cherish its significance.

4. Due to concerns expressed by participants about the possible impacts of the KCC expansion to the ecology and its interrelationship with the natural and cultural resources within and near the Project area, including consideration of the mauka-makai connection of the land, the possible impacts of land-based activities stemming from the college on water resources, Nāwiliwili Bay, and the ocean, as well as the potential contamination of the watershed and of the Hulē'ia National Wildlife Refuge from the use of herbicides and methods of weed control at KCC, it is recommended that KCC limit or consider the use of non-toxic pesticides and employ the appropriate best management practices.
5. Due to the current traffic congestion directly in front of the KCC campus attributed in part to vehicles turning into the Chevron gas station, and the likelihood that the traffic will likely be exacerbated by the KCC expansion, it is recommended that KCC work with the County or the State to install "the necessary signage or asphalt marking" as well as other safe means to improve the intersection flow.

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Appendix A Glossary

To highlight the various and complex meanings of Hawaiian words, the complete translations from Pukui and Elbert (1986) are used unless otherwise noted. In some cases, alternate translations may resonate stronger with Hawaiians today; these are placed prior to the Pukui and Elbert (1986) translations and marked with “(common).”

Diacritical markings used in the Hawaiian words are the ‘okina and the kahakō. The ‘okina, or glottal stop, is only found between two vowels or at the beginning of a word that starts with a vowel. A break in speech is created between the sounds of the two vowels. The pronunciation of the ‘okina is similar to saying “oh-oh.” The ‘okina is written as a backwards apostrophe. The kahakō is only found above a vowel. It stresses or elongates a vowel sound from one beat to two beats. The kahakō is written as a line above a vowel.

Hawaiian Word	English Translation
<i>adobo</i> (Filipino)	Filipino dish involving meat cooked with vinegar, soy sauce, and bay leaves.
ahupua‘a	Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua‘a), or because a pig or other tribute was laid on the altar as tax to the chief.
akua	God, goddess, spirit, ghost, devil, image, idol, corpse; divine, supernatural, godly.
ali‘i	Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander.
‘āpana	Piece, slice, portion, fragment, section, land parcel.
‘auwai	Ditch, canal.
<i>bagoong</i> (Filipino)	Fermented shrimp paste.
<i>bitsu-bitsu</i> balls	Filipino dessert. Also known as <i>cascaron</i> .
<i>furo</i> (Japanese)	Japanese bathtub.
he‘enalu	To ride a surfboard, surfing, surf rider.
heiau	Pre-Christian place of worship, shrine; some heiau were elaborately constructed stone platforms, others simple earth

	terraces. Many are preserved today.
ho‘okupu	Offering, gift.
hukilau	To fish with a seine.
hula	To dance the hula, a Native Hawaiian dance.
‘ili	Land section, next in importance to an ahupua‘a and usually a subdivision of an ahupua‘a.
‘ili ‘āina	Land area. An ‘ili land division whose chief pays tribute to the chief of the ahupua‘a of which it is a part, rather than directly to the king.
‘ili kū	Short for ‘ili kūpono. A nearly independent ‘ili land division within an ahupua‘a, paying tribute to the ruling chief and not to the chief of the ahupua‘a.
kahea	To call, cry out, invoke, greet, name.
kahuna	Priest, sorcerer, magician, wizard, minister, expert in any profession. Kāhuna—plural of kahuna.
kama‘āina	Native-born, one born in a place, host; native plant; acquainted, familiar, Lit., land child.
kānaka maoli	Full-blooded Native Hawaiian person.
kaona	Hidden meaning, as in Hawaiian poetry.
kapu	Taboo, prohibition; special privilege or exemption from ordinary taboo.
<i>kimchi</i> (Korean)	Korean fermented spicy cabbage.
ki‘owai	Pool of water, water hole, fountain.
ko‘a	Fishing grounds, usually identified by lining up with marks on shore. Shrine, often consisting of circular piles of coral or stone, built along the shore or by ponds or streams, used in ceremonies as to make fish multiply.
koa	Brave, bold, to act as a soldier.
kōkua	Help, aid, assistance, relief, assistant, associate, deputy,

	helper; co-operation, old term for lawyer before loio was used; to help, assist, support, accommodate, second a motion.
konohiki	Headman of an ahupua'a land division under the chief.
kuapā	Dashing, slashing, as waves on a shore. Wall of a fishpond. Fishpond made by building a wall on a reef.
kula	Plain, field, open country, pasture. An act of 1884 distinguished dry or kula land from wet or taro land.
kuleana	Native Hawaiian land rights (common). Right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province.
kū'ula	Heiau near the sea for worship of fish gods.
kupua	Demigod or culture hero, especially a supernatural being possessing several forms; one possessing mana; to possess kupua (magic) powers.
kupuna	Elders (common). Grandparent, ancestor, relative or close friend of the grandparent's generation, grandaunt, granduncle. Kūpuna—plural of kupuna.
limu	A general name for all kinds of plants living under water, both fresh and salt.
lei	Garland, wreath, necklace of flowers, shells, ivory, feathers, or paper, given as a symbol of affection; any ornament worn around the head or about the neck.
lo'i	Irrigated terrace, especially for taro, but also for rice; paddy.
loko i'a	Fishpond (common).
loko wai	Fresh-water pond or lake.
loko kuapā	Fishpond made by building a wall on a reef.
lū'au	Young taro tops, especially as baked in coconut cream and chicken or octopus.
Māhele	Land division of 1848.

maka'āinana	Commoner, populace, people in general.
makai	Seaward.
makana	Gift.
malasada(s)(Portuguese)	Portuguese pastry.
malu	Shade, shelter, protection.
mana'o	Thought, idea, belief, opinion, theory.
manapua	Steamed meat buns.
mauka	Inland.
mele	Song, anthem or chant of any kind; poem, poetry; to sing, chant.
menehune	Ledendary race of small people who worked at night, building fishponds, roads, temples.
miso (Japanese)	Japanese soup.
moku	District, island, islet, section.
mo'olelo	Story, tale, myth, history, tradition, literature, legend, journal, log, yarn, fable, essay, chronicle, record, article; minutes, as of a meeting. (From mo'o 'ōlelo, succession of talk; all stories were oral, not written).
musubi (Japanese)	Rice with seaweed that usually has a filling such as spam.
nishime (Japanese)	Japanese vegetable stew.
nui	Big, large, great, important.
obake (Japanese)	Spirit.
'ohana	Family, to gather for family prayers.
'ōhi'a	Two kinds of trees: see 'ōhi'a ai and 'ōhi'a lehua.
'ōlelo no'eau	Proverb, wise saying, traditional saying.

Appendix B Common and Scientific Names for Plants and Animals Mentioned by Community Participants

Common Names		Possible Scientific Names		Source
Hawaiian	Other	Genus	Species	
akule	big-eyed scad	<i>Selar</i>	<i>crumenophthalmus</i>	Hoover 2003
'alani	any kind of orange, both fruit and tree	<i>Citrus</i>	<i>sinensis</i>	Pukui and Elbert 1986
'awa	kava	<i>Piper</i>	<i>methysticum</i>	Pukui and Elbert 1986
hala	pandanus	<i>Pandanus</i>	<i>spp.</i>	Wagner et al. 1999
hala kahiki	pineapple	<i>Ananas</i>	<i>comosus</i>	Pukui and Elbert 1986
hau	beach hibiscus	<i>Hibiscus</i>	<i>tiliaceus</i>	Wagner et al. 1999
he'e	octopus, squid, <i>tako</i>	Multiple families and species		Hoover 1993
kalo	taro	<i>Colocasia</i>	<i>esculenta</i>	Wagner et al. 1999
koa		<i>Acacia</i>	<i>koa</i>	Pukui and Elbert 1986
kuawa	guava	<i>Psidium</i>	<i>guajava</i>	Pukui and Elbert 1986
kukui	candlenut	<i>Aleurites</i>	<i>moluccana</i>	Wagner et al. 1999

Cultural Impact Assessment for the Kaua'i Community College Redesignation of Urban District Project, Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, Kaua'i Island.

B-1

TMK: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006

oli	Chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase; to chant thus.
'ono	Delicious, tasty, savory.
<i>pansit</i> (Filipino)	A Filipino noodle dish.
<i>pili</i>	To cling, stick, adhere, touch, join, adjoin, associate with.
<i>pinkabet</i> (Filipino)	Filipino stew with vegetables.
<i>pōhaku</i>	Rock, stone, mineral.
<i>poi</i>	Poi, the Hawaiian staff of life, made from cooked taro corms, or rarely breadfruit, pounded and thinned with water.
<i>pu'u</i>	Any kind of a protuberance from a pimple to a hill, hill, peak.
<i>pule</i>	Prayer, blessing.
<i>sakaada(s)</i>	Term used to describe Filipino men imported by the HSPA to Hawai'i as unskilled laborers.
<i>sipa</i> (Filipino)	To kick, Filipino traditional sport.
<i>taiko</i> (Japanese)	Japanese percussion instrument.
<i>takenoko</i> (Japanese)	young bamboo shoots
'ukulele	Leaping flea, probably from the Hawaiian nickname of Edward Purvis, who was small and quick and who popularized the instrument brought to Hawai'i by the Portuguese in 1879.
<i>wahi pana</i>	Storied place (common). Legendary place.
<i>wai</i>	Water, liquid or liquor of any kind other than sea water.

'uwa'u	dark-rumped petrel	<i>Pterodroma phaeopygia</i>	<i>sandwicensis</i>	Pukui and Elbert 1986
wauke	paper mulberry	<i>Broussonetia</i>	<i>papyrifera</i>	Pukui and Elbert 1986
wiliwili	leguminous tree	<i>Erythrina</i>	<i>sandwicensis</i>	Wagner et al. 1999
	beans	<i>Phaseolus</i>	<i>spp.</i>	Wagner et al. 1999
	mango	<i>Mangifera</i>	<i>indica</i>	Wagner et al. 1999
	Philippine ground orchid	<i>Spathoglottis</i>	<i>plicata</i>	
	sugar cane	<i>Saccharum</i>	<i>spp.</i>	Wagner et al. 1999

**spp.* = multiple species

kūhonu	spotted-back crab	<i>Portunus</i>	<i>sanguinolentus</i>	Hoover 1993
liliko'i	passion fruit	<i>Passiflora</i>	<i>edulis</i>	Wagner et al. 1999
mai'a	banana	<i>Musa</i>	<i>xparadisiaca</i>	Wagner et al. 1999
maile	a native twining shrub	<i>Alyxia</i>	<i>olivaeformis</i>	Pukui and Elbert 1986
<i>malunggay</i>	drumstick tree	<i>Moringa</i>	<i>spp.</i>	
manini	convict tang	<i>Acanthurus</i>	<i>triostegus</i>	Hoover 2003
mokihana	citrus tree native to Kaua'i	<i>Pelea</i>	<i>anisata</i>	Pukui and Elbert 1986
'ōhi'a		<i>Metrosideros</i>	<i>polymorpha</i>	Wagner et al. 1999
'o'opu	general name for fishes included in the families Eleotridae, Gobiidae, and Blennidae			Pukui and Elbert 1986
'opihī	limpet	<i>Cellana</i>	<i>spp.</i>	Pukui and Elbert 1986
pepeiao	cloud ear fungus	<i>Auricularia</i>	<i>auricula</i>	Pukui and Elbert 1986
poloka	frog	<i>Canna</i>	<i>indica</i>	Wagner et al. 1999
pueo	Hawaiian short-eared owl	<i>Asio flammeus</i>	<i>sandwichensis</i>	Pukui and Elbert 1986
'uala	sweet potato	<i>Ipomoea</i>	<i>batatas</i>	Wagner et al. 1999

Appendix C Authorization and Release Form

Cultural Surveys Hawai'i, Inc.
 Archaeological and Cultural Impact Studies
 Hallett H. Hamman, Ph.D., President



P.O. Box 1114 Kailua, Hawai'i 96734 Ph: (808) 262-9972 Fax: (808) 262-4950
 Job code: NIUMALU 2 ahannun@culturalsurveys.com www.culturalsurveys.com

AUTHORIZATION AND RELEASE FORM

Cultural Surveys Hawai'i (CSH) appreciates the generosity of the *kāpuna* and *kama'āina* who are sharing their knowledge of cultural and historic properties, and experiences of past and present cultural practices in the Ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū for the Cultural Impact Assessment CSH is preparing for the proposed Kaua'i Community College Rezone Campus Project.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our study. Here are the procedures we promise to follow:

1. The interview will not be tape-recorded without your knowledge and explicit permission.
2. You will have the opportunity to review the written transcript or notes of our interview with you. At that time you may make any additions, deletions or corrections you wish.
3. You will be given a copy of the interview transcript or notes for your records.
4. You will be given a copy of this release form for your records.

For your protection, we need your written confirmation that:

1. You consent to the use of the complete transcript and/or interview quotes for reports on cultural sites and practices, historic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.

Out of courtesy we would like to reconfirm that:

1. If you provided an interview to CSH in the past (for Kaua'i Island), we may include all or parts of the prior interview/s published in past reports in the current report.

I, _____, agree to the procedures outlined above and, by my
 (Please print your name here)
 signature, give my consent and release for this interview and/or photograph to be used as specified.

 (Signature)

 (Date)

Appendix D Community Consultation Letter

Cultural Surveys Hawai'i, Inc.
 Archaeological and Cultural Impact Studies
 Hallett H. Hamman, Ph.D., President



P.O. Box 1114 Kailua, Hawai'i 96734 Ph: (808) 262-9972 Fax: (808) 262-4950
 Job code: Niunaha 2 ahannun@culturalsurveys.com, mmagat@culturalsurveys.com www.culturalsurveys.com

September 29, 2011

Aloha,

At the request of Wilson Okamoto Corporation and the University of Hawai'i Community Colleges (UHCC), Cultural Surveys Hawai'i, Inc. (CSH) is conducting a Cultural Impact Assessment (CIA) for the Kaua'i Community College (KCC) Rezone Campus Project. The proposed Project is located in Pūhi, in the *ahupua'a* of Nāwiliwili, Niumalu, and Ha'ikū, approximately two miles west of the County seat in Lihue District, Kaua'i Island, on tax map key (TMK) parcels: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006. The attached aerial photograph and U.S. Geological Survey maps show the Project area.

The UHCC proposes to amend the State Land Use Boundary to re-designate the entire 199-acre KCC campus from its existing land use classification of Agricultural District to Urban District. The Project consists of the re-designation of land, as well as the construction of new buildings, additions to buildings, and new parking. A Special Permit was granted by the State Land Use Commission in 1973 for construction of the college campus within an approximately 99-acre parcel situated within TMK [4]-3-4-07-003. Most of the additional approximately 100 acres (within TMK [4]-3-4-07-01, -002, and -006) are undeveloped, except for two Hawaiian Language Immersion schools, Pūnana Leo o Kaua'i Pre-School and Kawaiiki New Century Public Charter School.

The 199-acre campus, built on former sugar cane land, is owned by the State of Hawai'i's University of Hawai'i. The KCC is a two-year public community college and the only public institution of higher learning on the island of Kaua'i. It provides community services in addition to its educational mission. The KCC was originally established in 1929 as Kalaheo Vocational School and over time, the institution has developed into a comprehensive community college. In 1999, a Long Range Development Plan for the college was published which provides guidelines for the development of the campus to accommodate a population of 3,000 full-time students. Currently, the KCC has a population of approximately 700 full-time students; thus, much of the planned campus development has yet to be implemented. The land use re-designation of the KCC campus from Agricultural District to Urban District would be more consistent with its developed character.

The purpose of this cultural study is to assess potential impacts to cultural practices, as a result of the proposed Project, in the *ahupua'a* of Nāwiliwili, Niumalu, and Ha'ikū. We are seeking your *kōkua* and guidance regarding the following aspects of our study:

- General history and present and past land use of the Project area.

Page 2

- Knowledge of cultural sites which may be impacted by future decommissioning of the Project area, for example, historic, archaeological, and burial sites.
- Knowledge of traditional gathering practices in the Project area, both past and ongoing.
- Cultural associations of the Project area, such as legends and traditional uses.
- Referrals of *kāpuna* or elders and *kama'āina* who might be willing to share their cultural knowledge of the Project area and the surrounding *ahupua'a* lands.
- Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the Project area.

We invite you to contact us, Angela Fa'anunu, at (808)-227-8855 (e-mail: afaanunu@culturalsurveys.com), or Margaret Magat, at (808)-990-6340 (e-mail: mmagat@culturalsurveys.com) if you have any information you would like to share.

Mahalo nui,

Angela Fa'anunu, M.S.P.H.
Cultural Researcher
Cultural Surveys Hawai'i, Inc.

Margaret Magat, PhD.
Cultural Researcher
Cultural Surveys Hawai'i, Inc.

Appendix E SHPD Response Letter



NEIL ABERNETHY
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAPUHIBENA BUILDING
601 KAMOKILA BLVD, KAPOLEE HI 96706

WILLIAM I. ALO, JR.
GOVERNOR
BOARD OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT

JOHN W. BARRINGTON
PRESIDENT

WILLIAM M. TAM
SENATOR
SENATE DISTRICT - PAOALO

AGRICULTURE
SUPPORT AND DEVELOPMENT
BOARD OF DIRECTORS
COMMISSIONER OF WATER RESOURCES MANAGEMENT
COMMISSIONER OF AGRICULTURE DEVELOPMENT
COMMISSIONER OF FORESTRY
COMMISSIONER OF HISTORIC PRESERVATION
COMMISSIONER OF LAND AND NATURAL RESOURCES
COMMISSIONER OF WATER RESOURCES MANAGEMENT

January 3, 2012

Ms. Angela Faanunu, MSPH
Cultural Surveys Hawaii, Inc.
P.O. Box 1114
Kailua, Hawaii 96734

LOG NO: 2011.2676
DOC NO: 1112ps010

Dear Ms. Angela Faanunu:

Subject: NIUMALU 2: A Cultural Impact Assessment (CIA) for the Proposed Kaua'i Community College (KCC) Rezone Campus Project, Pūhi, Ahupua'a of Nāwiliwili, Niumalu and Hanu, Kauai Island.
TMK: (4) 3-4-007-001, 002, 003 and 006.

Mahalo for the opportunity to comment on the above CIA for the proposed Kaua'i Community College (KCC) Rezone Campus Project in the aforementioned TMKs. The rezoning from agriculture to urban district always raises concerns that range from cultural practices for access and gathering to spirituality at sacred sites to protecting ancient burials – all potential issues should the project expose or degrade such cultural resources and/or sites in this very large area. It is critical that you all reach out to as many folks as possible to keep them informed on the project for best outreach discussions. The SHPD encourages you all to speak to as many Kauai community groups/folks as possible.

The SHPD recommends some strategic ideas as follows and referral to community folk:

1. Talk story sessions with the business and/or community groups on Kaua'i especially in the project area.
2. Speak with the University of Manoa's Oral History department for archival interviews and other information that they may have for this proposed project area.
3. Speak with community groups in the Kalaeo area for possible leads to folks who may know of such traditional cultural practices in this general area.
4. Mr. Michael Loo, Kauai-Niihau Island Burial Council (KNIBC) mloo@princeville.com
5. Mr. Kumane Aipoalani, Chairman, KNIBC ckaiipoalani@hawaiiantel.net
6. Mr. Keith Yap, Vice-chairman, KNIBC kyap@arcysfarm.com
7. Mr. John Kross, county planner, former KNIBC jekross@kuaigov.com
8. Ms. Barbara Say, former KNIBC/Kupuna 296 Malani Road, Kapaa, HI 96746
9. Mr. Nathan Kalama, Kumu Hula/Kupuna 5034 Haleliilo Road, Kapaa, HI 96746
10. Jimmy Fujita, KNIBC rep for Kalaeo District James.Fujita@hawaiiantel.net
11. Debra Dilani Ruiz, KNIBC rep ydcruz@hawaii.com
12. Sandra Quintana, KNIBC rep squintana@lyatt.com
13. Ms. Kaliko Santos, Office of Hawaiian Affairs Kauai manager kaliko@oha.org

Please call 808-692-8025 or email me at Phyllis.L.Cayan@hawaii.gov should you have any further questions on our comments above.

Sincerely,

Phyllis L. Cayan
SHPD History & Culture Branch Chief

Appendix F OHA Response Letter

PHONE (808) 594-1888  FAX (808) 594-1885

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
 711 KAPĪOLANI BOULEVARD, SUITE 500
 HONOLULU, HAWAII 96813

HRD11/4994C

November 17, 2011

Angela Fa'anunu and Margaret Magat, Cultural Researchers
 Cultural Surveys Hawai'i, Inc.
 P.O. Box 1114
 Kailua, Hawai'i 96734

**Re: Cultural Impact Assessment Consultation
 State Land Use Boundary Amendment
 Kaula'i Community College
 Puhi, Island of Kaula'i**

Aloha e Angela Fa'anunu and Margaret Magat,

The Office of Hawaiian Affairs (OHA) is in receipt of your September 29, 2011 letter with enclosures seeking comments ahead of a cultural impact assessment (CIA) which will be prepared to support a petition from the Kaula'i Community College (KCC) to the State Land Use Commission (LUC) for a District Boundary Amendment (DBA). If approved by the LUC, the DBA will facilitate the implementation of the KCC Long Range development Plan which will eventually accommodate a student enrollment of 3,000 full time students.

By letter dated June 3, 2011, OHA provided comments on a draft environmental assessment (DEA) which has already been prepared to support the petition to the LUC for a DBA. This letter is attached for your reference. The DBA petition area encompasses multiple tax map key parcels and a total of 199-acres. Of this total, 99-acres constitute the existing KCC campus and 100-acres are currently undeveloped, but portions were subject to previous intensive agricultural cultivation as shown on in the aerial photographs included with your letter.

OHA recommends that you contact the two Hawaiian Language Immersion Schools (Punana Leo o Kaula'i and Kawaikini New Cnctury Public Charter School) which are situated on the KCC campus, as they may be willing to participate in CIA consultation and share their thoughts with you. OHA notes that a cemetery is depicted on the U.S. Geological Survey map included with your letter. While it appears this cemetery is excluded from or outside of the DBA petition area, OHA believes it should be considered because of its location. The DEA (page 3-18) identifies this cemetery as SHIP number 50-30-11-B006, the "Pali Camp Cemetery". While OHA has no specific information relative to this cemetery at this time, it is possible that certain lineal descendants of those buried there may be interested in participating in CIA consultation and sharing their thoughts with you.

Cultural Impact Assessment for the Kaula'i Community College Redesignation of Urban District Project, Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, Kaula'i Island.

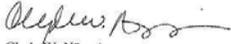
F-1

TMK: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006

Angela Fa'anunu and Margaret Magat, Cultural Researchers
 Cultural Surveys Hawai'i, Inc.
 November 17, 2011
 Page 2 of 2

Thank you for initiating consultation and for the opportunity to provide comments at this early stage. We look forward to reviewing the completed CIA and providing additional comments at that time.

'O wau iho nō me ka 'oia'i'o,


 Clyde W. Nāimu'o
 Chief Executive Officer

CWN:kl

Attachments: (1) June 3, 2011 OHA DEA comment letter

C: OHA- Kaula'i Community Outreach Coordinator

Cultural Impact Assessment for the Kaula'i Community College Redesignation of Urban District Project, Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, Kaula'i Island.

F-2

TMK: [4]-3-4-007-001, [4]-3-4-007-002, [4]-3-4-007-003, and [4]-3-4-007-006

PHONE (808) 594-1868  FAX (808) 594-1865

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
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HRD11/4994B

June 3, 2011

Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street
Artesian Plaza, Suite 400
Honolulu, Hawaii 96826

**Re: Draft Environmental Assessment
State Land Use Boundary Amendment
Kaua'i Community College
Puhi, Island of Kaua'i**

Aloha e Earl Matsukawa,

The Office of Hawaiian Affairs (OHA) is in receipt of your May 2, 2011 letter requesting comments on a draft environmental assessment (DEA) which has been prepared to support an amendment to State Land Use Boundary and re-designate four tax map key parcels (TMK) consisting of approximately 199 acres of land from the Agricultural District to the Urban District (action) which are under the control of the University of Hawai'i (UH). Approximately 99 acres of land which are subject to this action (TMK 3-4-07:003) constitute the existing Kaua'i Community College (KCC) campus which was completed in 1977 on lands donated by Grove Farm in 1972. Development of the KCC campus within the Agricultural District was facilitated by a special use permit granted by the State Land Use Commission on 1973. The majority of the remaining three tax map key parcels consisting of approximately 100 acres are undeveloped, with two Hawaiian Language immersion schools situated on a portion of TMK 3-4-07:002 (DEA, Chapter 2.2).

This action will secure appropriate land use entitlements as KCC moves forward with improvements that will facilitate the implementation of their Long Range Development Plan (LRDP) which will eventually see KCC accommodate a student enrollment of 3,000 full time students (DEA, Chapter 2.4). Since KCC is the only public institution of higher learning on Kaua'i, OHA recognizes the importance of the LRDP and we applaud the efforts of all involved in increasing educational programs and opportunities on Kaua'i.

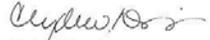
We do seek assurances that the two Hawaiian Language Immersion Schools (Punana Leo o Kaua'i and Kawainini New Century Public Charter School) which are situated on KCC lands have been consulted on this action. It may be appropriate for the location of these schools and

Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
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Page 2 of 2

their programs and operations into the future be secured through agreements (if none already exist) with UH as the LRDP is implemented. We do note that the DEA (Figure 2-7) depicts agricultural uses being developed on the lands immediately adjacent to the schools as the LRDP is implemented. The continued operations of these schools combined with the implementation of the KCC LRDP may be compatible with the "Hawai'i P-20 Partnerships for Education", a partnership led by the Good Beginnings Alliance, the State of Hawai'i Department of Education and the university of Hawai'i System which is working to strengthen the educational pipeline from early childhood through higher education so that all students achieve college and career success.

Thank you for the opportunity to provide comments. Please send an electronic copy of the final environmental assessment to us for our records. Should you have any questions, please contact Keola Lindsey at 594-0244 or keolai@oha.org.

'O wau iho nō me ka 'ōia'i'o,



Clyde W. Nāmu'o
Chief Executive Officer

C: OHA- Kaua'i Community Outreach Coordinator

Appendix D

Traffic Impact Report for the
Island School Master Plan
Prepared by
Wilson Okamoto Corporation
December 2010

TRAFFIC IMPACT REPORT
FOR THE
ISLAND SCHOOL MASTER PLAN

Prepared for:

Island School
3-1875 Kaunualii Highway
Lihue, Hawaii 96766

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOC Ref #8110-02

December 2010

TABLE OF CONTENTS

	Page
I. Introduction	1
A. Purpose of Study	1
B. Scope of Study	1
II. Project Description	1
A. Location	1
B. Project Characteristics	3
III. Existing Traffic Conditions.....	3
A. Area Roadway System	3
B. Traffic Volumes and Conditions.....	5
1. General.....	5
a. Field Investigation.....	5
b. Capacity Analysis Methodology.....	6
2. Existing Peak Hour of Traffic.....	6
a. General.....	6
b. Kaunualii Highway and Puhi Road	9
c. Kaunualii Highway and Nani Street	10
d. Kaunualii Highway and Nuhou Street.....	10
IV. Projected Traffic Conditions	12
A. Site-Generated Traffic.....	12
1. Trip Generation Methodology	12
2. Trip Distribution	12
B. Through-Traffic Forecasting Methodology	15
C. Other Considerations.....	15
1. Kauai Community College	15
2. Kaunualii Highway Widening	16
D. Total Traffic Volumes Without Project.....	16
E. Total Traffic Volumes With Project	19
V. Traffic Impact Analysis.....	22
VI. Recommendations	23
VII. Conclusion	23

LIST OF FIGURES

FIGURE 1	Location Map and Vicinity Map
FIGURE 2	Project Site Plan
FIGURE 3	Existing AM Peak Hour of Traffic
FIGURE 4	Existing PM Peak Hour of Traffic
FIGURE 5	Distribution of Site-Generated Vehicles AM Peak Hour of Traffic
FIGURE 6	Distribution of Site-Generated Vehicles PM Peak Hour of Traffic
FIGURE 7	Year 2020 AM Peak Hour of Traffic Without Project
FIGURE 8	Year 2020 PM Peak Hour of Traffic Without Project
FIGURE 9	Year 2020 AM Peak Hour of Traffic With Project
FIGURE 10	Year 2020 PM Peak Hour of Traffic With Project

LIST OF APPENDICIES

APPENDIX A	Existing Traffic Count Data
APPENDIX B	Level of Service Definitions
APPENDIX C	Capacity Analysis Calculations Existing Peak Hour Traffic Analysis
APPENDIX D	Capacity Analysis Calculations Year 2020 Peak Hour Traffic Analysis Without Project
APPENDIX E	Capacity Analysis Calculations Year 2020 Peak Hour Traffic Analysis With Project

I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the implementation of Island School’s master plan. Island School is a private Pre-K to 12th grade school located adjacent the Kauai Community College on the island of Kauai.

B. Scope of Study

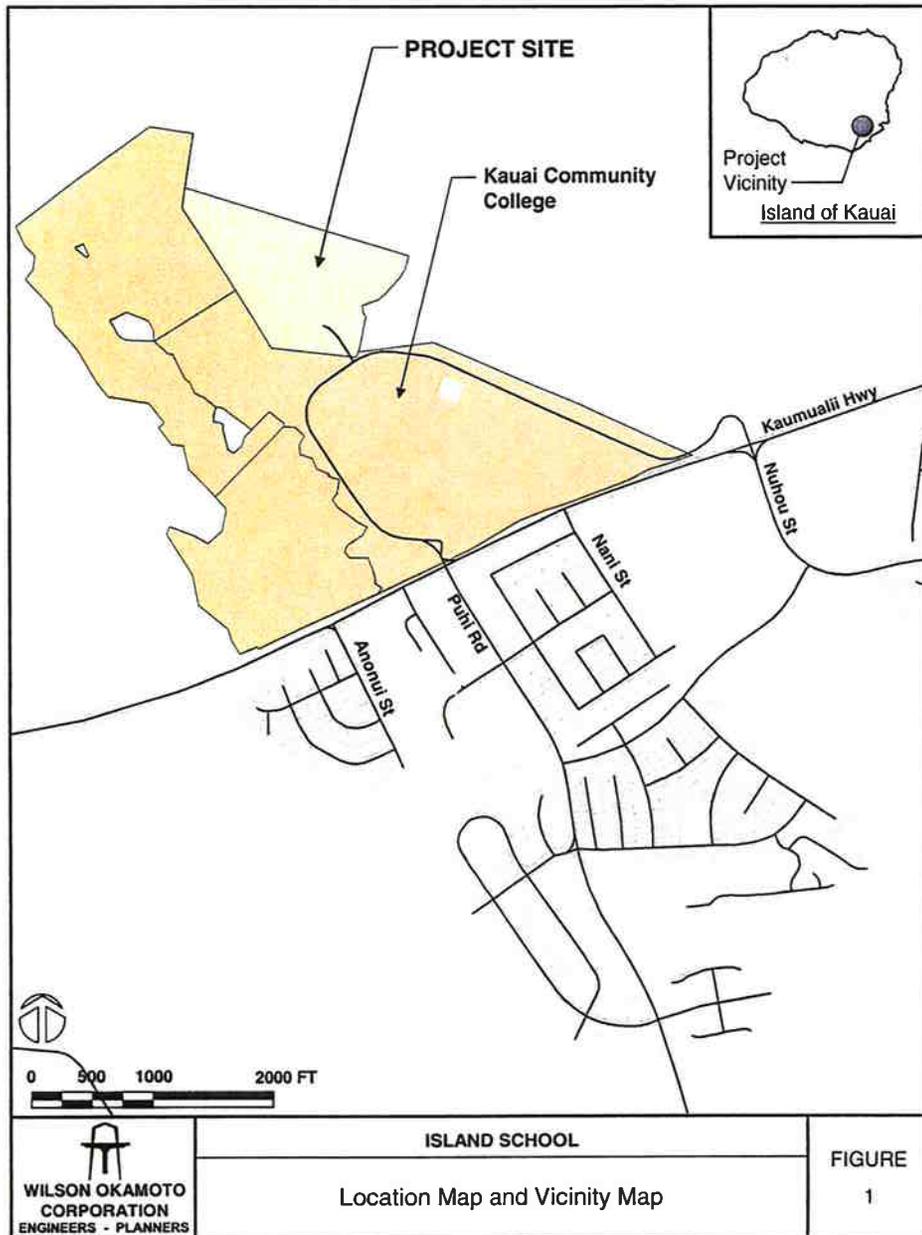
This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

Island School is located adjacent to Kauai Community College (KCC) north of Kaumualii Highway in Puhi on the island of Kauai, and is further identified as Tax Map Key: 3-8-02: 16 (see Figure 1). The project site is bounded by agricultural uses to the north and east, Gaylord’s Restaurant to the south, and KCC to the west. Access to Island School is provided via access roads shared with Kauai Community College at the intersections of Kaumualii Highway with Puhi Road and Nuhou Street.



B. Project Characteristics

The master plan for Island School entails the expansion the private school's campus over the next 10 years to provide additional classrooms and facilities. The site plan for the proposed expansion is shown in Figure 2 and includes the construction of the following:

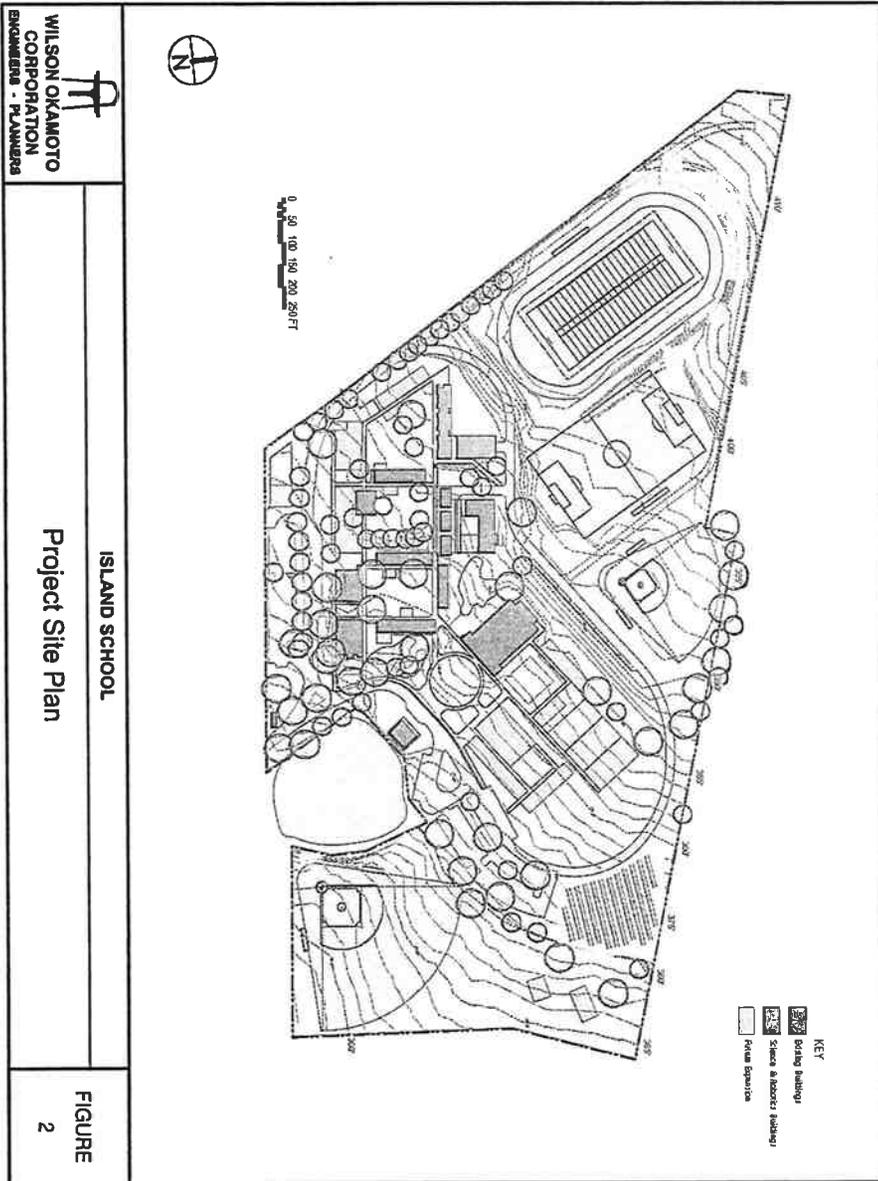
- Classroom buildings
- Science building
- Dining hall
- Campus Center with a library, computer rooms, and a bookstore
- Auditorium and stage
- Locker rooms
- Arts Education building
- Sports fields
- Additional Visual Arts facilities
- Additional administrative facilities
- Additional parking areas

In conjunction with the proposed expansion, enrollment at the school is expected to increase until the expected completion of the project in the Year 2020. Island School currently serves 20 Pre-K students and 340 students from grades K to 12. By the Year 2020, Pre-K enrollment is not expected to increase, but enrollment for students from grades K to 12 is expected to increase to 480.

III. EXISTING TRAFFIC CONDITIONS

A. Area Roadway System

In the vicinity of Island School, Kaumualii Highway is a predominantly two-lane, two-way roadway generally oriented in the east-west direction. At the signalized intersection with Puhi Road, both approaches of Kaumualii Highway have exclusive turning lanes and one through lane. Puhi Road is a predominantly two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with Kaumualii Highway, the northbound approach of Puhi Road has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the western access road for KCC and Island School which



has a shared left-turn and through lane, and an exclusive right-turn lane. An additional westbound departure lane is provided along Kaumualii Highway at this intersection to allow southbound right-turning vehicles to proceed freely through the intersection.

Northeast of the intersection with Puhi Road, Kaumualii Highway intersects Nani Street. At this unsignalized T-intersection, the eastbound approach of the highway has one lane that serves through and right-turn traffic movements while the westbound approach has one lane that serves left-turn and through traffic movements. Nani Street is a two-lane, two-way roadway generally oriented in the north-south direction. At the intersection with the highway, the Nani Street approach has one lane that serves left-turn and right-turn traffic movements.

Further northeast, Kaumualii Highway intersects Nuhou Street. At this signalized intersection, the eastbound approach of the highway has exclusive turning lanes and one through lane while the westbound approach has one through lane and a shared through and right-turn lane. Nuhou Street is a four-lane, two-way roadway generally oriented in the north-south direction. At the intersection with the highway, the northbound approach of Nuhou Street has a shared left-turn and through lane, and an exclusive right-turn lane. The southbound approach of the intersection is comprised of the eastern access for KCC and Island School which has one lane that serves all traffic movements.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

Field investigations were conducted on September 14-16, 2010 and consisted of manual turning movement count surveys during the morning peak hours between 6:00 AM and 9:00 AM, and the afternoon peak hours between 3:00 PM and 6:00 PM at the following intersections:

- Kaumualii Highway and Puhi Road
- Kaumualii Highway and Nani Street
- Kaumualii Highway and Nuhou Street

In addition, a 24-hour mechanical count survey was conducted along the main access for KCC north of the Kaumualii Highway and Puhi Road intersection. Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Synchro" software developed by Trafficware. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic.

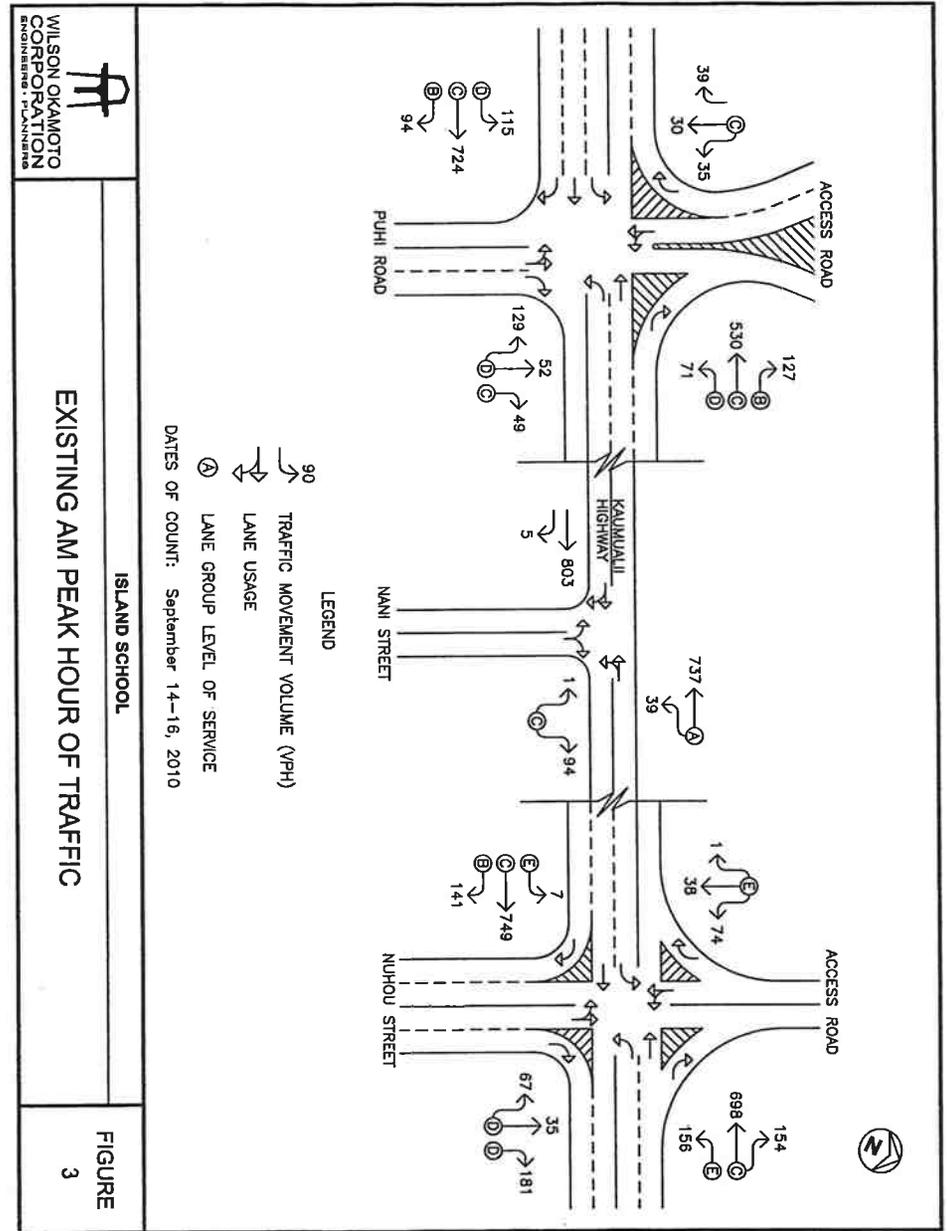
LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak Hour Traffic

a. General

Figures 3 and 4 show the existing AM and PM peak hour traffic volumes and operating traffic conditions in the vicinity of the proposed project. The morning peak hour of traffic generally occurs between 7:15 AM and 8:15 AM in the vicinity of the project. In the afternoon, the peak hour of traffic generally occurs between the hours of 4:00 PM and 5:00 PM. The analysis is based on these commuter

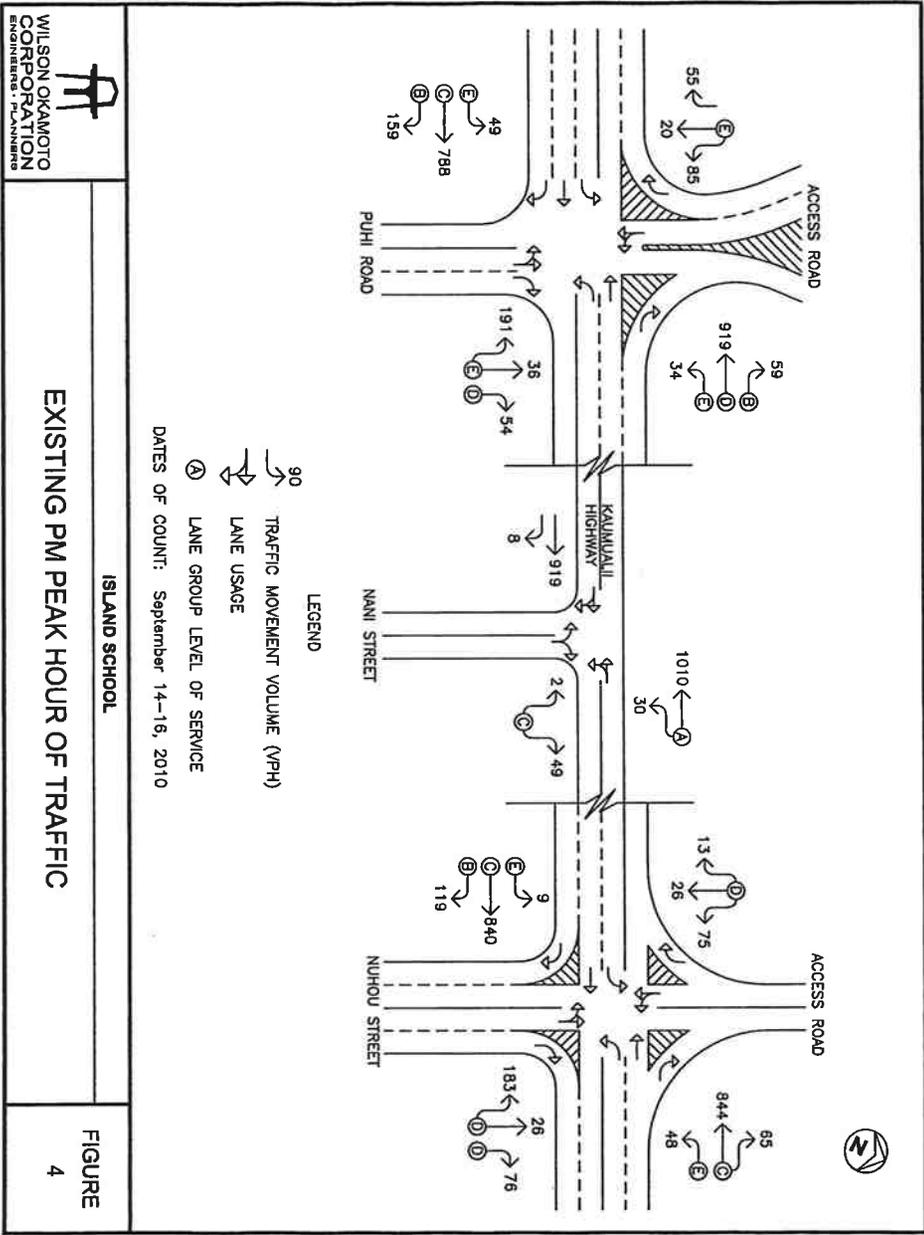


peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

b. Kaumualii Highway and Puhi Road

At the intersection with Puhi Road, Kaumualii Highway carries 933 vehicles eastbound and 728 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 996 vehicles traveling eastbound and 1,012 vehicles traveling westbound. The left-turn traffic movement on both approaches of the highway operate at LOS "D" and LOS "E" during the AM and PM peak periods, respectively, while the right-turn traffic movements operate at LOS "B" during both peak periods. The eastbound through traffic movement operates at LOS "C" during both peak periods while the westbound through traffic movement operates at LOS "C" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the eastbound and westbound approaches of the intersection with average queue lengths of 10-12 vehicles observed on both approaches during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

The Puhi Road approach of the intersection carries 230 vehicles and 281 vehicles northbound during the AM and PM peak periods, respectively. The northbound left-turn and through traffic movement on this approach operates at LOS "D" and LOS "E" during the AM and PM peak periods, respectively, while the right-turn traffic movement operates at LOS "C" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the Puhi Road approach of the intersection with average queue lengths of 9-11 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.



The southbound approach of the intersection is comprised of the western access road for KCC and Island School which carries 104 vehicles and 160 vehicles southbound during the AM and PM peak periods, respectively. The southbound left-turn and through traffic movement on this approach operates at LOS "C" and LOS "E" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the access road approach of the intersection with average queue lengths of 2-3 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

c. Kaumualii Highway and Nani Street

At the intersection with Nani Street, Kaumualii Highway carries 808 vehicles eastbound and 766 vehicles westbound during the AM peak period. During the PM peak period, traffic volumes are higher with 927 vehicles traveling eastbound and 1,040 vehicles traveling westbound. The critical traffic movement along the highway at this intersection is the westbound approach which operates at LOS "A" during both peak periods.

The Nani Street approach of the intersection carries 95 vehicles and 51 vehicles northbound during the AM and PM peak periods, respectively. Traffic queues periodically formed on the Nani Street approach of the intersection with average queue lengths of 1-3 vehicles observed during both peak periods.

d. Kaumualii Highway and Nuhou Street

At the intersection with Nuhou Street, Kaumualii Highway carries 897 vehicles eastbound and 1,008 vehicles westbound during the AM peak period. During the PM peak period, the overall traffic volume is approximately the same with 968 vehicles traveling eastbound and 957 vehicles traveling westbound. The left-turn traffic movement on both approaches of the highway operate LOS "E" during

both peak periods while the eastbound through and westbound through and right-turn traffic movements operate at LOS "C" during both peak periods. The eastbound right-turn traffic movement along the highway operates at LOS "B" during both peak periods. Traffic queues periodically formed on the eastbound and westbound approaches of the intersection with the most significant queuing occurring on the eastbound approach of the intersection. Queue lengths in excess of 15 vehicles were observed on the eastbound approach during this peak period. Most of these queues cleared after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

The Nuhou Street approach of the intersection carries 283 vehicles and 285 vehicles northbound during the AM and PM peak periods, respectively. The traffic movements on this approach operate at LOS "D" during both peak periods. Traffic queues periodically formed on the Puhī Road approach of the intersection with the most significant queuing occurring during the PM peak period. Average queue lengths of 10-12 vehicles were observed during this peak period with these queues observed to clear the intersection after each traffic signal cycle change.

The southbound approach of the intersection is comprised of the eastern access road for KCC and Island School which carries 113 vehicles and 114 vehicles southbound during the AM and PM peak periods, respectively. This approach operates at LOS "E" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the access road approach of the intersection with average queue lengths of 1-3 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

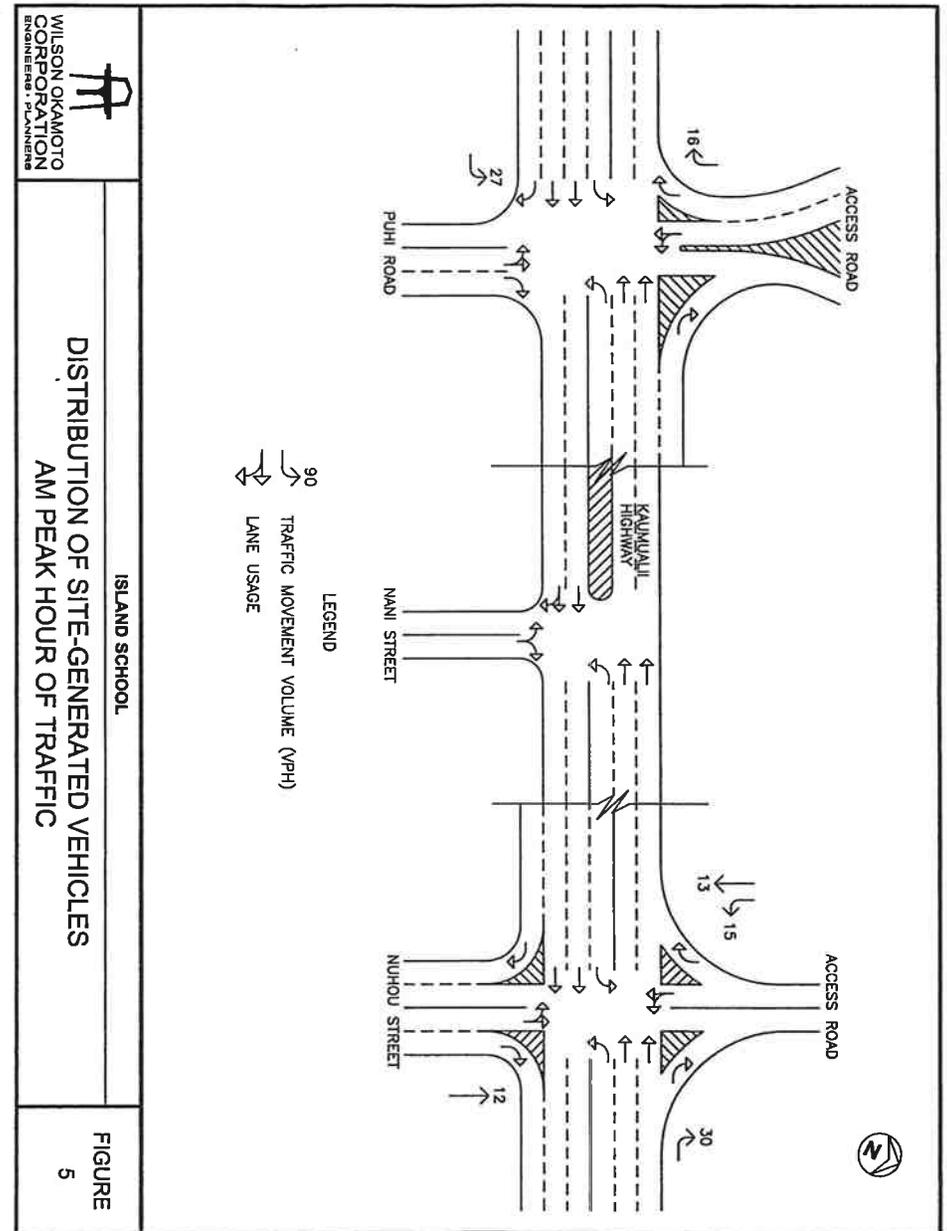
The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 8th Edition," 2008. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per student. Table 1 summarizes the project site trip generation characteristics applied to the AM and PM peak hours of traffic.

Table 1: Peak Hour Trip Generation

PRIVATE SCHOOL (K-12)		
INDEPENDENT VARIABLE:		PROJECTED TRIP ENDS
Increase in enrollment = 140 students		
AM PEAK	ENTER	69
	EXIT	44
	TOTAL	113
PM PEAK	ENTER	10
	EXIT	14
	TOTAL	24

2. Trip Distribution

Figures 5 and 6 show the distribution of site-generated vehicular trips at the study intersections during the AM and PM peak hours of traffic. Vehicular access to Island School is provided via two access roadways off Kaumualii Highway. The directional distribution of new site-generated vehicles was based upon the existing distribution of traffic at the more heavily utilized intersection with Puhi Street. As such, 39.1% of entering vehicles were assumed to be headed from areas to the west during the AM peak period, 43.2% were assumed to be headed from areas to the east, and 17.7% were assumed to be headed from areas south to the south. Similarly, 37.5% of exiting vehicles were assumed to be headed to area to the west, 33.7% were



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ISLAND SCHOOL
DISTRIBUTION OF SITE-GENERATED VEHICLES
AM PEAK HOUR OF TRAFFIC

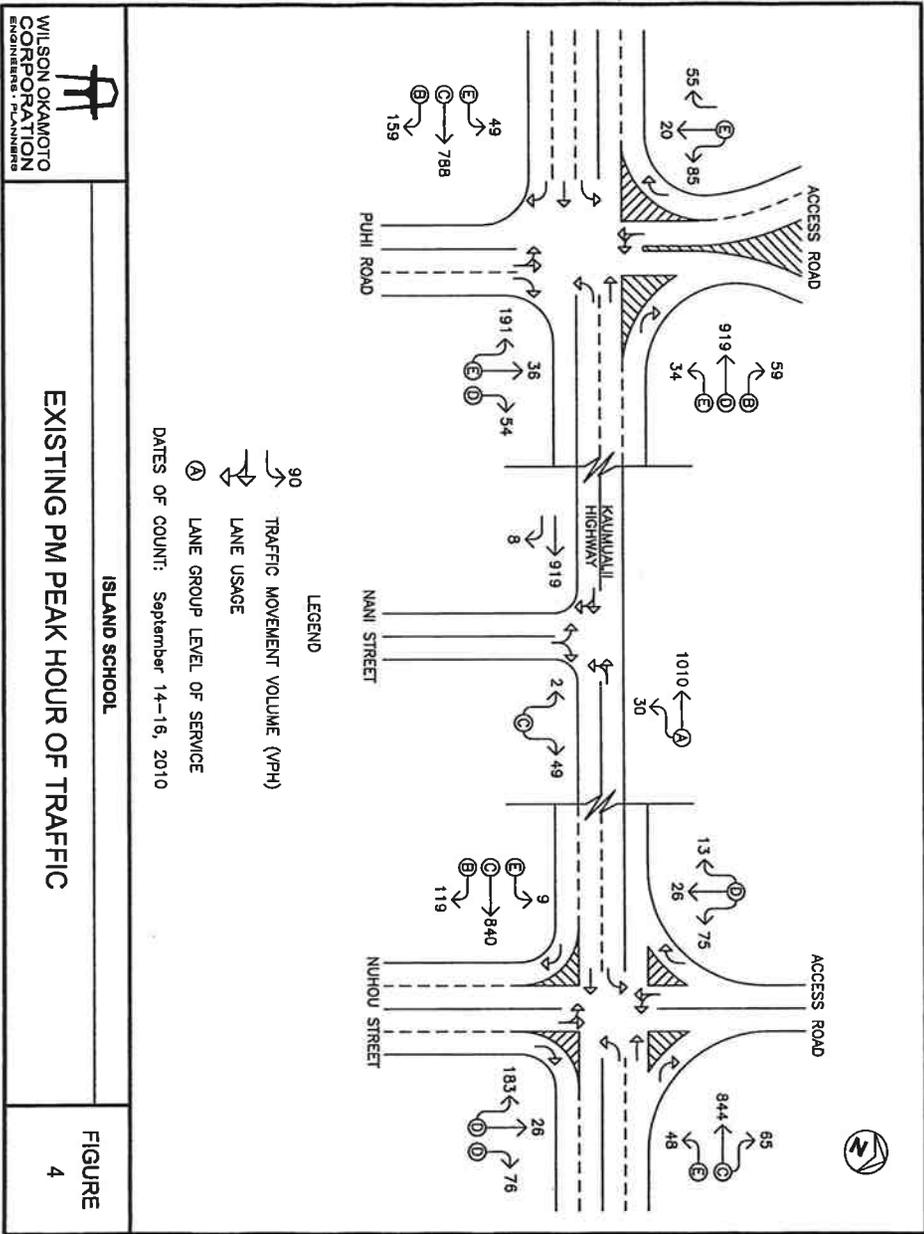
FIGURE 5

peak hour time periods to identify the traffic impacts resulting from the proposed project. LOS calculations are included in Appendix C.

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The southbound approach of the intersection is comprised of the eastern access road for KCC and Island School which carries 113 vehicles and 114 vehicles southbound during the AM and PM peak periods, respectively. This approach operates at LOS "E" and LOS "D" during the AM and PM peak periods, respectively. Traffic queues periodically formed on the access road approach of the intersection with average queue lengths of 1-3 vehicles observed during both peak periods. These queues were observed to clear the intersection after each traffic signal cycle change.

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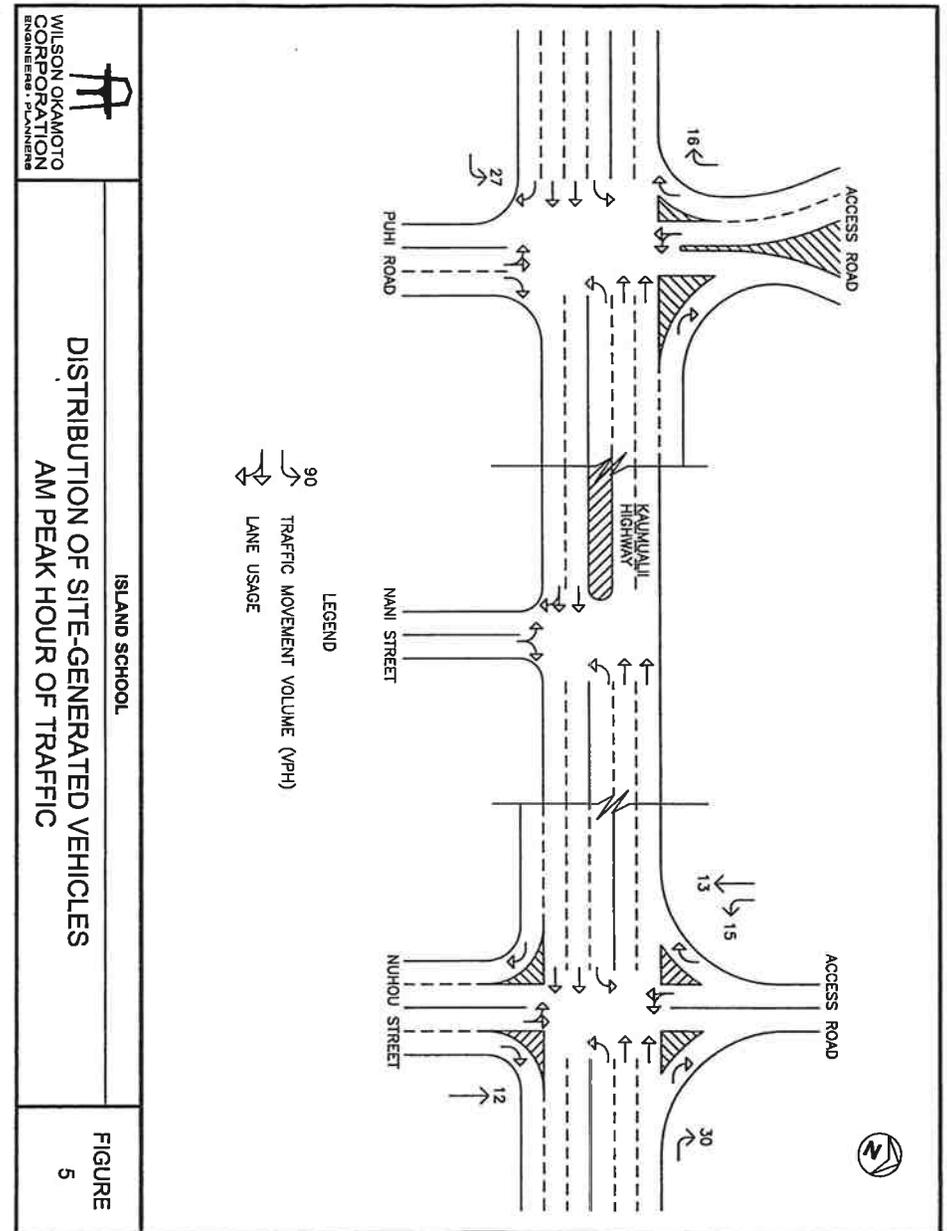
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ISLAND SCHOOL
DISTRIBUTION OF SITE-GENERATED VEHICLES
AM PEAK HOUR OF TRAFFIC

FIGURE 5

assumed to be headed to areas to the east, and 28.8% were assumed to be headed to areas to the south. During the PM peak period, 34.0% of entering vehicles were assumed to be headed from areas from the west, 41.0% were assumed to be headed from areas to the east, and 25.0% were assumed to be headed from areas to the south. Similarly, 34.4% of exiting vehicles were assumed to be headed to areas in the west, 53.1% were assumed to be headed to areas in the east, and 12.5% were assumed to be headed to areas to the south. Based upon the relative convenience of the available routes and the anticipated volume of conflicting traffic, all vehicles headed to and from the west were assumed to utilize the western access at the intersection of Kaumualii Highway with Puhi Street while all vehicles headed to and from the east and south were assumed to utilize the eastern access at the intersection of Kaumualii Highway with Nuhou Street.

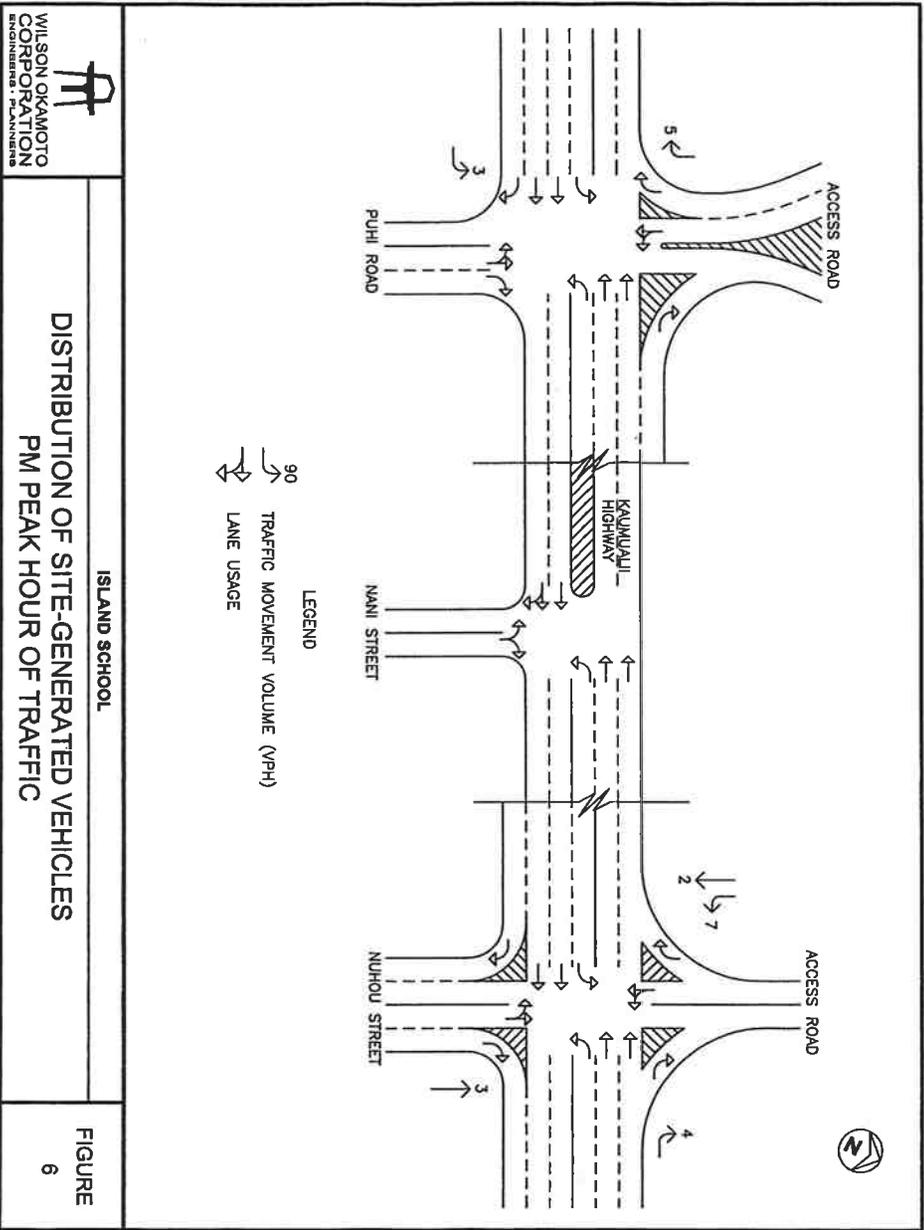
B. Through Traffic Forecasting Methodology

The travel forecast is based upon historical traffic count data obtained from the State Department of Transportation (SDOT), Highway Division survey stations in the vicinity of the project site. The historical data indicates a stable or declining growth in traffic and, as such, an annual traffic growth rate of approximately 0.5% per year was conservatively assumed along Kaumualii Highway in the project vicinity. Using 2010 as the Base Year, a growth factor of 1.05 was applied to the existing through traffic demands along Kaumualii Highway achieve the projected Year 2020 traffic demands.

C. Other Considerations

1. Kauai Community College

Kauai Community College’s Long-Range Development Plan (LRDP) includes the construction of a number of new facilities to allow the expansion of existing programs. In conjunction with the planned expansion, enrollment at the school is expected to increase from the current enrollment of 864 students to an enrollment of 1,038 students by the Year 2020. As described in the “Traffic Impact Report for the Kauai Community College Long Range



Development Plan” dated December 2010, the increase in enrollment at the college is expected to result in approximately 35 new trips during the AM peak period and 35 new trips during the PM peak period. These trips were assigned to the street network in the study area in the Year 2020 without project scenario to account for new trips generated the implementation of the college’s LRDP.

2. Kaumualii Highway Widening

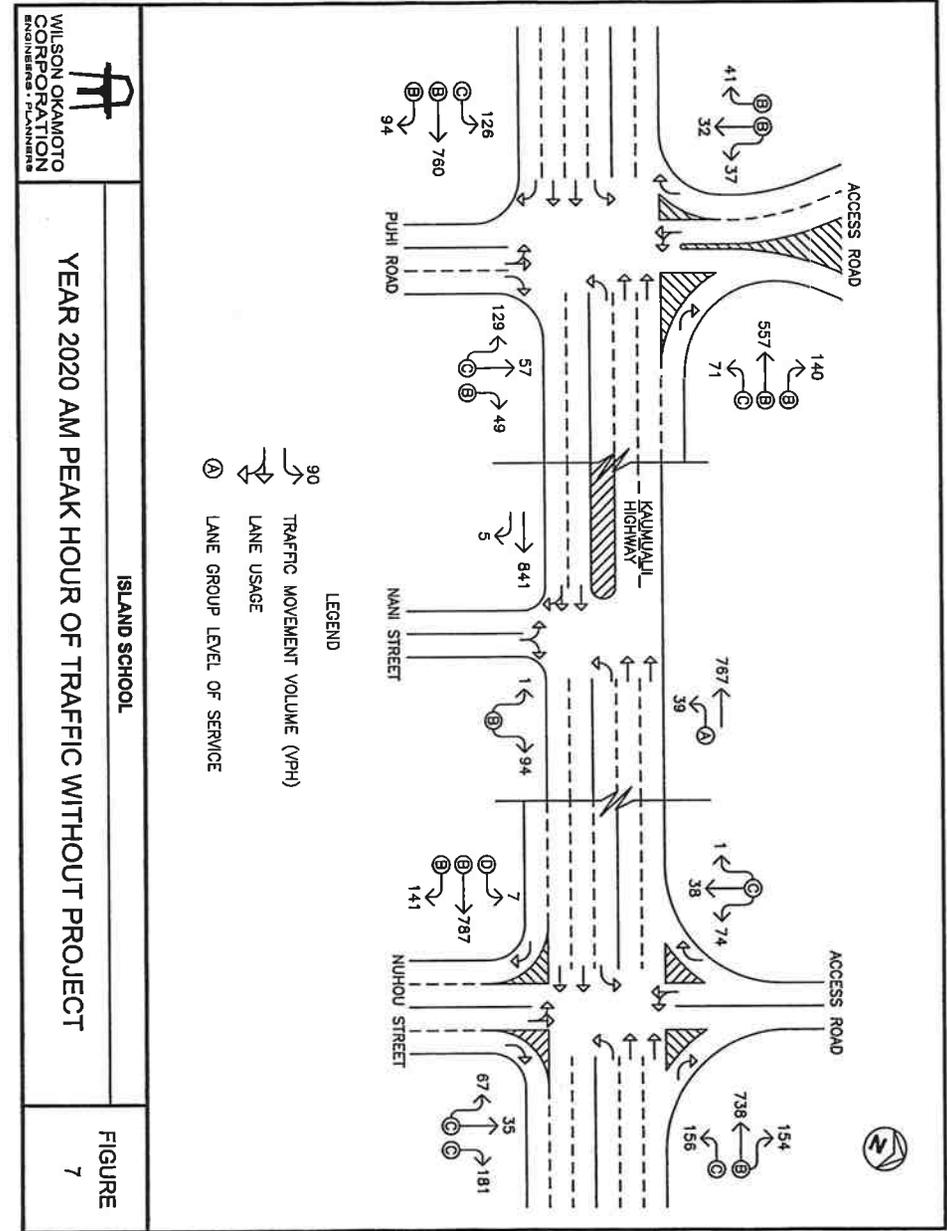
The State of Hawaii Department of Transportation is currently widening Kaumualii Highway from a two-lane undivided highway to a four-lane divided highway between Anonui Road and the Lihue Mill Bridge. The highway will have two travel lanes in each direction with auxiliary lanes provided at the intersections along this segment once construction is completed near the end of 2012.

D. Total Traffic Volumes Without Project

The projected Year 2020 AM and PM peak hour traffic volumes and operating conditions without the implementation Island School’s master plan are shown on Figures 7 and 8, and summarized in Table 2. Kaumualii Highway is assumed to be widened to a four-lane divided highway by the Year 2020 with a westbound left-turn bay provided at the intersection with Nani Street. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 2: Existing and Projected Year 2020 (Without Project) Traffic Operating Conditions

Intersection	Critical Traffic Movement	AM		PM	
		Exist	Year 2020 w/out Proj	Exist	Year 2020 w/out Proj
Kaumualii Hwy/ Puhi Rd	Eastbound	LT	D	C	D
		TH	C	B	C
		RT	B	B	B
	Westbound	LT	D	C	E
		TH	C	B	D
		RT	B	B	B



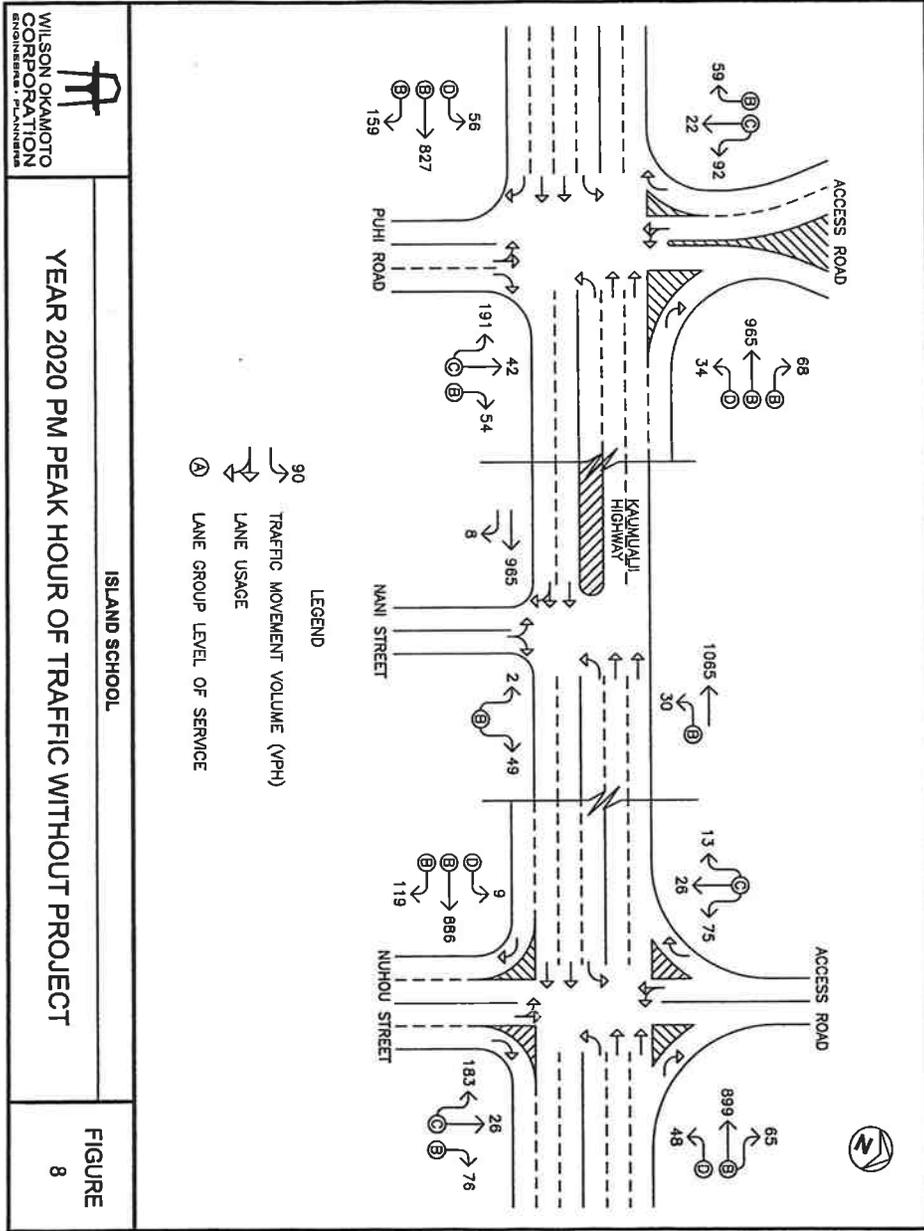


Table 2: Existing and Projected Year 2020 (Without Project) Traffic Operating Conditions (Cont'd)

Intersection	Critical Traffic Movement	AM		PM		
		Exist	Year 2020 w/out Proj	Exist	Year 2020 w/out Proj	
Kaumualii Hwy/ Puhi Rd (Cont'd)	Northbound	LT-TH	D	C	E	C
		RT	C	B	D	B
	Southbound	LT-TH	C	B	E	C
		RT	-	B	-	B
Kaumualii Hwy/ Nani St	Westbound	LT	A	A	A	B
		TH	-	-	-	-
	Northbound	LT-RT	C	B	C	B
Kaumualii Hwy/ Nuhou St	Eastbound	LT	E	D	E	D
		TH	C	B	C	B
		RT	B	B	B	B
	Westbound	LT	E	C	E	D
		TH-RT	C	B	C	B
	Northbound	LT-TH	D	C	D	C
RT		D	C	D	B	
Southbound	LT-TH-RT	E	C	D	C	

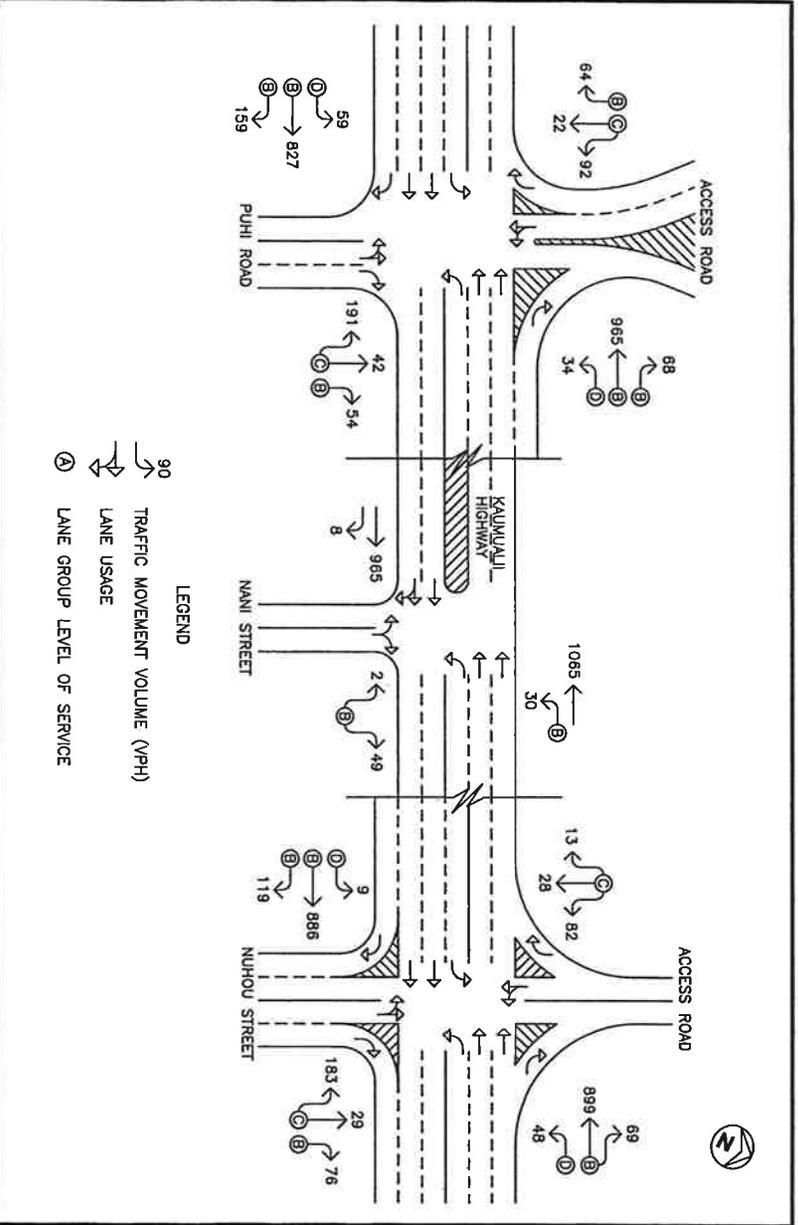
Traffic operations in the vicinity of Island School without the implementation of their master plan are expected to improve during both peak hours of traffic due to the widening of Kaumualii Highway to a four-lane divided highway. The traffic movements at the intersection of Kaumualii Highway with Puhi Road are expected to operate at LOS "C" or better during the AM peak period and LOS "D" or better during the PM peak period while those at the intersection with Nani Street are expected to operate at LOS "B" or better during both peak periods. At the intersection with Nuhou Street, the traffic movements are expected to operate at LOS "D" or better during both peak periods.

E. Total Traffic Volumes With Project

Figures 9 and 10 show the projected Year 2020 cumulative AM and PM peak hour traffic conditions resulting from the implementation of Island School's master plan. The cumulative volumes consist of site-generated traffic superimposed over

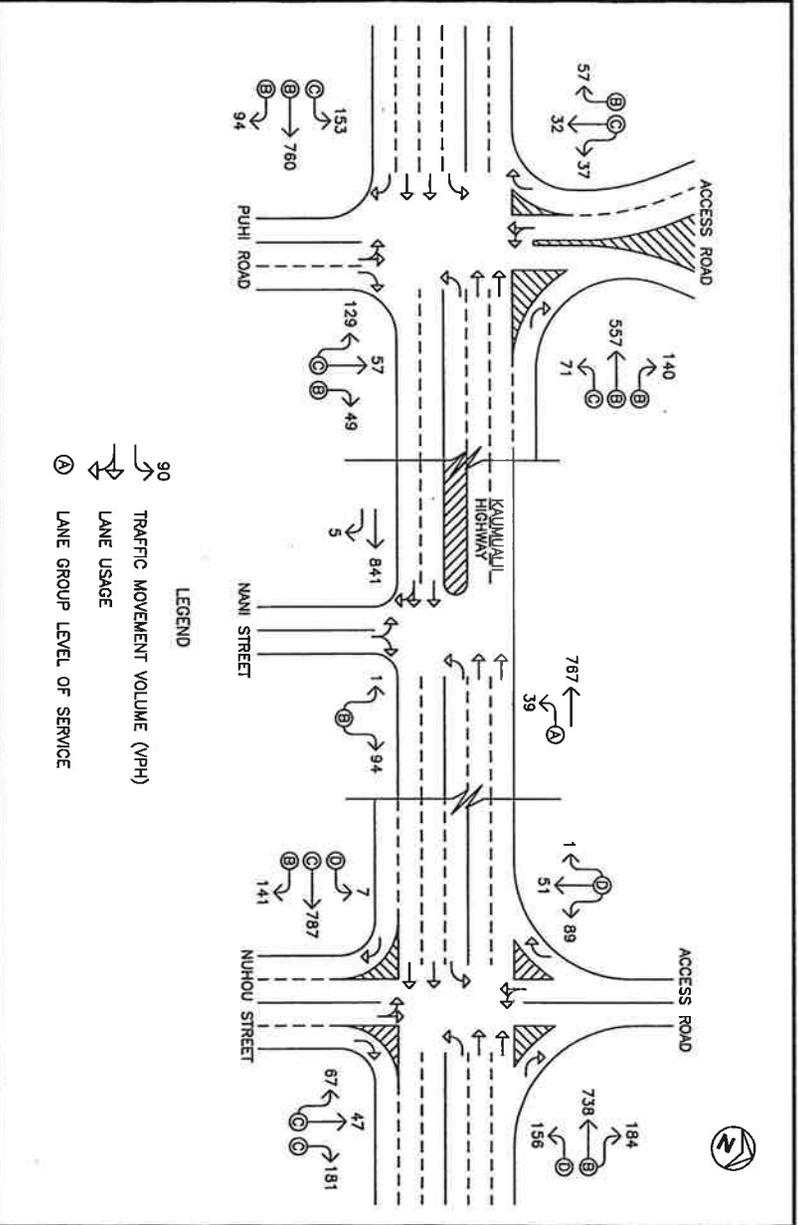
ISLAND SCHOOL

FIGURE 10



ISLAND SCHOOL

FIGURE 9



Year 2020 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2020 cumulative AM and PM peak hour traffic conditions with the implementation of Island School’s master plan are summarized in Table 3. The projected Year 2020 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix E.

Table 3: Projected Year 2020 (Without and With Project) Traffic Operation Conditions

Intersection	Critical Traffic Movement	AM		PM		
		Year 2020 w/out Proj	Year 2020 w/ Proj	Year 2020 w/out Proj	Year 2020 w/ Proj	
Kaunualii Hwy/Puhi Rd	Eastbound	LT	C	C	D	D
		TH	B	B	B	B
		RT	B	B	B	B
	Westbound	LT	C	C	D	D
		TH	B	B	B	B
		RT	B	B	B	B
	Northbound	LT-TH	C	C	C	C
		RT	B	B	B	B
	Southbound	LT-TH	B	C	C	C
RT		B	B	B	B	
Kaunualii Hwy/Nani St	Westbound	LT	A	A	B	B
	Northbound	LT-RT	B	B	B	B
Kaunualii Hwy/Nuhou St	Eastbound	LT	D	D	D	D
		TH	B	C	B	B
		RT	B	B	B	B
	Westbound	LT	C	D	D	D
		TH-RT	B	B	B	B
	Northbound	LT-TH	C	C	C	C
		RT	C	C	B	B
	Southbound	LT-TH-RT	C	D	C	C

Traffic operations in the vicinity of Island School with the implementation of their master plan are expected, in general, to operate at levels of service similar to Year 2020 without project conditions despite the addition of site-generated traffic to the surrounding

roadways. The southbound left-turn and through traffic movement at the intersection of Kaunualii Highway with Puhi Street is expected to operate at a slightly lower level of service during the AM peak period. Similarly, at the intersection of Kaunualii Highway with Nuhou Street, the eastbound through and westbound left-turn traffic movements, as well as, the southbound approach are expected to operate at slightly slower levels of service during the AM peak period. The remaining critical movements at these intersections, as well as, the other study intersection are expected to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the study intersections are expected to increase by 2-3% during the AM peak period and less than 1% during the PM peak period with the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along Kaunualii Highway and represent a minimal increase in the overall traffic volumes.

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project:

1. Maintain sufficient sight distance for motorists to safely enter and exit all project roadways.
2. Maintain adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
3. Maintain adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on-site to avoid vehicle-reversing maneuvers onto public roadways.
4. Maintain sufficient turning radii at all project roadways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
5. If the implementation of Island School’s master plan is not completed by the Year 2020, prepare an updated Traffic Impact Report that incorporates a revised project completion year.

VII. CONCLUSION

The master plan for Island School entails the expansion the private school’s campus over the next 10 years to provide additional classrooms and facilities. With the implementation of the aforementioned recommendations, Island School’s master plan is not

expected to have a significant impact on traffic operations in the vicinity. The traffic movements at the study intersections along Kaunualii Highway are expected to continue operating at levels of service similar to without project conditions. In addition, the total traffic volumes entering the study intersections are expected to increase by 2-3% during the AM peak period and less than 1% during the PM peak period with the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along Kaunualii Highway and represent a minimal increase in the overall traffic volumes.

APPENDIX A
EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-3890, D4-5677
Counted By:RY, ER
Weather:Clear

File Name : KauPuih PM
Site Code : 00000001
Start Date : 9/14/2010
Page No : 1

Groups Printed- Unshifted

Start Time	KCC Driveway Southbound					Kaunuaui Highway Westbound					Puih Street Northbound					Kaunuaui Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	43	6	21	0	70	19	171	8	0	198	37	4	22	3	66	4	160	34	2	200	534
03:15 PM	18	3	5	1	25	20	206	3	1	230	51	4	15	1	71	5	177	46	1	229	555
03:30 PM	18	4	6	0	28	8	234	4	0	246	46	4	17	0	67	2	193	30	0	225	568
03:45 PM	21	6	9	1	37	12	231	12	0	255	33	7	9	2	51	5	206	45	1	257	600
Total	98	19	41	2	160	59	842	27	1	929	167	19	63	6	255	16	736	155	4	911	2255
04:00 PM	15	5	13	0	33	12	226	11	0	249	51	6	19	0	76	14	189	37	0	240	598
04:15 PM	18	5	11	0	34	12	239	11	0	262	43	11	9	0	63	4	197	42	0	243	602
04:30 PM	38	5	23	0	66	4	228	17	0	249	48	8	8	0	64	16	198	44	1	259	638
04:45 PM	14	5	8	1	28	6	227	20	0	253	49	11	17	0	77	15	196	36	1	248	606
Total	85	20	55	1	161	34	920	59	0	1013	191	36	53	0	280	49	780	159	2	990	2444
05:00 PM	13	0	10	0	23	7	220	12	0	239	43	9	7	0	59	10	190	40	0	240	561
05:15 PM	5	4	10	0	19	6	223	11	0	240	55	4	12	0	71	2	198	23	1	224	564
05:30 PM	12	2	6	1	21	5	222	6	0	233	42	4	7	0	53	4	134	17	2	157	464
05:45 PM	2	0	6	0	8	8	173	13	0	194	30	4	20	0	54	9	202	37	0	248	504
Total	32	6	32	1	71	26	838	42	0	906	170	21	46	0	237	25	724	117	3	869	2083
Grand Total	215	45	128	4	392	119	2600	128	1	2848	528	76	162	6	772	90	2240	431	9	2770	6782
Approch %	54.8	11.5	32.7	1	4.2	4.2	91.3	4.5	0	68.4	9.8	21	0.8	11.4	3.2	80.9	15.6	0.3	0.1	40.8	
Total %	3.2	0.7	1.9	0.1	5.8	1.8	38.3	1.9	0	42	7.8	1.1	2.4	0.1	11.4	1.3	33	6.4	0.1	40.8	

Start Time	KCC Driveway Southbound					Kaunuaui Highway Westbound					Puih Street Northbound					Kaunuaui Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	15	5	13	0	33	12	226	11	0	249	51	6	19	0	76	14	189	37	0	240	598
04:15 PM	18	5	11	0	34	12	239	11	0	262	43	11	9	0	63	4	197	42	0	243	602
04:30 PM	38	5	23	0	66	4	228	17	0	249	48	8	8	0	64	16	198	44	1	259	637
04:45 PM	14	5	8	1	28	6	227	20	0	253	49	11	17	0	77	15	196	36	1	248	604
Total	85	20	55	1	161	34	920	59	0	1013	191	36	53	0	280	49	780	159	2	990	2441
Total Volume	85	20	55	1	160	34	920	59	0	1013	191	36	53	0	280	49	780	159	2	988	2441
% App. Total	53.1	12.5	34.4	0.6	3.4	90.8	5.8	0	0.6	68.2	12.9	18.9	0	9.09	5	78.9	16.1	0.3	0.1	40.8	
PHF	.559	1.000	.598	.608	.708	.962	.738	.967	.938	.818	.697	.909	.768	.985	.903	.957	.958	.958	.958	.958	.958

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-3890, D4-5677
Counted By:RY, ER
Weather:Clear

File Name : KauPuih AM
Site Code : 00000001
Start Date : 9/15/2010
Page No : 1

Groups Printed- Unshifted

Start Time	KCC Driveway Southbound					Kaunuaui Highway Westbound					Puih Street Northbound					Kaunuaui Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	2	2	1	0	5	14	99	2	0	115	20	0	6	0	26	2	95	19	0	116	262
06:15 AM	1	1	1	1	4	28	181	3	0	210	36	0	4	2	42	9	152	17	2	180	436
06:30 AM	1	0	1	0	2	26	169	4	0	199	33	2	11	0	46	8	181	36	0	225	472
06:45 AM	3	2	0	0	5	30	128	12	0	170	25	2	9	0	36	9	208	40	0	257	468
Total	7	5	3	1	16	96	577	21	0	694	114	4	30	2	150	28	636	112	2	778	1638
07:00 AM	1	0	1	0	2	18	92	14	0	124	29	5	3	0	37	15	202	28	6	251	414
07:15 AM	8	1	7	0	16	25	149	21	0	195	28	11	19	0	58	18	200	23	3	244	513
07:30 AM	8	7	8	0	23	12	131	42	0	185	25	20	5	0	50	52	171	24	6	253	511
07:45 AM	14	14	18	0	46	16	128	43	1	188	34	16	9	1	60	35	163	21	4	223	515
Total	31	22	34	0	87	71	498	120	1	690	116	52	36	1	205	120	736	96	19	971	1953
08:00 AM	5	8	6	3	22	18	123	21	0	162	42	5	15	0	62	10	183	26	3	222	468
08:15 AM	7	2	0	0	9	20	126	26	0	172	27	10	13	0	50	16	179	49	1	245	478
08:30 AM	10	2	1	0	13	19	132	44	0	195	37	6	24	0	67	23	200	27	8	259	533
08:45 AM	7	2	6	0	15	16	121	55	0	192	21	12	25	0	58	24	167	32	0	223	488
Total	29	14	13	3	59	73	502	146	0	721	127	33	77	0	237	73	729	134	12	948	1955
Grand Total	67	41	60	4	162	240	1577	287	1	2105	357	89	143	3	592	221	2101	342	33	2697	5556
Approch %	41.4	25.3	30.9	2.5	2.9	11.4	74.9	13.6	0	60.3	15	24.2	0.5	10.7	8.2	77.9	12.7	1.2	0.6	48.5	
Total %	1.2	0.7	0.9	0.1	2.9	4.3	28.4	5.2	0	37.9	6.4	1.6	2.6	0.1	10.7	4	37.8	6.2	0.6	48.5	

Start Time	KCC Driveway Southbound					Kaunuaui Highway Westbound					Puih Street Northbound					Kaunuaui Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	8	1	7	0	16	25	149	21	0	195	28	11	19	0	58	18	200	23	3	244	513
07:30 AM	8	7	8	0	23	12	131	42	0	185	25	20	5	0	50	52	171	24	6	253	511
07:45 AM	14	14	18	0	46	16	128	43	1	188	34	16	9	1	60	35	163	21	4	223	515
08:00 AM	5	8	6	3	22	18	123	21	0	162	42	5	15	0	62	10	183	26	3	222	468

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-5675
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Weather:Clear

File Name : KauNani PM
Site Code : 00000001
Start Date : 9/14/2010
Page No : 1

Groups Printed- Unshiftd

Start Time	Southbound App. Total	Kaumuali Highway Westbound					Nani Street Northbound					Kaumuali Highway Eastbound					Int. Total
		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	0	11	199	0	0	210	1	0	8	0	9	0	212	5	0	217	436
03:15 PM	0	12	226	0	0	238	0	0	16	0	16	0	215	2	0	217	471
03:30 PM	0	6	244	0	0	250	1	0	17	0	18	0	222	1	0	223	491
03:45 PM	0	9	256	0	0	265	0	0	22	0	22	0	241	5	0	246	533
Total	0	38	925	0	0	963	2	0	63	0	65	0	890	13	0	903	1931
04:00 PM	0	7	244	0	0	251	0	0	16	0	16	0	220	2	0	222	489
04:15 PM	0	7	247	0	0	254	0	0	10	0	10	0	217	2	0	219	483
04:30 PM	0	11	242	0	0	253	1	0	11	0	12	0	235	3	0	238	503
04:45 PM	0	4	251	0	0	255	1	0	11	0	12	0	225	1	0	226	493
Total	0	29	984	0	0	1013	2	0	48	0	50	0	897	8	0	905	1968
05:00 PM	0	7	230	0	0	237	0	0	19	0	19	0	214	0	0	214	470
05:15 PM	0	8	235	1	0	244	0	0	13	0	13	0	225	3	0	228	485
05:30 PM	0	11	235	0	0	246	2	0	9	1	12	0	166	2	0	168	426
05:45 PM	0	3	196	0	0	199	0	0	11	0	11	0	222	2	0	224	434
Total	0	29	896	1	0	926	2	0	52	1	55	0	827	7	0	834	1815
Grand Total	0	96	2805	1	0	2902	6	0	163	1	170	0	2614	28	0	2642	5714
Approch %	0	3.3	96.7	0	0		3.5	0	95.9	0.6		0	98.9	1.1	0		
Total %	0	1.7	49.1	0	0	60.8	0.1	0	2.9	0	3	0	45.7	0.5	0	46.2	

Start Time	Southbound App. Total	Kaumuali Highway Westbound					Nani Street Northbound					Kaumuali Highway Eastbound					Int. Total
		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:45 PM																	
03:45 PM	0	9	256	0	0	265	0	0	22	0	22	0	241	5	0	246	533
04:00 PM	0	7	244	0	0	251	0	0	16	0	16	0	220	2	0	222	489
04:15 PM	0	7	247	0	0	254	0	0	10	0	10	0	217	2	0	219	483
04:30 PM	0	11	242	0	0	253	1	0	11	0	12	0	235	3	0	238	503
04:45 PM	0	4	251	0	0	255	1	0	11	0	12	0	225	1	0	226	493
Total Volume	0	34	989	0	0	1023	2	0	59	0	60	0	913	12	0	925	2008
% App. Total		3.3	96.7	0	0		1.7	0	59.3	0		0	98.7	1.3	0		
PHF	.000	.773	.966	.000	.965		.250	.000	.670	.682		.000	.947	.800	.940	.942	

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-5675
Counted By:TO
Weather:Clear

File Name : KauNani AM
Site Code : 00000001
Start Date : 9/15/2010
Page No : 1

Groups Printed- Unshiftd

Start Time	Southbound App. Total	Kaumuali Highway Westbound					Nani Street Northbound					Kaumuali Highway Eastbound					Int. Total
		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	0	110	0	0	110	3	0	13	0	16	0	109	2	0	111	237
06:15 AM	0	3	210	0	0	213	1	0	11	2	14	0	149	0	0	149	376
06:30 AM	0	6	197	0	0	203	1	0	8	2	11	0	197	2	0	199	413
06:45 AM	0	7	170	0	0	177	0	0	14	0	14	0	220	0	0	220	411
Total	0	16	687	0	0	703	5	0	46	4	55	0	675	4	0	679	1437
07:00 AM	0	10	127	0	0	137	0	0	19	0	19	0	213	2	0	215	371
07:15 AM	0	11	191	0	0	202	0	0	28	0	28	0	223	0	0	223	453
07:30 AM	0	6	184	0	0	190	0	0	26	0	26	0	192	2	0	194	410
07:45 AM	0	10	178	0	0	188	1	0	19	0	20	0	190	0	0	190	398
Total	0	37	680	0	0	717	1	0	92	0	93	0	818	4	0	822	1632
08:00 AM	0	11	166	0	0	177	0	0	21	0	21	0	205	3	0	208	406
08:15 AM	0	10	168	0	0	178	1	0	12	0	13	0	224	2	0	226	417
08:30 AM	0	5	192	0	0	197	0	0	17	0	17	0	235	0	0	235	449
08:45 AM	0	9	194	0	0	203	1	0	16	0	17	0	199	6	0	205	425
Total	0	35	720	0	0	755	2	0	66	0	68	0	863	11	0	874	1697
Grand Total	0	88	2087	0	0	2175	8	0	204	4	216	0	2356	19	0	2375	4768
Approch %		4	96	0	0		3.7	0	94.4	1.9		0	99.2	0.8	0		
Total %	0	1.8	43.8	0	0	45.6	0.2	0	4.3	0.1	4.5	0	49.4	0.4	0	49.8	

Start Time	Southbound App. Total	Kaumuali Highway Westbound					Nani Street Northbound					Kaumuali Highway Eastbound					Int. Total
		Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 08:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	11	166	0	0	177	0	0	21	0	21	0	205	3	0	208	406
08:15 AM	0	10	168	0	0	178	1	0	12	0	13	0	224	2	0	226	417
08:30 AM	0	5	192	0	0	197	0	0	17	0	17	0	235	0	0	235	449
08:45 AM	0	9	194	0	0	203	1	0	16	0	17	0	199	6	0	205	425
Total Volume	0	35	720	0	0	755	2	0	66	0	68	0	863	11	0	874	1697
% App. Total		4.6	95.4	0	0		2.9	0	97.1	0		0	98.7	1.3	0		
PHF	.000	.795	.928	.000	.930		.500	.000	.786	.810		.000	.918	.458	.930	.945	

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-3890, D4-5677
Counted By:RY, ER
Weather:Clear

File Name : KauNuh PM
Site Code : 00000002
Start Date : 9/15/2010
Page No : 1

Groups Printed- Unshifted

Start Time	Second Entrance/Exit From KCC Southbound					Kauauii Highway Westbound					Nuhou Street Northbound					Kauauii Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
03:00 PM	34	12	3	0	49	16	179	26	0	221	42	4	18	0	64	2	192	30	0	224	558
03:15 PM	29	14	1	0	44	27	214	11	0	252	55	3	19	0	77	0	185	32	0	217	590
03:30 PM	9	4	2	0	15	18	209	9	0	236	51	8	26	0	85	2	209	21	0	231	567
03:45 PM	13	7	5	0	25	19	220	17	0	256	43	2	24	0	69	1	211	31	0	243	593
Total	85	37	11	0	133	80	822	63	0	965	191	17	87	0	295	5	796	114	0	915	2308
04:00 PM	17	4	1	0	22	13	225	10	0	248	45	4	20	0	69	1	238	24	0	263	602
04:15 PM	21	10	3	0	34	16	210	19	0	245	42	8	22	0	72	1	198	36	1	236	587
04:30 PM	22	9	2	0	33	11	208	12	0	231	55	7	18	0	80	5	219	37	0	261	605
04:45 PM	15	3	7	0	25	8	222	24	0	254	46	7	16	0	69	2	215	26	1	244	592
Total	75	28	13	0	114	48	865	65	0	978	188	26	76	0	290	9	870	123	2	1004	2386
05:00 PM	17	7	1	0	25	21	204	11	0	236	42	12	18	0	72	3	204	29	0	236	569
05:15 PM	8	9	2	0	19	15	233	8	0	256	43	2*	19	0	64	1	168	26	0	195	534
05:30 PM	6	3	0	0	9	23	176	4	0	203	41	2	21	0	64	1	196	24	0	221	497
05:45 PM	8	4	2	0	14	28	189	11	0	228	25	2	16	0	43	0	183	15	0	198	483
Total	39	23	5	0	67	87	802	34	0	923	151	18	74	0	243	5	751	94	0	850	2083
Grand Total	199	86	29	0	314	215	2489	162	0	2866	530	61	237	0	828	19	2417	331	2	2769	6777
Apprch %	63.4	27.4	9.2	0		7.5	86.8	5.7	0		64	7.4	28.6	0		0.7	87.3	12	0.1		
Total %	2.9	1.3	0.4	0	4.6	3.2	36.7	2.4	0	42.3	7.8	0.9	3.5	0	12.2	0.3	35.7	4.9	0	40.9	

Start Time	Second Entrance/Exit From KCC Southbound				Kauauii Highway Westbound				Nuhou Street Northbound				Kauauii Highway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:45 PM																	
03:45 PM	13	7	5	25	19	220	17	256	43	2	24	89	1	211	31	243	593
04:00 PM	17	4	1	22	13	225	10	248	45	4	20	69	1	238	24	263	602
04:15 PM	21	10	3	34	16	210	19	245	42	8	22	72	1	198	36	235	586
04:30 PM	22	9	2	33	11	208	12	231	55	7	18	80	5	219	37	261	605
Total Volume	73	30	11	114	59	863	58	980	185	21	84	290	8	866	128	1002	2386
% App. Total	64	28.3	9.6		6	89.1	5.9		63.8	7.2	29		0.8	86.4	12.8		
PHF	.830	.750	.550	.838	.778	.959	.763	.957	.841	.656	.875	.906	.400	.910	.865	.952	.986

Wilson Okamoto Corporation

1907 S. Beretania Street Suite 400
Honolulu, HI 96826

Counter:D4-3890, D4-5677, D4-5675
Counted By:RY, ER, TO
Weather:Clear

File Name : KauNuh AM
Site Code : 00000002
Start Date : 9/16/2010
Page No : 1

Groups Printed- Unshifted

Start Time	Second Entrance/Exit From KCC Southbound					Kauauii Highway Westbound					Nuhou Street Northbound					Kauauii Highway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
06:00 AM	0	1	0	0	1	8	122	1	0	131	6	0	13	0	19	0	115	6	0	121	272
06:15 AM	0	0	1	0	1	17	188	9	0	214	3	0	28	0	31	0	178	7	0	185	429
06:30 AM	1	0	1	0	2	15	175	5	0	195	5	0	17	0	22	1	180	11	0	192	411
06:45 AM	1	0	0	0	1	17	147	5	0	169	6	1	21	0	28	2	210	35	0	247	445
Total	2	1	2	0	5	57	632	20	0	709	20	1	79	0	100	3	681	59	0	743	1557
07:00 AM	1	0	0	0	1	25	165	14	0	204	9	3	35	0	47	1	210	24	0	235	487
07:15 AM	11	2	0	0	13	42	175	32	0	249	15	9	77	0	100	1	180	39	0	220	582
07:30 AM	16	10	1	0	27	49	181	59	0	289	16	13	63	0	92	1	162	42	2	207	615
07:45 AM	30	19	0	0	49	42	173	47	0	262	21	12	23	0	56	2	191	32	1	228	593
Total	58	31	1	0	90	158	694	152	0	1004	61	36	198	0	295	5	743	137	3	888	2277
08:00 AM	17	7	0	0	24	23	179	16	0	218	16	2	18	0	36	3	216	28	0	247	525
08:15 AM	7	4	1	0	12	12	171	12	0	195	10	1	12	0	23	1	215	16	0	232	462
08:30 AM	4	3	1	0	8	14	146	19	0	179	13	2	10	0	25	2	223	8	0	233	445
08:45 AM	5	2	0	0	7	7	154	21	0	182	12	1	11	0	24	3	184	22	0	209	422
Total	33	16	2	0	51	56	650	68	0	774	51	6	51	0	108	9	838	74	0	921	1854
Grand Total	93	48	5	0	146	271	1976	240	0	2487	132	43	328	0	503	17	2262	270	3	2552	5688
Apprch %	63.7	32.9	3.4	0		10.9	79.5	9.7	0		26.2	8.5	65.2	0		0.7	88.6	10.8	0.1		
Total %	1.6	0.8	0.1	0	2.6	4.8	34.7	4.2	0	43.7	2.3	0.8	5.8	0	8.8	0.3	39.8	4.7	0.1	44.9	

Start Time	Second Entrance/Exit From KCC Southbound				Kauauii Highway Westbound				Nuhou Street Northbound				Kauauii Highway Eastbound				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	11	2	0	13	42	175	32	249	15	8	77	100	1	180	39	220	582
07:30 AM	16	10	1	27	49	181	59	289	18	13	63	92	1	162	42	205	613
07:45 AM	30	19	0	49	42	173	47	262	21	12	23	56	2	191	32	225	592
08:00 AM	17	7	0	24	23	179	16	218	16	2	18	36	3	216	28	247	525
Total Volume	74	38	1	113	156	708	154	1018	68	35	181	284	7	749	141	897	2312
% App. Total	65.5	33.6	0.9		15.3	69.5	15.1		23.9	12.3	63.7		0.8	83.5	15.7		
PHF	.617	.500	.250	.577	.796	.878	.653	.881	.810	.873	.588	.710	.583	.887	.839	.908	.943

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Page 1

Site Code:
 Station ID:
 KCC Driveway At Kaunuaui Highway
 Latitude: 0° 0.000 Undefined

Start Time	14-Sep-10 Tue	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00			41				44				
12:15			22				46				
12:30			16				19				
12:45			14		0	93		26	0	135	0
01:00			20				24				
01:15			28				32				
01:30			28				53				
01:45			20		0	96		38	0	147	0
02:00			26				54				
02:15			22				33				
02:30			36				22				
02:45			28		0	112		53	0	162	0
03:00			26				68				
03:15			10				22				
03:30			13				24				
03:45			21		0	70		34	0	148	0
04:00			28				26				
04:15			27				32				
04:30			27				42				
04:45			49		0	131		29	0	129	0
05:00			38				24				
05:15			20				16				
05:30			12				22				
05:45			26		0	96		10	0	72	0
06:00			14				18				
06:15			9				44				
06:30			15				12				
06:45			10		0	48		11	0	85	0
07:00			4				17				
07:15			1				11				
07:30			3				7				
07:45			3		0	11		28	0	63	0
08:00			6				59				
08:15			1				32				
08:30			3				7				
08:45			0		0	10		21	0	119	0
09:00			1				6				
09:15			0				3				
09:30			0				1				
09:45			0		0	1		6	0	16	0
10:00			0				0				
10:15			0				0				
10:30			52				24				
10:45			56		0	108	0	49	0	73	0
11:00			21				18				
11:15			14				16				
11:30			28				18				
11:45			36		1	99	3	20	0	72	1
Total			207	671			145	1077			
Percent			23.6%	76.4%			11.9%	88.1%			
										352	1748
										16.8%	83.2%

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Page 2

Site Code:
 Station ID:
 KCC Driveway At Kaunuaui Highway
 Latitude: 0° 0.000 Undefined

Start Time	15-Sep-10 Wed	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00			0				27				
12:15			0				19				
12:30			0				24				
12:45			0		0	98		28	0	98	0
01:00			0				31				
01:15			1				53				
01:30			0				32				
01:45			0		1	141		25	1	141	0
02:00			0				24				
02:15			0				29				
02:30			0				28				
02:45			0		0	112		31	0	112	0
03:00			0				18				
03:15			0				17				
03:30			0				15				
03:45			1		1	80		30	1	80	0
04:00			0				25				
04:15			0				33				
04:30			0				46				
04:45			0		0	162		58	0	162	0
05:00			1				44				
05:15			1				22				
05:30			1				8				
05:45			4		7	89		15	7	89	1
06:00			4				14				
06:15			12				19				
06:30			12				16				
06:45			21		14	49	63	14	14	49	63
07:00			26		4		4	26	4		
07:15			44		8		8	44	8		
07:30			99		6		6	99	6		
07:45			120		5	289	23	5	289	23	
08:00			42		3		3	42	3		
08:15			47		0		0	47	0		
08:30			51		1		1	51	1		
08:45			110		1	250	5	1	250	5	
09:00			41		0		0	41	0		
09:15			17		0		0	17	0		
09:30			41		2		2	41	2		
09:45			58		1	157	3	1	157	3	
10:00			30		0		0	30	0		
10:15			17		2		2	17	2		
10:30			27		0		0	27	0		
10:45			43		0	117	2	0	117	2	
11:00			26		0		0	26	0		
11:15			33		0		0	33	0		
11:30			24		0		0	24	0		
11:45			36		1	119	1	36	1	119	1
Total			990	779			420	1146			
Percent			56.0%	44.0%			26.8%	73.2%			
										1410	1925
										42.3%	57.7%

Site Code:
 Station ID:
 KCC Driveway At Kaunuaui Highway
 Latitude: 0' 0.000 Undefined

Start Time	16-Sep-10 Thu	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		1				2					
12:15		0				0					
12:30		0				0					
12:45		0		1	0	0		2	0	3	0
01:00		0				0					
01:15		0				0					
01:30		0				0					
01:45		0		0	0	0		0	0	0	0
02:00		0				0					
02:15		0				0					
02:30		0		0	0	0		0	0	0	0
02:45		0				1					
03:00		0				0					
03:15		0				0					
03:30		0				0					
03:45		0		0	0	0		1	0	1	0
04:00		0				0					
04:15		0				0					
04:30		1				0					
04:45		0		1	0	0		0	0	1	0
05:00		0				0					
05:15		1				0					
05:30		0				0					
05:45		2		3	0	0		0	0	3	0
06:00		5				3					
06:15		6				3					
06:30		7				2					
06:45		13		31	0	4		12	0	49	0
07:00		10				2					
07:15		49				10					
07:30		104				26					
07:45		121		284	0	31		69	0	353	0
08:00		51				28					
08:15		35				4					
08:30		28				8					
08:45		44		158	0	14		54	0	212	0
09:00		74				6					
09:15		31				5					
09:30	
09:45	
10:00	
10:15	
10:30	
10:45	
11:00	
11:15	
11:30	
11:45	
Total		583	0			149	0			616	0
Percent		100.0%	0.0%			100.0%	0.0%			100.0%	0.0%
Grand Total		1780	1450			714	2223			2378	3673
Percent		55.1%	44.9%			24.3%	75.7%			39.3%	60.7%
ADT		ADT 3,335				ADT 3,335					

APPENDIX B
LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

**Table 1: Level-of-Service Criteria for
Unsignalized Intersections**

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	>10.0 and ≤ 15.0
C	>15.0 and ≤ 25.0
D	>25.0 and ≤ 35.0
E	>35.0 and ≤ 50.0
F	>50.0

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS EXISTING PEAK HOUR TRAFFIC ANALYSIS

HCM Signalized Intersection Capacity Analysis

3: Kaunualii & KCC

12/3/2010



Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	115	724	94	71	530	127	129	52	49	35	30	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.97	1.00	0.97	1.00	0.97	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1799	1583	1814	1583	1790	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.71	1.00	0.68	1.00	0.68	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1317	1583	1276	1583	823	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.57	0.57	0.57
Adj. Flow (vph)	122	770	100	76	570	137	140	57	53	61	53	68
RTOR Reduction (vph)	0	0	19	0	0	36	0	0	40	0	0	0
Lane Group Flow (vph)	122	770	81	76	570	101	0	197	13	0	114	68
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Free	Free	Free
Protected Phases	7	4	3	8	8	2	2	2	6	6	6	Free
Permitted Phases			4		8							Free
Actuated Green, G (s)	14.4	56.2	56.2	8.6	50.4	50.4		25.4	25.4		25.4	105.2
Effective Green, g (s)	14.4	56.2	56.2	8.6	50.4	50.4		25.4	25.4		25.4	105.2
Actuated g/C Ratio	0.14	0.53	0.53	0.08	0.48	0.48		0.24	0.24		0.24	1.00
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	242	995	846	145	893	758		318	382		308	1583
v/s Ratio Prot	c0.07	c0.41		0.04	0.31			c0.15	0.01		0.09	0.04
v/s Ratio Perm			0.05		0.06				0.03			0.04
v/c Ratio	0.50	0.77	0.10	0.52	0.64	0.13		0.62	0.03		0.37	0.04
Uniform Delay, d1	42.1	19.5	12.0	46.3	20.6	15.2		35.6	30.5		33.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	1.7	3.8	0.0	3.4	1.5	0.1		3.6	0.0		0.8	0.1
Delay (s)	43.7	23.3	12.1	49.7	22.1	15.3		39.2	30.5		34.0	0.1
Level of Service	D	C	B	D	C	B		D	C		C	A
Approach Delay (s)		24.7			23.6			37.3			21.3	
Approach LOS		C			C			D			C	

HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	105.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Kaunualii & KCC

12/3/2010



Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Volume (vph)	49	788	159	34	919	59	191	36	54	85	20	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.96	1.00	0.96	1.00	0.96	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1788	1583	1790	1583	823	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.56	1.00	0.44	1.00	0.44	1.00
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	1035	1583	823	1583	823	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.91	0.91	0.91	0.61	0.61	0.61
Adj. Flow (vph)	51	821	166	35	947	61	210	40	59	139	33	90
RTOR Reduction (vph)	0	0	28	0	9	0	0	42	0	0	0	0
Lane Group Flow (vph)	51	821	138	35	947	52	0	250	17	0	172	90
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Free	Free	Free
Protected Phases	7	4	3	8	8	2	2	2	6	6	6	Free
Permitted Phases			4		8							Free
Actuated Green, G (s)	7.2	84.8	84.8	5.6	83.2	83.2		43.4	43.4		43.4	148.8
Effective Green, g (s)	7.2	84.8	84.8	5.6	83.2	83.2		43.4	43.4		43.4	148.8
Actuated g/C Ratio	0.05	0.57	0.57	0.04	0.56	0.56		0.29	0.29		0.29	1.00
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	86	1062	902	67	1042	885		302	462		240	1583
v/s Ratio Prot	c0.03	0.44		0.02	c0.51			c0.24	0.01		0.21	c0.06
v/s Ratio Perm			0.09			0.03			0.01			0.04
v/c Ratio	0.59	0.77	0.15	0.52	0.91	0.06		0.83	0.04		0.72	0.06
Uniform Delay, d1	69.4	24.6	15.1	70.3	29.4	15.0		49.2	37.7		47.2	0.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2	10.5	3.6	0.1	7.2	11.3	0.0		16.8	0.0		9.8	0.1
Delay (s)	79.9	28.2	15.2	77.5	40.7	15.0		66.0	37.8		57.0	0.1
Level of Service	E	C	B	E	D	B		E	D		E	A
Approach Delay (s)		28.6			40.5			60.6			37.4	
Approach LOS		C			D			E			D	

HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	148.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
9: Kaunualii & Nani

12/3/2010



Lane Configurations	←	→	↶	↷	↵
Volume (veh/h)	809	5	39	727	1
Sign Control	Free			Free	Stop
Grade	0%			0%	0%
Peak Hour Factor	0.91	0.91	0.94	0.94	0.85
Hourly flow rate (vph)	882	5	41	773	1
Pedestrians					
Lane Width (ft)					
Walking Speed (ft/s)					
Percent Blockage					
Right turn flare (veh)					
Median type	None			None	
Median storage (veh)					
Upstream signal (ft)	1175				
pX, platoon unblocked			0.60	0.60	0.60
vC, conflicting volume			888	1742	885
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol			484	1901	479
tC, single (s)			4.1	*5.4	*5.2
tC, 2 stage (s)					
tF (s)			2.2	3.5	3.3
p0 queue free %			94	98	73
cM capacity (veh/h)			650	73	405
Volume Total	888	815	112		
Volume Left	0	41	1		
Volume Right	5	0	111		
cSH	1700	650	386		
Volume to Capacity	0.52	0.06	0.29		
Queue Length 95th (ft)	0	5	30		
Control Delay (s)	0.0	1.8	18.1		
Lane LOS		A	C		
Approach Delay (s)	0.0	1.8	18.1		
Approach LOS			C		

Average Delay			1.9		
Intersection Capacity Utilization			82.6%	ICU Level of Service	E
Analysis Period (min)			15		

* User Entered Value

HCM Unsignalized Intersection Capacity Analysis
9: Kaunualii & Nani

12/3/2010



Lane Configurations	←	→	↶	↷	↵
Volume (veh/h)	919	8	30	1010	2
Sign Control	Free			Free	Stop
Grade	0%			0%	0%
Peak Hour Factor	0.95	0.95	0.99	0.99	0.78
Hourly flow rate (vph)	967	8	30	1020	3
Pedestrians					
Lane Width (ft)					
Walking Speed (ft/s)					
Percent Blockage					
Right turn flare (veh)					
Median type	None			None	
Median storage (veh)					
Upstream signal (ft)	1175				
pX, platoon unblocked			0.61	0.61	0.61
vC, conflicting volume			976	2052	972
vC1, stage 1 conf vol					
vC2, stage 2 conf vol					
vCu, unblocked vol			646	2400	640
tC, single (s)			4.1	*5.4	*5.2
tC, 2 stage (s)					
tF (s)			2.2	3.5	3.3
p0 queue free %			95	94	82
cM capacity (veh/h)			577	42	350
Volume Total	976	1051	65		
Volume Left	0	30	3		
Volume Right	8	0	63		
cSH	1700	577	272		
Volume to Capacity	0.57	0.05	0.24		
Queue Length 95th (ft)	0	4	23		
Control Delay (s)	0.0	1.8	22.4		
Lane LOS		A	C		
Approach Delay (s)	0.0	1.8	22.4		
Approach LOS			C		

Average Delay			1.6		
Intersection Capacity Utilization			87.3%	ICU Level of Service	E
Analysis Period (min)			15		

* User Entered Value

HCM Signalized Intersection Capacity Analysis
6: Kaumualii & KCC

12/3/2010



Lane Configurations	7	749	141	156	698	154	67	35	181	74	38	1
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	0.97	1.00	0.85	1.00	0.97	1.00	0.85	1.00
Fit	0.95	1.00	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.97	1.00	0.97
Fit Protected	1770	1863	1583	1770	1812	1803	1583	1801	1770	1863	1583	1770
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.71	1.00	0.62	0.95	1.00	0.95	1.00
Fit Permitted	1770	1863	1583	1770	1812	1323	1583	1147	1770	1863	1583	1770
Satd. Flow (perm)	0.91	0.91	0.91	0.88	0.88	0.88	0.71	0.71	0.58	0.58	0.58	0.58
Peak-hour factor, PHF	8	823	155	177	793	175	94	49	255	128	66	2
Adj. Flow (vph)	0	0	26	0	4	0	0	0	199	0	0	0
RTOR Reduction (vph)	8	823	129	177	964	0	0	143	56	0	196	0
Lane Group Flow (vph)	Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	4	3	8	2	2	2	6	6	6	6
Permitted Phases	1.8	72.9	72.9	19.5	90.6	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Actuated Green, G (s)	1.8	72.9	72.9	19.5	90.6	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Effective Green, g (s)	0.01	0.53	0.53	0.14	0.66	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Actuated g/C Ratio	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	Lane Grp Cap (vph)	23	987	839	251	1193	290	347	252			
v/s Ratio Prot	0.00	0.44	0.08	c0.10	c0.53	0.11	0.04	c0.17				
v/s Ratio Perm	0.35	0.83	0.15	0.71	0.81	0.49	0.16	0.78				
v/c Ratio	67.3	27.2	16.6	56.3	17.2	47.0	43.5	50.5				
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Progression Factor	8.9	6.2	0.1	8.7	4.1	1.3	0.2	14.0				
Incremental Delay, d2	76.2	33.4	16.6	65.0	21.3	48.3	43.7	64.5				
Delay (s)	Level of Service	E	C	B	E	C	D	D	E			
Approach Delay (s)	31.1			28.0		45.3		64.5				
Approach LOS	C			C		D		E				

HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	137.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Kaumualii & KCC

12/3/2010



Lane Configurations	9	840	119	148	844	65	183	26	76	75	26	13
Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Total Lost time (s)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Util. Factor	1.00	1.00	0.85	1.00	0.99	1.00	0.85	1.00	0.85	1.00	0.85	1.00
Fit	0.95	1.00	1.00	0.95	1.00	0.96	0.91	0.91	0.91	0.84	0.84	0.84
Fit Protected	1770	1863	1583	1770	1843	1785	1583	1776	1770	1863	1583	1770
Satd. Flow (prot)	0.95	1.00	1.00	0.95	1.00	0.67	1.00	0.50	0.95	1.00	0.95	1.00
Fit Permitted	1770	1863	1583	1770	1843	1249	1583	920	1770	1863	1583	1770
Satd. Flow (perm)	0.95	0.95	0.95	0.96	0.96	0.96	0.91	0.91	0.91	0.84	0.84	0.84
Peak-hour factor, PHF	9	884	125	50	879	68	201	29	84	89	31	15
Adj. Flow (vph)	0	0	21	0	2	0	0	0	63	0	2	0
RTOR Reduction (vph)	9	884	104	50	945	0	0	230	21	0	133	0
Lane Group Flow (vph)	Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	4	3	8	2	2	2	6	6	6	6
Permitted Phases	1.5	70.8	70.8	6.7	76.0	31.2	31.2	31.2	31.2	31.2	31.2	31.2
Actuated Green, G (s)	1.5	70.8	70.8	6.7	76.0	31.2	31.2	31.2	31.2	31.2	31.2	31.2
Effective Green, g (s)	0.01	0.57	0.57	0.05	0.61	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Actuated g/C Ratio	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Clearance Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension (s)	Lane Grp Cap (vph)	21	1066	906	96	1132	315	399	232			
v/s Ratio Prot	0.01	0.47	0.07	c0.03	c0.51	0.11	0.04	c0.17				
v/s Ratio Perm	0.43	0.83	0.12	0.52	0.84	0.73	0.05	0.57				
v/c Ratio	60.7	21.5	12.1	56.9	18.9	42.4	35.1	40.4				
Uniform Delay, d1	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00				
Progression Factor	13.4	5.5	0.1	5.0	5.5	8.4	0.1	3.4				
Incremental Delay, d2	74.1	27.0	12.2	62.0	24.4	50.8	35.1	43.8				
Delay (s)	Level of Service	E	C	B	E	C	D	D	D			
Approach Delay (s)	25.6			26.2		46.6		43.8				
Approach LOS	C			C		D		D				

HCM Average Control Delay	29.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	123.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
3: Kaunualii & KCC

12/3/2010



APPENDIX D
CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2020 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT

Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Volume (vph)	126	760	94	71	557	140	129	57	49	37	32	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1800	1583	1814	1583	1814	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.72	1.00	0.75	1.00	0.75	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1339	1583	1402	1583	1402	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.57	0.57	0.57
Adj. Flow (vph)	134	809	100	76	599	151	140	62	53	65	56	72
RTOR Reduction (vph)	0	0	51	0	0	97	0	0	39	0	0	53
Lane Group Flow (vph)	134	809	49	76	599	54	0	202	14	0	121	19
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	3	8	8	2	2	2	6	6	6	6
Permitted Phases			4			2		2				
Actuated Green, G (s)	8.8	24.7	24.7	6.9	22.8	22.8	16.9	16.9	16.9	16.9	16.9	16.9
Effective Green, g (s)	8.8	24.7	24.7	6.9	22.8	22.8	16.9	16.9	16.9	16.9	16.9	16.9
Actuated g/C Ratio	0.14	0.39	0.39	0.11	0.36	0.36	0.27	0.27	0.27	0.27	0.27	0.27
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	245	1377	616	192	1271	568	356	421	373	421	373	421
v/s Ratio Prot	c0.08	c0.23		0.04	0.17							
v/s Ratio Perm			0.03		0.03		c0.15	0.01	0.09	0.01	0.09	0.01
v/c Ratio	0.55	0.59	0.08	0.40	0.47	0.10	0.57	0.03	0.32	0.03	0.32	0.05
Uniform Delay, d1	25.5	15.4	12.2	26.4	15.7	13.5	20.1	17.3	18.7	17.3	18.7	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.6	0.1	1.3	0.3	0.1	2.1	0.0	0.5	0.0	0.5	0.0
Delay (s)	28.0	16.0	12.3	27.7	16.0	13.6	22.2	17.3	19.2	17.3	19.2	17.4
Level of Service	C	B	B	C	B	B	C	B	B	B	B	B
Approach Delay (s)		17.2			16.6		21.2		18.5		18.5	
Approach LOS		B			B		C		B		B	
HCM Average Control Delay			17.5									
HCM Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			63.5						10.0			
Intersection Capacity Utilization			54.2%						A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
3: Kaumualii & KCC

12/3/2010



Lane Configurations	←	←	←	←	←	←	←	←	←	←	←	←
Volume (vph)	56	827	159	34	965	68	191	42	54	92	22	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.96	1.00	0.96	1.00	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1789	1583	1790	1583	1790	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	0.61	1.00	0.51	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1141	1583	958	1583	958	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.91	0.91	0.61	0.91	0.61	0.61
Adj. Flow (vph)	58	861	166	35	995	70	210	46	59	151	36	97
RTOR Reduction (vph)	0	0	72	0	0	27	0	0	0	0	0	66
Lane Group Flow (vph)	58	861	94	35	995	43	0	256	19	0	187	31
Turn Type	Prot	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4		3	8		2	2	6	6		6
Permitted Phases			4		8	2		2		6		6
Actuated Green, G (s)	5.7	35.7	35.7	3.0	33.0	33.0	25.3	25.3	25.3	25.3	25.3	25.3
Effective Green, g (s)	5.7	35.7	35.7	3.0	33.0	33.0	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.07	0.45	0.45	0.04	0.42	0.42	0.32	0.32	0.32	0.32	0.32	0.32
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	128	1599	715	67	1478	661	365	507	307	507	307	507
v/s Ratio Prot	0.03	0.24		0.02	0.28		0.22	0.01		0.20	0.02	0.02
v/s Ratio Perm			0.06		0.03		0.70	0.04		0.61	0.06	0.06
v/c Ratio	0.45	0.54	0.13	0.52	0.67	0.06	0.70	0.04		0.61	0.06	0.06
Uniform Delay, d1	35.2	15.7	12.6	37.3	18.6	13.8	23.5	18.5		22.7	18.6	18.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	2.5	0.4	0.1	7.2	1.2	0.0	6.0	0.0		3.4	0.1	0.1
Delay (s)	37.7	16.0	12.7	44.5	19.9	13.8	29.5	18.5		26.1	18.7	18.7
Level of Service	D	B	B	D	B	B	C	B		C	B	B
Approach Delay (s)		16.7			20.3			27.5			23.5	
Approach LOS		B			C			C			C	
HCM Average Control Delay		20.0			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		79.0			Sum of lost time (s)			20.0				
Intersection Capacity Utilization		62.0%			ICU Level of Service			B				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
9: Kaumualii & Nani

12/3/2010



Lane Configurations	←	←	←	←	←	
Volume (veh/h)	841	5	39	767	1	94
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	924	5	41	816	1	111
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	1175					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			930		1418	465
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			675		1223	153
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	86
cM capacity (veh/h)			812		145	771
Volume Total	616	314	41	408	408	112
Volume Left	0	0	41	0	0	1
Volume Right	0	5	0	0	0	111
cSH	1700	1700	812	1700	1700	738
Volume to Capacity	0.36	0.18	0.05	0.24	0.24	0.15
Queue Length 95th (ft)	0	0	4	0	0	13
Control Delay (s)	0.0	0.0	9.7	0.0	0.0	10.8
Lane LOS			A			B
Approach Delay (s)	0.0		0.5			10.8
Approach LOS						B
Average Delay			0.8			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Kaumualii & Nani

12/3/2010



Lane Configurations	↕↕		↕		↕↕		↕		↕	
Volume (veh/h)	965	8	30	1065	2	49				
Sign Control	Free		Free		Stop					
Grade	0%		0%		0%					
Peak Hour Factor	0.95	0.95	0.99	0.99	0.78	0.78				
Hourly flow rate (vph)	1016	8	30	1076	3	63				
Pedestrians										
Lane Width (ft)										
Walking Speed (ft/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None		None							
Median storage (veh)										
Upstream signal (ft)	1175									
pX, platoon unblocked			0.88	0.88	0.88					
vC, conflicting volume			1024	1618	512					
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol			754	1429	171					
tC, single (s)			4.1	6.8	6.9					
tC, 2 stage (s)										
IF (s)			2.2	3.5	3.3					
p0 queue free %			96	98	92					
cM capacity (veh/h)			750	106	741					

Volume Total	677	347	30	538	538	65
Volume Left	0	0	30	0	0	3
Volume Right	0	8	0	0	0	63
cSH	1700	1700	750	1700	1700	600
Volume to Capacity	0.40	0.20	0.04	0.32	0.32	0.11
Queue Length 95th (ft)	0	0	3	0	0	9
Control Delay (s)	0.0	0.0	10.0	0.0	0.0	11.7
Lane LOS			B			B
Approach Delay (s)	0.0	0.3				11.7
Approach LOS						B

Average Delay	0.5
Intersection Capacity Utilization	39.4%
Analysis Period (min)	15
ICU Level of Service	A

HCM Signalized Intersection Capacity Analysis

6: Kaumualii & KCC

12/3/2010



Lane Configurations	↕		↕↕		↕		↕↕		↕		↕↕	
Volume (vph)	7	787	141	156	738	154	67	35	181	74	38	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	0.95	1.00	1.00	1.00	1.00	1.00
Fit	1.00	1.00	0.85	1.00	0.97	1.00	0.97	1.00	0.85	1.00	1.00	1.00
Fit Protected	0.95	1.00	1.00	0.95	1.00	0.97	1.00	0.97	1.00	0.97	1.00	0.97
Satd. Flow (prot)	1770	3539	1583	1770	3448	1803	1583	1801	1583	1801	1583	1801
Fit Permitted	0.95	1.00	1.00	0.95	1.00	0.71	1.00	0.71	1.00	0.70	1.00	0.70
Satd. Flow (perm)	1770	3539	1583	1770	3448	1327	1583	1306	1583	1306	1583	1306
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.71	0.71	0.71	0.58	0.58	0.58
Adj. Flow (vph)	8	865	155	177	839	175	94	49	255	128	66	2
RTOR Reduction (vph)	0	0	67	0	12	0	0	0	196	0	0	0
Lane Group Flow (vph)	8	865	88	177	1002	0	143	59	0	196	0	0
Turn Type	Prot	Perm	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4		3	8		2	2	6	6		
Permitted Phases			4			2		2	6			
Actuated Green, G (s)	1.0	33.8	33.8	14.1	46.9		18.8	18.8		18.8		
Effective Green, g (s)	1.0	33.8	33.8	14.1	46.9		18.8	18.8		18.8		
Actuated g/C Ratio	0.01	0.41	0.41	0.17	0.57		0.23	0.23		0.23		
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	22	1464	655	305	1979		305	364		301		
v/s Ratio Prot	0.00	c0.24		c0.10	0.29							
v/s Ratio Perm			0.06				0.11	0.04		c0.15		
v/c Ratio	0.36	0.59	0.13	0.58	0.51		0.47	0.16		0.65		
Uniform Delay, d1	40.0	18.6	14.9	31.1	10.4		27.1	25.1		28.5		
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00		
Incremental Delay, d2	9.9	0.6	0.1	2.8	0.2		1.1	0.2		5.0		
Delay (s)	50.0	19.2	15.0	33.9	10.7		28.3	25.4		33.5		
Level of Service	D	B	B	C	B		C	C		C		
Approach Delay (s)		18.8			14.1		26.4			33.5		
Approach LOS		B			B		C			C		

HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	81.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: Kaunualii & KCC

12/3/2010



Lane Configurations	↖	↑↑	↑	↗	↖	↑↑	↑	↗	↖	↑	↗	↖
Volume (vph)	9	886	119	48	899	65	183	26	76	75	26	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00	
Fit	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.98	
Fit Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.97	
Satd. Flow (prot)	1770	3539	1583	1770	3503			1785	1583		1776	
Fit Permitted	0.95	1.00	1.00	0.95	1.00			0.69	1.00		0.64	
Satd. Flow (perm)	1770	3539	1583	1770	3503			1287	1583		1166	
Peak-hour factor, PHF	0.95	0.95	0.95	0.96	0.96	0.96	0.91	0.91	0.91	0.84	0.84	0.84
Adj. Flow (vph)	9	933	125	50	936	68	201	29	84	89	31	15
RTOR Reduction (vph)	0	0	50	0	4	0	0	0	60	0	4	0
Lane Group Flow (vph)	9	933	75	50	1000	0	0	230	24	0	131	0
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm	Perm		
Protected Phases	7	4		3	8			2			6	6
Permitted Phases			4			2			2	6		
Actuated Green, G (s)	0.8	32.0	32.0	4.4	35.6			20.7	20.7		20.7	
Effective Green, g (s)	0.8	32.0	32.0	4.4	35.6			20.7	20.7		20.7	
Actuated g/C Ratio	0.01	0.44	0.44	0.06	0.49			0.29	0.29		0.29	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	20	1571	703	108	1730			369	454		335	
v/s Ratio Prot	0.01	0.26		c0.03	c0.29							
v/s Ratio Perm			0.05					c0.18	0.02		0.11	
w/c Ratio	0.45	0.59	0.11	0.46	0.58			0.62	0.05		0.39	
Uniform Delay, d1	35.4	15.1	11.7	32.7	12.9			22.3	18.6		20.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	15.3	0.6	0.1	3.1	0.5			3.3	0.0		0.8	
Delay (s)	50.7	15.8	11.8	35.8	13.4			25.6	18.7		21.4	
Level of Service	D	B	B	D	B			C	B		C	
Approach Delay (s)		15.6			14.5			23.7			21.4	
Approach LOS		B			B			C			C	
HCM Average Control Delay		16.4										
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		72.1						15.0				
Intersection Capacity Utilization		57.8%										
Analysis Period (min)		15										
c Critical Lane Group												

APPENDIX E
CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2020 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT

HCM Signalized Intersection Capacity Analysis

3: Kaumualii & KCC

12/3/2010



Lane Configurations	↖	↑↑	↗	↖	↑↑	↗	↖	↑	↗	↖	↗	↖
Volume (vph)	153	760	94	71	557	140	129	57	49	37	32	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.97	1.00	0.97	1.00	0.97	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1800	1583	1770	3539	1583	1770
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.72	1.00	0.75	1.00	0.75	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1339	1583	1395	1583	1395	1583
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.57	0.57	0.57	0.57
Adj. Flow (vph)	163	809	100	76	599	151	140	62	53	65	56	100
RTOR Reduction (vph)	0	0	49	0	0	100	0	0	40	0	0	75
Lane Group Flow (vph)	163	809	51	76	599	51	0	202	13	0	121	25
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	4	3	8	8	2	2	6	6	6	6
Permitted Phases												
Actuated Green, G (s)	12.4	27.2	27.2	7.1	21.9	21.9	16.7	16.7	16.7	16.7	16.7	16.7
Effective Green, g (s)	12.4	27.2	27.2	7.1	21.9	21.9	16.7	16.7	16.7	16.7	16.7	16.7
Actuated g/C Ratio	0.19	0.41	0.41	0.11	0.33	0.33	0.25	0.25	0.25	0.25	0.25	0.25
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	333	1458	652	190	1174	525	339	401	353	401	353	401
v/s Ratio Prot	c0.09	c0.23	0.03	0.04	0.17	0.03	c0.15	0.01	0.09	0.02	0.09	0.02
v/s Ratio Perm												
v/c Ratio	0.49	0.55	0.08	0.40	0.51	0.10	0.60	0.03	0.34	0.06	0.34	0.06
Uniform Delay, d1	24.0	14.8	11.8	27.5	17.7	15.2	21.7	18.6	20.2	18.7	20.2	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.5	0.1	1.4	0.4	0.1	2.8	0.0	0.6	0.1	0.6	0.1
Delay (s)	25.1	15.2	11.8	28.8	18.1	15.3	24.5	18.6	20.7	18.8	20.7	18.8
Level of Service	C	B	B	C	B	B	C	B	C	B	C	B
Approach Delay (s)		16.4			18.6		23.3		19.9		19.9	
Approach LOS		B			B		C		B		B	

HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

3: Kaumualii & KCC

12/3/2010



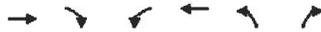
Lane Configurations	↖	↑↑	↗	↖	↑↑	↗	↖	↑	↗	↖	↗	↖
Volume (vph)	59	827	159	34	965	68	191	42	54	92	22	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.85	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.96	1.00	0.96	1.00	0.96	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1789	1583	1790	1583	1790	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.61	1.00	0.51	1.00	0.51	1.00
Satd. Flow (perm)	1770	3539	1583	1770	3539	1583	1140	1583	957	1583	957	1583
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.91	0.91	0.61	0.61	0.61	0.61
Adj. Flow (vph)	61	861	166	35	995	70	210	46	59	151	36	105
RTOR Reduction (vph)	0	0	72	0	0	27	0	0	40	0	0	71
Lane Group Flow (vph)	61	861	94	35	995	43	0	256	19	0	187	34
Turn Type	Prot	Perm	Prot	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	7	4	4	3	8	8	2	2	6	6	6	6
Permitted Phases												
Actuated Green, G (s)	5.7	35.8	35.8	3.0	33.1	33.1	25.3	25.3	25.3	25.3	25.3	25.3
Effective Green, g (s)	5.7	35.8	35.8	3.0	33.1	33.1	25.3	25.3	25.3	25.3	25.3	25.3
Actuated g/C Ratio	0.07	0.45	0.45	0.04	0.42	0.42	0.32	0.32	0.32	0.32	0.32	0.32
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	128	1602	716	67	1481	662	365	506	306	506	306	506
v/s Ratio Prot	c0.03	c0.24	0.06	0.02	c0.28	0.03	c0.22	0.01	0.20	0.02	0.20	0.02
v/s Ratio Perm												
v/c Ratio	0.48	0.54	0.13	0.52	0.67	0.06	0.70	0.04	0.61	0.07	0.61	0.07
Uniform Delay, d1	35.3	15.7	12.6	37.3	18.6	13.7	23.6	18.5	22.7	18.7	22.7	18.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.3	0.1	7.2	1.2	0.0	6.0	0.0	3.6	0.1	3.6	0.1
Delay (s)	38.1	16.0	12.7	44.5	19.8	13.8	29.6	18.5	26.3	18.7	26.3	18.7
Level of Service	D	B	B	D	B	B	C	B	C	B	C	B
Approach Delay (s)		16.7			20.2		27.5		23.6		23.6	
Approach LOS		B			C		C		C		C	

HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	20.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

9: Kaumualii & Nani

12/3/2010



Lane Configurations	↑↑		↖	↑↑	↗	
Volume (veh/h)	841	5	39	767	1	94
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.91	0.94	0.94	0.85	0.85
Hourly flow rate (vph)	924	5	41	816	1	111
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)	1175					
Upstream signal (ft)						
pX, platoon unblocked			0.89	0.89	0.89	
vC, conflicting volume			930	1418	465	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			686	1231	166	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			95	99	85	
cM capacity (veh/h)			809	144	760	

Volume Total	616	314	41	408	408	112
Volume Left	0	0	41	0	0	1
Volume Right	0	5	0	0	0	111
cSH	1700	1700	809	1700	1700	727
Volume to Capacity	0.36	0.18	0.05	0.24	0.24	0.15
Queue Length 95th (ft)	0	0	4	0	0	14
Control Delay (s)	0.0	0.0	9.7	0.0	0.0	10.8
Lane LOS			A			B
Approach Delay (s)	0.0		0.5			10.8
Approach LOS						B

Average Delay			0.9			
Intersection Capacity Utilization			42.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Kaumualii & Nani

12/3/2010



Lane Configurations	↑↑		↖	↑↑	↗	
Volume (veh/h)	965	8	30	1065	2	49
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.99	0.99	0.78	0.78
Hourly flow rate (vph)	1016	8	30	1076	3	63
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)	1175					
Upstream signal (ft)						
pX, platoon unblocked			0.88	0.88	0.88	
vC, conflicting volume			1024	1618	512	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			754	1429	171	
tC, single (s)			4.1	6.8	6.9	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			96	98	92	
cM capacity (veh/h)			750	106	741	

Volume Total	677	347	30	538	538	65
Volume Left	0	0	30	0	0	3
Volume Right	0	8	0	0	0	63
cSH	1700	1700	750	1700	1700	600
Volume to Capacity	0.40	0.20	0.04	0.32	0.32	0.11
Queue Length 95th (ft)	0	0	3	0	0	9
Control Delay (s)	0.0	0.0	10.0	0.0	0.0	11.7
Lane LOS			B			B
Approach Delay (s)	0.0		0.3			11.7
Approach LOS						B

Average Delay			0.5			
Intersection Capacity Utilization			39.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

6: Kaunualii & KCC

12/3/2010



Lane Configurations	↖	↑↑	↗	↖	↑↑	↗	↖	↑	↗	↖	↗	↖	↗
Volume (vph)	7	787	141	156	738	184	67	47	181	89	51	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00		
Flt	1.00	1.00	0.85	1.00	0.97			1.00	0.85		1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		0.97		
Satd. Flow (prot)	1770	3539	1583	1770	3433			1810	1583		1804		
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.72	1.00		0.68		
Satd. Flow (perm)	1770	3539	1583	1770	3433			1335	1583		1263		
Peak-hour factor, PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.71	0.71	0.71	0.58	0.58	0.58	0.58
Adj. Flow (vph)	8	865	155	177	839	209	94	66	255	153	88	2	
RTOR Reduction (vph)	0	0	66	0	15	0	0	0	188	0	0	0	0
Lane Group Flow (vph)	8	865	89	177	1033	0	0	160	67	0	243	0	0
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm	Perm	
Protected Phases	7	4		3	8			2			6		
Permitted Phases			4			2		2		6			
Actuated Green, G (s)	1.0	34.0	34.0	14.5	47.5			22.8	22.8		22.8		
Effective Green, g (s)	1.0	34.0	34.0	14.5	47.5			22.8	22.8		22.8		
Actuated g/C Ratio	0.01	0.39	0.39	0.17	0.55			0.26	0.26		0.26		
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0		
Lane Grp Cap (vph)	21	1394	624	297	1890			353	418		334		
v/s Ratio Prot	0.00	0.24		0.10	0.30								
v/s Ratio Perm			0.06			0.12	0.04			0.19			
v/c Ratio	0.38	0.62	0.14	0.60	0.55	0.45	0.16			0.73			
Uniform Delay, d1	42.3	21.0	16.8	33.2	12.5	26.5	24.4			28.9			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00			
Incremental Delay, d2	11.2	0.9	0.1	3.2	0.3	0.9	0.2			7.7			
Delay (s)	53.5	21.8	16.9	36.4	12.8	27.5	24.6			36.6			
Level of Service	D	C	B	D	B	C	C			D			
Approach Delay (s)		21.3		16.2		25.7				36.6			
Approach LOS		C		B		C				D			

HCM Average Control Delay	21.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

6: Kaunualii & KCC

12/3/2010



Lane Configurations	↖	↑↑	↗	↖	↑↑	↗	↖	↑	↗	↖	↗	↖	↗
Volume (vph)	9	886	119	48	899	69	183	29	76	82	28	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95			1.00	1.00		1.00		
Flt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		0.97		
Satd. Flow (prot)	1770	3539	1583	1770	3501			1786	1583		1777		
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.68	1.00		0.61		
Satd. Flow (perm)	1770	3539	1583	1770	3501			1276	1583		1121		
Peak-hour factor, PHF	0.95	0.95	0.95	0.96	0.96	0.96	0.91	0.91	0.91	0.84	0.84	0.84	0.84
Adj. Flow (vph)	9	933	125	50	936	72	201	32	84	98	33	15	
RTOR Reduction (vph)	0	0	50	0	5	0	0	0	0	0	4	0	0
Lane Group Flow (vph)	9	933	75	50	1003	0	0	233	24	0	142	0	0
Turn Type	Prot		Perm	Prot		Perm		Perm	Perm		Perm	Perm	
Protected Phases	7	4		3	8			2			6		
Permitted Phases			4			2		2		6			
Actuated Green, G (s)	0.8	32.0	32.0	4.4	35.6			21.1	21.1		21.1		
Effective Green, g (s)	0.8	32.0	32.0	4.4	35.6			21.1	21.1		21.1		
Actuated g/C Ratio	0.01	0.44	0.44	0.06	0.49			0.29	0.29		0.29		
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0			5.0	5.0		5.0		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0		
Lane Grp Cap (vph)	20	1562	699	107	1719			371	461		326		
v/s Ratio Prot	0.01	0.26		0.03	0.29								
v/s Ratio Perm			0.05			0.18	0.02			0.13			
v/c Ratio	0.45	0.60	0.11	0.47	0.58	0.63	0.05			0.44			
Uniform Delay, d1	35.6	15.4	11.9	32.9	13.2	22.3	18.5			20.9			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00			
Incremental Delay, d2	15.3	0.6	0.1	3.2	0.5	3.3	0.0			0.9			
Delay (s)	50.9	16.0	11.9	36.1	13.7	25.6	18.6			21.8			
Level of Service	D	B	B	D	B	C	B			C			
Approach Delay (s)		15.8		14.7		23.7				21.8			
Approach LOS		B		B		C				C			

HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



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Final
Archaeological Inventory Survey for the
Island School Project
Nāwiliwili Ahupua‘a, Līhu‘e District, Kaua‘i Island
TMK: (4) 3-8-002:016

Prepared for
Wilson Okamoto Corporation

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Management Summary

Reference	Archaeological Inventory Survey (AIS) for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island, TMK: (4) 3-8-002:016 (Hunkin et al. 2014)
Date	March 2014
Project Number	Cultural Surveys Hawai'i, Inc. (CSH) Job Code: NAWILIWILI 13
Investigation Permit Number	The fieldwork for the current AIS investigation was carried out under Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD) permit no. 13-06, issued per Hawai'i Administrative Rules (HAR) Chapter 13-282.
Project Location	The project area consists of the 38.448-acre (ac) (15.559 hectares [ha]) Island School campus as shown on the U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e (1996) Quadrangle.
Project Funding and Land Jurisdiction	The proposed project is privately funded.
Agencies	SHPD
Project Description	The Island School is an existing Pre-K through Grade 12 private school located on a 38.448-ac (15.559 ha) site in Puhi, Island of Kaua'i. The Island School site, identified as Tax Map Key: (4) 3-8-002:016, is located adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for the 38.448-ac campus that includes new classrooms and other school facilities.
Project Acreage	38.448 ac (15.559 ha)
Area of Potential Effect (APE) and survey acreage	The approximately 38.448-ac (15.559 ha) project area is defined in this study as the Area of Potential Effect (APE).
Historic Preservation Regulatory Context	At the request of Wilson Okamoto Corporation, CSH undertook this AIS to fulfill the requirements of the Hawai'i Administrative Rules (HAR) Chapter 13-13-276, and was conducted to identify, document, and make Hawaii Register of Historic Places (Hawaii Register) eligibility recommendations for the subject parcel's historic properties. The investigation includes a project-specific effect recommendation and treatment/mitigation recommendations for the parcel's historic properties that are recommended Hawai'i Register eligible. This document is intended to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and HAR Chapter 13-13-284. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native

	<p>Hawaiian and community groups.</p> <p>A Literature Review and Field Inspection (LRFI) was submitted by Groza and Hammatt in January 2013, and was reviewed and accepted on February 11, 2013; Log No. 2013.0401, Doc. No. 1302SL09. As part of that Chapter 6E-42 Historic Preservation Review, the SHPD recommended that an AIS be completed to provide additional documentation of historic properties that will be adversely affected as part of the proposed project. It was also requested that a subsurface component be part of the AIS scope of work to further assess the potential for historic properties.</p>
Fieldwork Effort	<p>The fieldwork component of this AIS was completed between April 3 and 5, 2013, by CSH archaeologists Nifae Hunkin, B.A., Frederick LaChance, B.A., Gerald K. Ida, B.A., Michael Rivera, B.A., and David Doig, B.A., under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). The fieldwork required 15 person-days to complete.</p>
Number of Historic Properties Identified	<p>One historic property was identified during earlier LRFI work (Groza and Hammatt 2013) for the project area, SIHP (State Inventory of Historic Properties) # 50-30-11-2179:</p> <ul style="list-style-type: none"> • SIHP # 50-30-11-2179, Features A through D; A is a reservoir, Feature B is in an earthen ditch; Feature C is an earthen ditch with running water, and Feature D is an earthen ditch. Features A, C, and D are likely part of the Upper Lihue Ditch system. <p>Although the south side of the project area curves around the reservoir (Feature A, part of the Upper Lihue Ditch system), the reservoir is not part of Island School and is located on another parcel.</p> <p>A second historic property was designated in the course of the present study: SIHP # 50-30-11-2220, a Hawaii Territory Survey Marker and transit station, also has been assessed as significant under Criterion D.</p>
Historic Properties Recommended Eligible to the Hawai'i Register of Historic Places	<p>SIHP # 50-30-11-2179, Features A-D, plantation-era infrastructure features (Features A, B, C, and D are likely part of the Upper Lihue Ditch System), recommended eligible under Criterion D.</p> <p>SIHP # 50-30-11-2220, a Hawaii Territory Survey Marker and transit station, also has been assessed as eligible under Criterion D.</p>
Historic Properties Recommended Ineligible to the Hawai'i Register of Historic Places	<p>No historic properties recommended ineligible to the Hawai'i Register of Historic Places were identified during the current AIS investigation.</p>

<p>Effect Recommendation</p>	<p>CSH's project specific effect recommendation is "effect, with proposed mitigation commitments." The proposed development will adversely affect two feature components (Features C and D) of the single significant historic property, SIHP # 50-30-11-2179, identified within the project area and APE. Both feature components are part of the Upper Lihue Ditch system. Because this historic property consists only of surface features, the recommended archaeological monitoring should adequately address the project's effect on Features C and D of SIHP # 50-30-11-2179. An archaeological monitoring program with on-site monitoring is recommended for any future work that may adversely affect Features A and B of SIHP # -2179.</p>
<p>Recommendation</p>	<p>In order to alleviate the proposed project's adverse effect on properties recommended eligible to the Hawai'i Register, CSH offers the following mitigation recommendations:</p> <p>SIHP # 50-30-11-2179 (historic agricultural infrastructure) is likely part of Lihue Plantation, which was once in operation throughout much of Nāwiliwili. Some areas formerly part of the plantation are still farmed today. Within the current project area, most of the agricultural infrastructure has lost its integrity through repeated modification, disuse and extensive ground disturbance and cannot convey its historical significance as part of this larger district. The archaeological remnants of this agricultural infrastructure still may contribute important information, however. Accordingly, in order to mitigate further destruction of portions of SIHP # 50-30-11-2179 during the proposed campus facility expansion project, an archaeological monitoring program (per the language of HAR Chapter 13-275-8¹), is recommended. This monitoring program will comply with HAR Chapter 13-279 and focus on the remnants of the old agricultural field system within the project area.</p> <p>The following significant historic properties will be adversely affected by the proposed project. The recommended mitigation measures listed below are intended to alleviate this adverse effect. The scope and methods for these mitigation measures were developed in consultation with SHPD.</p> <ul style="list-style-type: none"> • SIHP # 50-30-11-2179, Feature C, Archaeological Monitoring • SIHP # 50-30-11-2179, Feature D, Archaeological Monitoring • In addition, an archaeological monitoring program with on-site monitoring is recommended for any future work that may adversely affect Features A and B of SIHP # -2179.

Under Hawai'i State historic preservation review legislation, historic preservation mitigation must take one of five forms: A) Preservation; B) Architectural Recordation; C) Archaeological Data Recovery; D) Historical Data Recovery; and E) Ethnographic Documentation (HAR Chapter 13-275-8 [or 13-13-284-8]). Under this legislation, an archaeological monitoring program is considered a form of archaeological data recovery.

Table of Contents

Management Summary	i
Section 1 Introduction	1
1.1 Project Background	1
1.2 Historic Preservation Regulatory Context	1
1.3 Scope of Work	6
1.4 Environmental Setting	7
1.4.1 Natural Environment.....	7
1.4.2 Built Environment	7
Section 2 Methods	11
2.1 Field Methods	11
2.1.1 Pedestrian Inspection	11
2.1.2 Subsurface Testing.....	11
2.2 Document Review	11
Section 3 Background Research	13
3.1 Traditional and Historical Background.....	13
3.1.1 Mythological and Traditional Accounts	13
3.1.2 Early Historic Period	13
3.1.3 The Māhele (Land Divisions).....	16
3.1.4 Mid- to Late-1800s	17
3.1.5 1900s.....	19
3.1.6 Modern Land Use	19
Section 4 Previous Archaeological Research	26
4.1 Early Archaeological Studies.....	26
4.1.1 Bennett 1931	30
4.1.2 Neller and Palama 1973.....	30
4.1.3 Ching et al. 1973.....	30
4.1.4 Kido 1986	30
4.1.5 Walker and Rosendahl 1988.....	30
4.1.6 O'Hare et al. 1993.....	31
4.1.7 Hammatt and Chiogioji 1998.....	31
4.2 Studies within or adjacent to the project area.....	31
4.2.1 Palama 1973.....	31
4.2.2 McMahan 1990.....	31
4.2.3 Walker et al. 1991	31
4.2.4 Hammatt and Shideler 2004	32
4.2.5 Groza and Hammatt 2010.....	32
4.2.6 Groza and Hammatt 2013	33
Section 5 Results of Fieldwork.....	34
5.1 Pedestrian Inspection Field Results	34
5.2 Subsurface Testing.....	34
5.2.1 Test Excavation 1 (TE-1).....	39
5.2.2 Test Excavation 2 (TE-2).....	41

5.2.3 Test Excavation 3 (TE-3).....	43
5.2.4 Test Excavation 4 (TE-4).....	45
5.2.5 Test Excavation 5 (TE-5).....	47
5.2.6 Test Excavation 6 (TE-6).....	49
5.2.7 Test Excavation 7 (TE-7).....	51
5.2.8 Test Excavation 8 (TE-8).....	53
5.2.9 Test Excavation 9 (TE-9).....	55
5.2.10 Test Excavation 10 (TE-10).....	57
5.2.11 Test Excavation 11 (TE-11).....	59
5.2.12 Test Excavation 12 (TE-12).....	61
5.2.13 Test Excavation 13 (TE-13).....	63
5.2.14 Test Excavation 14 (TE-14).....	65
5.2.15 Test Excavation 15 (TE-15).....	67
5.2.16 Test Excavation 16 (TE-16).....	69
5.2.17 Test Excavation 17 (TE-17).....	71
5.2.18 Test Excavation 18 (TE-18).....	73
5.2.19 Test Excavation 19 (TE-19).....	75
5.2.20 Test Excavation 20 (TE-20).....	77
5.2.21 Test Excavation 21 (TE-21).....	79
5.2.22 Test Excavation 22 (TE-22).....	81
5.2.23 Test Excavation 23 (TE-23).....	83
5.2.24 Test Excavation 24 (TE-24).....	85
5.2.25 Test Excavation 25 (TE-25).....	87
5.2.26 Summary and Interpretation of Subsurface Testing Results.....	89
5.3 Historic Property Descriptions.....	93
5.3.1 SIHP # 50-30-11-2179.....	93
5.3.2 SIHP # 50-30-11-2179 Feature A (Reservoir with Associated Sluice Gates and Culvert) ..	93
5.3.3 SIHP # 50-30-11-2179 Feature B (Irrigation Ditch with Associated Culverts).....	102
5.3.4 SIHP # 50-30-11-2179 Feature C (Irrigation Ditch and Associated Culverts and Sluice Gates).....	110
5.3.5 SIHP # 50-30-11-2179 Feature D (Irrigation Ditch)	123
5.3.6 SIHP # 50-30-11-2220.....	130
Section 6 Significance Evaluations	135
Section 7 Project Effect and Mitigation Recommendations.....	136
7.1 Project Effect	136
7.1.1 Project Description	136
7.1.2 Project Effect	136
7.2 Mitigation Recommendations.....	136
Section 8 References Cited	138
Appendix A SHPD Correspondence	A-1
A.1 SHPD Letter Log. No. 2004.0039, Doc. No. 0401.NM05.....	A-1
A.2 SHPD Letter Log. No. 2011.0117, Doc. No. 1210.SL44	A-2
A.3 SHPD Letter Log No. 2013.0401, Doc. No. 1302.SL09	A-5
Appendix B David Pratt Letter Report.....	B-1

List of Figures

Figure 1. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle, showing the project area	2
Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing the location of the project area	3
Figure 3. 2013 Hawai‘i Tax Map Key 3-8-002, showing the project area	4
Figure 4. Plan showing existing buildings and proposed new buildings (provided by Wilson Okamoto Corporation 2013)	5
Figure 5. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle, with overlay of the U.S. Department of Agriculture (USDA) Soil Survey of the State of Hawai‘i (Foote et al. 1972), indicating sediment types within the project area	8
Figure 6. Entrance to Island School, school buildings in background, view to north	9
Figure 7. Island School grounds, Wilcox Gym to left, Frear Hawaiian Studies Building to right, open space in foreground, view to north	9
Figure 8. General View: central portion of the project area, view to south.....	10
Figure 9. General View: central portion of the project area, view to north.....	10
Figure 10. 1878 Government Survey map by W.D. Alexander, showing location of project area (Alexander 1878).....	18
Figure 11. Portion of 1910 U.S. Geological Survey Map, Līhu‘e quadrangle, showing the project area	20
Figure 12. Portion of 1941 Lihue Plantation Co. map showing the location of the project area primarily within field 39B and extending into 39A (Source: Condé and Best 1973:168).....	22
Figure 13. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle, showing the project area. Note that Upper Lihue Ditch extends northeast/ southwest through the project area	23
Figure 14. 1965 aerial photograph (from Foote et al. 1972) showing sugar cane cultivation within the project area and its vicinity	24
Figure 15. 1977-1978 U.S. Geological Survey aerial of Līhu‘e showing the project area and its vicinity	25
Figure 16. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle showing previous archaeological studies in the vicinity of the project area	28
Figure 17. Previously identified SIHP #s in the vicinity of the project area	29
Figure 18. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle, showing the project area, pedestrian inspection transects, and cross section locations (CS1 through CS9)	35
Figure 19. 2013 Google Earth Aerial Imagery aerial photograph showing the project area, pedestrian inspection transects (not all are shown) and cross section locations (CS1 through CS9).....	36
Figure 20. 2013 Google Earth Aerial Imagery aerial photograph showing project area boundary, test excavation (TE) locations and cross section (CS) locations.....	37
Figure 21. Island School Site Master Plan showing test excavation (TE) locations in relation to proposed development.....	38

Figure 22. TE-1, view to west.....	40
Figure 23. TE-1, view to west.....	40
Figure 24. TE-2, view to north.....	42
Figure 25. TE-2, view to north.....	42
Figure 26. TE-3, view to southwest.....	44
Figure 27. TE-3, view to southwest.....	44
Figure 28. TE-4, view to northeast.....	46
Figure 29. TE-4, view to north.....	46
Figure 30. TE-5, view to north.....	48
Figure 31. TE-5, view to north.....	48
Figure 32. TE-6, view to north.....	50
Figure 33. TE-6, view to north.....	50
Figure 34. TE-7, view to north.....	52
Figure 35. TE-7, view to northeast.....	52
Figure 36. TE-8, view to north.....	54
Figure 37. TE-8, view to northeast.....	54
Figure 38. TE-9, view to north.....	56
Figure 39. TE-9, view to north.....	56
Figure 40. TE-10, view to north.....	58
Figure 41. TE-10, view to northwest.....	58
Figure 42. TE-11, view to south.....	60
Figure 43. TE-11, view to southeast.....	60
Figure 44. TE-12, view to south.....	62
Figure 45. TE-12, view to southeast.....	62
Figure 46. TE-13, view to north.....	64
Figure 47. TE-13, view to north.....	64
Figure 48. TE-14, view to north.....	66
Figure 49. TE-14, view to north.....	66
Figure 50. TE-15, view to north.....	68
Figure 51. TE-15, view to northeast.....	68
Figure 52. TE-16, view to north.....	70
Figure 53. TE-16, view to northeast.....	70
Figure 54. TE-17, view to northwest.....	72
Figure 55. TE-17, view to north.....	72
Figure 56. TE-18, view to northeast.....	74
Figure 57. TE-18, view to east.....	74
Figure 58. TE-19, view to northeast.....	76
Figure 59. TE-19, view to east.....	76
Figure 60. TE-20, view to north.....	78
Figure 61. TE-20, view to northeast.....	78
Figure 62. TE-21, view to northwest.....	80
Figure 63. TE-21, view to north.....	80
Figure 64. TE-22, view to northwest.....	82
Figure 65. TE-22, view to north.....	82
Figure 66. TE-23, view to north.....	84

Figure 67. TE-23, view to northwest	84
Figure 68. TE-24, view to northeast	86
Figure 69. TE-24, view to southeast	86
Figure 70. TE-25, view to north.....	88
Figure 71. TE-25, view to east.....	88
Figure 72. TE locations and specific testing areas overlay with Island School Conceptual Site Master Plan.....	90
Figure 73. TE locations and specific testing areas overlay on an aerial photograph.....	91
Figure 74. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu'e quadrangle, showing the project area, SIHP # 50-30-11-2179, Features A through D locations, and cross section (CS1 through CS9) locations.....	94
Figure 75. 2013 Google Earth Aerial Imagery satellite image, showing the project area, SIHP # 50-30-11-2179, Features A through D locations, and cross section (CS1 through CS9) locations.....	95
Figure 76. Photo of SIHP # -2179 Feature A, reservoir adjacent to (but outside of) the project area, view to south.....	96
Figure 77. Photo of the overflow area of SIHP # -2179 Feature A, including the four sub- features (Features A1–A4)	96
Figure 78. Plan view of SIHP # -2179 Feature A, including the four sub-features (Features A1–A4, labeled in this figure as Feat. 1–4).....	97
Figure 79. Photo of SIHP # -2179 Feature A1, sluice gate at the northern end of the overflow area, view to northwest.....	98
Figure 80. Photo of SIHP # -2179 Feature A1, sluice gate at the northern end of the overflow area, view to north	98
Figure 81. Photo of SIHP # -2179 Feature A2, sluice gate at the easternmost edge of the Feature A overflow area, view to south	99
Figure 82. Photo of SIHP # -2179 Feature A2, sluice gate at the easternmost edge of the Feature A overflow area, view to east.....	99
Figure 83. Photo of SIHP # -2179 Feature A3, sluice gate at the southwest side of the Feature A overflow area, view to southwest	100
Figure 84. Photo of SIHP # -2179 Feature A3, sluice gate at the southwest side of the Feature A overflow area, view to south	100
Figure 85. Photo of SIHP # -2179 Feature A4, modern culvert at the south end of the Feature A overflow area, view to southwest	101
Figure 86. Photo of SIHP # -2179 Feature A4, modern culvert, showing the inscription reading “10-29-69,” view down	101
Figure 87. Photo of SIHP # -2179 Feature B, earthen irrigation ditch, view to east.....	103
Figure 88. Photo of SIHP # -2179 Feature B, earthen irrigation ditch, view to west.....	103
Figure 89. SIHP # -2179 Feature B, Cross Section 7	104
Figure 90. Photo of SIHP # -2179 Feature B, Cross Section 7.....	104
Figure 91. SIHP # -2179 Feature B, Cross Section 8	105
Figure 92. Photo of SIHP # -2179 Feature B, Cross Section 8.....	105
Figure 93. SIHP # -2179 Feature B, Cross Section 9	106
Figure 94. Photo of SIHP # -2179 Feature B, Cross Section 9.....	106
Figure 95. Photo of SIHP # -2179 Feature B1, eastern culvert, view to west	107

Figure 96. Photo of SIHP # -2179 Feature B1, western culvert, view to east	107
Figure 97. Plan view of SIHP # -2179 Feature B1, including east and west culverts	108
Figure 98. Elevation drawing of SIHP # 2179 Feature B1, eastern culvert.....	109
Figure 99. SIHP # -2179 Feature C, Cross Section 4	111
Figure 100. Photo of SIHP # -2179 Feature C, Cross Section 4, view to southeast.....	111
Figure 101. SIHP # -2179 Feature C, Cross Section 5	112
Figure 102. Photo of SIHP # -2179 Feature C, Cross Section 5, view to southeast.....	112
Figure 103. SIHP # -2179 Feature C, Cross Section 6	113
Figure 104. Photo of SIHP # -2179 Feature C, Cross Section 6, view to south.....	113
Figure 105. Photo of SIHP # -2179 Feature C1, culvert at northernmost section, view to north.....	114
Figure 106. Elevation drawing of SIHP # -2179 Feature C1, culvert at northernmost section...	114
Figure 107. Plan view of SIHP # -2179 Feature C1, culvert at northernmost section.....	115
Figure 108. Photo of SIHP # -2179 Feature C2, consisting of one active and one abandoned vertical rising sluice gate, somewhat perpendicular to each other, view to east.....	117
Figure 109. Photo of SIHP # -2179 Feature C2, Photo of SIHP # -2179 Feature C2, view to southeast	117
Figure 110. Plan view of SIHP # -2179 Feature C2 (two sluice gates) and Feature C3 (culvert)	118
Figure 111. Photo of SIHP # -2179 Feature C3, an abandoned culvert located approximately 0.80 m north of Feature C2, view to southwest.....	119
Figure 112. Photo of SIHP # -2179 Feature C3, an abandoned culvert, view to northwest.....	119
Figure 113. Elevation drawing of SIHP # -2179 Feature C3, an abandoned culvert	120
Figure 114. Photo of SIHP # -2179 Feature C4, one active and one abandoned vertical rising sluice gate, view to northwest	121
Figure 115. Photo of SIHP # -2179 Feature C4, showing the 4" x 12" board of treated wood just southwest of (nearly atop) the active gate, view to west.....	121
Figure 116. Plan view of SIHP # -2179 Feature C4, two vertical rising sluice gates.....	122
Figure 117. SIHP # -2179 Feature D, Cross Section 1	124
Figure 118. Photo of SIHP # -2179 Feature D, Cross Section 1, view to east	124
Figure 119. SIHP # -2179 Feature D, Cross Section 2	125
Figure 120. Photo of SIHP # -2179 Feature D, Cross Section 2, view to northeast.....	125
Figure 121. SIHP # -2179 Feature D, Cross Section 3	126
Figure 122. Photo of SIHP # -2179 Feature D, view to north	126
Figure 123. Photo of SIHP # -2179 Feature D1, outlet at the westernmost end of Feature D, which indicates that water from Feature A was diverted and fed into Feature D to be transported to feed cane fields to the east (slightly down slope from Feature C and Feature A), the original Lihue Plantation Company's cane field 39A, view to west.....	127
Figure 124. Elevation drawing of SIHP # -2179 Feature D1 at culvert opening in the northwest corner	128
Figure 125. Plan view of SIHP # -2179 Feature D1, portion of an irrigation ditch SIHP # -2179 Feature D.....	129

Figure 126. Photo of SIHP # -2220, showing the overall structure, including the trapezoid-shaped walls, the steps on the east wall, the square concrete slab topping the structure, and the metal pipe protruding outward from the top.....	131
Figure 127. Photo of SIHP # -2220, showing the short protruding inner walls supporting the metal structure with a base and pipe that runs all the way to and through the concrete slab at the top	132
Figure 128. Photo of SIHP # -2220, showing the top of the cement slab with the words “KAUAI NORTH BASE” and many divots	133
Figure 129. Photo of SIHP # -2220, showing the Hawaii Territory Survey marker that the structure covers.....	133
Figure 130. Elevation drawing of SIHP # -2220	134

List of Tables

Table 1. Previous Archaeological Studies Conducted within the Vicinity of the Project Area	26
Table 2. TE-1 Stratigraphy	39
Table 3. TE-2 Stratigraphy	41
Table 4. TE-3, Stratigraphy	43
Table 5. TE-4 Stratigraphy	45
Table 6. TE-5 Stratigraphy	47
Table 7. TE-6 Stratigraphy	49
Table 8. TE-7 Stratigraphy	51
Table 9. TE-8 Stratigraphy	53
Table 10. TE-9 Stratigraphy	55
Table 11. TE-10 Stratigraphy	57
Table 12. TE-11 Stratigraphy	59
Table 13. TE-12 Stratigraphy	61
Table 14. TE-13 Stratigraphy	63
Table 15. TE-14 Stratigraphy	65
Table 16. TE-15 Stratigraphy	67
Table 17. TE-16 Stratigraphy	69
Table 18. TE-17 Stratigraphy	71
Table 19. TE-18 Stratigraphy	73
Table 20. TE-19 Stratigraphy	75
Table 21. TE-20 Stratigraphy	77
Table 22. TE-21 Stratigraphy	79
Table 23. TE-22 Stratigraphy	81
Table 24. TE-23 Stratigraphy	83
Table 25. TE-24 Stratigraphy	85
Table 26. TE-25 Stratigraphy	87
Table 27. Project Effect and Mitigation Recommendations for Identified Historic Properties...	137

Section 1 Introduction

1.1 Project Background

At the request of Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. (CSH) completed an Archaeological Inventory Survey (AIS) for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island (Figure 1 and Figure 2). The Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre (ac) (15.559 hectare [ha]) parcel in Puhi, Island of Kaua'i. The Island School campus, identified as Tax Map Key: (4) 3-8-002:016 (Figure 3), is located adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for the campus that includes new classrooms and other school facilities (Figure 4).

1.2 Historic Preservation Regulatory Context

At the request of Wilson Okamoto Corporation, CSH undertook this AIS to fulfill the requirements of the Hawai'i Administrative Rules (HAR) Chapter 13-13-276, and was conducted to identify, document, and make Hawaii Register of Historic Places (Hawaii Register) eligibility recommendations for the subject parcel's historic properties. The investigation includes a project-specific effect recommendation and mitigation recommendations for the parcel's historic properties that are recommended Hawai'i Register eligible. This document is intended to support the proposed project's historic preservation review under Hawai'i Revised Statutes (HRS) Chapter 6E-42 and HAR Chapter 13-13-284. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian and community groups.

A Literature Review and Field Inspection report (Groza and Hammatt 2013) was reviewed and accepted by SHPD on February 11, 2013 (Log No. 2013.0401, Doc. No. 1302SL09). As part of that Chapter 6E-42 Historic Preservation Review, the SHPD recommended that an AIS be completed to provide additional documentation of historic properties that will be adversely affected as part of the proposed project. It was also requested that a subsurface component be part of the AIS scope of work to further assess the potential for historic properties.

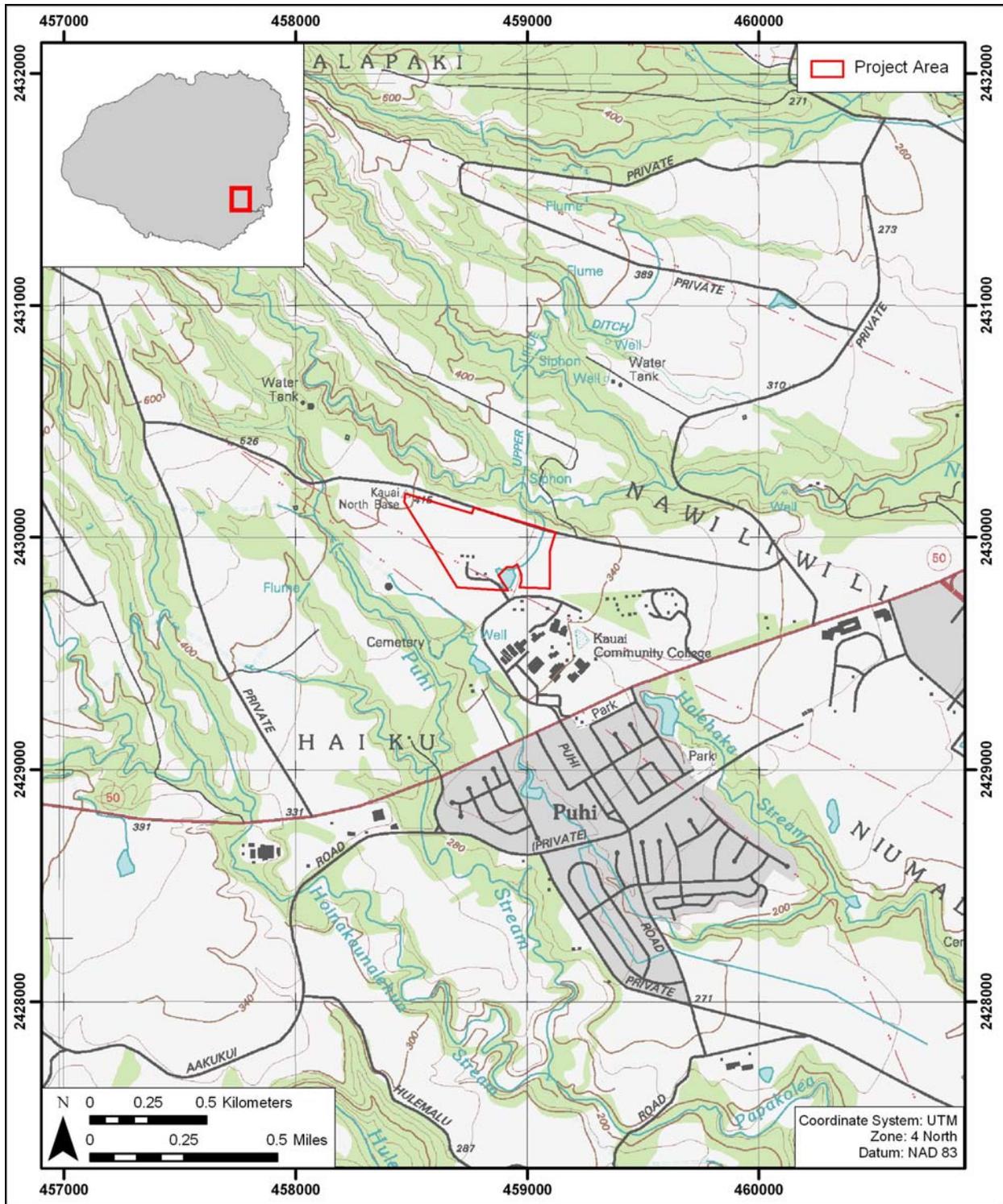


Figure 1. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Līhu‘e quadrangle, showing the project area



Figure 2. Aerial photograph (source: U.S. Geological Survey Orthoimagery 2005), showing the location of the project area

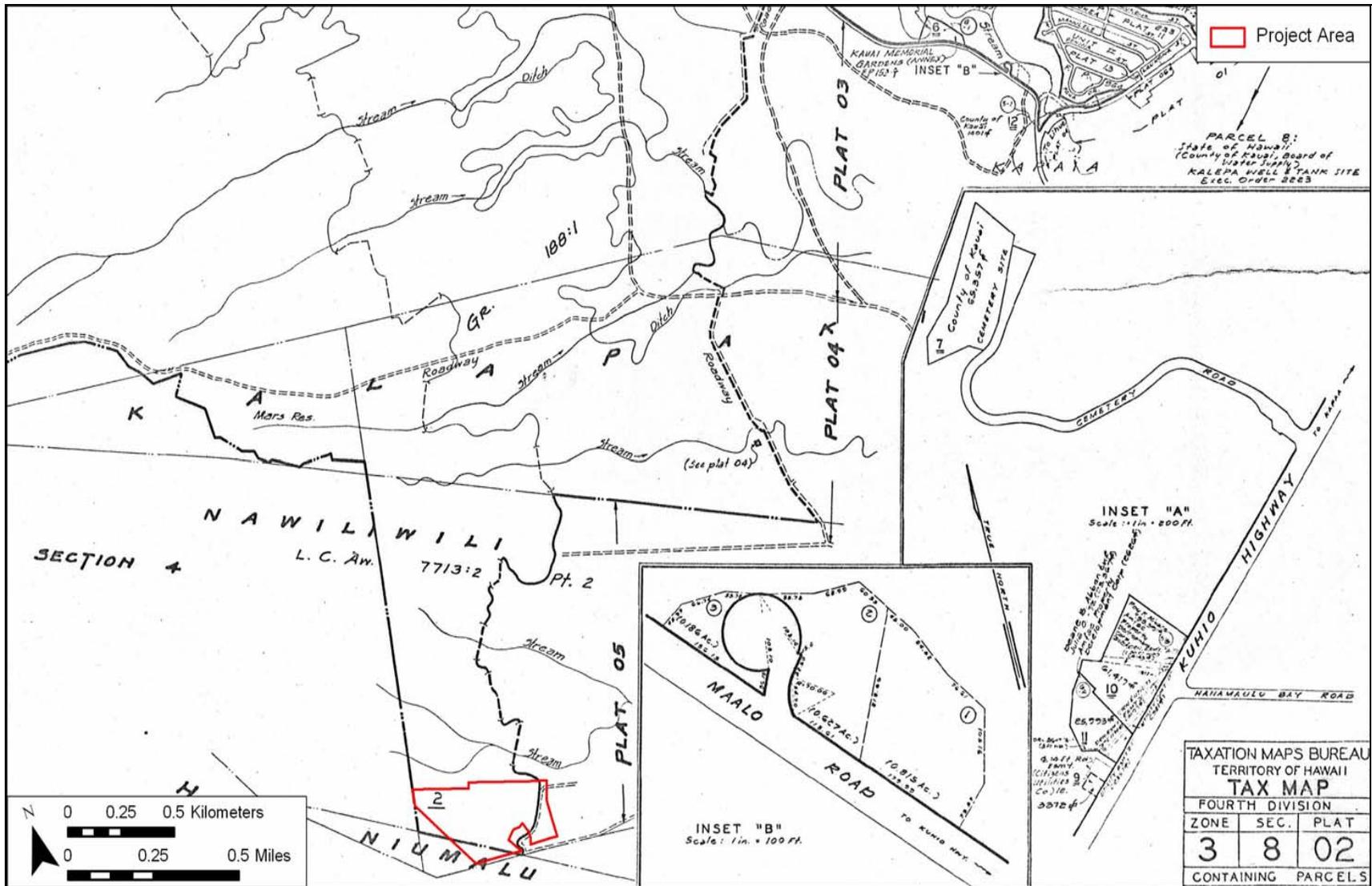


Figure 3. 2013 Hawai'i Tax Map Key 3-8-002, showing the project area

1.3 Scope of Work

The following AIS scope of work is designed to satisfy the Hawai'i state requirements for archaeological inventory surveys (HAR Chapter 13-276):

1. Historic and archaeological background research, including a search of historic maps, written records, Land Commission Award (LCA) documents, and the reports from prior archaeological investigations. This research focused on the specific project area's past land use, with general background on the pre-Contact and historic settlement patterns of the *ahupua'a* and district. This background information was used to compile a predictive model for the types and locations of historic properties that could be expected within the project area.
2. A ground survey of the entire project area for the purpose of historic property identification and documentation. All historic properties were located, described, and mapped with evaluation of function, interrelationships, and significance. Documentation will include photographs and scale drawings of selected historic properties. All historic properties will be assigned Inventory of Historic Properties numbers by the State and located with a Trimble Global Positioning System (GPS). This GPS data will be in the report in ArcGIS format and be sufficient for planning purposes.
3. Based on the project area's environment and the results of the background research, subsurface testing with a combination of hand and backhoe excavation was conducted. Subsurface testing focused on locating and evaluating subsurface deposits, such as buried cultural layers and/or deposits with significant paleoenvironmental data, which could not be located by the ground survey. Testing in sensitive areas was conducted by hand after the initial backhoe work. If appropriate samples from these excavations are found, they will be analyzed for chronological and paleoenvironmental information. All subsurface historic properties identified will be documented to the extent possible, including geographic extent, content, function/derivation, age, interrelationships, and significance.
4. Preparation of a survey report which included the following:
 - a. A topographic map of the survey area showing all historic properties;
 - b. Results of consultation with knowledgeable community members about the property's past land use and historic properties.
 - c. Description of all historic properties with selected photographs, scale drawings, and discussions of function;
 - d. Historical and archaeological background sections summarizing prehistoric and historic land use as they relate to the project area's historic properties;
 - e. A summary of historic property categories and their significance in an archaeological and historic context;

- f. Recommendations based on all information generated that will specify what steps should be taken to mitigate impact of development on the project area's significant historic properties - such as data recovery (excavation) and preservation of specific areas. These recommendations will be developed in consultation with the client and the State agencies.

This scope of work also includes full coordination with SHPD and Kaua'i County relating to archaeological matters.

1.4 Environmental Setting

1.4.1 Natural Environment

The project area is located approximately 3.2 kilometers (km; 2 miles [mi]) west of Līhu'e, *mauka* (inland) of Kaumuali'i Highway in Nāwiliwili Ahupua'a, Līhu'e District, in the southeastern quadrant of the island of Kaua'i. The parcel is fairly far inland, about 4.8 km (3 mi) from the southeastern coast. The project area is exposed to the prevailing northeast trade winds, and receives approximately 1700 millimeters (mm) (67 inches [in]) of rainfall annually (Giambelluca et al. 1986). The project area lies on level to gently sloping lands that range from approximately 360 feet (ft) to 400 ft above mean annual sea level (AMSL) with a tributary of Nāwiliwili Stream to the northeast. A tributary of Puhi Stream is approximately 250 meters (m) to the west.

Project area soils predominately consist of Puhi silty clay loam, 3 to 8 percent slopes (PnB) with a ribbon of Puhi silty clay loam, 8 to 15 percent slopes (PnC), running along its southwestern boundary. Rough broken land (rRR) abuts the north boundary and extends into the northeastern portion of the project area (Figure 5).

Puhi silty clay loam consists of well-drained soils on uplands. These soils developed in material derived from igneous rock. Slope ranges primarily from 3-15 percent. The run-off of the Puhi silty clay loam is slow, creating an only slight erosion hazard. Puhi silty clay loam is used for sugar cane, pasture, pineapple, orchards, wildlife habitat, and woodland.

Rough broken land (rRR) consists of very steep land broken by frequent intermittent drainage channels. Slope is 40-70 percent, runoff and geologic erosion are both rapid. (Foote et al. 1972:62, 75, 118:Sheet 22).

1.4.2 Built Environment

Development within the project area consists of existing school and administrative buildings (Figure 6, Figure 7, Figure 8, and Figure 9). The University of Hawai'i's Kaua'i Community College campus is adjacent to the south. The residential community of Puhi lies just south across Kaumuali'i Highway. The lands to the west, north and east are relatively undeveloped (see Figure 2).

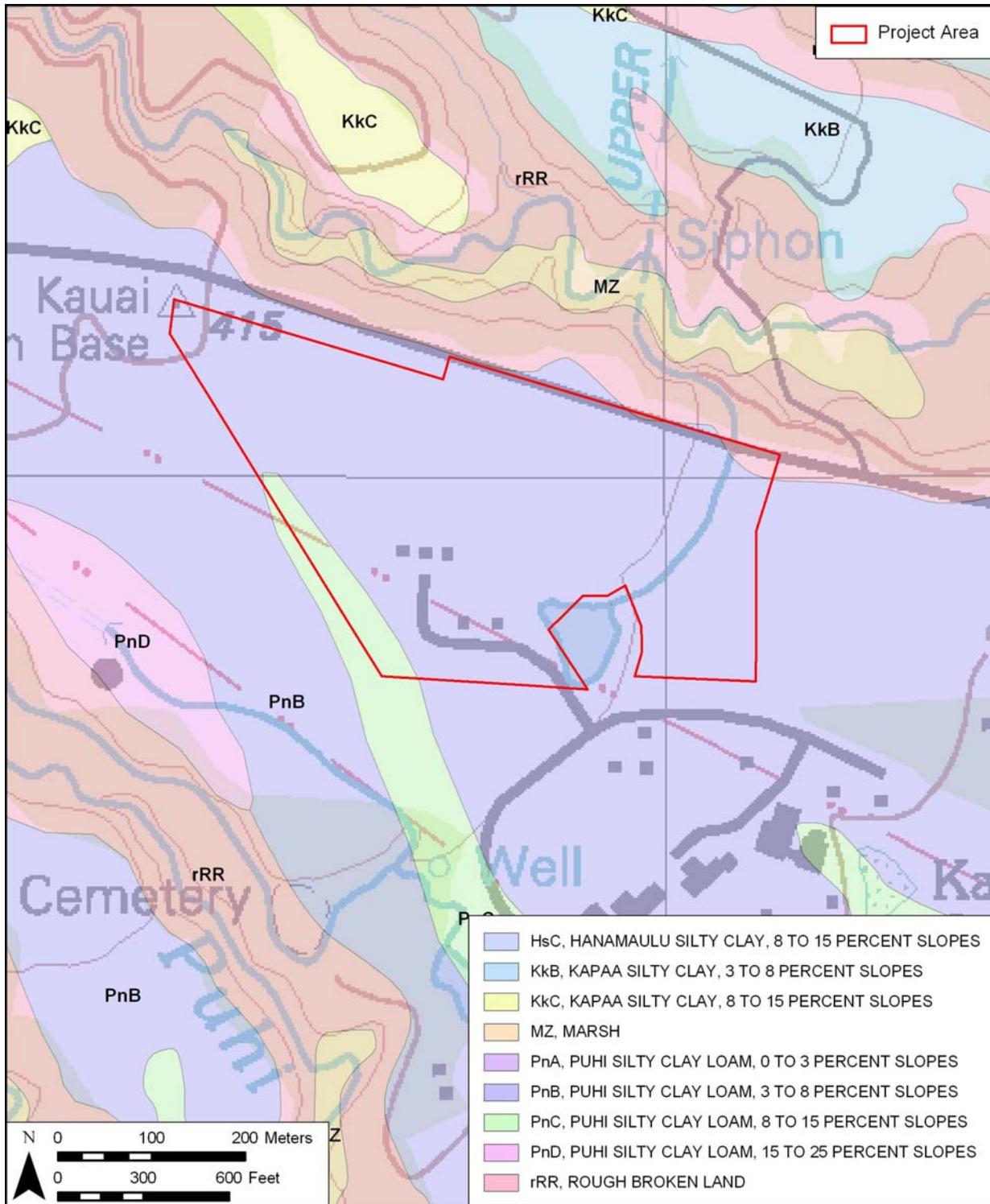


Figure 5. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihue quadrangle, with overlay of the U.S. Department of Agriculture (USDA) Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating sediment types within the project area



Figure 6. Entrance to Island School, school buildings in background, view to north



Figure 7. Island School grounds, Wilcox Gym to left, Frear Hawaiian Studies Building to right, open space in foreground, view to north



Figure 8. General View: central portion of the project area, view to south



Figure 9. General View: central portion of the project area, view to north

Section 2 Methods

2.1 Field Methods

Gerald K. Ida, B.A., Nifae Hunkin, B.A., Frederick LaChance, B.A., Michael Rivera, B.A., and David Doig, B.A. completed the fieldwork portion of the current AIS, which required 15 person-days to complete. Fieldwork took place between April 3 and 5, 2013, under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator). Fieldwork consisted of a 100 percent pedestrian inspection of the project area. Following the pedestrian inspection, the historic property identification effort focused on a subsurface testing program within areas of the project area proposed for development. Twenty-five (25) test excavations (TE) were completed and documented.

2.1.1 Pedestrian Inspection

A complete ground survey of the project area was undertaken for the purpose of historic property identification and documentation. CSH archaeologists surveyed the entire project area in transects, spaced between 3 to 5 m apart with an overlapping field of vision and examined surface characteristics for extant historic properties.

2.1.2 Subsurface Testing

The subsurface testing program consisted of 25 test excavations. In consultation with the landowner and the project developer, trenches were placed in areas anticipated to be impacted by project construction (i.e. subsurface disturbance) (see Figure 4).

Trenches were excavated to assess the stratigraphy and potential for subsurface historic properties (e.g., cultural deposits) and to gather data for comparative analysis with historic research and archaeological data from project areas in the vicinity.

A standard backhoe with a 2-ft wide bucket was used to excavate each test excavation. Generally, excavated trenches were either (1) approximately 6 m long, 1 m wide and between 1 to 2 m deep; or (2) approximately 2 m long, 1 m wide and 1 to 2 m deep. All trenches were excavated to culturally sterile sediment indicating no further potential for encountering historic properties.

CSH personnel closely monitored all backhoe excavation activity. Two archaeologists monitored the backhoe excavation; one positioned at either end of the trench to monitor both the removal of sediment from the trench and the emptying of the backhoe bucket on the adjacent backdirt pile.

The location of each of test excavation was recorded using a Trimble Pro GPS unit. GPS location information was converted into GIS shape files ESRI's ArcGIS 9.1.

2.2 Document Review

Historic and archival research included information obtained from the University of Hawai'i at Mānoa's Hamilton Library, the SHPD Library, the Hawai'i State Archives, the State Land

Survey Division, and the Bernice Pauahi Bishop Museum (BPBM) archives. Previous archaeological reports for the area were reviewed, as were historic maps and primary and secondary historical sources. Information on Land Claim Awards (LCAs) was accessed through Waihona 'Āina Corporation's Māhele Data Base (www.waihona.com) and Ulukau: The Hawaiian Electronic Library's Māhele Data Base (<http://ulukau.org/cgi-bin/vicki?l=en>).

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

Section 3 Background Research

3.1 Traditional and Historical Background

Nāwiliwili Ahupua'a is located in the ancient *moku*, or district of Puna and is probably best known in a traditional sense for its *heiau* at Kuhiau, reportedly at least four acres in size, and its associated *pōhaku* (rock) called Paukini, located in the bay.

3.1.1 Mythological and Traditional Accounts

Many sources suggest Nāwiliwili takes its name from the *wiliwili* tree (*nā* is the plural article, as in “the *wiliwili* trees” or “place of the *wiliwili* trees”). According to Pukui and Elbert (1986), the *wiliwili* (*Erythrina sandwicensis*) is a native leguminous tree whose flowers and pods are used for *lei*, and whose light wood was once used for surfboards, outriggers, and net floats. Handy (1940:67) suggests a *kaona* (hidden meaning) for the name Nāwiliwili based on a duplication of the word *wili*, which means “twisted,” as in the meandering Nāwiliwili Stream.

According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a was known as Papalinahoa. Kikuchi (1973) states this was the name of “an early chief (*mo'o*),” but Hammatt and Creed (1993) suggest it may also have been the name of an *'ili* (land division) or of the *konohiki* (headman of an *ahupua'a* land division). Papalinahoa was also the name of an *'auwai* (irrigation ditch) on the south side of Nāwiliwili Stream, associated with LCA 3566 (Hammatt and Creed 1993).

The *menehune* (legendary race of small people) were known to live in the Nāwiliwili area:

It was one of the favorite playgrounds of the tribe of *Menehune*, the little brown work-people who played as hard as they worked. And again it is William Hyde Rice, who, more than any other teller of stories, has kept for us old tales of this happy playground...(Damon 1931:395-396)

Handy (1940:67) describes Nāwiliwili Valley in his chapter on the main *kalo* (taro) growing locations in Puna, Kaua'i:

[Nāwiliwili] For 3 mi inland from the sea the Nāwiliwili River twists (*wiliwili*) through a flat valley bottom which was formerly all in terraces. Inland, just above the bay, three Hawaiian taro planters cultivate wet taro in a few small terraces. Most of the land is [now] in pasture.

The *lo'i* terraces are south of the project area. Due to the concentration of *lo'i* within the vicinity of the coast, as well as the availability of aquatic resources, the coastal area contained a majority of the population of the *ahupua'a* of Nāwiliwili.

3.1.2 Early Historic Period

Western homesteading and commerce were established on the lands above Nāwiliwili Bay that would evolve into Līhu'e Town within a few years after the establishment of the missionary and business activities at Kōloa in the mid-1830s. Accounts of nineteenth century travelers on

the trail between Kōloa and Līhu'e present the first record of the lands surrounding Līhu'e and therefore also Nāwiliwili. William DeWitt Alexander, son of the former Waioli missionary William P. Alexander, described a return visit to Kaua'i in 1849, six years after his family had left the island. Traveling on horseback from Kōloa to Wailua, Alexander noted in his diary:

We then rode through a gap in the hills, leading out from Kōloa. The scenery was very fine, and worthy of Kaua'i. Mauna Kāhili was close on the left, and on the right a beautiful range of hills extending towards the northeast, and terminating in an abrupt peak which goes by the name of "Hoary Head" [Hā'upu]. We rode on over a beautiful undulating table land, dotted with groves of *lauhala* and *kukui*. After riding about five mi, we crossed a stream fitly called Stoney Brook. We afterwards crossed many other streams on our way. Five mi further we passed Dr. Lafon's former residence. Here we began to descend towards the sea. (Alexander 1991:122)

Apparently, Alexander observed no conspicuous Hawaiian settlements between the Gap and Dr. Lafon's residence in the Līhu'e area. It may be, however, that substantial settlement down in the Hulē'ia Stream valley was largely obscured from his view.

In the 1830s, the Governor of Kaua'i (Kaikio'ewa) founded a village at Nāwiliwili that eventually developed into Līhu'e. According to Hammatt and Creed (1993), the name Līhu'e was not consistently used until the establishment of commercial sugar cane agriculture in the middle nineteenth century. From the 1830s to the *Māhele*, the names Nāwiliwili and Līhu'e were used interchangeably to some extent to refer to a settlement along Nāwiliwili Bay. Some sources attribute the decision to call this area Līhu'e (literally translated as "cold chill") to the ruling chief Kaikio'ewa, who apparently named it after his nearby upcountry home (see below). Waimea and Kōloa were preferred anchorages compared with Nāwiliwili, which opens directly east to the trade winds. Gales were known to blow ships onto the rocks. During the whaling era, Kōloa, which was home to some of the earliest major commercial operations in the Hawaiian Islands, was the preferred anchorage because of the ready supply of nearby food stuffs for resupply of the ships. Forty to sixty whaling ships would call at Kōloa in one season (Smith 1991:77).

By 1830, the sandalwood trade had waned and the whaling industry was growing. At the same time, commercial agriculture was being established on Kaua'i. When the first crop of sugar cane was harvested at Kōloa, the king himself commanded that portions of his private land be planted in cane. In 1839, Governor Kaikio'ewa began farming the slopes of Nāwiliwili Bay where there was more rain than at Kōloa (Dorrance and Morgan 2000). He also built a house and church in Nāwiliwili Ahupua'a.

Donohugh (2001:94) describes Kaikio'ewa's attempt to establish the first commercial sugar mill and plantation in Līhu'e in 1839:

During the early decades of Kōloa Plantation, other sugar plantations had started up on the island. One was to result in the ascendancy of Līhu'e to the principal town and seat of government on Kaua'i, replacing Wailua. When Kaikio'ewa was appointed governor, he located his home in what is now the Līhu'e District. He planned to grow sugar cane but died in 1839 before his plans could be realized.

Kaikio'ewa was responsible for the name [Līhu'e], which means "cold chill," the name of his previous home at a higher and chillier altitude on O'ahu.

Donohugh (2001:94) describes observations by James Jarves, who passed through Līhu'e in 1838:

... [He] found only a church built by Kaikio'ewa and a few grass houses. He commented the governor had selected Hanamā'ulu Bay as the harbor, "entirely overlooking the fact that it opened directly to the windward."

Following Kaikio'ewa's death in 1839 shortly after the establishment of the sugar plantation, the plantation closed down in 1840 (Dorrance and Morgan 2000).

Around this time, perhaps as late as 1842, the first missionaries settled in the Līhu'e area led by Dr. and Mrs. Thomas Lafon, and assisted by Rev. and Mrs. Peter Gulick from Kōloa. Schools were established, and some missionaries attempted to grow cotton as the first intensive cash crop, but were unsuccessful (Damon 1931).

An account of the United States Exploring Expedition that passed through Līhu'e in 1840, described the area.

At noon they reached Lihui [sic], a settlement lately undertaken by the Rev. Mr. Lafon, for the purpose of inducing the natives to remove from the sea-coast, thus abandoning their poor lands to cultivate the rich plains above. Mr. Lafon has the charge of the mission district lying between those of Koloa and Waioli. This district [Līhu'e] was a short time ago formed out of the other two.

The principal village is Nawiliwili, ten mi east of Koloa. This district contains about forty square mi, being 20 mi long by two broad. The soil is rich: it produces sugar-cane, taro, sweet-potatoes, beans, etc. The only market is that of Koloa. The cane suffers somewhat from the high winds on the plains.

The temperature of Lihui [sic] has much the same range as that of Koloa, and the climate is pleasant: the trade-winds sweep over it uninterruptedly, and sufficient rain falls to keep the vegetation green throughout the year....

On the fertile places, although the pasturage was good, yet no cattle were to be seen. (Wilkes 1845:67-68)

With the death of Kaikio'ewa, governorship of Kaua'i was transferred for a brief period to his widow Keaweamahi. Then followed the brief tenure of Chiefess Kekauonohi and her husband Keali'iahonui (son of King Kaumuali'i) after which the governorship passed to Paulo Kanoa in 1848. Kanoa had two houses overlooking Nāwiliwili Bay: one on the bluff south of Nāwiliwili Stream (the present location of Kaua'i High School) and another at Papalinaloa, north of the bay (Damon 1931).

During the second half of the nineteenth century, western settlers and entrepreneurs set their sights on southeast Kaua'i. Ethel Damon's history *Koamalu* gives an account of the pre-cash crop landscape as observed at the time of the Rice family's arrival on Kaua'i in 1854. Damon describes the Līhu'e landscape at the time of the family's arrival at Nāwiliwili Bay:

From the deck of their river craft in 1854 Mrs. Rice and the children could plainly see above the rocky shore and ruins of Kuhiau, the old heiau, or temple, and nearby on the bluff the flaming blossoms of a great *wili-wili* tree among *koa* trees which then grew almost down to the water's edge. (Damon 1931:17-18)

3.1.3 The Māhele (Land Divisions)

In 1845, the Board of Commissioners to Quiet Land Titles, also called the Land Commission, was established “for the investigation and final ascertainment or rejection of all claims of private individuals, whether natives or foreigners, to any landed property” (Chinen 1958:8). This led to the Māhele, the division of lands between the king of Hawaii, the *Ali'i* (chiefs), and the common people, which introduced the concept of private property into the Hawaiian society. In 1848, Kamehameha III divided the land into four categories: certain lands to be reserved for himself and the royal house were known as Crown Lands; lands set aside to generate revenue for the government were known as Government Lands; lands claimed by *ali'i* and their *konohiki* (land manager for the *ali'i*) were called Konohiki Lands; and habitation and agricultural plots claimed by the common people were called *kuleana* (Chinen 1958:8-15).

Victoria Kamāmalu was awarded LCA 7713, which included over two thousand acres of Nāwiliwili Ahupua'a. She was the daughter of Kīna'u, and thus the granddaughter of Kamehameha I; her brothers were Kamehameha IV and Kamehameha V.

In addition to Kamāmalu's large award at Nāwiliwili, there were many smaller *kuleana* awards. According to Hammatt and Creed (1993:20):

Within the valley floor and adjacent to the alluvial plain [in Nāwiliwili] ... are 14 LCAs for which there are testimonies available in the Land Commission records. The awards vary in size between one to two ac and are generally around one acre. The majority of land recorded is for *lo'i* (wetland agriculture) but *kula* (dryland plots) are present as are a few houselots.

Fifty-four *lo'i* recorded, awards generally two to three *lo'i* plots; largest award comprised eight *lo'i*; a single award consisted of one *lo'i*. All awards contained *lo'i* and nine of the 15 total awards had *kula* lots. Without exception, the nine awards containing *kula* mention only one *kula* per award. This is of interest because it shows that the alluvial plain was not entirely dedicated to wetland planting and that a small *kula* lot was essential for subsistence agriculture.

Some awards at Nāwiliwili mention houselots along the shoreline.

According to Kikuchi (1973), Nāwiliwili was home to at least five fishponds in addition to Alekoko (*Menehune*) Loko. The names of two of these were unknown, but the others are Kalalalehua (near a *mo'o* of the same name), Lokoponu, and Papalinaloha (near a *mo'o* of the same name). Land Commission documents identify the *konohiki* for Nāwiliwili at the time of the *Māhele* as Daniela Oleloa; in testimony and register documents, claimants and their witnesses trace the right to live and work the lands from the *konohiki*.

No *kuleana* LCAs were awarded within the project area or its vicinity. There were a few scattered houselots sites in the higher portions of the valley floor and along the lower slopes bordering the *lo'i* and *kula*. However, most of the habitation sites appear to be along the

shoreline with a pattern of clustering in villages, a typical settlement pattern for Hawaiian valleys.

3.1.4 Mid- to Late-1800s

Māhele records indicate that taro continued to be cultivated in Nāwiliwili Valley through the middle nineteenth century. However, later in that century, much of the taro lands in Nāwiliwili, as in other wetland regions of the Hawaiian Islands, were converted to rice cultivation. This shift was dictated by changes in the ethnic make-up of the islands' population and economic demands. Little is known of the rice industry in Nāwiliwili.

As a direct result of the availability of large tracts of land for sale during the *Māhele*, in 1849, Lihue Plantation “was established on the site Kaikio‘ewa had chosen, and the cluster of homes and stores around it was the start of the town of Līhu‘e” (Donohugh 2001:94). The plantation began as a partnership between Henry A. Pierce, Judge William Little Lee, chairman of the Land Commission, and Charles Reed Bishop, doing business as Henry A. Pierce and Company (Damon 1931).

The first 3,000 acres were purchased in Nāwiliwili and an additional 300 acres were purchased in Ahukini in 1866. The Lihue Plantation became the most modern plantation at that time in all Hawai'i. It featured a steam-powered mill built in 1853, the first use of steam power on a Hawaiian sugar plantation, and the ten-mile-long Hanamā‘ulu Ditch built in 1856 by plantation manager William H. Rice. The ditch was the first large-scale irrigation project utilized by the sugar plantations (Moffatt and Fitzpatrick 1995:103). Dorrance and Morgan (2000:28) provide a slightly different list of achievements for Lihue Plantation: “The first irrigation ditch in Hawai'i was dug in 1857 [at Līhu‘e], and in 1859 the first steam engine in a Hawai'i mill was installed at Lihue Plantation.”

The residential and administrative heart of Lihue Plantation was located east of the subject project area, now downtown Līhu‘e, Kaua'i's political center and most developed area.

The success of the Lihue Plantation allowed it to continue to expand. When the owner of Hanamā‘ulu Ahupua‘a, Victoria Kamāmalu, died in 1870, all 9,177 acres in the *ahupua‘a* were purchased by Paul Isenberg, the manager of Lihue Plantation from 1862-1878 (Damon 1931:742-747). By 1870, the plantation owned 17,000 acres in Hanamā‘ulu. A total of 30,000 leased acres in Wailua were later added in 1878. Lihue Plantation built a second mill in 1877, north and west of the present airport. This mill operated until 1920, when it was converted into housing for laborers.

An 1878 Government Survey map (Figure 10) shows little development within the project area vicinity and that sugar plantations had not expanded to their later extent; Lihue Plantation fields are to the east, and Grove Farm fields are to the southeast. Kaumuali‘i Highway appears to be an unimproved or dirt road.



Figure 10. 1878 Government Survey map by W.D. Alexander, showing location of project area (Alexander 1878)

3.1.5 1900s

Lihue Plantation remained a vibrant and successful commercial operation throughout most of the twentieth century, in part, because of a continued interest in technological innovation. By 1910 little development had occurred within the project area and its vicinity as shown on the 1910 U.S. Geological Survey map (Figure 11). An unpaved road or trail extends more or less southeast to northwest and is adjacent to the western boundary of the project area.

Lihue Plantation's technological innovations include the 1912 installation of two 240-kilowatt generators above the cane fields on the slopes of Kilohana Crater. The plantation became one of the first hydroelectric power producers (along with Kekaha, Kaua'i) in the Hawaiian Islands with the generator installation (Dorrance and Morgan 2000). In 1919 Lihue Plantation began the development of an extensive irrigation water system that eventually "spanned and connected several watersheds from Hanalei to Koloa" (Wilcox 1998:70).

Lihue Plantation Co.'s irrigation ditches rivaled those of the East Kauai Irrigation Company, which was established in 1924. The two entities oversaw 51 miles of ditches. Wilcox (1998:68) relates that "Lihue Plantation had more ditches than ditch records, so only a rough chronology of its water development can be pieced together." The first irrigation ditch, originally constructed in 1856 by William Hyde Rice, eventually "metamorphosed into the Lower Lihue Ditch" (Wilcox 1998:70).

A 1941 map of Lihue Plantation Co. shows the project area primarily within field 39B and extending into 39A (Figure 12). Grove Farm abuts these fields to the southwest. The 1963 U.S. Geological Survey map (Figure 13) shows a portion of the "Upper Lihue Ditch" extending into the project area. The location of the ditch corresponds with the separation between field 39A and 39B (Figure 12). Unfortunately, Wilcox's (1998:764-65) account does not include a construction date for Upper Lihue Ditch. The ditch does not appear to be visible on the 1910 U.S. Geological Survey (Figure 11) but is evident in a map provided in a letter report prepared by David Pratt (Appendix B) and in the Lihue Plantation map from 1941.

3.1.6 Modern Land Use

A 1965 aerial photograph (from Foote et al. 1972) (Figure 14) and a 1977-1978 aerial (Figure 15) both show sugar cane cultivation within the project area and its immediate vicinity prior to the construction of Island School.

Lihue Plantation continued commercial sugar cane cultivation in Līhu'e until 2000, when it finally shut down (Dorrance and Morgan 2000).

Island School's (2009) website details the history of the school. The concept of the school originated in 1975 and was implemented on January 27th, 1977 in Keālia. In 1989 American Factors, Inc., (AMFAC) donated 10 acres in Puhi, in an area described as "behind Kaua'i Community College," for the present location of Island School. Pre-kindergarten through fourth-grade classrooms were constructed in 1990. Two large buildings donated by Hawaiian Dredging were reconfigured into the current Administration Building and Main Hall. Three portable classrooms from Keālia completed the new campus that opened in September 1991. On September 11th, 1992, Hurricane Iniki demolished the three portable buildings, and other buildings lost their roofs or were severely damaged. However, Island School reopened within 11 days of the hurricane. Some classrooms were housed in other facilities until the Fall of 1993,

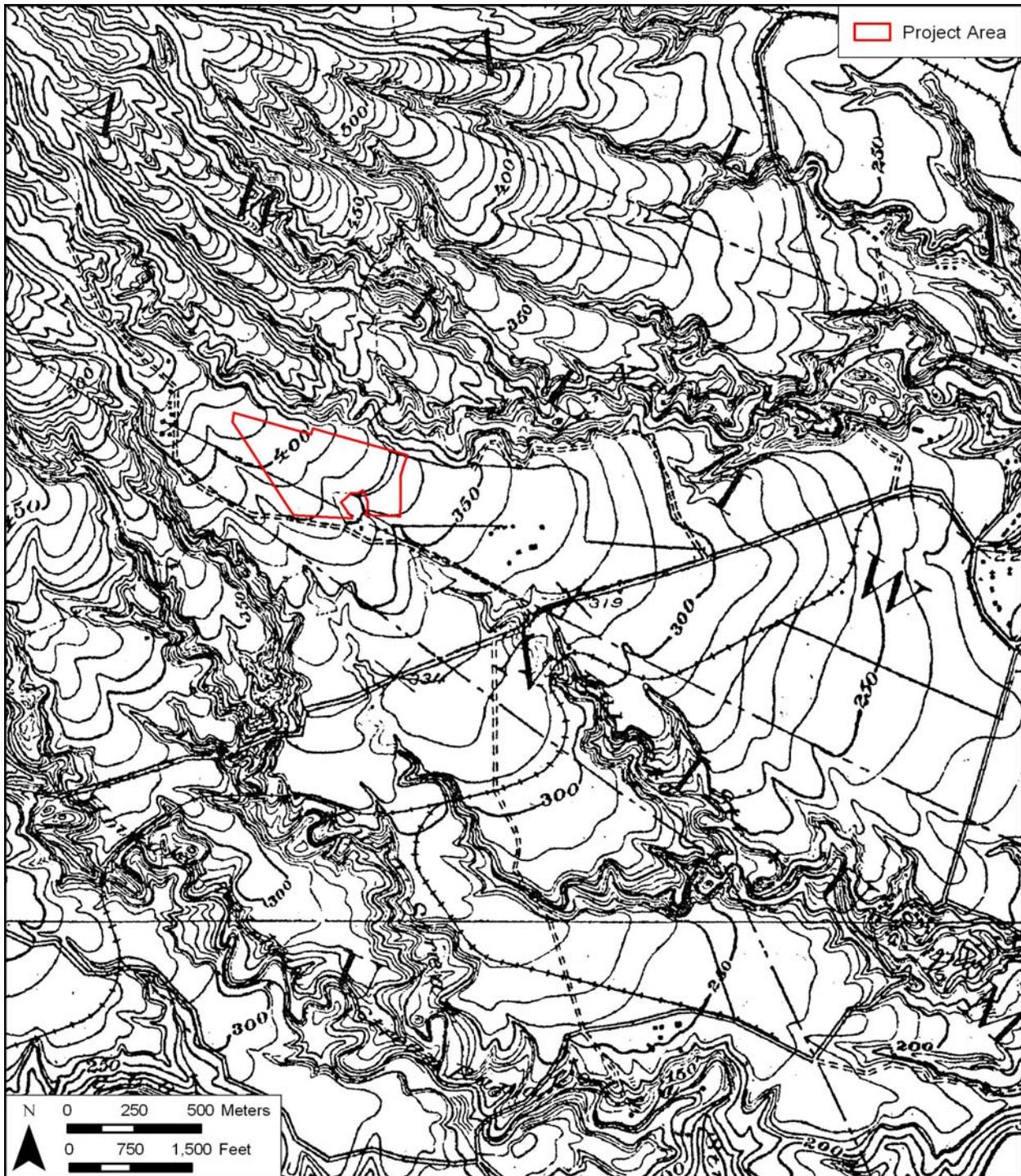


Figure 11. Portion of 1910 U.S. Geological Survey Map, Līhu'e quadrangle, showing the project area

“when all was again in order, with old facilities repaired and new facilities finished” (Island School 2009).

New construction on the campus since the early 1990s includes: the Weinberg Enrichment Center, constructed in 1995-96; Purdy Hall, constructed in 1998; and new soccer fields and a grass track on half of a 20-acre parcel purchased in 2000; Carter Hall modular building in 2001-2002; the Wilcox Gym the Frear Hawaiian Studies Buildings in 2005; and the Palena'ole modular building in 2010-2011 (Island School 2013).

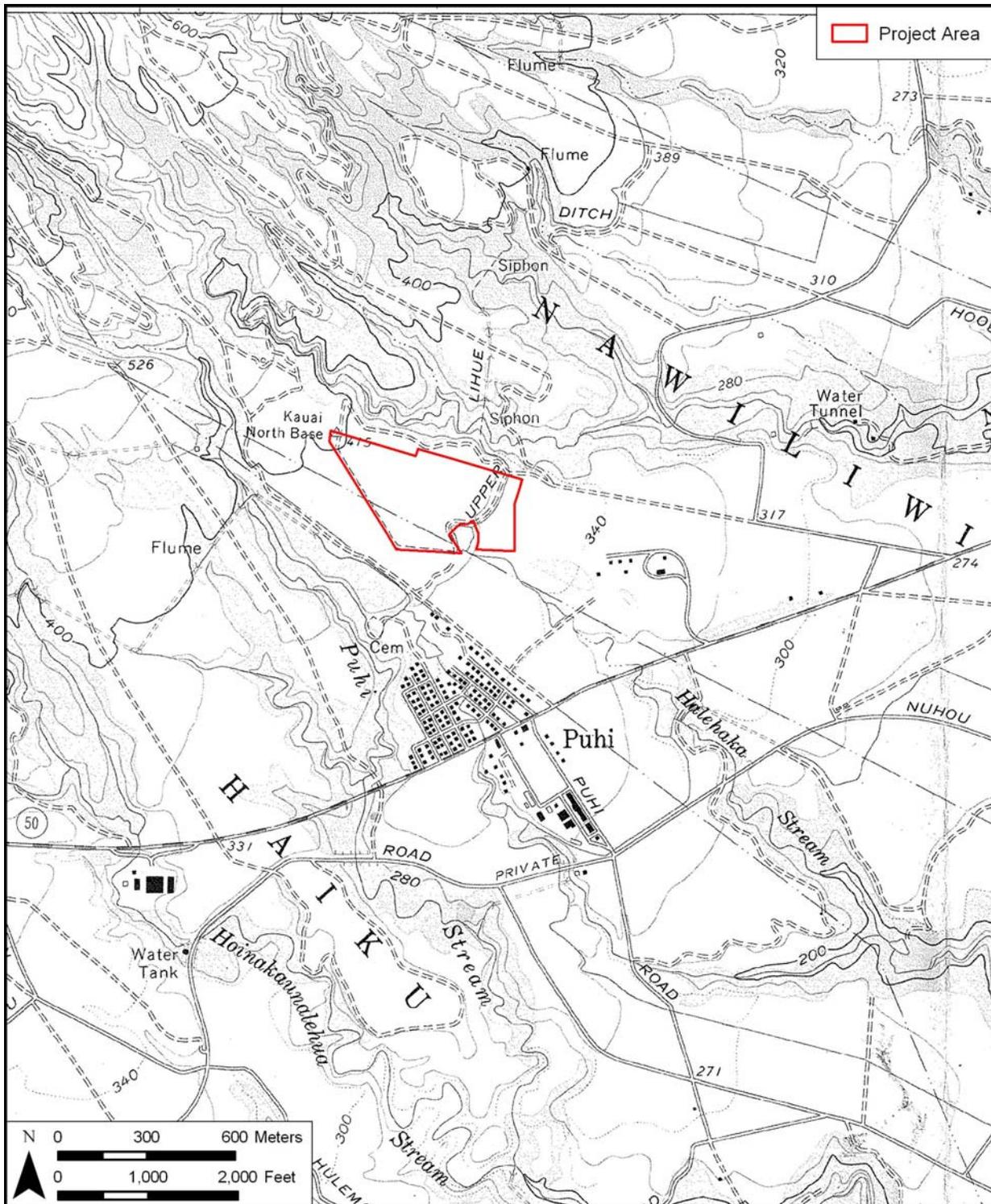


Figure 13. Portion of 1963 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihue quadrangle, showing the project area. Note that Upper Lihue Ditch extends northeast/southwest through the project area



Figure 15. 1977-1978 U.S. Geological Survey aerial of Lihue showing the project area and its vicinity

Section 4 Previous Archaeological Research

4.1 Early Archaeological Studies

An overview of archaeological studies conducted in the vicinity of the current project area is summarized in Table 1 and shown on Figure 16 except for island-wide or archipelago-wide studies. A discussion of the archaeological findings that are relevant to the current project area follows.

Table 1. Previous Archaeological Studies Conducted within the Vicinity of the Project Area

Study	Location	Type	Findings
Bennett 1931	Island Wide Survey	Recordation of Major pre-Contact Sites	The study identified one site in the area (Bennett Site 98).
Palama 1973	Kaua'i Community College area	Reconnaissance Survey	The study noted portions of <i>'auwai</i> , possible <i>lo'i</i> , and an historic military complex. No SIHP #s were assigned.
Neller and Palama 1973	Lower portion of the Hulē'ia River	Reconnaissance Survey	Thirty-one sites were identified including one historic human burial (reported as "Feature(s)" 98, 3000-3013, and 3022-3034).
Ching et al. 1973	Kanoa Estate Lands	Archaeological Surface Survey of Puna, Niumalu Ahupua'a	Nine archaeological "features" and "feature complexes" were identified and documented, including three fishpond features (<i>loko kuapā</i> and two <i>loko wai</i>) (Features 98, 3027, and 3028), two <i>'auwai</i> (Features 3029 and 3030), and four <i>lo'i</i> complexes (Features 3031-3034). No SIHP #s are cited.
Kido 1986	Alekoko Fishpond and Hulē'ia Estuary	Preliminary Survey	A mangrove encroachment on pond wall, breaks in wall and rubbish used to fortify wall were observed; a more comprehensive survey was recommended. No SIHP #s were assigned.
Walker and Rosendahl 1988	Grove Farm Lihue/Puhi Project	Surface and Subsurface Survey	The study identified two historic properties, a Japanese cemetery (SIHP # -503) and a historic residence (SIHP # -9390).
Rosendahl 1989	Additional Areas of the Grove Farm Līhu'e/Puhi Project	Archaeological Inventory Survey	No cultural material was observed.
McMahon 1990	Līhu'e	Archaeological Fieldcheck	Three previously-identified historic residential sites (SIHP #s 50-30-9390, -9401, -9402) were observed.

Study	Location	Type	Findings
Walker et al. 1991	Līhu'e District	Archaeological Inventory Survey	The study identified ten historic properties; three pre-Contact, seven historic including a concrete bridge (SIHP # -1846), railroad bridge (SIHP # -1845), cultural deposits (SIHP # -1838 A and B), terraces and walls (SIHP # -1839 A and B), roads (SIHP # -1841), a possible agricultural area (SIHP # -1843), and a historic cemetery (SIHP # 1844).
Henry et al. 1993	590-ac Grove Farm Līhu'e/Puhi Project Site	Archaeological Inventory Survey w/ Subsurface Testing	Two historic properties were identified including a cemetery (Site 503) and residence (Site 9390) (revised report same as Walker and Rosendahl 1988).
O'Hare et al. 1993	100-ac Puakea Golf and Country Club	Archaeological Inventory Survey w/ Subsurface Testing	No cultural material was observed.
Hammatt and Chiogioji 1998	11.5 km portion of Kaumuali'i Highway corridor	Archaeological Inventory Survey	Four historic properties were identified: Grove Farm office building in Puhi, the Līhu'e Mill Bridge, the Ho'omana Overpass Bridge, and the Līhu'e Public Cemetery. No SIHP #s were assigned..
Hammatt and Shideler 2004	One-Stop Center at Kaua'i Community College	Archaeological and Cultural Impact Evaluation Study	No cultural material was observed and no cultural impacts anticipated.
Groza and Hammatt 2010	Kaua'i Community College Rezone Campus	Literature Review and Field Investigation	Ten historic surface features, including two previously identified historic features (CSH 9, CSH 10), were found during the field inspection. The Puhi Camp Cemetery (SIHP # 50-30-11-B006 / CSH 10) is outside of but surrounded by the project area. The nine features found within the project area consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7), one of which (CSH 3) is abandoned; and an abandoned wooden flume (CSH 8). No SIHP #s were assigned other than the cemetery citation.
Groza and Hammatt 2013	Island School, Puhi, Kaua'i	Literature Review and Field Investigation	Four historic properties were identified during surface survey, SIHP # 50-30-11-2179, Features A through D, and plantation era agriculture infrastructure.

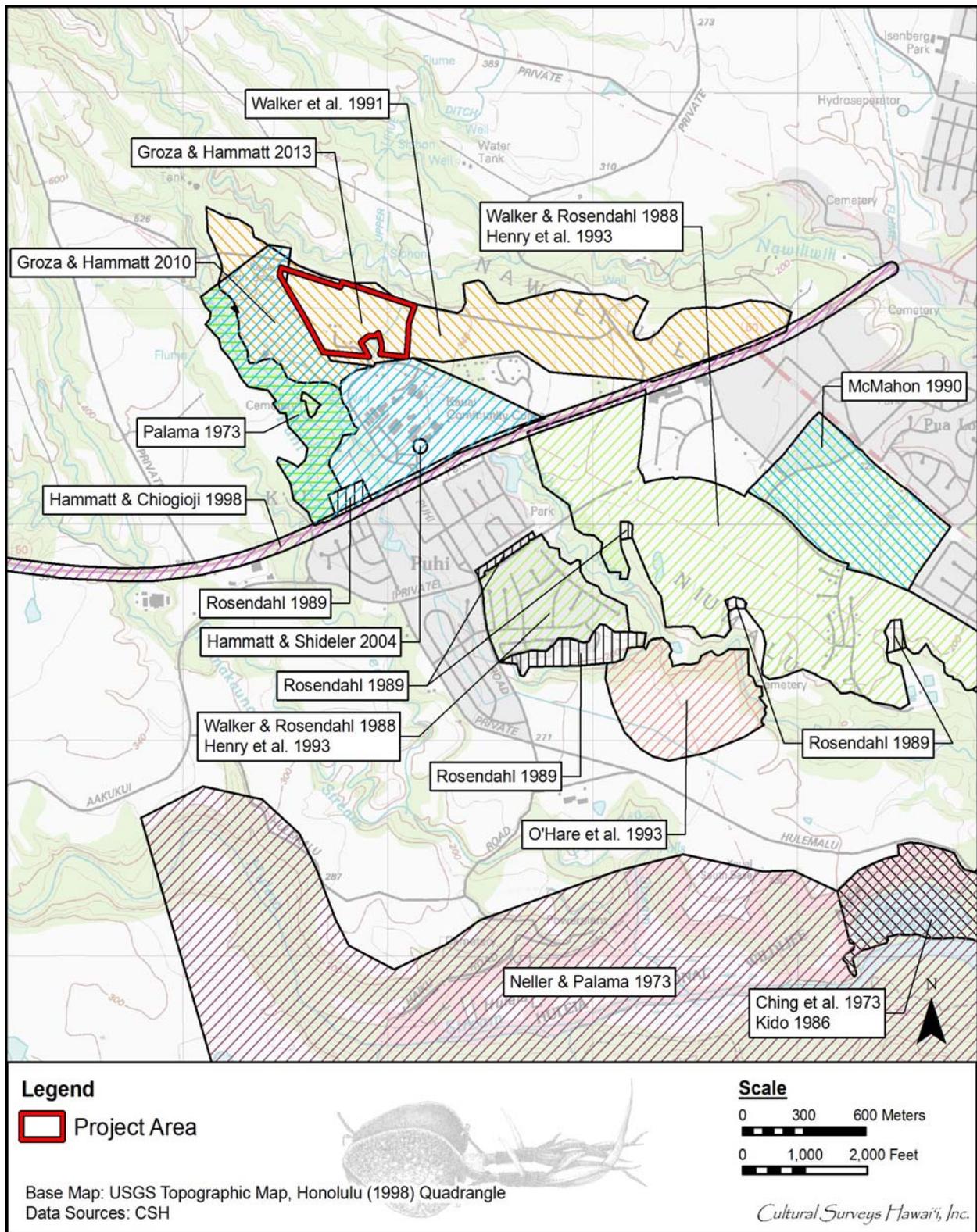


Figure 16. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihue quadrangle showing previous archaeological studies in the vicinity of the project area

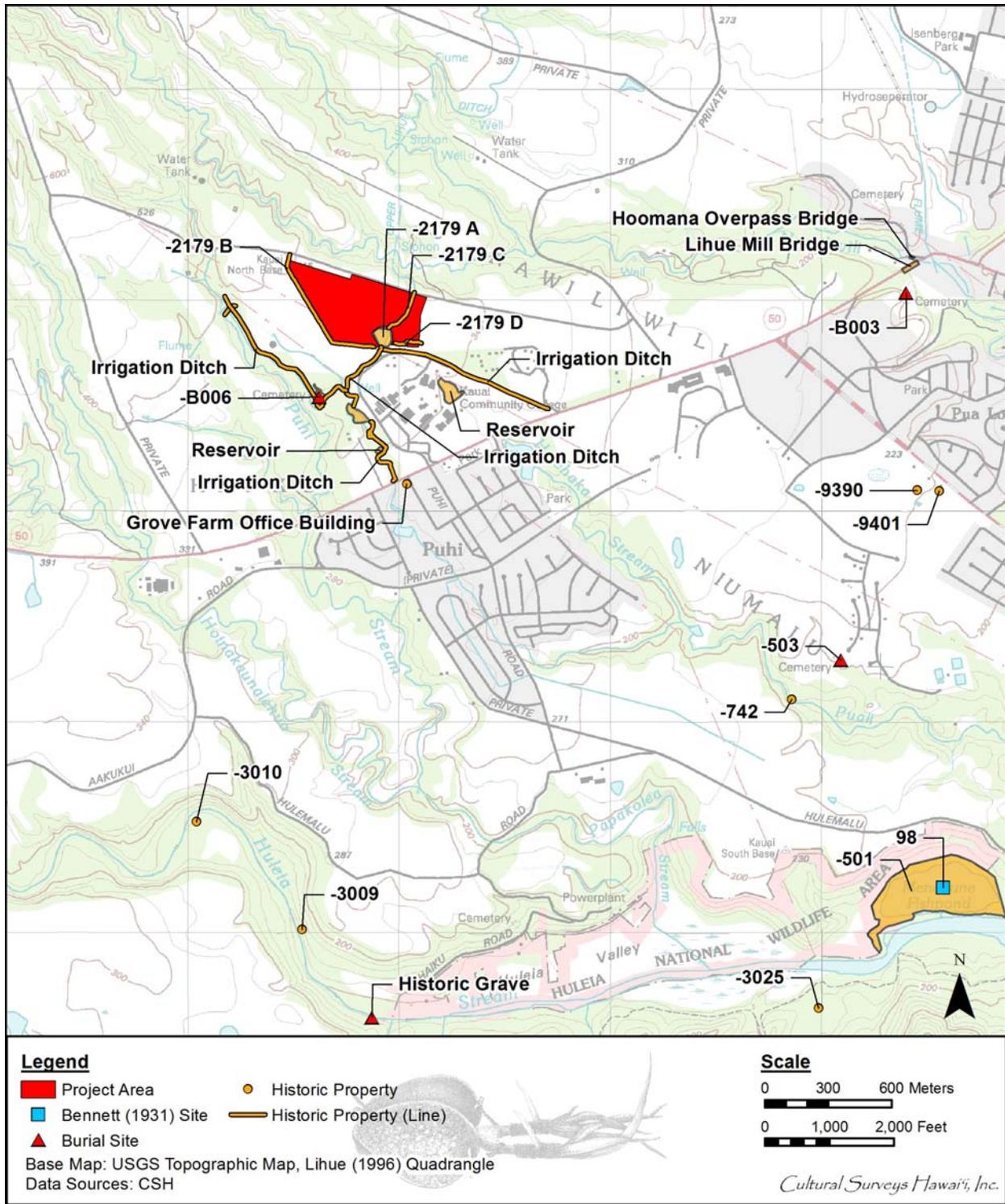


Figure 17. Previously identified SIHP #s in the vicinity of the project area

4.1.1 Bennett 1931

The first attempt at a comprehensive archaeological survey of Kaua'i was undertaken by Wendell Bennett (1931) of the Bishop Museum. Bennett's survey report identifies no archaeological sites within or in the vicinity of the present project area. The "Niumalu" or "*Menehune*" Fishpond (Bennett Site 98), approximately 3 km to the southwest is the closest.

4.1.2 Neller and Palama 1973

Neller and Palama (1973) carried out an archaeological reconnaissance of the lower portion of the Hulē'ia River and vicinity recording a number of historic properties. The archaeological richness of that area from the "*Menehune* Fishpond" downstream and near the crest of the trail to Kīpū Kai is clear. They did, however, also document four historic properties upstream of the *Menehune* Fishpond, the nearest of which (SIHP # -3010) consists of contiguous rock wall enclosures and several other features. This historic property is described as:

...a compound, probably belonging to a chief or other important person. Nearby there are stone-faced river terraces, irrigation ditch (*auwai*), and a stone bridge crossing the *auwai*. The area is worth restoring to its prehistoric condition. It is an impressive site. (Neller and Palama 1973:3)

SIHP # -3009, also identified by Neller and Palama, is approximately 2.4 km from the current project area, and consists of an "agricultural area along both sides of the river, including rock-walled terraces and irrigation ditches ('*auwai*). Also includes cement covered grave of G. Kalili, died Dec. 17, 1898" (Neller and Palama 1973:11).

4.1.3 Ching et al. 1973

Ching et al. (1973) conducted detailed research on Alekoko (*Menehune*) Fishpond and its vicinity. Nine archaeological features and feature complexes were identified and documented, including three fishpond features (*loko kuapā* and two *loko wai*), two '*auwai*, and four *lo'i* complexes. Although located well to the south of the present study area, the Alekoko (*Menehune*) Fishpond is an important historical property of the general vicinity and a testament to the organization and initiative of the Native Hawaiian population of the area.

4.1.4 Kido 1986

Michael Kido (1986) conducted a preliminary survey of Alekoko (*Menehune*) Fishpond and the Hulē'ia Estuary. The most prominent feature of the estuary and the pond was the mangrove. It was revealed that an extensive encroachment of mangrove into the estuary and on the pond wall existed. Small breaks in the wall along with cement bags, iron scrap, and other rubble were observed. Apparently this material was used to repair to damage to the wall. It was recommended that a comprehensive survey was needed before any activity that would impact the Alekoko Fishpond or the Hulē'ia Estuary.

4.1.5 Walker and Rosendahl 1988

Walker and Rosendahl (1988) conducted an archaeological surface and subsurface inventory survey of the 450-ac Grove Farm Līhu'e/Puhi area from Puhi Town, south of Kaumuali'i Highway nearly to Nāwiliwili Bay. A total of two historic properties were identified, a historic

Japanese cemetery (SIHP # -503), and a historic residence (SIHP # -9390). The following year, Paul Rosendahl (1989) produced an addendum report covering eight additional separate small adjacent areas. No historic properties or cultural material were identified. Henry et al. (1993) covered the same project area and his project represents the final archaeological inventory survey for this area.

4.1.6 O'Hare et al. 1993

O'Hare et al. (1993) carried out an archaeological inventory survey on a 100-ac Puakea Golf and Country Club project area located approximately one km southeast of Puhi Town. No historic properties or cultural materials were identified.

4.1.7 Hammatt and Chiogioji 1998

CSH (Hammatt and Chiogioji 1998) conducted an archaeological assessment of an approximately 11.5-kilometer long portion of the Kaumuali'i Highway corridor, a portion of which is 500 m south of the project area. During the reconnaissance survey no historic properties were found in the vicinity of the school campus. No surface traditional Hawaiian archaeological sites were observed during the entire survey although four historic sites (two bridges, a cemetery and an office building) were noted. No state site numbers were assigned.

4.2 Studies within or adjacent to the project area

4.2.1 Palama 1973

In 1973, the Archaeological Research Center Hawaii conducted an archaeological reconnaissance of approximately 57 ac of Kaua'i Community College (KCC) that also included the southwestern portion of the current project area (Palama 1973). Portions of an "old 'auwai" (conforming to Grove Farm's Mauka Ditch), an old military complex, a Japanese Cemetery, plantation camp remains, and possible *lo'i* were found but nothing was deemed to warrant further investigation (Palama 1973). Palama (1973:2) "recommended that no further work is warranted" for the historic features he identified and no state site numbers were assigned. The "old 'auwai" (plantation ditch) is approximately 100 m west of the northern portion of the project area.

4.2.2 McMahan 1990

SHPD staff, Nancy McMahan, conducted a pedestrian field inspection of three parcels in Līhu'e Judiciary District. The only sites identified were two historic residences (SIHP # -9390 and -9401), which were originally described by Rosendahl (1989).

4.2.3 Walker et al. 1991

The entire proposed project area was included in the 1,550-ac Lihue/Puhi/Hanamaulu Master Plan AIS (Walker et al. 1991). Designated as Section No. 1, it is described as:

...bounded on the north and east by the Nāwiliwili Stream gulch, on the south by Kauai Community College and Kaumuali'i Highway, and on the west by the Puhi Stream gulch. This entire parcel has been modified and is presently in sugar cane (*Saccharum officinarum* L. hybrid) cultivation. (Walker et al. 1991:2)

According to Walker et al. (1991:7) only areas in sugar cane were sampled ... [and] were not generally surveyed because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits.

While Section No. 1 is listed as an area subjected to “inventory-level survey” in the Conclusion Section of the report, this statement is further explained that “only very limited surface survey was done in sugar cane fields [and] no subsurface testing was performed in sugar cane fields” (Walker et al. 1991:18). No historic properties were identified in or within the vicinity of the current project area during the Walker et al. (1991) inventory survey. Additionally, none of the ten historic properties (SIHP #s -1838 through -1847) identified during the Walker et al. (1991) study (including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery), was identified in or within close proximity to the project area. The plantation infrastructure documented in the present study was not recorded in the Walker et al. (1991) study.

4.2.4 Hammatt and Shideler 2004

In 2004, CSH (Hammatt and Shideler 2004) conducted an archaeological and cultural impact evaluation study for the One-Stop Center at KCC approximately 600 m south of the project area. The proposed project involved construction of a two-story building of approximately 35-40,000 net square feet (about 55-60,000 gross square feet) in the southwest (Kaumuali'i Highway) side of the existing KCC campus. A field inspection of the vicinity of the proposed project was conducted and observed to be a graded, established lawn with no observed indicators of any archaeological concern. As the project area was under sugar cane cultivation for many decades and the location of the project area was observed to be graded with an established lawn, it was concluded that there were unlikely to be any cultural impact issues associated with the “one-stop” project.

A summary of the proposed project and findings was mailed to Dr. Pua Aiu (then) of the Office of Hawaiian Affairs and to Mr. Dennis Chun of the Hawaiian Studies program of Kaua'i Community College on December 23, 2003. Follow-up telephone consultation was held with Mr. Chun of February 19, 2004, and with Dr. Aiu on February 24, 2004. A brief telephone conversation on the subject was also held with Ms. LaFrance Kapaka-Arboleda of the Kaua'i Office of Hawaiian Affairs and the Kaua'i/Ni'ihau Islands Burial Council on February 20, 2004. None of these parties expressed any concerns for adverse impacts to cultural practices by the proposed project as described. SHPD concluded “No further archaeological work is needed for the project” (see Appendix A).

4.2.5 Groza and Hammatt 2010

In 2010, CSH conducted a Literature Review and Field Inspection (Groza and Hammatt 2010) for the KCC Rezone Campus project and campus expansion that would include the construction of new buildings, additions to buildings, and new parking lots within its existing 198.8-ac campus. A total of ten historic surface features, including two previously-identified historic features (CSH 9, CSH 10), were found during the field inspection. CSH 9, an “old *'auwai*” that conforms to a portion of Grove Farm's “Mauka Ditch” was previously found during an archaeological reconnaissance (Palama 1973) of the western portion of the (Groza and

Hammatt 2010) project area. Palama (1973) also recorded the location of a cemetery that was identified during the (Groza and Hammatt 2010) field inspection as CSH 10 (Puhi Camp Cemetery, SIHP # 50-30-11-B006).

The nine features found within the project area appeared to be related to Grove Farm and date to the plantation era. The historic surface features consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7), one of which (CSH 3) is abandoned; and an abandoned wooden flume (CSH 8).

Palama's (1973) archaeological reconnaissance also identified former plantation camp remains associated with Puhi Camp, Puhi Camp, and an area containing possible *lo'i*. These features were not visible during this field inspection.

Based on the findings during the field inspection CSH recommended an AIS. This AIS has not been undertaken to our knowledge.

4.2.6 Groza and Hammatt 2013

During pedestrian inspection, several surface features were observed that are related to the Lihue Plantation. The surface features consist of a reservoir that is adjacent to and surrounded by the project area, and three irrigation ditches. All three of the irrigation ditches are associated with the adjacent reservoir. The four historic surface features related to the Lihue Plantation are designated as SIHP # 50-30-11-2179 Features A through D.

Section 5 Results of Fieldwork

5.1 Pedestrian Inspection Field Results

On Wednesday, April 3, 2013, CSH archaeologists Gerald K. Ida, B.A., Frederick LaChance, B.A. and Nifae Hunkin, B.A. completed a 100% surface survey for the current AIS investigation, under the general supervision of Hallett H. Hammatt, Ph.D. (principal investigator).

SIHP # 50-30-11-2179, Features A through D, was identified as part of a Literature Review and Field Inspection (Groza and Hammatt 2013), which was reviewed and accepted by SHPD on February 11, 2013 (Log No. 2013.0401, Doc. No. 1302SL09, Appendix A.3). A majority of the project area had been graded and modified since the early 1990s. In general, the areas of interest for the surface survey component of the current AIS were those less impacted by prior development, with primary focus on a heavily wooded area at the project area's eastern side, and the area to the north that was overgrown with tall grass (Figure 18 and Figure 19). No new historic property was added to the inventory of historic properties as a result of the current pedestrian inspection.

5.2 Subsurface Testing

Twenty-five test excavation trenches (TE) were completed for the subsurface testing component of this AIS investigation (Figure 20). Fourteen TE (TE-1 through TE-10, and TE-13 through TE-16) were short, approximately 2-m long and 70-cm wide. The fourteen shorter TE were spaced along the relatively undisturbed northeast edge of the project area adjacent to a tributary of Nāwiliwili Stream to the northeast where it was thought that the prospect of subsurface cultural resources was greater because of both the proximity to the stream and the relative absence of prior land disturbance in this area. Eleven longer, linear TE (TE-11, TE-12, and TE-17 through TE-25), each 6-m long and 70-cm wide, were placed to assess the potential for subsurface historic properties in areas where construction is planned for the proposed project (Figure 21).

The stratigraphy in each trench was drawn and photographed. The sediments were described using standard USDA soil description observations and terminology. Sediment descriptions include Munsell color, texture, consistency, structure, plasticity, cementation, origin of sediments, any inclusions such as cultural material and/or roots and rootlets, lower boundary distinctiveness and topography, and other general observations.

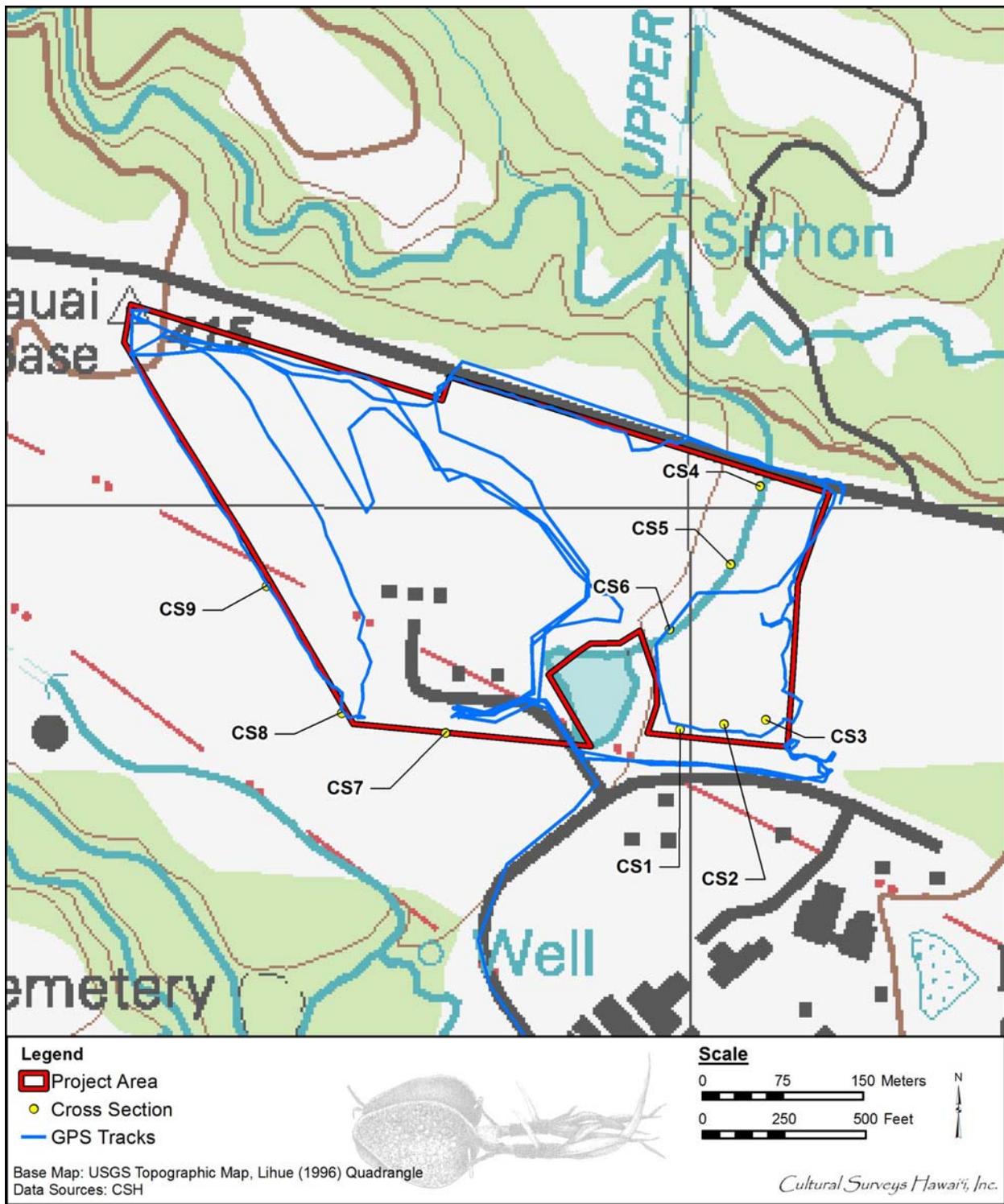


Figure 18. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihue quadrangle, showing the project area, pedestrian inspection transects, and cross section locations (CS1 through CS9)

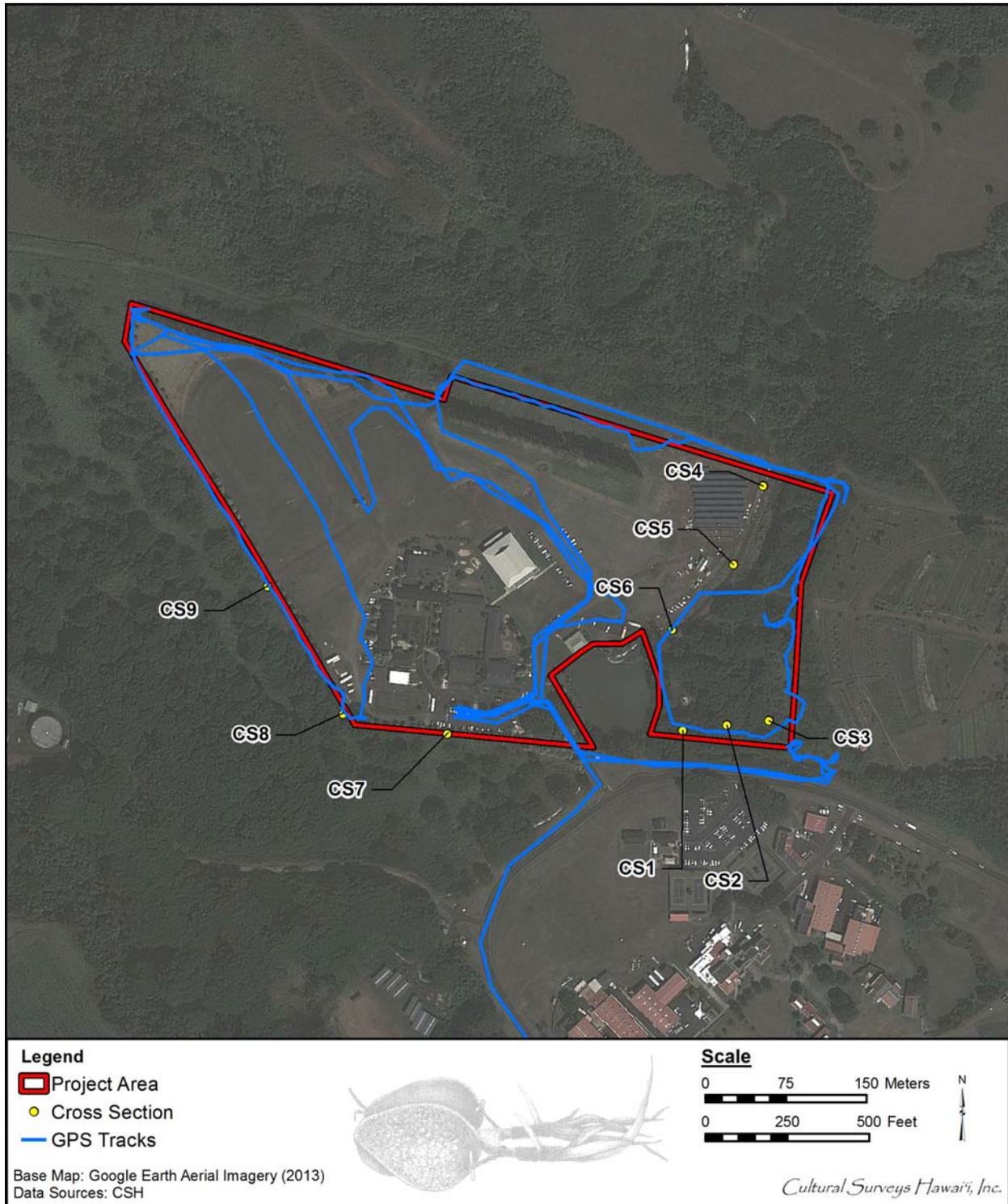


Figure 19. 2013 Google Earth Aerial Imagery aerial photograph showing the project area, pedestrian inspection transects (not all are shown) and cross section locations (CS1 through CS9)

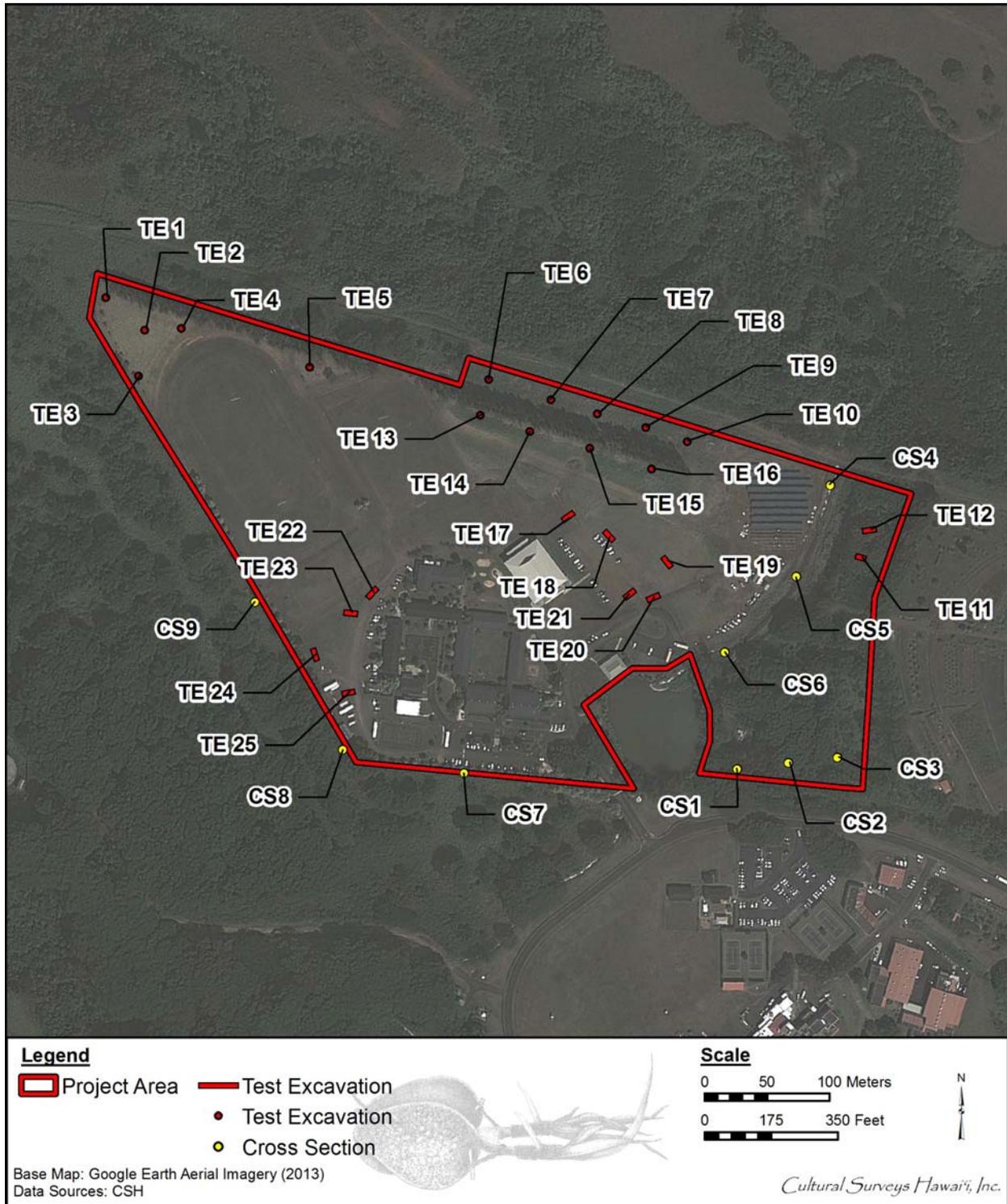


Figure 20. 2013 Google Earth Aerial Imagery aerial photograph showing project area boundary, test excavation (TE) locations and cross section (CS) locations

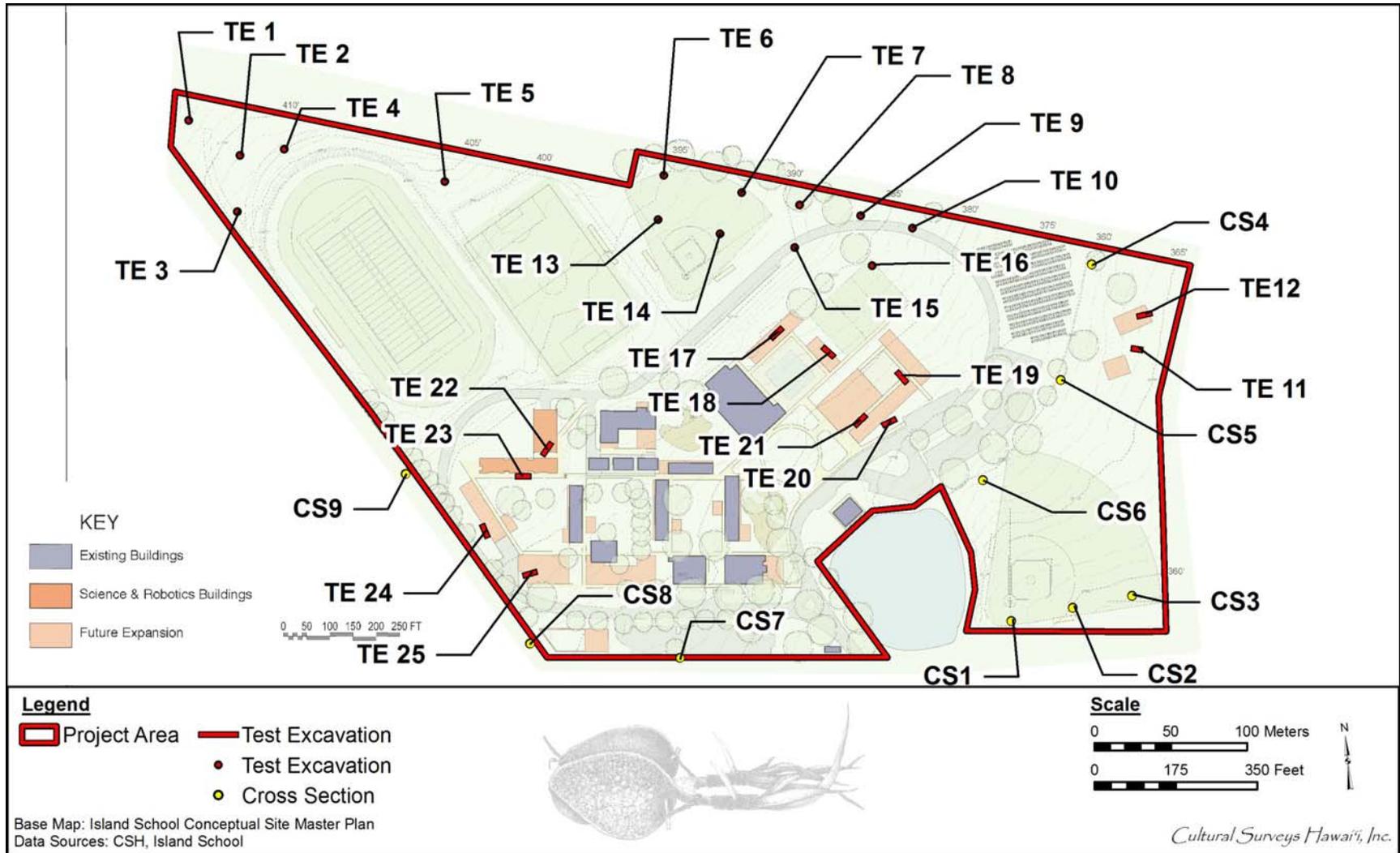


Figure 21. Island School Site Master Plan showing test excavation (TE) locations in relation to proposed development

5.2.1 Test Excavation 1 (TE-1)

TE-1 was located at the northwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document general stratigraphy near a tributary of Nāwiliwili Stream in the northwestern portion of the project area. The dimensions of TE-1 were 1.9-m long, 0.7-m wide and 0.9-m deep. Stratigraphy at this location included a top layer of grass superposing successive layers of disturbed and undisturbed naturally-deposited clay sediments (Table 2, Figure 22 and Figure 23). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-1 was level, and its approximate elevation was 122 m above mean sea level (AMSL). No cultural material was observed during test excavation at this location.

Table 2. TE-1 Stratigraphy

Stratum	Depth (centimeters below surface [cmbs])	Description
I	0 – 20	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ia	20 – 75	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	75 – 90	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

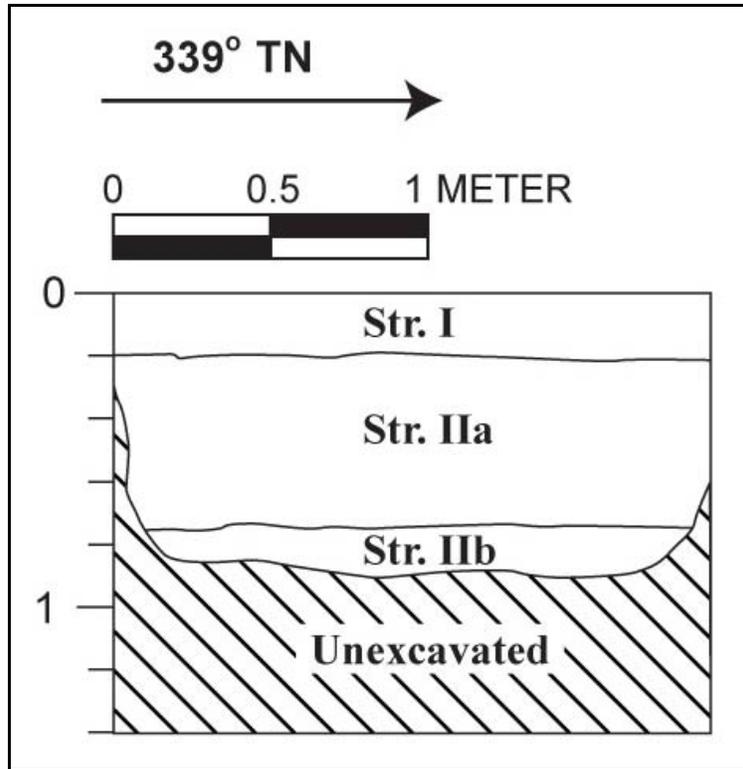


Figure 22. TE-1, view to west



Figure 23. TE-1, view to west

5.2.2 Test Excavation 2 (TE-2)

TE-2 was located at the northwestern corner of the project area (see Figure 20). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northwestern portion of the project area. The dimensions of TE-2 were 2.0-m long, 0.7-m wide and 0.9-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 3, Figure 24 and Figure 25). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-2 was level, and its approximate elevation was 122 m AMSL. No cultural material was observed during test excavation at this location.

Table 3. TE-2 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 20	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	20 – 80	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	80 – 90	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

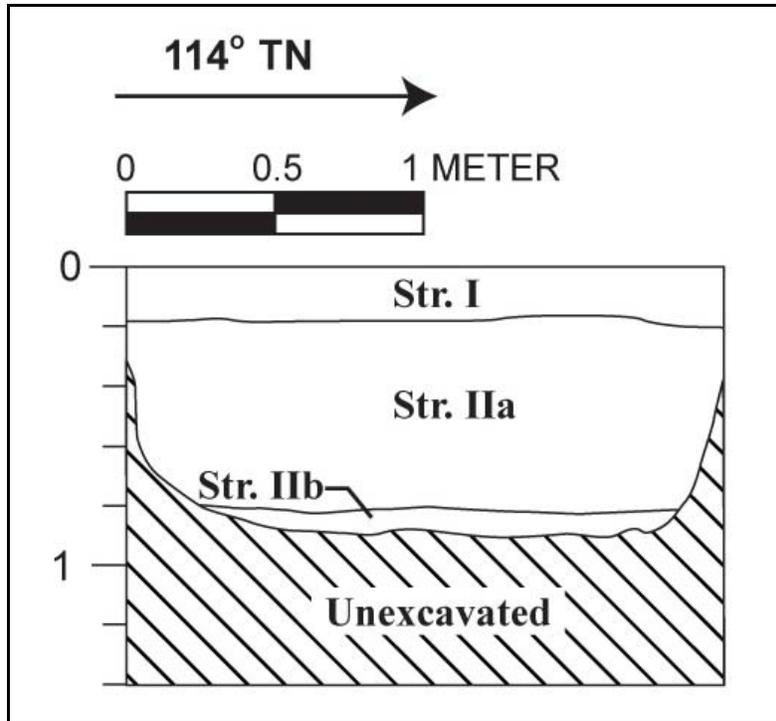


Figure 24. TE-2, view to north



Figure 25. TE-2, view to north

5.2.3 Test Excavation 3 (TE-3)

TE-3 was located at the northwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northwestern portion of the project area. The dimensions of TE-3 were 2.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 4, Figure 26, and Figure 27). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-3 was level, and its approximate elevation was 122 m AMSL. No cultural material was observed during test excavation at this location.

Table 4. TE-3, Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 30	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	25 – 120	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	120 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

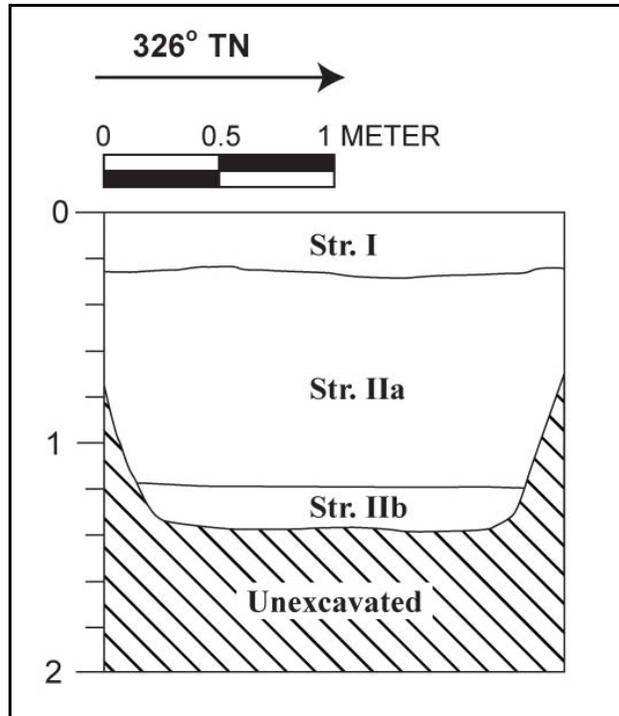


Figure 26. TE-3, view to southwest



Figure 27. TE-3, view to southwest

5.2.4 Test Excavation 4 (TE-4)

TE-4 was located at the northwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northwestern portion of the project area. The dimensions of TE-4 were 2.0-m long, 0.7-m wide and 1.3-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 5, Figure 28, and Figure 29). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-4 was level, and its approximate elevation was 122 m AMSL. No cultural material was observed during test excavation at this location.

Table 5. TE-4 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 30	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	30 – 120	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	127 – 130	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

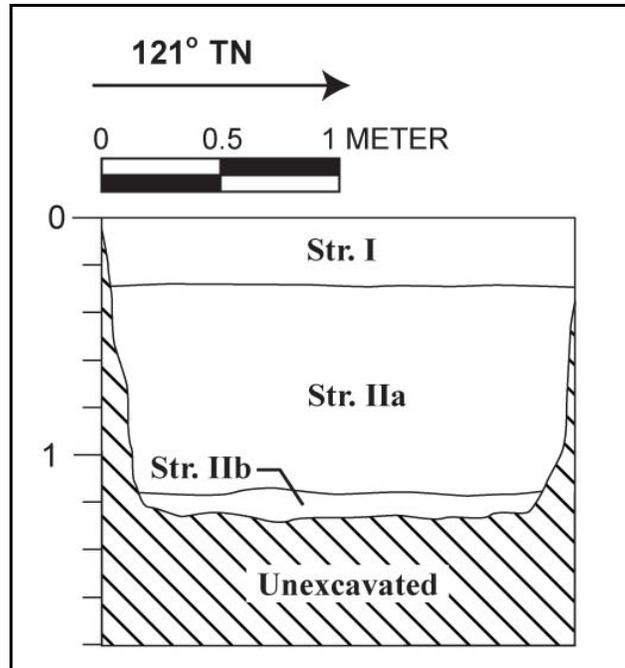


Figure 28. TE-4, view to northeast



Figure 29. TE-4, view to north

5.2.5 Test Excavation 5 (TE-5)

TE-5 was located at the north-northwestern side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northwestern portion of the project area. The dimensions of TE-5 were 2.00-m long, 0.70-m wide and 1.32-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 6, Figure 30, and Figure 31). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-5 was level, and its approximate elevation was 121 m AMSL. No cultural material was observed during test excavation at this location.

Table 6. TE-5 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 22	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	20 – 121	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Ilb	120 – 132	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

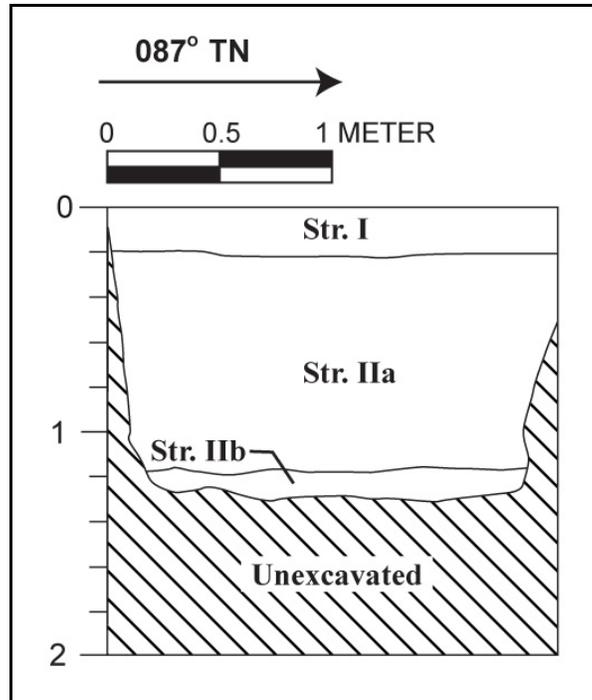


Figure 30. TE-5, view to north



Figure 31. TE-5, view to north

5.2.6 Test Excavation 6 (TE-6)

TE-6 was located at the north-central side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-6 were 2.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy location included a top layer of tall grass (approximately 1.5 to 2.0 m) and associated root action superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 7, Figure 32, and Figure 33). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-6 was level, and its approximate elevation was 114 m AMSL. No cultural material was observed during test excavation at this location.

Table 7. TE-6 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 45	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	40 – 80	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	80 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

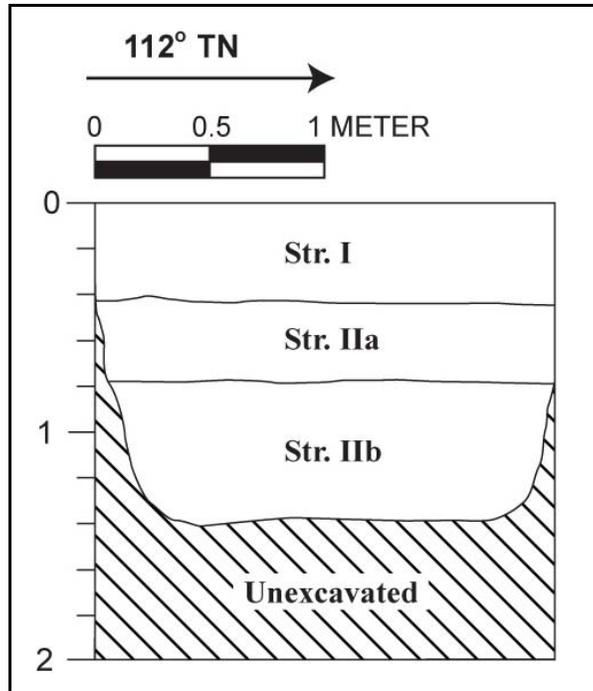


Figure 32. TE-6, view to north



Figure 33. TE-6, view to north

5.2.7 Test Excavation 7 (TE-7)

TE-7 was located at the north-central side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-7 were 2.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy included a top layer of tall grass (approximately 1.5 to 2.0 m) and associated root action superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 8, Figure 34, and Figure 35). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-7 was level, and its approximate elevation was 114 m AMSL. No cultural material was observed during test excavation at this location.

Table 8. TE-7 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 30	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	28 – 70	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	65 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

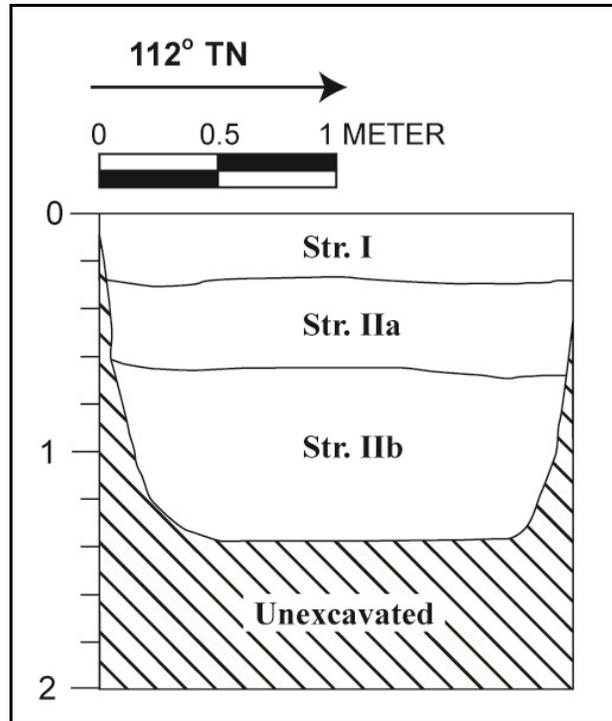


Figure 34. TE-7, view to north



Figure 35. TE-7, view to northeast

5.2.8 Test Excavation 8 (TE-8)

TE-8 was located at the north-central side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-8 were 2.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy at this location included a top layer of tall grass (approximately 1.5 to 2.0 m) and associated root action superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 9, Figure 36, and Figure 37). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-8 was level, and its approximate elevation was 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 9. TE-8 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 33	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	28 – 68	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	62 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

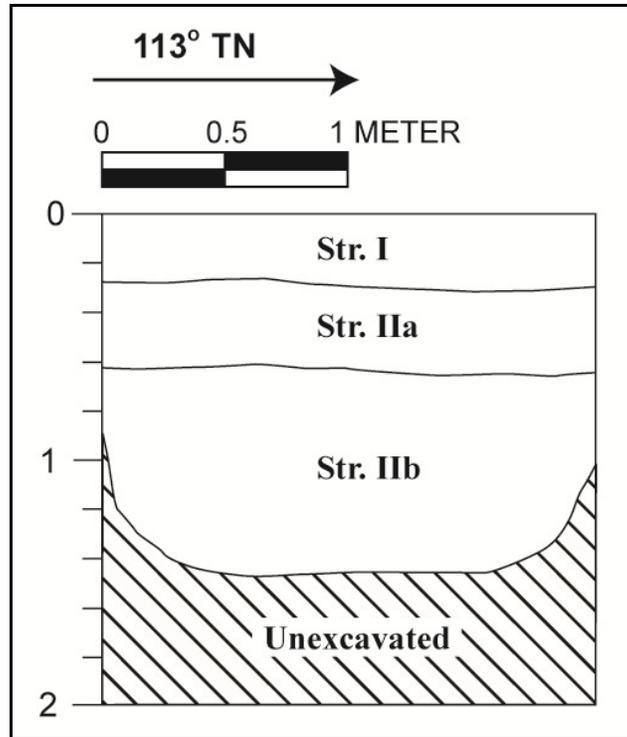


Figure 36. TE-8, view to north

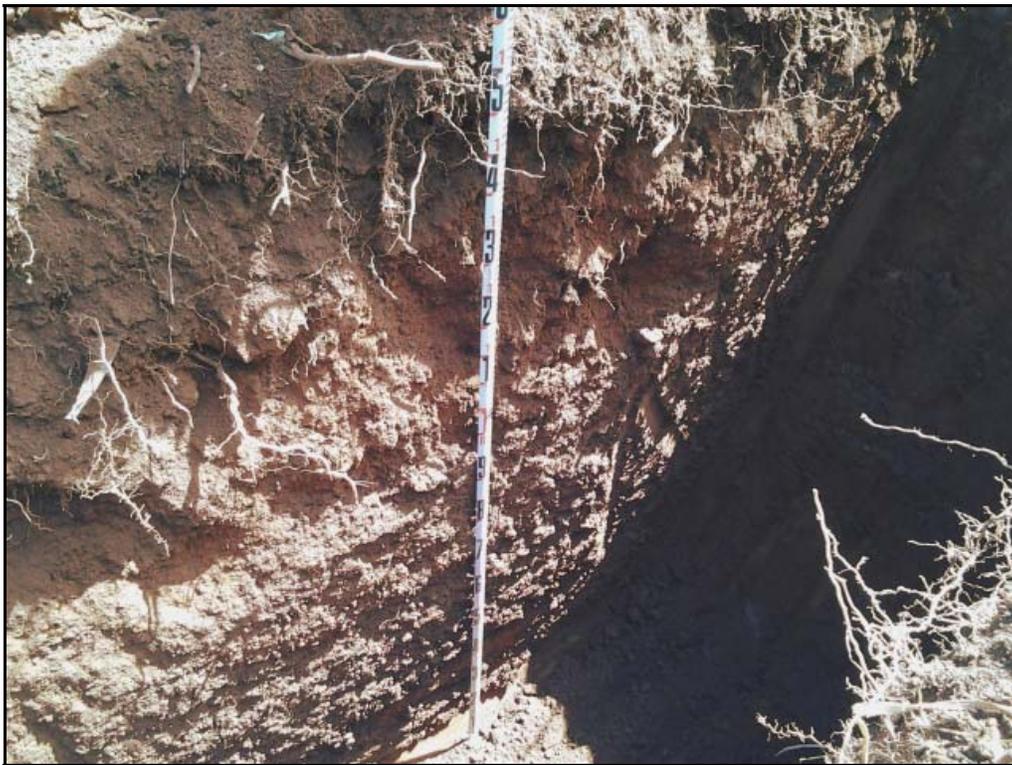


Figure 37. TE-8, view to northeast

5.2.9 Test Excavation 9 (TE-9)

TE-9 was located at the north-central side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-9 were 2.00-m long, 0.7-m wide and 1.42-m deep. Stratigraphy included a top layer of tall grass (approximately 1.5 to 2.0 m) and associated root action superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 10, Figure 38, and Figure 39). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-9 was level, and its approximate elevation was 111 m AMSL. No cultural material was observed during test excavation at this location.

Table 10. TE-9 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 30	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	30 – 70	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	67 – 142	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

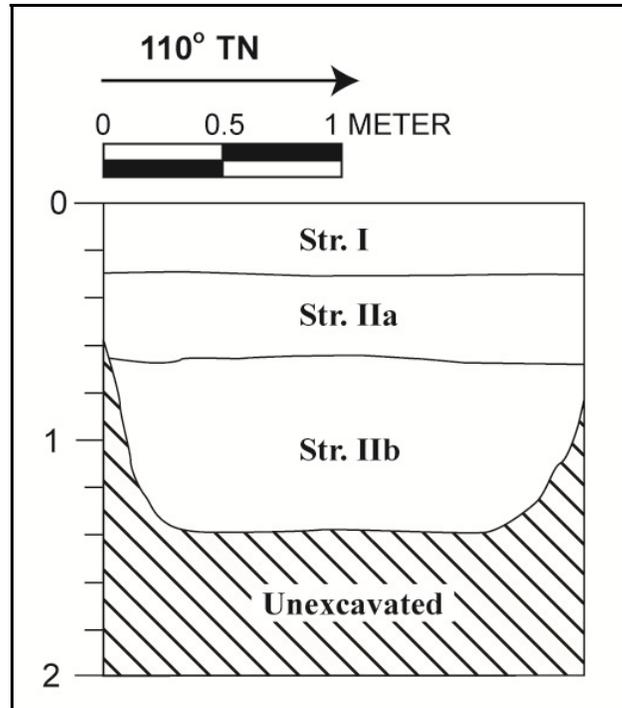


Figure 38. TE-9, view to north



Figure 39. TE-9, view to north

5.2.10 Test Excavation 10 (TE-10)

TE-10 was located at the north-central side of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-10 were 2.00-m long, 0.70-m wide and 1.45-m deep. Stratigraphy at this location included a top layer of tall grass (approximately 1.5 to 2.0 m) and associated root action superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 11, Figure 40, and Figure 41). The stratigraphy at this location is consistent with USDA soil designations for the region, of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-10 was level, and its approximate elevation was 111 m AMSL. No cultural material was observed during test excavation at this location.

Table 11. TE-10 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 35	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	30 – 62	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	60 – 145	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

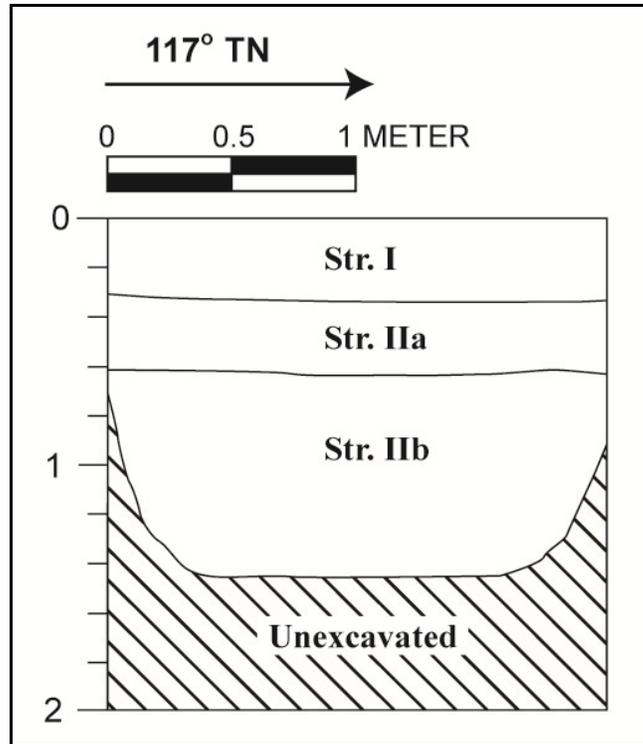


Figure 40. TE-10, view to north



Figure 41. TE-10, view to northwest

5.2.11 Test Excavation 11 (TE-11)

TE-11 was located at the northeastern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-11 were 6.00-m long, 0.70-m wide and 2.15-m deep. Stratigraphy included a top layer of heavy root disturbance superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 12, Figure 42, and Figure 43). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-11 was level and heavily wooded. The approximate elevation at this location was 108 m AMSL. No cultural material was observed during test excavation at this location.

Table 12 TE-11 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 60	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
II	20 – 215	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

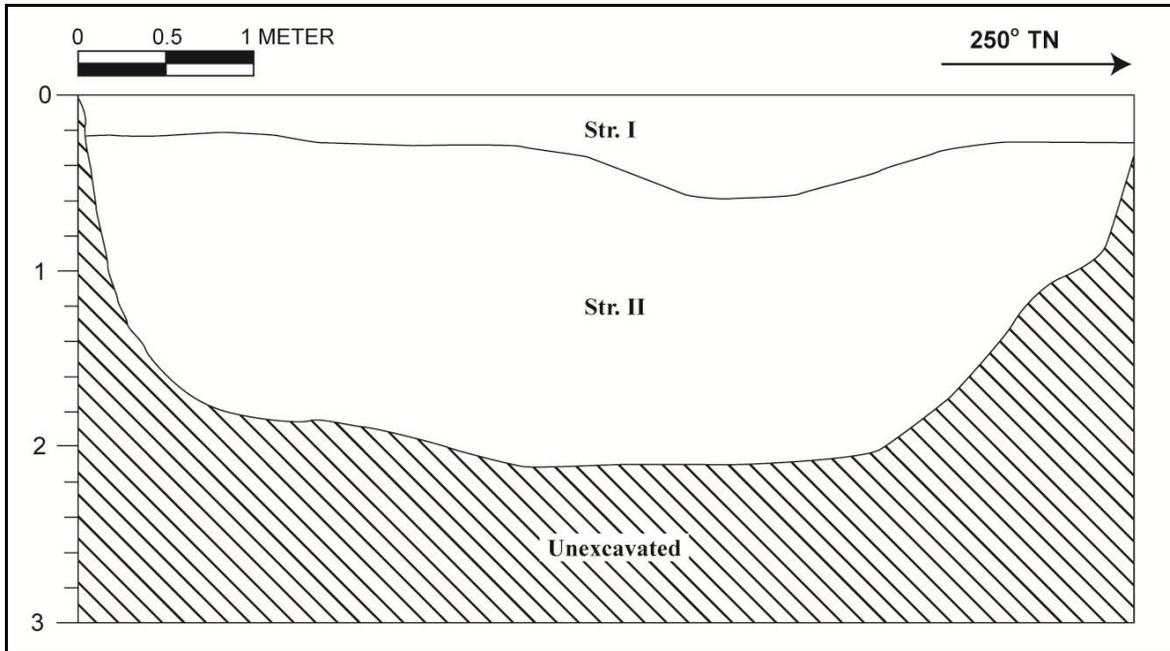


Figure 42. TE-11, view to south



Figure 43. TE-11, view to southeast

5.2.12 Test Excavation 12 (TE-12)

TE-12 was located at the northeastern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-12 were 6.0-m long, 0.7-m wide and 2.0-m deep. Stratigraphy at this location included a top layer of heavy root disturbance superposing successive layers of disturbed and undisturbed naturally-deposited clay sediments (Table 13, Figure 44, and Figure 45). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-12 was level and heavily wooded. The approximate elevation at this location was 108 m AMSL. No cultural material was observed during test excavation at this location.

Table 13. TE-12 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 35	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
II	28 – 200	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

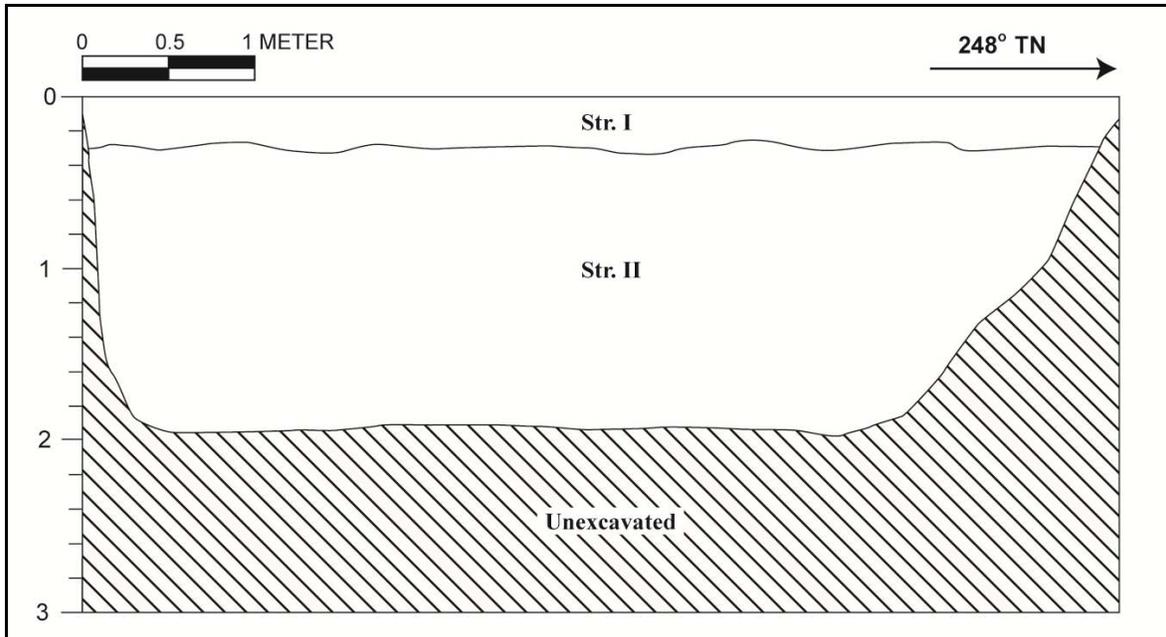


Figure 44. TE-12, view to south



Figure 45. TE-12, view to southeast

5.2.13 Test Excavation 13 (TE-13)

TE-13 was located at the north-central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-13 were 1.80-m long, 0.70-m wide and 1.28-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 14, Figure 46 and Figure 47). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-13 was level, and its approximate elevation was 114 m AMSL. No cultural material was observed during test excavation at this location.

Table 14. TE-13 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 18	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	15 – 72	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	70 – 128	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

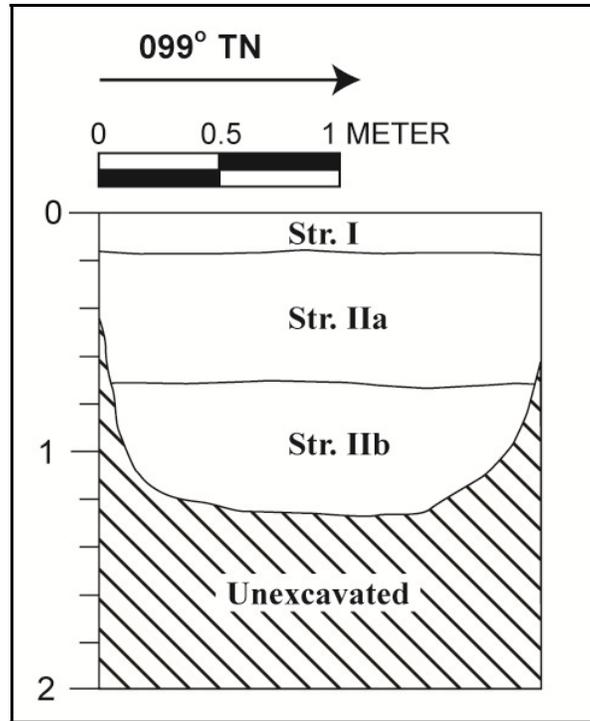


Figure 46. TE-13, view to north



Figure 47. TE-13, view to north

5.2.14 Test Excavation 14 (TE-14)

TE-14 was located at the north-central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-14 were 1.80-m long, 0.70-m wide and 1.45-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally-deposited clay sediments (Table 15, Figure 48, and Figure 49). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-14 was level, and its approximate elevation was 114 m AMSL. No cultural material was observed during test excavation at this location.

Table 15. TE-14 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 22	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	20 – 70	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	70 – 145	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

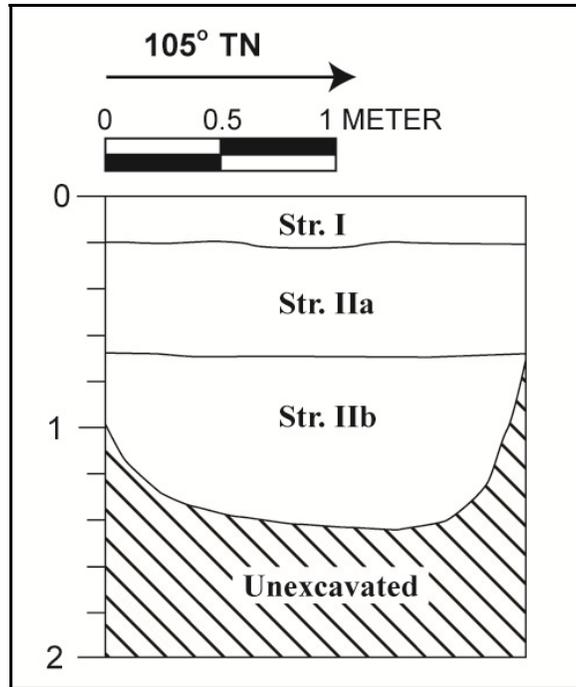


Figure 48. TE-14, view to north



Figure 49. TE-14, view to north

5.2.15 Test Excavation 15 (TE-15)

TE-15 was located at the north-central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-15 were 2.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally-deposited clay sediments (Table 16, Figure 50, and Figure 51). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-15 was level, and its approximate elevation was 113 m AMSL. No cultural material was observed during test excavation at this location.

Table 16. TE-15 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 45	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	37 – 77	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	72 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

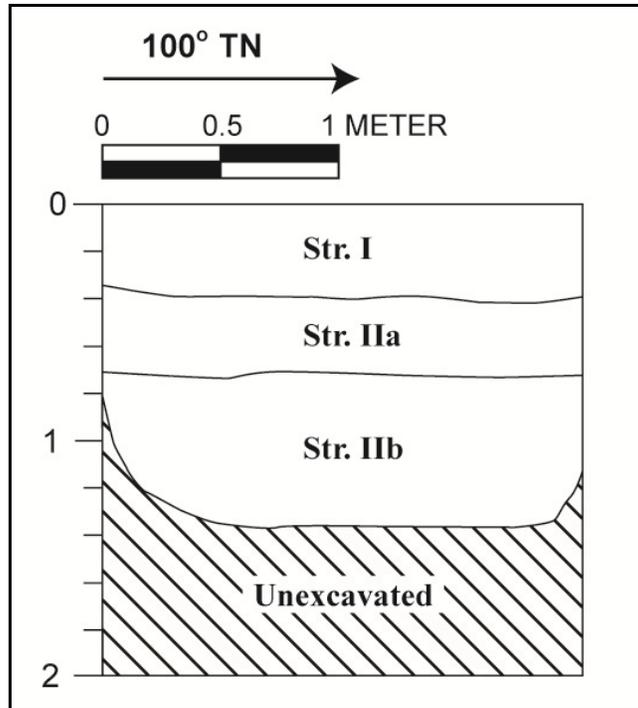


Figure 50. TE-15, view to north



Figure 51. TE-15, view to northeast

5.2.16 Test Excavation 16 (TE-16)

TE-16 was located at the north-central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document stratigraphy near a tributary of Nāwiliwili Stream in the northern portion of the project area. The dimensions of TE-16 were 2.00-m long, 0.70-m wide and 1.65-m deep. Stratigraphy included a top layer of grass superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 16, Figure 52, and Figure 53). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-16 was level, and its approximate elevation was 111 m AMSL. No cultural material was observed during test excavation at this location.

Table 17. TE-16 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 40	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	30 – 82	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	80 – 165	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

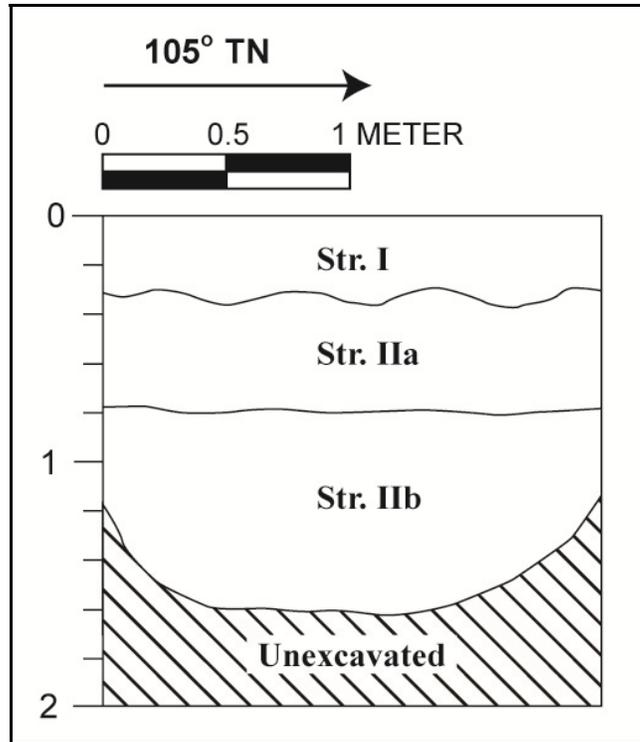


Figure 52. TE-16, view to north



Figure 53. TE-16, view to northeast

5.2.17 Test Excavation 17 (TE-17)

TE-17 was located at the central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-17 were 6.00-m long, 0.70-m wide and 1.47-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally-deposited clay sediments (Table 18, Figure 54, and Figure 55). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-17 was level with an approximate elevation of 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 18. TE-17 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 23	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	18 – 53	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	40 – 147	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

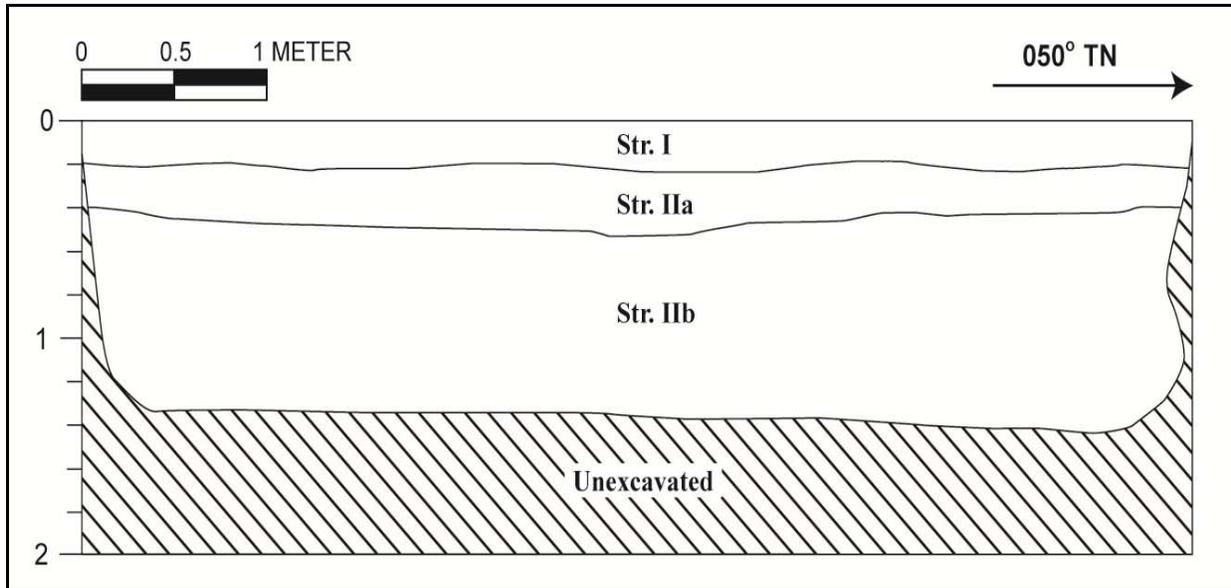


Figure 54. TE-17, view to northwest



Figure 55. TE-17, view to north

5.2.18 Test Excavation 18 (TE-18)

TE-18 was located at the central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-18 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 19, Figure 56, and Figure 57). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-18 was level with an approximate elevation of 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 19. TE-18 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 40	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	30 – 72	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	60 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally-deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

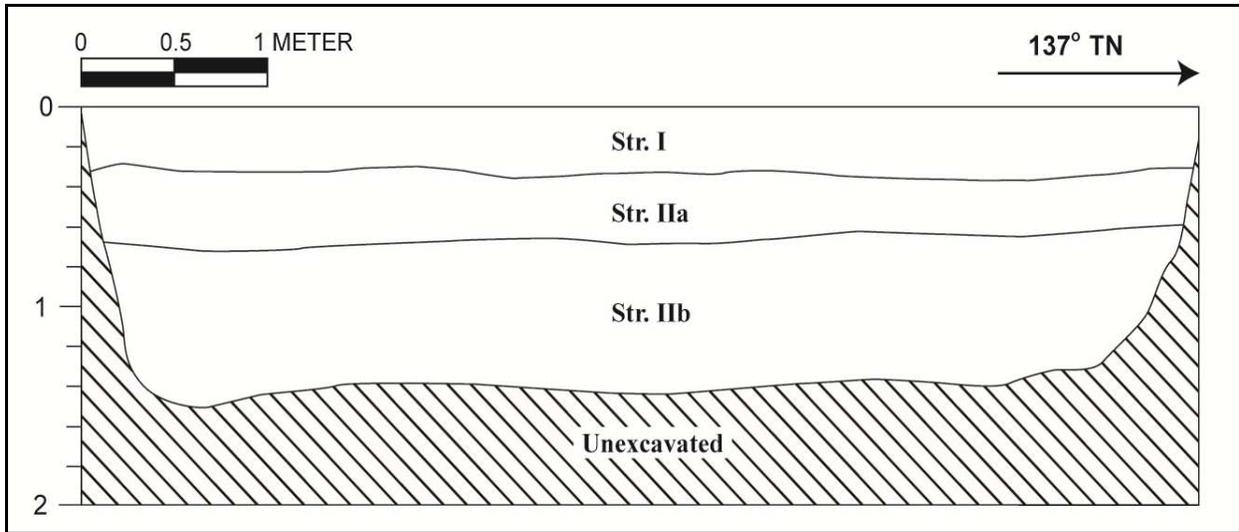


Figure 56. TE-18, view to northeast



Figure 57. TE-18, view to east

5.2.19 Test Excavation 19 (TE-19)

TE-19 was located at the central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-19 were 6.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 20, Figure 58, and Figure 59). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-19 was level with an approximate elevation of 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 20. TE-19 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 32	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	20 – 75	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	62 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

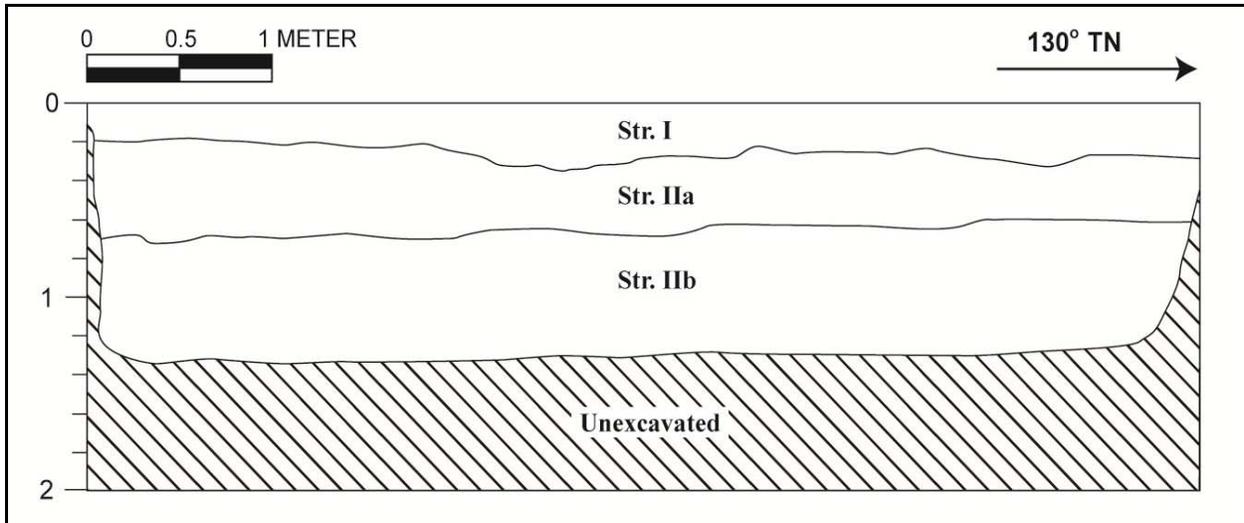


Figure 58. TE-19, view to northeast



Figure 59. TE-19, view to east

5.2.20 Test Excavation 20 (TE-20)

TE-20 was located at the central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document proposed construction activity. The dimensions of TE-20 were 6.0-m long, 0.7-m wide and 1.4-m deep. Stratigraphy at this location included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 21, Figure 60, and Figure 61). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-20 was level with an approximate elevation of 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 21. TE-20 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 50	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	38 – 82	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	68 – 140	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

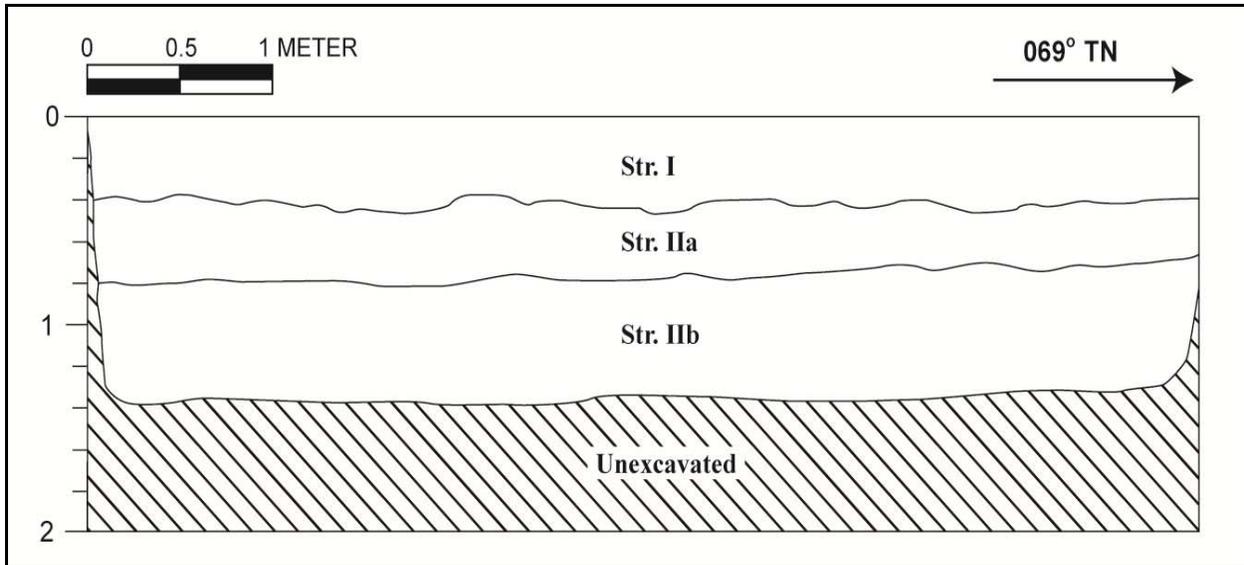


Figure 60. TE-20, view to north



Figure 61. TE-20, view to northeast

5.2.21 Test Excavation 21 (TE-21)

TE-21 was located at the central portion of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-21 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 22, Figure 62, and Figure 63). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-21 was level with an approximate elevation of 112 m AMSL. No cultural material was observed during test excavation at this location.

Table 22. TE-21 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 45	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	38 – 80	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	70 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

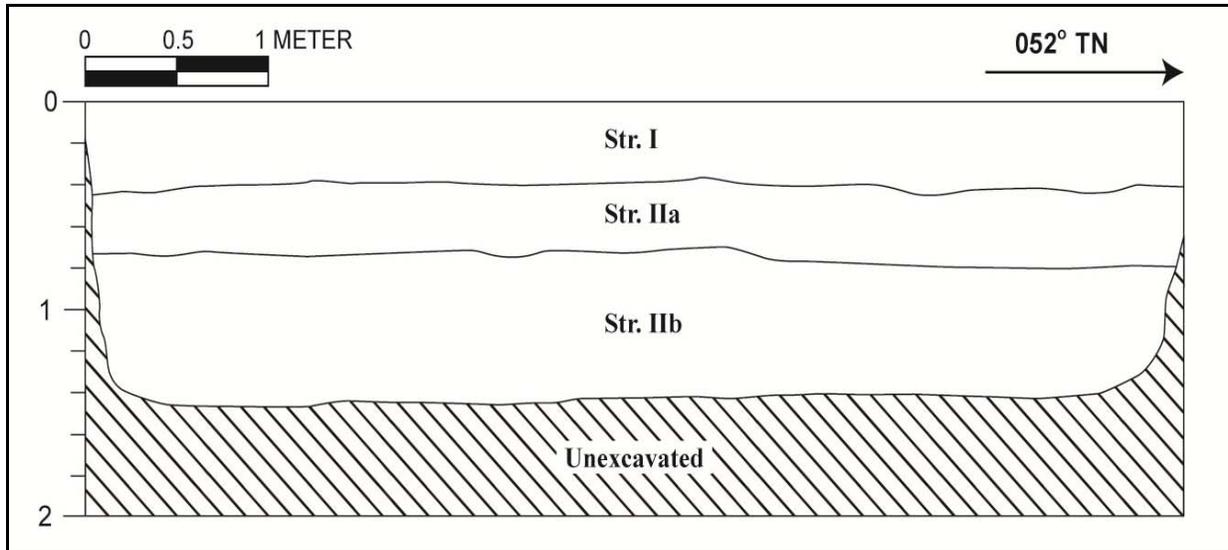


Figure 62. TE-21, view to northwest



Figure 63. TE-21, view to north

5.2.22 Test Excavation 22 (TE-22)

TE-22 was located at the southwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-22 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 23, Figure 64, and Figure 65). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-22 was level with an approximate elevation of 116 m AMSL. No cultural material was observed during test excavation at this location.

Table 23. TE-22 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 20	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	10 – 52	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	45 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

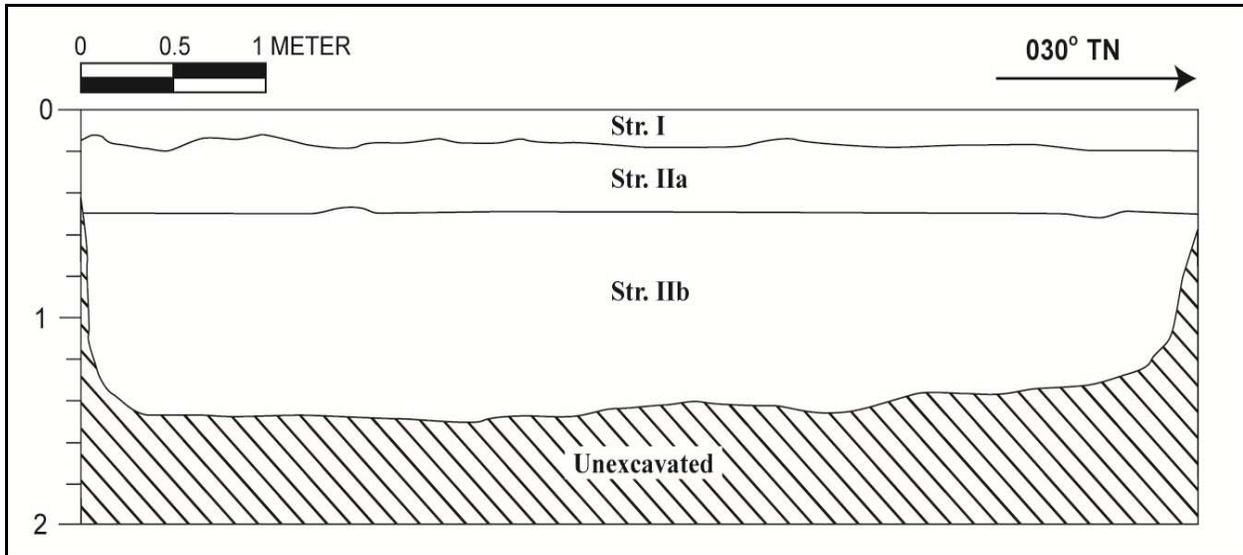


Figure 64. TE-22, view to northwest



Figure 65. TE-22, view to north

5.2.23 Test Excavation 23 (TE-23)

TE-23 was located at the southwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-23 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 24, Figure 66, and Figure 67). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-23 was level with an approximate elevation of 116 m AMSL. No cultural material was observed during test excavation at this location.

Table 24. TE-23 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 40	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
IIa	35 – 65	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
IIb	62 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

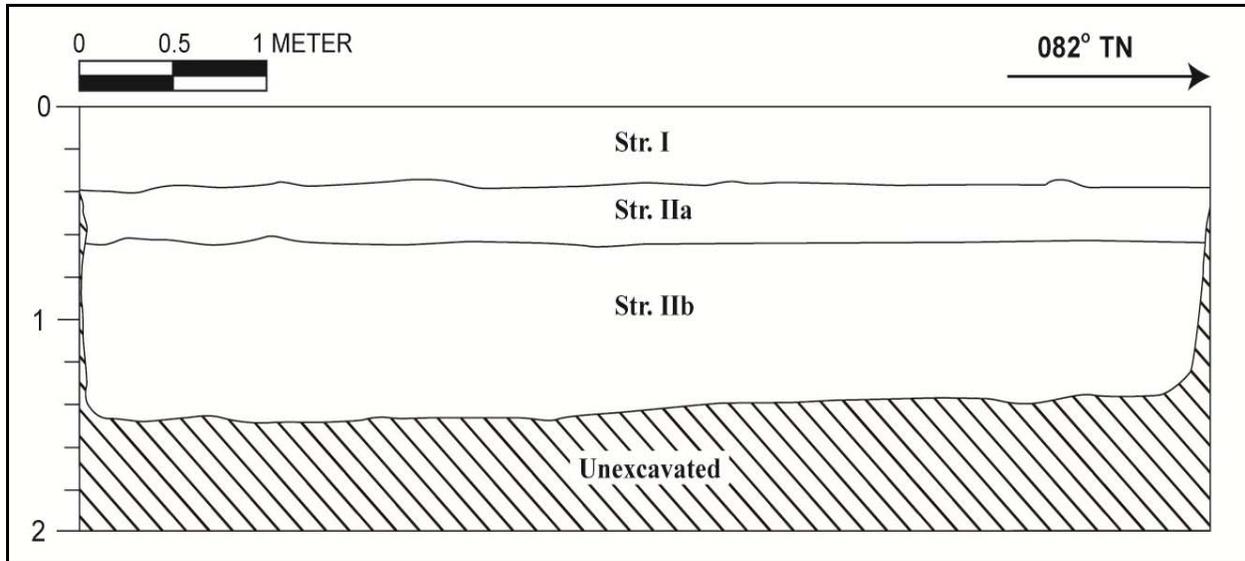


Figure 66. TE-23, view to north



Figure 67. TE-23, view to northwest

5.2.24 Test Excavation 24 (TE-24)

TE-24 was located at the southwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-24 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy at this location included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 25, Figure 68, and Figure 69). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-24 was level with an approximate elevation of 116 m AMSL. No cultural material was observed during test excavation at this location.

Table 25. TE-24 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 22	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	17 – 102	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	95 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

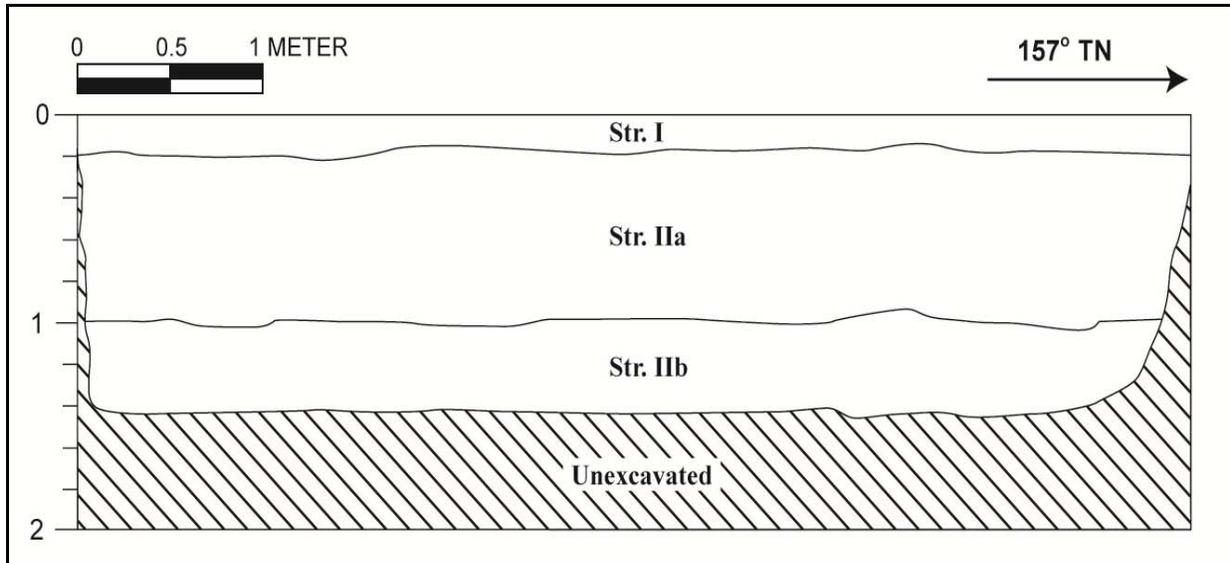


Figure 68. TE-24, view to northeast



Figure 69. TE-24, view to southeast

5.2.25 Test Excavation 25 (TE-25)

TE-25 was located at the southwestern corner of the project area (see Figure 20 and Figure 21). The excavation site was selected to document an area of proposed construction activity. The dimensions of TE-25 were 6.0-m long, 0.7-m wide and 1.5-m deep. Stratigraphy at this location included a top layer of landscaped grass with associated roots superposing successive layers of disturbed and undisturbed naturally deposited clay sediments (Table 26, Figure 70, and Figure 71). The stratigraphy is consistent with USDA soil designations for the region of Puhi silty clay loam, 3 to 8 percent slopes (PnB). The surface at TE-25 was level with an approximate elevation of 116 m AMSL. No cultural material was observed during test excavation at this location.

Table 26. TE-25 Stratigraphy

Stratum	Depth (cmbs)	Description
I	0 – 40	10YR 4/3, brown; silty clay loam; moderate, very fine blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; abrupt, smooth lower boundary; many fine roots; landscaped grass surface
Ila	30 – 60	5YR 4/4, reddish brown; silty clay loam; weak, fine, blocky structure; moist, friable consistency; slightly plastic; terrigenous origin; clear, smooth lower boundary; disturbed naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)
Iib	55 – 150	5YR 4/8, yellowish red; silty clay; strong, fine, blocky structure; moist, firm consistency; plastic; terrigenous origin; naturally deposited Puhi silty clay loam, 3 to 8 percent slopes (PnB)

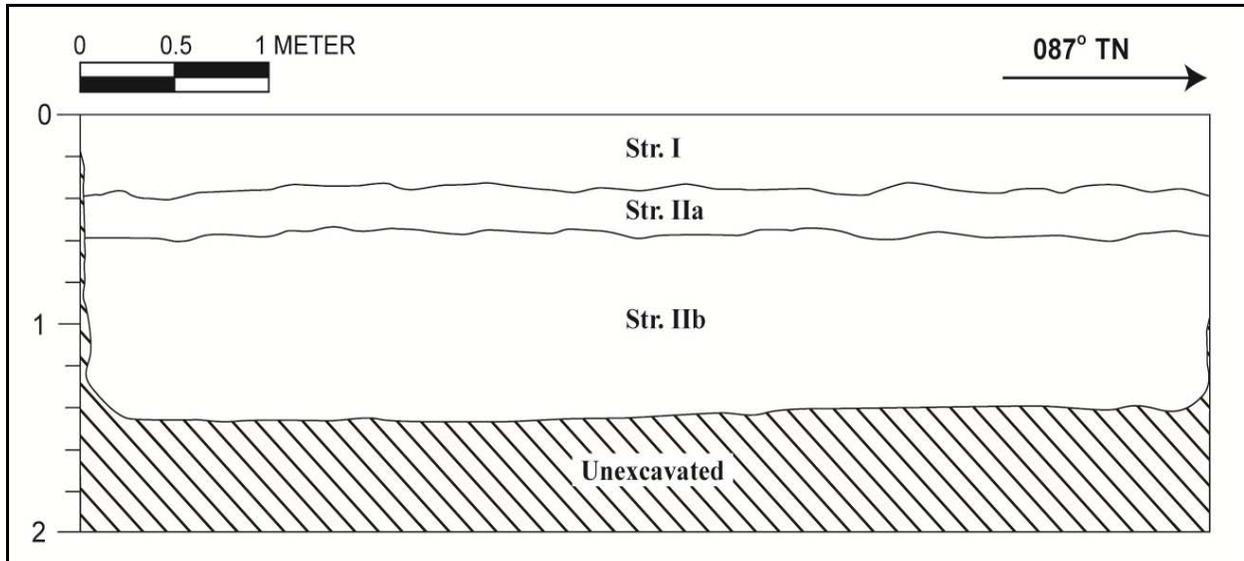


Figure 70. TE-25, view to north



Figure 71. TE-25, view to east

5.2.26 Summary and Interpretation of Subsurface Testing Results

Subsurface testing results for the current AIS was consistent with background information regarding its past land use as being completely used for sugar cane cultivation. Testing was intended to provide a comprehensive overview of the stratigraphy of the area, and to assess the potential for historic properties at TE locations. TE locations were selected to examine proposed building locations and to investigate areas that had undergone relatively minimal prior disturbance related to current school campus development.

TE-1 through TE-10 and TE-13 through TE-16 were undertaken to provide stratigraphic data and to indicate the presence or absence of historic properties at those relatively undisturbed locations near a tributary of Nāwiliwili Stream where the likelihood of historic properties was thought to be greater; TE-11, T-12 and TE-17 through TE-25 were completed to gather a larger representative sample at proposed building site locations.

Testing involved a total of 43.4 m² of area excavated to depths ranging from 90 to 200 cms to identify possible subsurface historic properties. Although the total area of the project area is approximately 38.45-ac (approximately 15.56 ha), the specific testing areas (i.e., areas that underwent minimal prior disturbance and/or modification, and where structures are planned) comprises approximately 9.14-ac (approximately 37,008 m²). Total tested area percentage for the entire project area would be approximately 0.028 percent; however, the testing density in areas of proposed project development was much higher (Figure 72). Common practice for regions where potential for historic properties is high a total area to area tested ratio is often one to two percent; however, for the purposes of this AIS investigation, the relatively low sampled area percentage is proportionate to the possibility of subsurface historic properties.

In general, the stratigraphy throughout the tested areas was consistent with naturally-deposited reddish brown clay varieties, all of which correlate with the USDA soil survey designation for the region of silty clay loam, 3 to 8 percent slopes (PnB) (Foote et al. 1972).

Root action and surface soil accumulation varied between tested areas based on surface vegetation. Areas where surface vegetation was short (TE-1 through TE-5, TE-13 through TE-25) exhibited finer roots, and associated root action was denser and more concentrated near the surface, and created a more stable surface. Areas where surface vegetation was higher, containing larger flora (TE-6 through TE-12), roots were coarser and associated disturbance to the top layer was sparser and created a looser surface. Stratum I, in all test excavations (TE-1 through TE-25), represents this surface vegetation to top layer dynamic. Also, Stratum I represents the vertical extent of mechanized grading and leveling events conducted to create the existing surface at the time of this AIS.

Stratum IIa in TE-1 through TE-10 and in TE-17 through TE-25 represents a combination of mechanized disturbance associated with successive plowing and grading events associated with sugar cane cultivation that occurred from historic times (pre-1963) into the 1980s, and then left fallow until 1991, when the development of existing Island School campus facilities occurred. The presence of modern cane-related plastic debris was observed in Stratum IIa during testing of TE-14, TE-21 and TE-23, further evidence that Stratum IIa at those locations was the plow zone between disturbed sediments used for cane cultivation that spanned from historic times as

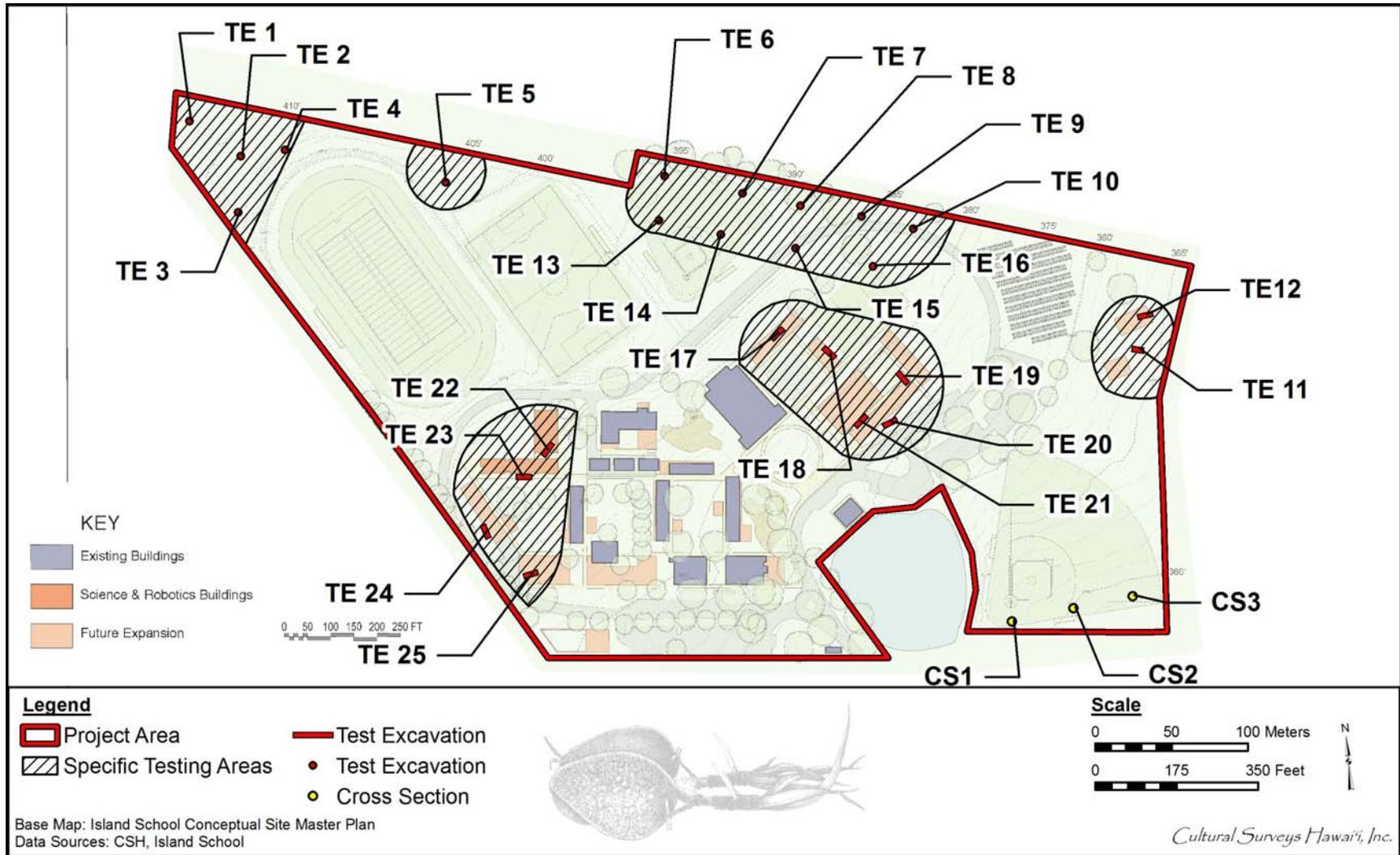


Figure 72. TE locations and specific testing areas overlay with Island School Conceptual Site Master Plan

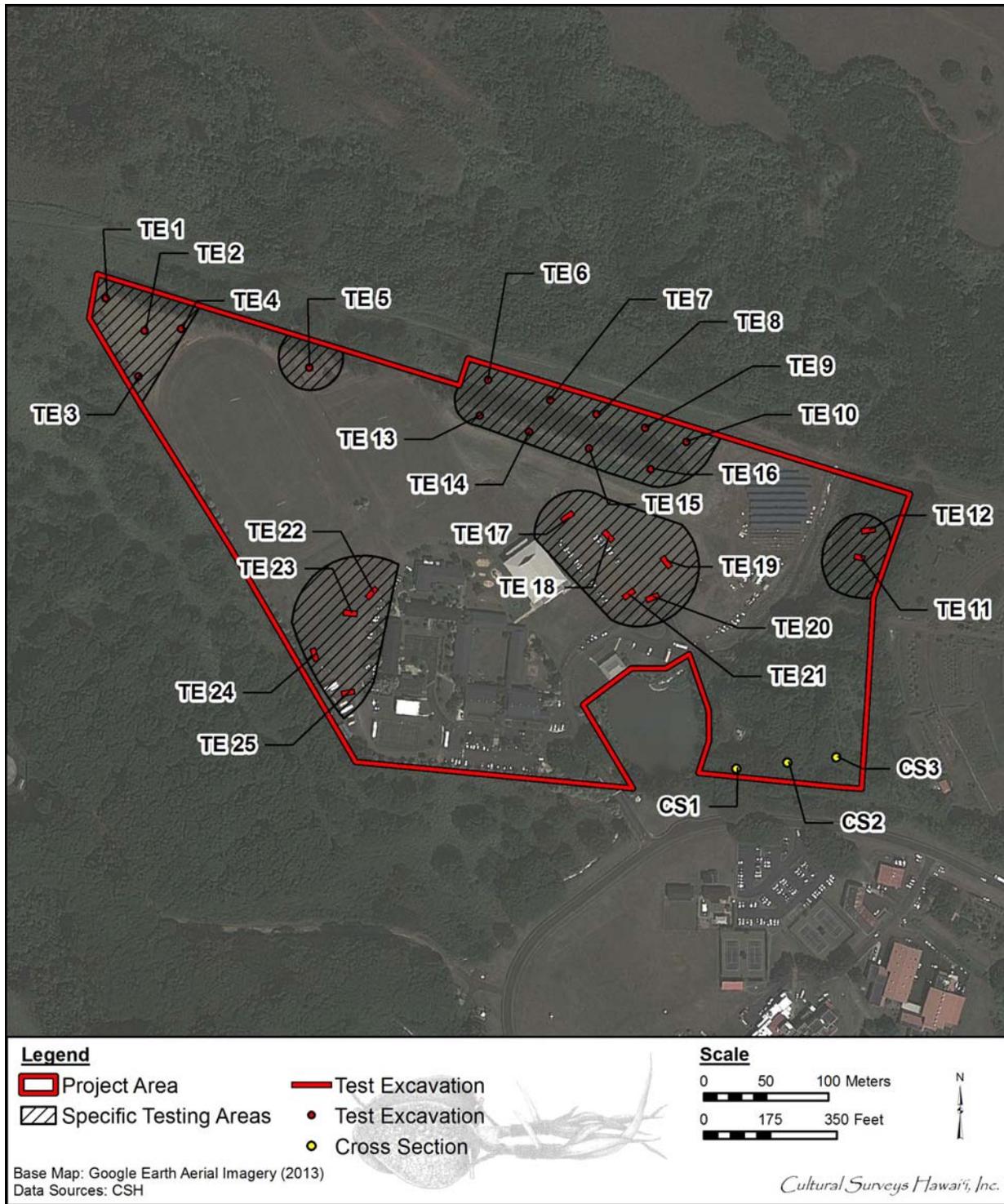


Figure 73. TE locations and specific testing areas overlay on an aerial photograph

documented in the Background Research section of the current document, and continued use into modern times prior to the establishment of the current Island School campus. TE 11 and TE 12 did not include a designated Stratum IIa and Stratum IIb distinction. This is attributable to the fact that no alteration was done to these locations during construction of the current Island School campus grounds and that the surrounding area had become densely forested since being used for cane cultivation.

No historic or traditional cultural material was observed during subsurface testing for this AIS. Areas tested revealed naturally-deposited clay sediments that had been graded and shaped over time for current use and application.

5.3 Historic Property Descriptions

Two historic properties were identified within the project area. SIHP # 50-30-11-2179 including four designated features (Feature A through Feature D) and ten designated sub-features (A1 through A4, B1, C1 through C4, and D1) is described in Section 5.3.1 below. A description of SIHP # 50-30-11-2220 with one feature follows in Section 5.3.2.

5.3.1 SIHP # 50-30-11-2179

FORMAL TYPE:	Reservoir/Ditches
MEASUREMENTS:	660 m long (E-W); 410 m wide (N-S)
FUNCTIONAL INTERPRETATION:	Water Control (Agriculture)
CONDITION:	Very Good
TEMPORAL INTERPRETATION:	Historic, plantation era

DESCRIPTION: SIHP # 50-30-11-2179 consists of a total of four water control features (designated Feature A through Feature D) related to Lihue Plantation. Feature A is a reservoir, Feature B is a drainage ditch, and Features C and D are irrigation ditches (Figure 74 and Figure 75). The 1963 U.S. Geological Survey map (see Figure 13) shows Upper Lihue Ditch, which dates to the early twentieth century, and includes Features A, C and D. Features A through C also have a total of ten sub-features (detailed below).

Features A, C, and D functioned together to transport water from a source north of the project area. Crossing Nāwiliwili Stream, via Feature C, they diverted the water into the Feature A Reservoir and then into the fields east of the project area via Feature D.

Nine cross section profiles (CS1–CS9) were drawn at select locations along Features B, C, and D, and photographs were taken to document current conditions of Features A through D (Figure 74 and Figure 75).

Development plans for the current project include installing an athletic field at the southeast portion of the project area (see Figure 4). Feature D will be filled in and graded for construction of the athletic field. Feature C will be filled and leveled, and the water flow of Feature C will be diverted using a pipe.

5.3.2 SIHP # 50-30-11-2179 Feature A (Reservoir with Associated Sluice Gates and Culvert)

Feature A is a reservoir located adjacent to and northeast of the gate at the Island School campus road entrance (Figure 76). The reservoir is not part of Island School property and is located outside of the project area, but is almost completely surrounded by the project area (Figure 74 and Figure 75). A 1941 map of Lihue Plantation Co. shows the Feature A reservoir between the boundaries of fields 39A and 39B (see Figure 12). The 1963 U.S. Geological Survey map (see Figure 13) shows a portion of the “Upper Lihue Ditch” that corresponds with the separation between field 39A and 39B; indicating that Feature A was likely associated with the Upper Lihue Ditch system. The reservoir also appears on the 1910 U.S. Geological Survey (see Figure 11) although its associated ditches are not evident. No modification to Feature A is planned as part of the proposed development project.

The reservoir measures 88.5 m by 82.3 m with a constructed berm on the east and south sides. A wooden catwalk extends from the east bank over the water for 2 m, at the end of which is a metal, mechanical device for opening and closing an underground drain pipe. Sub-features A1 through A4 are part of an overflow area at the southern end of the reservoir (Figure 77 and Figure 78). Descriptions of the sub-features follow.

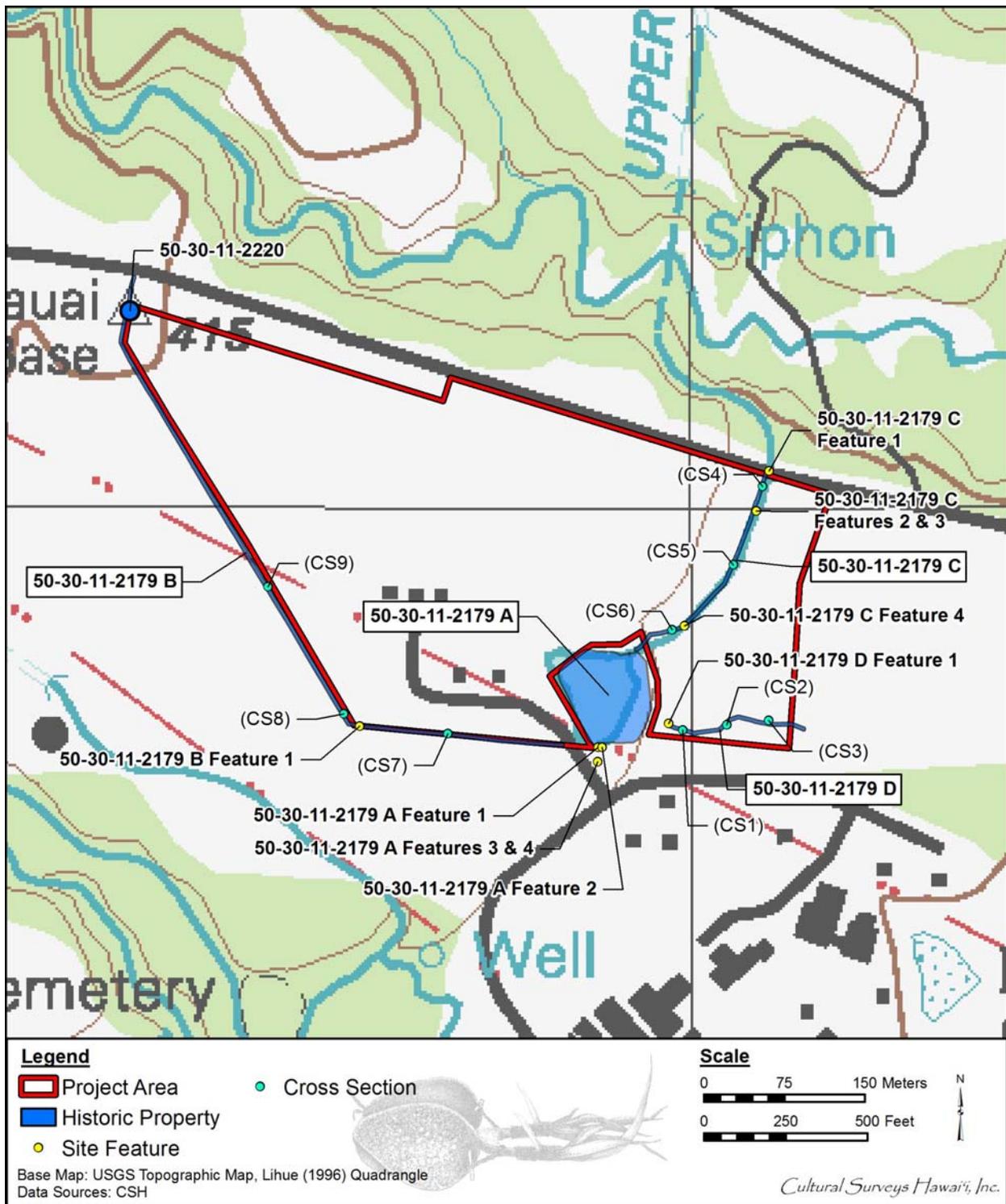


Figure 74. Portion of 1996 U.S. Geological Survey 7.5-Minute Series Topographic Map, Lihue quadrangle, showing the project area, SIHP # 50-30-11-2179, Features A through D locations, and cross section (CS1 through CS9) locations

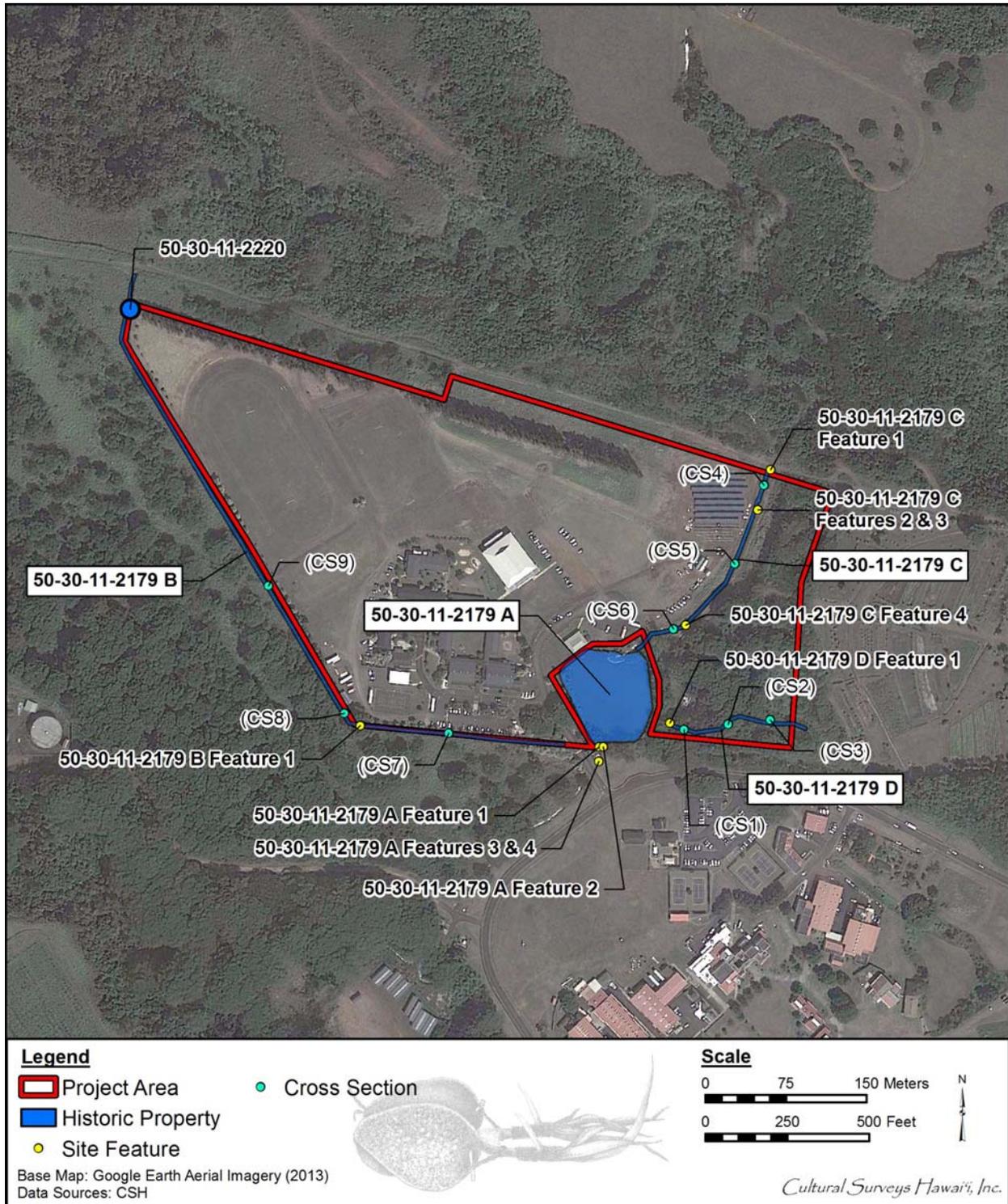


Figure 75. 2013 Google Earth Aerial Imagery satellite image, showing the project area, SIHP # 50-30-11-2179, Features A through D locations, and cross section (CS1 through CS9) locations



Figure 76. Photo of SIHP # -2179 Feature A, reservoir adjacent to (but outside of) the project area, view to south



Figure 77. Photo of the overflow area of SIHP # -2179 Feature A, including the four sub-features (Features A1–A4)

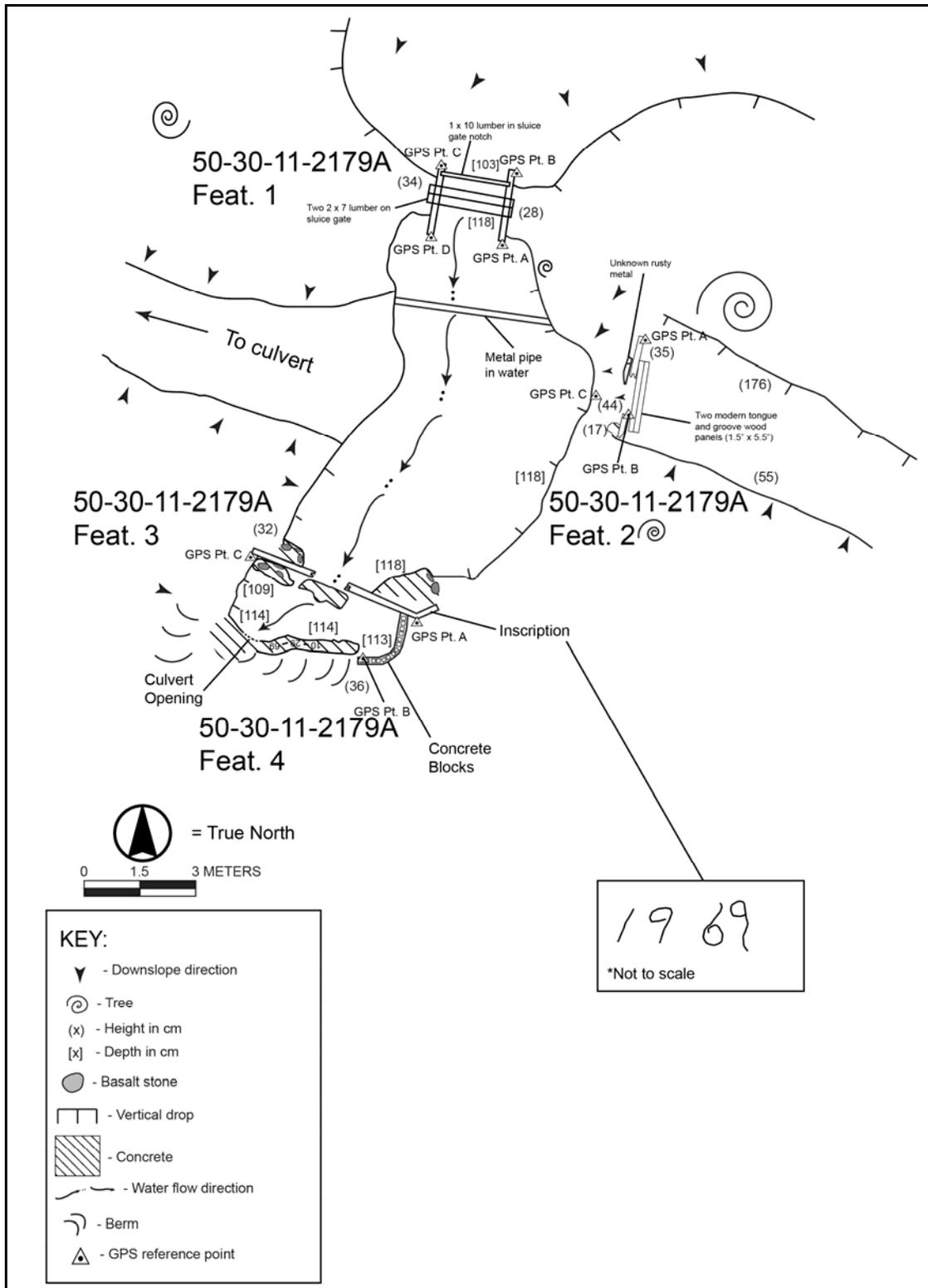


Figure 78. Plan view of SIHP # -2179 Feature A, including the four sub-features (Features A1–A4, labeled in this figure as Feat. 1–4)

Sub-feature A1: Sub-feature A1 (see Figure 74 and Figure 75 and Figure 78 for location) designates an active vertical rising sluice gate at the northern edge of the Feature A reservoir overflow area contains two pre-cast concrete wing walls and a gate composed of three wooden boards (Figure 79 and Figure 80). The sluice gate opening measures 1.8 m wide, with a maximum height of 1.18 m. Two 2 in x 7 in pieces of lumber straddle the sluice gate (Figure 79).



Figure 79. Photo of SIHP # -2179 Feature A1, sluice gate at the northern end of the overflow area, view to northwest



Figure 80. Photo of SIHP # -2179 Feature A1, sluice gate at the northern end of the overflow area, view to north

Feature A2: Feature A2 is an abandoned vertical rising sluice gate with two pre-cast concrete wing walls lies 0.70 m from the edge of the water on the easternmost edge of the Feature A overflow area (see Figure 74 and Figure 75 and Figure 78 for location) and is approximately 0.15 m higher than the water in elevation (Figure 81 and Figure 82). The opening of the sluice gate measures 0.90 m wide, with a maximum height of 0.44 m. Two tongue and groove wooden panels are on the east side of the gate.



Figure 81. Photo of SIHP # -2179 Feature A2, sluice gate at the easternmost edge of the Feature A overflow area, view to south



Figure 82. Photo of SIHP # -2179 Feature A2, sluice gate at the easternmost edge of the Feature A overflow area, view to east

Feature A3: Feature A3 is a formed, slotted concrete sluice gate frame constructed of two pre-cast concrete wing walls is at the southwest side of the Feature A overflow area (see Figure 74, Figure 75 and Figure 78 for location and Figure 83 and Figure 84). The wooden gate is missing. Water flows from the reservoir through the gate frame to the west to an area outside of the project area and within the Kaua'i Community College campus. This is the reservoir's only outlet.



Figure 83. Photo of SIHP # -2179 Feature A3, sluice gate at the southwest side of the Feature A overflow area, view to southwest



Figure 84. Photo of SIHP # -2179 Feature A3, sluice gate at the southwest side of the Feature A overflow area, view to south

Feature A4: Feature A4 is a modern culvert enters the reservoir at the south side of the Feature A overflow area (see Figure 74, Figure 75, and Figure 78 for location) running NE/SW and is composed of a large metal pipe with an opening approximately 0.65 m in diameter, and head and wing walls constructed of basalt boulders and cobbles with mortar fill, which have been partially capped with concrete (Figure 85). Feature A4 has a maximum height of 1.14 m. An inscription reading “10-29-69” was observed on the east wing wall (Figure 86).



Figure 85. Photo of SIHP # -2179 Feature A4, modern culvert at the south end of the Feature A overflow area, view to southwest



Figure 86. Photo of SIHP # -2179 Feature A4, modern culvert, showing the inscription reading “10-29-69,” view down

5.3.3 SIHP # 50-30-11-2179 Feature B (Irrigation Ditch with Associated Culverts)

Feature B is an irrigation ditch (Figure 87 and Figure 88) forming the west, southwest, and a portion of the south boundary of the project area (see Figure 74 and Figure 75 for location). The earthen ditch is 703 m long, 0.9 m deep with a maximum width of 2.0 m (Figure 89, Figure 91, and Figure 93). The ditch walls are sloped resulting in a bottom width of 1.0 m. The ditch is not currently used for irrigation but collects storm drainage and surface run-off from the Island School campus and its athletic fields.

A 1941 map of Lihue Plantation Co. (see Figure 12) shows Feature B forming the western boundary of field 39B, separating Lihue Plantation and Grove Farm. Although the ditch does not currently extend to Feature A, the Lihue Plantation Co. map shows a connection. No modification to Feature B is planned as part of the proposed project.

Three cross section profiles of Feature B (CS7 through CS9) were recorded (see Figure 74 and Figure 75 for cross section locations). CS7 was documented to show existing conditions of Feature B in its southernmost section (Figure 89 and Figure 90). CS8 was documented in the southwest corner of Feature B (Figure 91 and Figure 92). CS9 was documented along the western alignment of Feature B (Figure 93 and Figure 94).

Feature B1. Feature B1 is comprised of two abandoned culverts, both of which contain a large corrugated metal pipe with a diameter of 0.70 m and are oriented east/west (see Figure 74 and Figure 75 for location and Figure 97).

The eastern culvert has only a head wall constructed of stacked small to large sub-angular and angular basalt boulders and cobbles filled with mortar. The head wall is capped with concrete. The eastern culvert is approximately 3.10 m long and 0.70 m wide, with a total height of 1.84 m (Figure 95 and Figure 98).

The western culvert was not visible due to tree branch pilings in the ditch. A small strip of a concrete cap was visible through the branches (Figure 96).



Figure 87. Photo of SIHP # -2179 Feature B, earthen irrigation ditch, view to east



Figure 88. Photo of SIHP # -2179 Feature B, earthen irrigation ditch, view to west

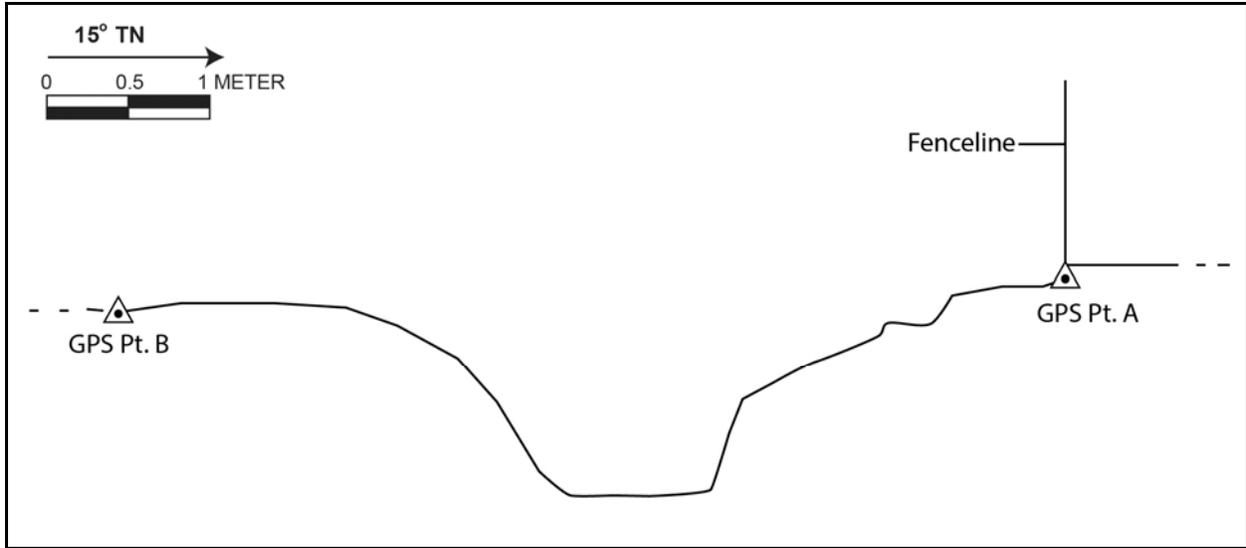


Figure 89. SIHP # -2179 Feature B, Cross Section 7



Figure 90. Photo of SIHP # -2179 Feature B, Cross Section 7

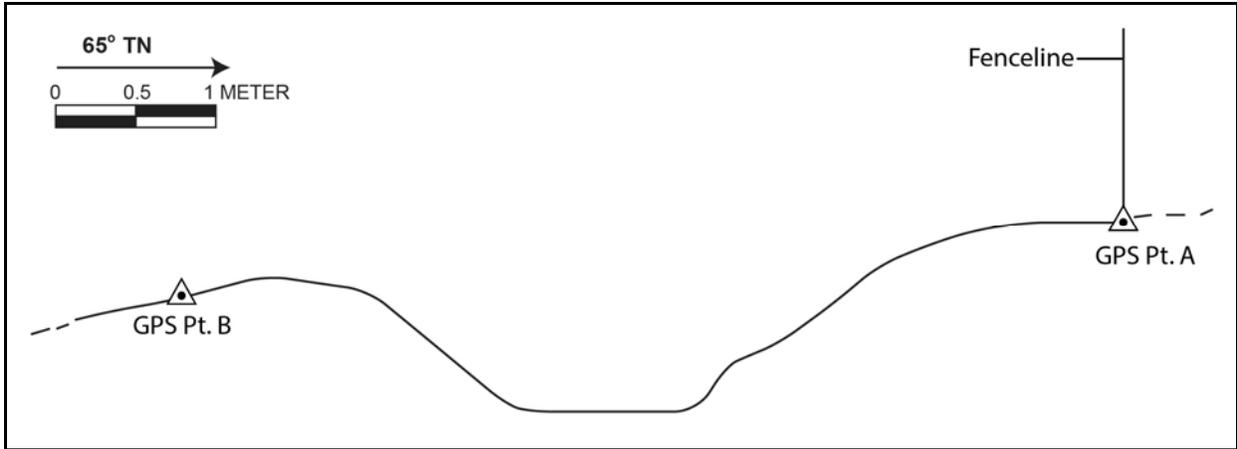


Figure 91. SIHP # -2179 Feature B, Cross Section 8



Figure 92. Photo of SIHP # -2179 Feature B, Cross Section 8

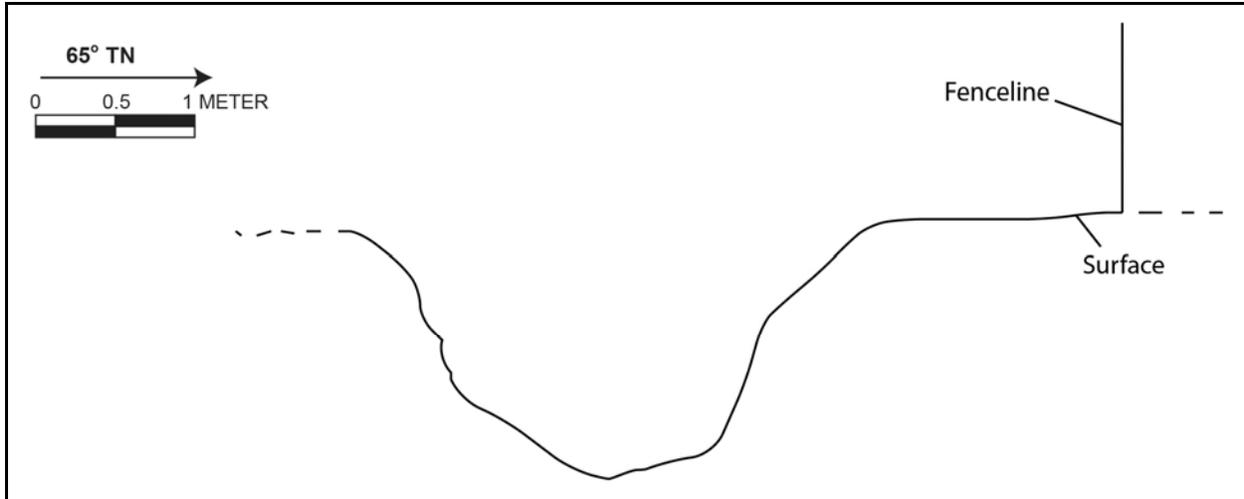


Figure 93. SIHP # -2179 Feature B, Cross Section 9



Figure 94. Photo of SIHP # -2179 Feature B, Cross Section 9



Figure 95. Photo of SIHP # -2179 Feature B1, eastern culvert, view to west



Figure 96. Photo of SIHP # -2179 Feature B1, western culvert, view to east

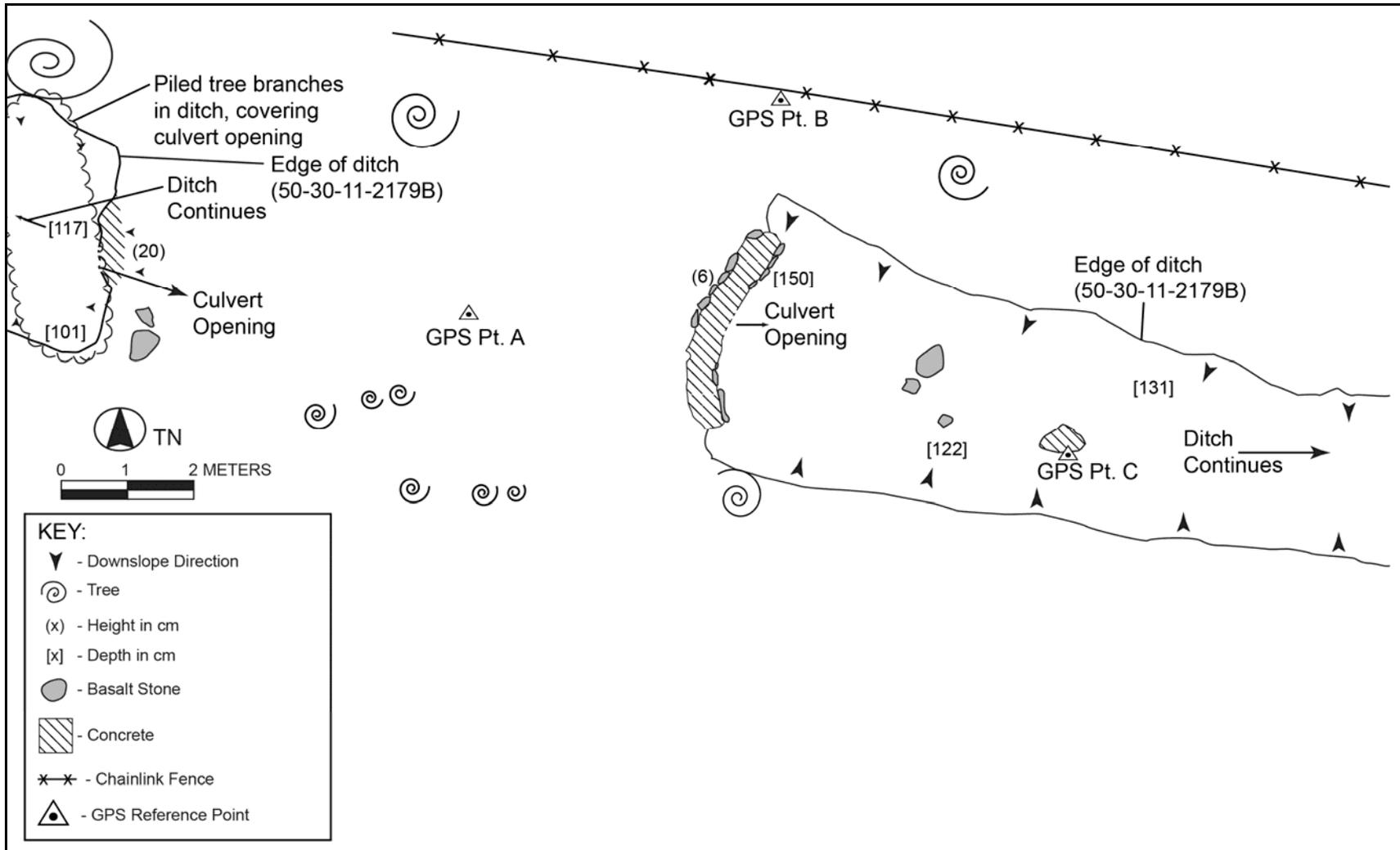


Figure 97. Plan view of SIHP # -2179 Feature B1, including east and west culverts

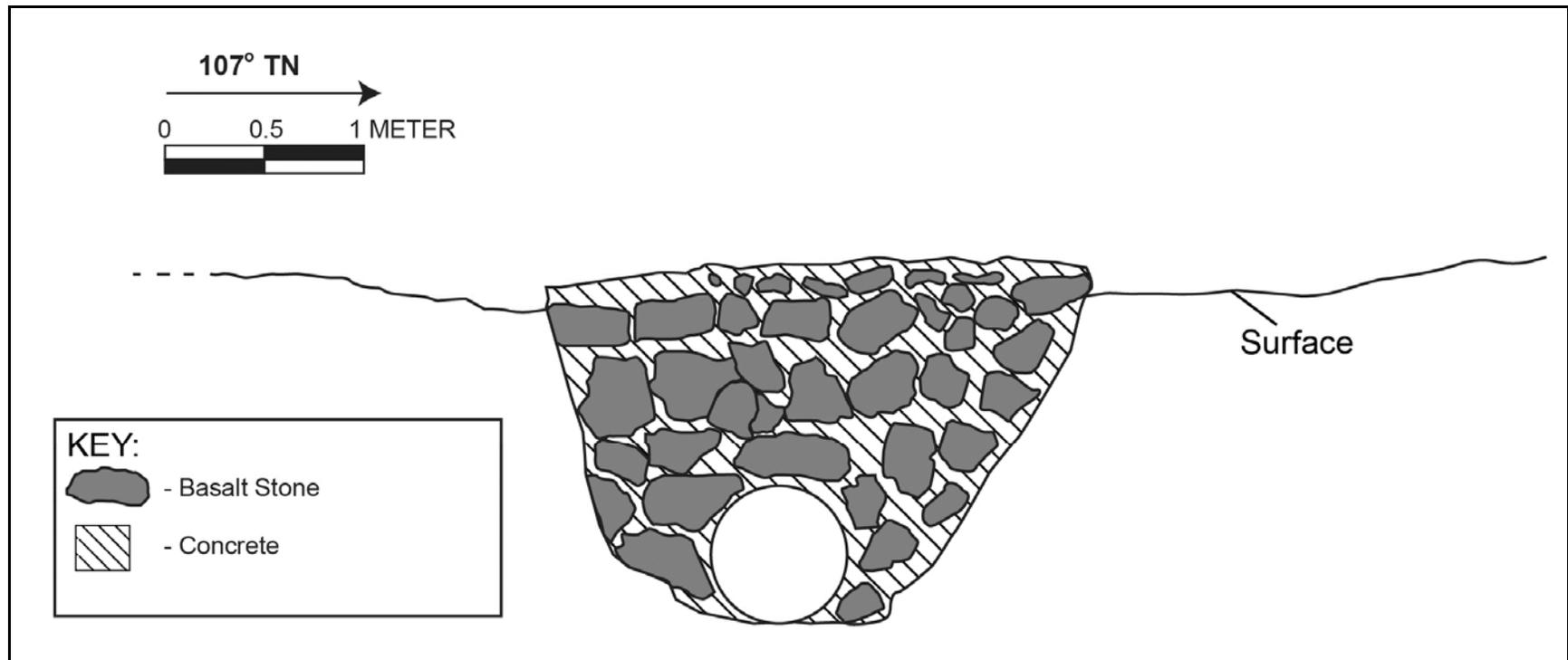


Figure 98. Elevation drawing of SIHP # 2179 Feature B1, eastern culvert

5.3.4 SIHP # 50-30-11-2179 Feature C (Irrigation Ditch and Associated Culverts and Sluice Gates)

Feature C is a section of an irrigation ditch (see Figure 74 and Figure 75 for location) that enters the project area from the north, near the parcel's northeast corner. The portion of the ditch within the project area is 209 m long. Water flowing through the ditch originating from a siphon north of the project area feeds SIHP # -2179 Feature A (reservoir adjacent to the project area). The irrigation ditch has mounded earthen berms on each side that measure 2.0 m wide and are from 0.5 to 0.7 m high. The water channel is 2.5 m wide and approximately 1.2 m deep. The current condition of Feature C is good.

Three cross section profiles (CS4 through CS6) were recorded to represent physical characteristics of Feature C. CS4 was documented to show Feature C at its northernmost section (Figure 99 and Figure 100). CS5 was documented at the central section of Feature C (Figure 101 and Figure 102). CS6 was documented in the southern portion of Feature C (Figure 103 and Figure 104).

A 1941 map of Lihue Plantation Co. (see Figure 12) shows that Feature C is the boundary between fields 39A and 39B. Irrigation ditches frequently formed the boundaries of fields. The 1963 U.S. Geological Survey map (see Figure 13) depicts a portion of the "Upper Lihue Ditch." Its location corresponds with the separation between field 39A and 39B (see Figure 12), indicating SIHP # -2179 Feature C is part of the Upper Lihue Ditch system. Feature C has four sub-features, as detailed below.

Feature C1. The northernmost end of SIHP # -2179 Feature C (see Figure 74 and Figure 75 for location) is a slightly curved culvert (Figure 105). At this end, its height averages approximately 0.90 m. The base of the culvert is constructed of concrete and small to medium angular and sub-angular basalt boulders. The culvert itself is a large deteriorating steel pipe approximately 0.60 m wide at the opening. The upper portion of the culvert is constructed of concrete-filled hollow blocks with an average height of 0.40 m on the south (ditch) side and 0.10 m on the north (surface) side (Figure 106 and Figure 107). No definite date of construction can be determined, but the difference in construction materials suggests that the culvert is historic but later modified, although the time span between original construction and later modification is indeterminate.

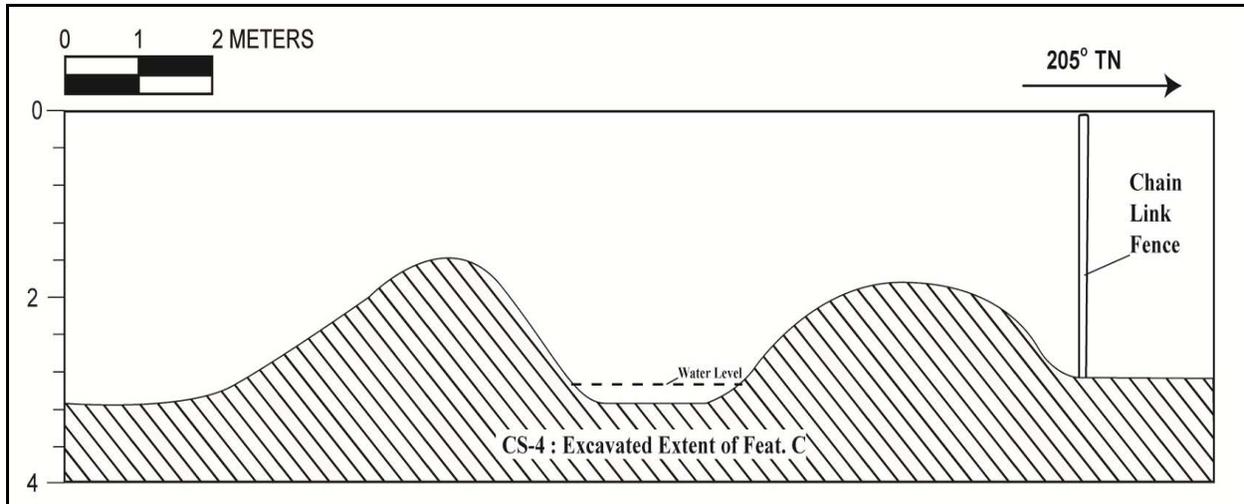


Figure 99. SIHP # -2179 Feature C, Cross Section 4



Figure 100. Photo of SIHP # -2179 Feature C, Cross Section 4, view to southeast

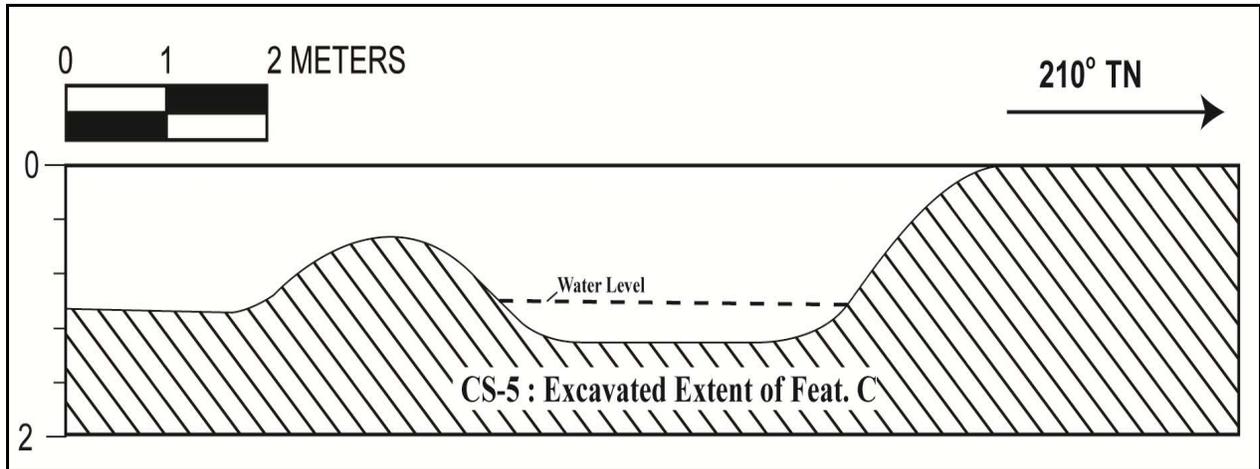


Figure 101. SIHP # -2179 Feature C, Cross Section 5



Figure 102. Photo of SIHP # -2179 Feature C, Cross Section 5, view to southeast

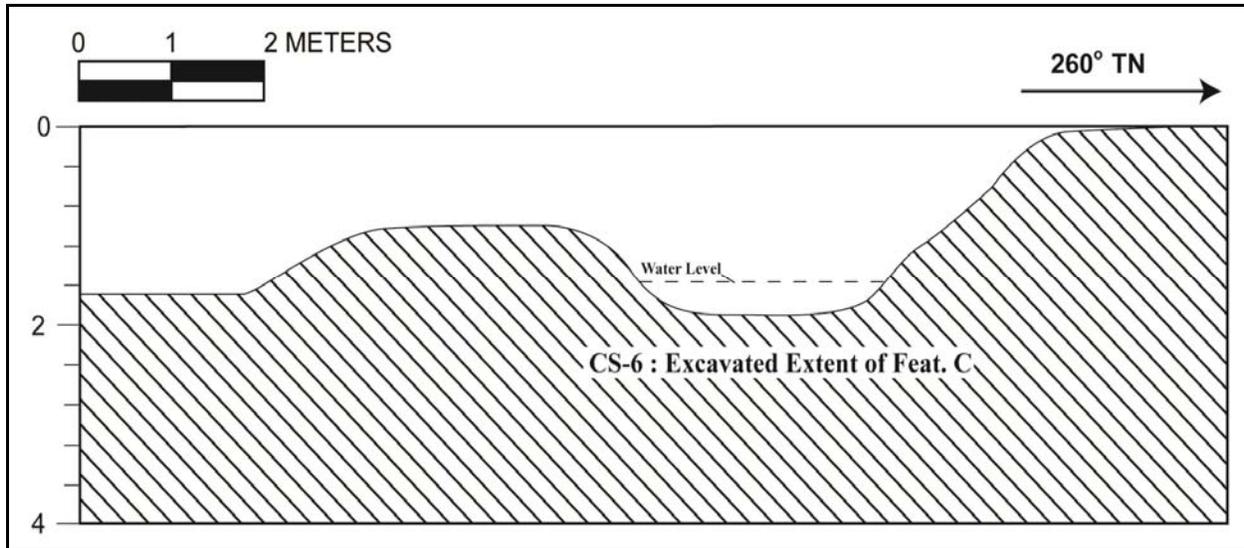


Figure 103. SIHP # -2179 Feature C, Cross Section 6



Figure 104. Photo of SIHP # -2179 Feature C, Cross Section 6, view to south



Figure 105. Photo of SIHP # -2179 Feature C1, culvert at northernmost section, view to north

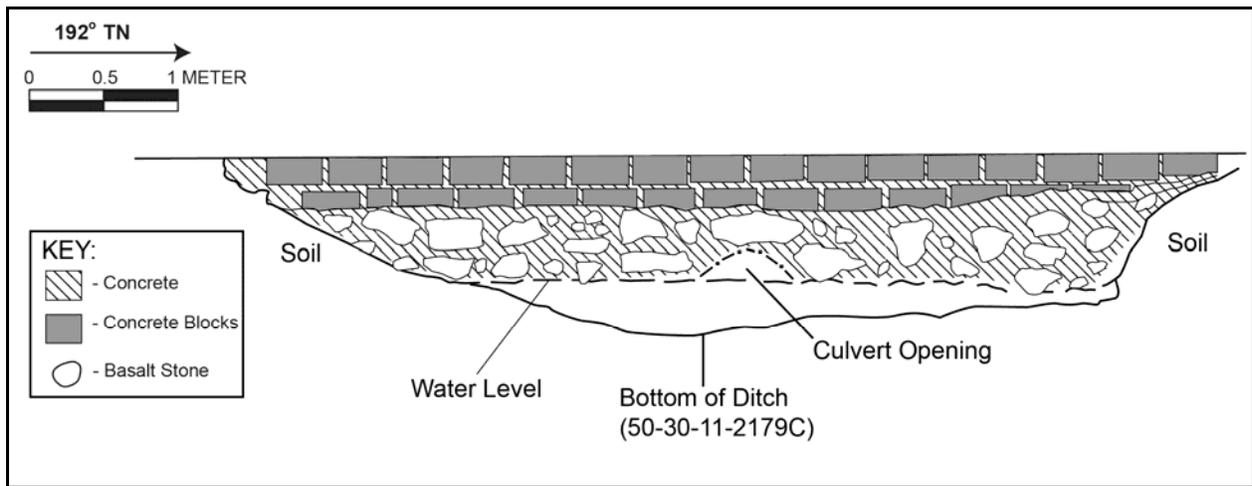


Figure 106. Elevation drawing of SIHP # -2179 Feature C1, culvert at northernmost section

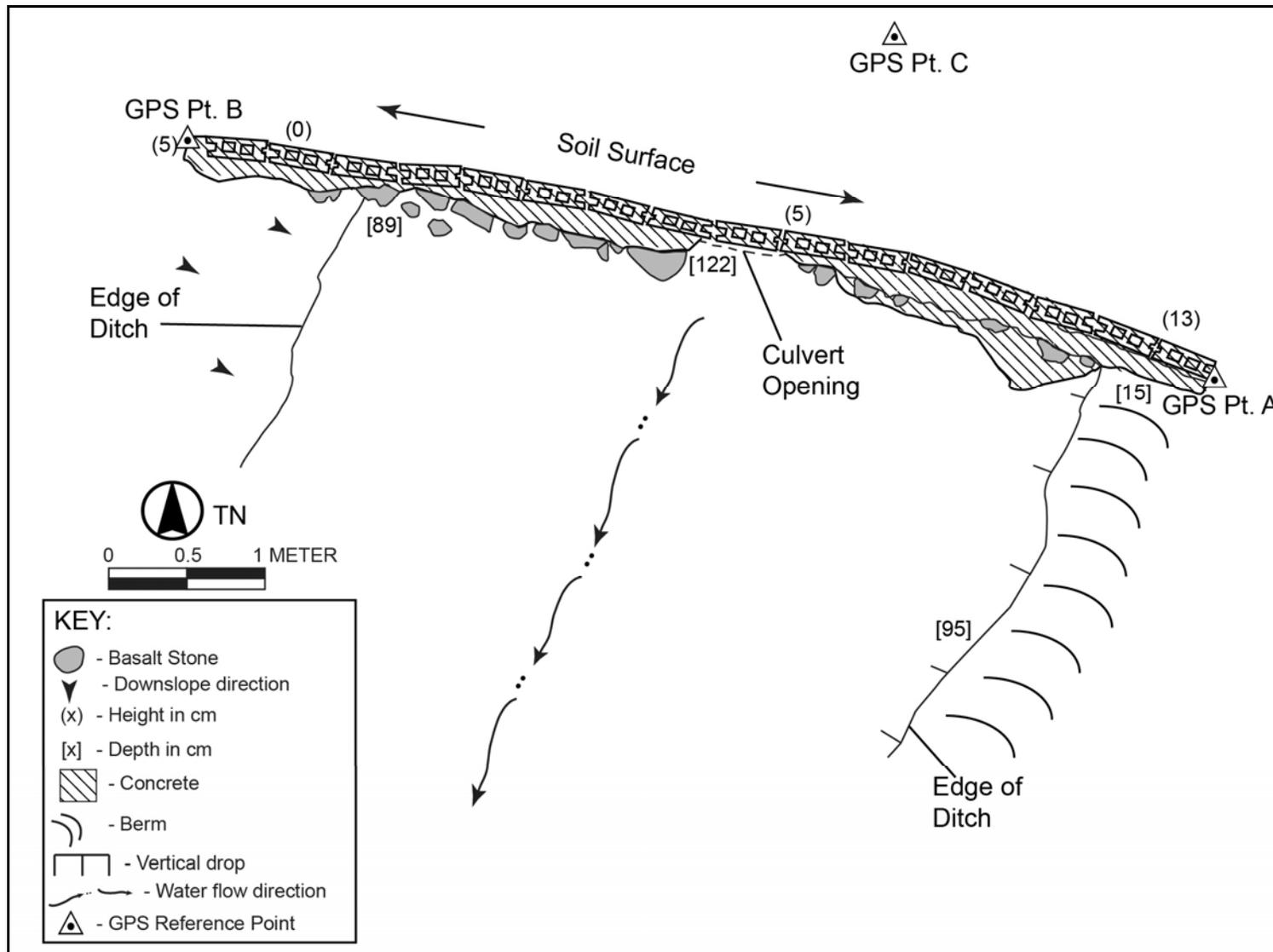


Figure 107. Plan view of SIHP # -2179 Feature C1, culvert at northernmost section

Feature C2. Feature C2 consists of one active and one abandoned vertical rising sluice gate, somewhat perpendicular to each other (see Figure 74 and Figure 75 for location and Figure 108, Figure 109, and Figure 110).

The active sluice gate lies across Site # -2179 Feature C (the ditch) in a roughly NW/SE direction. The wing walls are constructed of concrete. No rising gate was present. The gate opening measures 0.97 m wide and 1.05 m high. Adjacent to the northern side of the eastern half of the sluice gate is a small retaining wall about 0.70 m along the side of the ditch and constructed of stacked sub-angular basalt cobbles up to two courses high, with a height of approximately 0.30 m from the top of the water. Abutting the southern side of both halves of the gate are small basalt and mortar walls, likely constructed at a later date to stabilize the gate and prevent erosion. On the upper portion of the eastern half of the gate, an inscription of "6-22-76" was observed, which suggests a construction date of June 22, 1976.

The abandoned sluice gate is located on the eastern bank of Site # -2179 Feature C. The wing walls are of the same material as the active gate and appear to have been constructed at approximately the same time as those of the active gate, although the gate is cracked and broken in some places. No rising gate was present. The gate opening measures 0.70 m wide and 0.85 m high from the concrete base.

Feature C3. Feature C3 is an abandoned culvert located approximately 0.80 m north of Feature C2 (see Figure 74 and Figure 75 for location and Figure 110 and Figure 111). The culvert includes a large corrugated metal pipe measuring approximately 0.65 m wide at the opening. Around the sides and on top of the pipe are stacked angular and sub-angular basalt boulders and cobbles with concrete fill. The culvert is capped with concrete. The whole structure is approximately 0.67 m high and 1.59 m wide (Figure 112 and Figure 113).

The time of the Feature C3's construction could not be determined.

Feature C4. Two vertical rising sluice gates, one active and one abandoned, constitute Feature C4 (see Figure 74 and Figure 75 for location and Figure 114 and Figure 116).

The active sluice gate is aligned in a roughly NW/SE direction across SIHP # -2179 Feature C (the ditch). The gate has two pre-cast concrete wing walls and a vertical rising gate composed of two wooden boards. The gate opening measures approximately 0.80 wide and 1.20 m high. A large 4 in x 12 in board of treated wood straddles the ditch just southwest of (nearly atop) the active gate (Figure 115).

The abandoned sluice gate is located on the northeast bank of the ditch, perpendicular to the active sluice gate, abutting the eastern half. No vertical rising gate was present. The gate opening is approximately 0.80 m wide and 1.20 m high. The abandoned gate is made of the same pre-cast concrete as the active gate and appears to have been constructed at the same time.

Feature C4's construction could not be dated.



Figure 108. Photo of SIHP # -2179 Feature C2, consisting of one active and one abandoned vertical rising sluice gate, somewhat perpendicular to each other, view to east



Figure 109. Photo of SIHP # -2179 Feature C2, Photo of SIHP # -2179 Feature C2, view to southeast

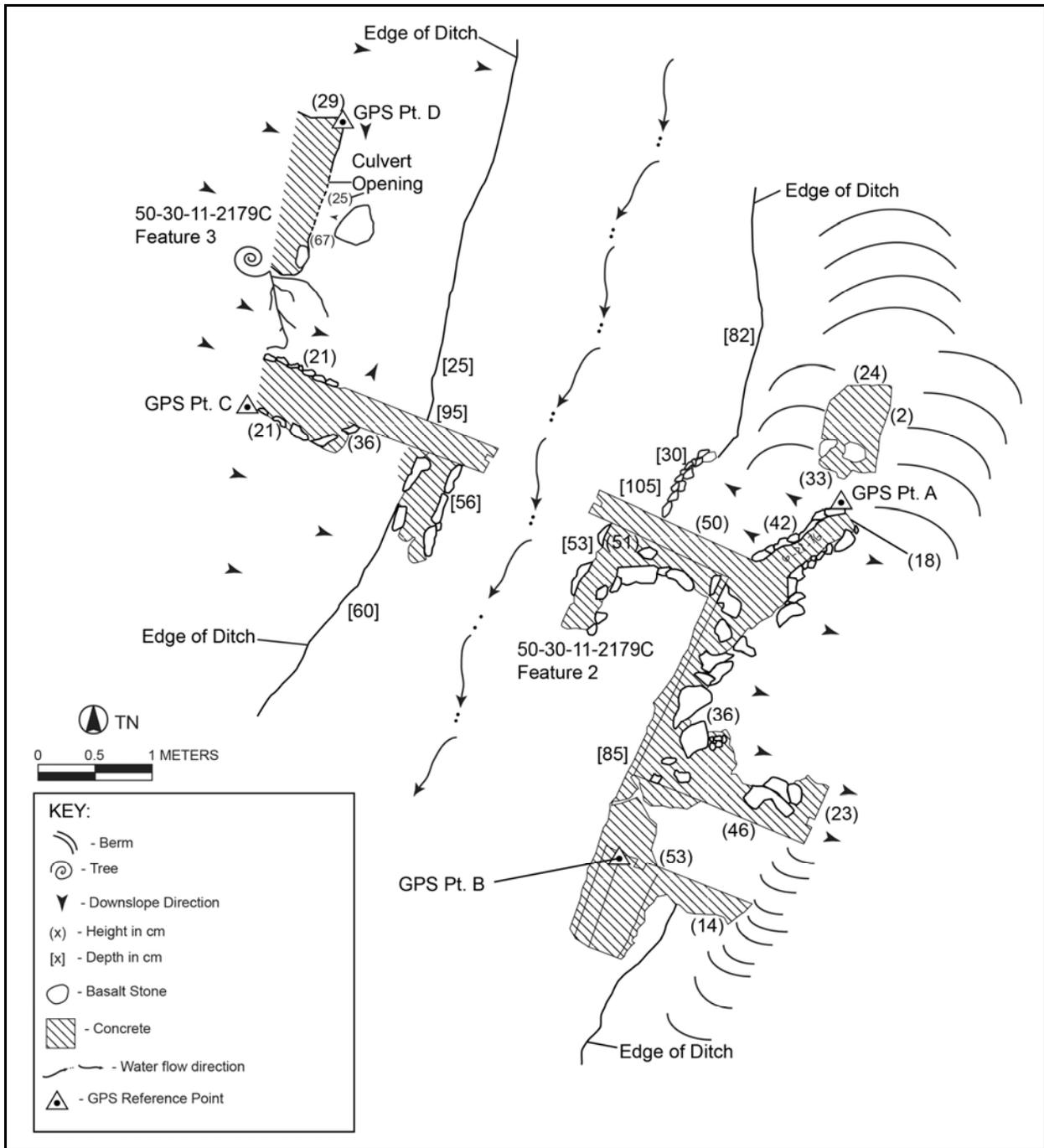


Figure 110. Plan view of SIHP # -2179 Feature C2 (two sluice gates) and Feature C3 (culvert)



Figure 111. Photo of SIHP # -2179 Feature C3, an abandoned culvert located approximately 0.80 m north of Feature C2, view to southwest



Figure 112. Photo of SIHP # -2179 Feature C3, an abandoned culvert, view to northwest

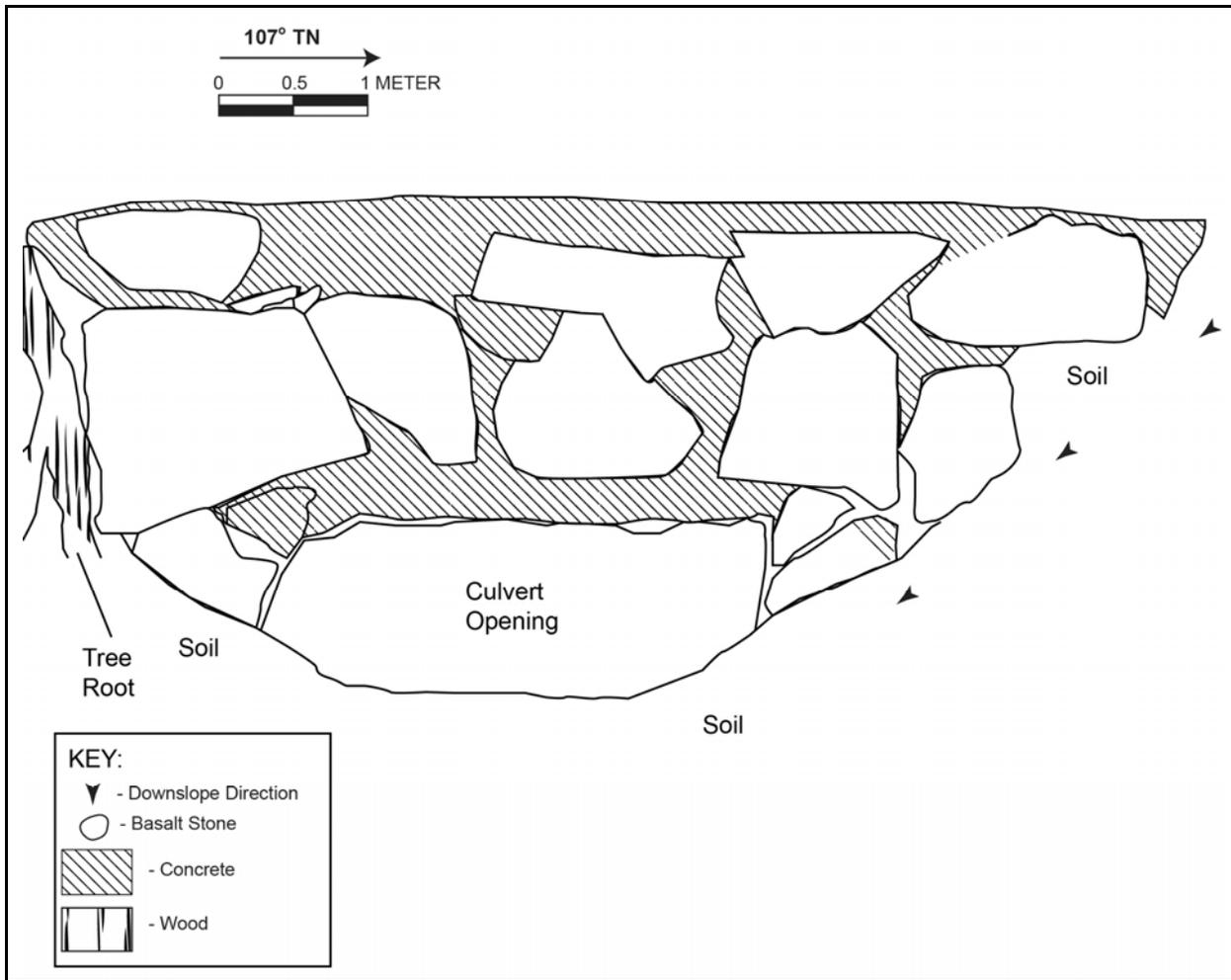


Figure 113. Elevation drawing of SIHP # -2179 Feature C3, an abandoned culvert



Figure 114. Photo of SIHP # -2179 Feature C4, one active and one abandoned vertical rising sluice gate, view to northwest



Figure 115. Photo of SIHP # -2179 Feature C4, showing the 4" x 12" board of treated wood just southwest of (nearly atop) the active gate, view to west

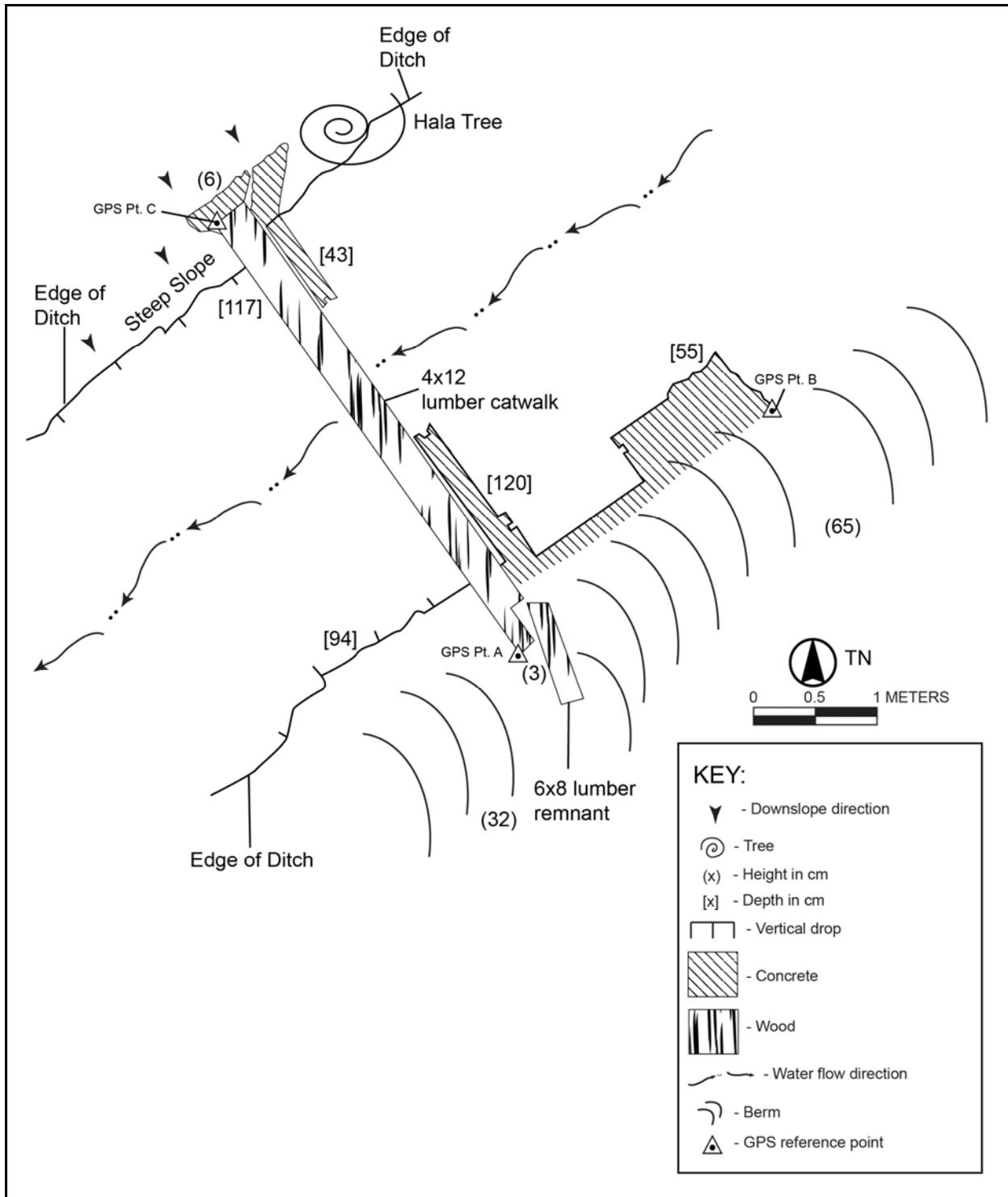


Figure 116. Plan view of SIHP # -2179 Feature C4, two vertical rising sluice gates

5.3.5 SIHP # 50-30-11-2179 Feature D (Irrigation Ditch)

Feature D is a portion of an irrigation ditch (see Figure 74 and Figure 75 for location) that bordered the southwest portion of field 39A, as shown on a 1941 map of Lihue Plantation Co map (see Figure 12). Feature D is also evident on the 1965 aerial from Foote et al. (1972) and 1977-1978 USGS aerial (see Figure 14 and Figure 15). Feature D, like Features B and C, was part of the Upper Lihue Ditch system, and also like those ditches, it fed into the Feature A reservoir. Three cross section profiles (CS1 through CS3) were recorded of Feature D prior to possible partial destruction during planned construction activities.

CS1 was documented at Feature D's westernmost portion (Figure 117 and Figure 118). CS2 was documented at the central portion of Feature D (Figure 119 and Figure 120). CS3 represents the easternmost portion of Feature D (Figure 121 and Figure 122).

A 1941 map of the Lihue Plantation Company's cane field system indicates that Feature D is located in what was once the upslope portion of Field 39A (see Figure 12). The function of Feature D was to distribute water originating from Feature A (reservoir) to flood cane fields to the east (down slope). The current condition of Feature D is poor, and is attributable to continuous modification due to subsequent agriculture-related land use and lack of maintenance.

An outlet at the westernmost end of Feature D, designated as Feature D1 allowed water to flow from the Feature A reservoir into the Feature D ditch channel (Figure 123, Figure 124, and Figure 125).

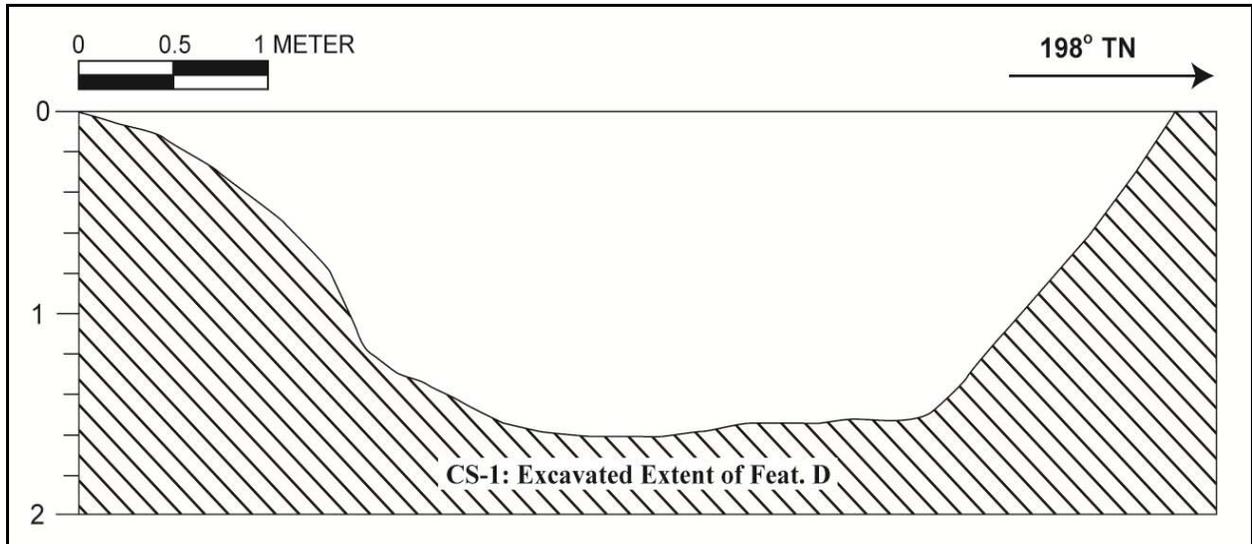


Figure 117. SIHP # -2179 Feature D, Cross Section 1



Figure 118. Photo of SIHP # -2179 Feature D, Cross Section 1, view to east

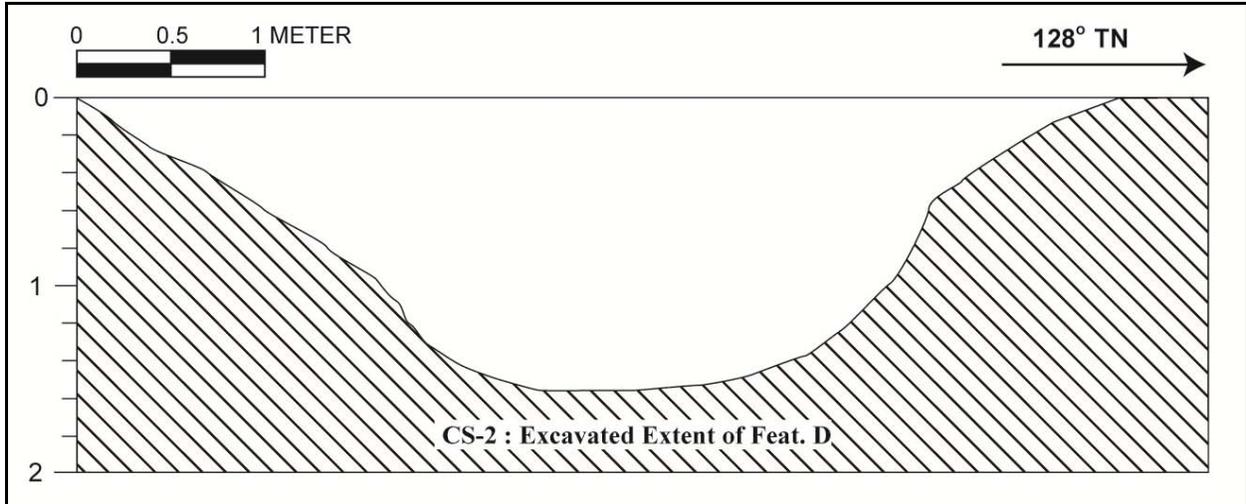


Figure 119. SIHP # -2179 Feature D, Cross Section 2



Figure 120. Photo of SIHP # -2179 Feature D, Cross Section 2, view to northeast

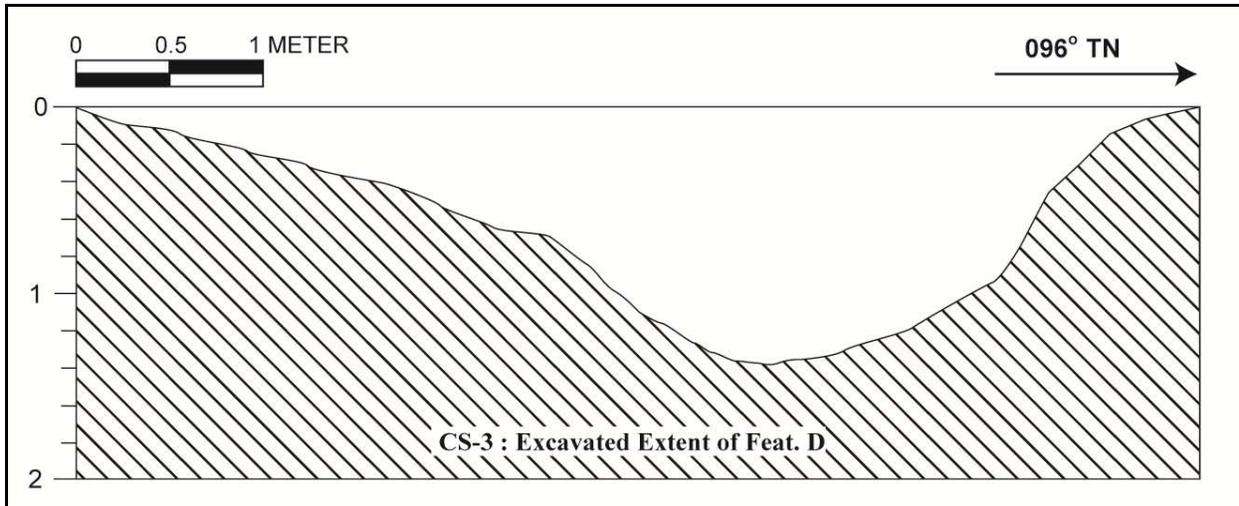


Figure 121. SIHP # -2179 Feature D, Cross Section 3



Figure 122. Photo of SIHP # -2179 Feature D, view to north



Figure 123. Photo of SIHP # -2179 Feature D1, outlet at the westernmost end of Feature D, which indicates that water from Feature A was diverted and fed into Feature D to be transported to feed cane fields to the east (slightly down slope from Feature C and Feature A), the original Lihue Plantation Company's cane field 39A, view to west

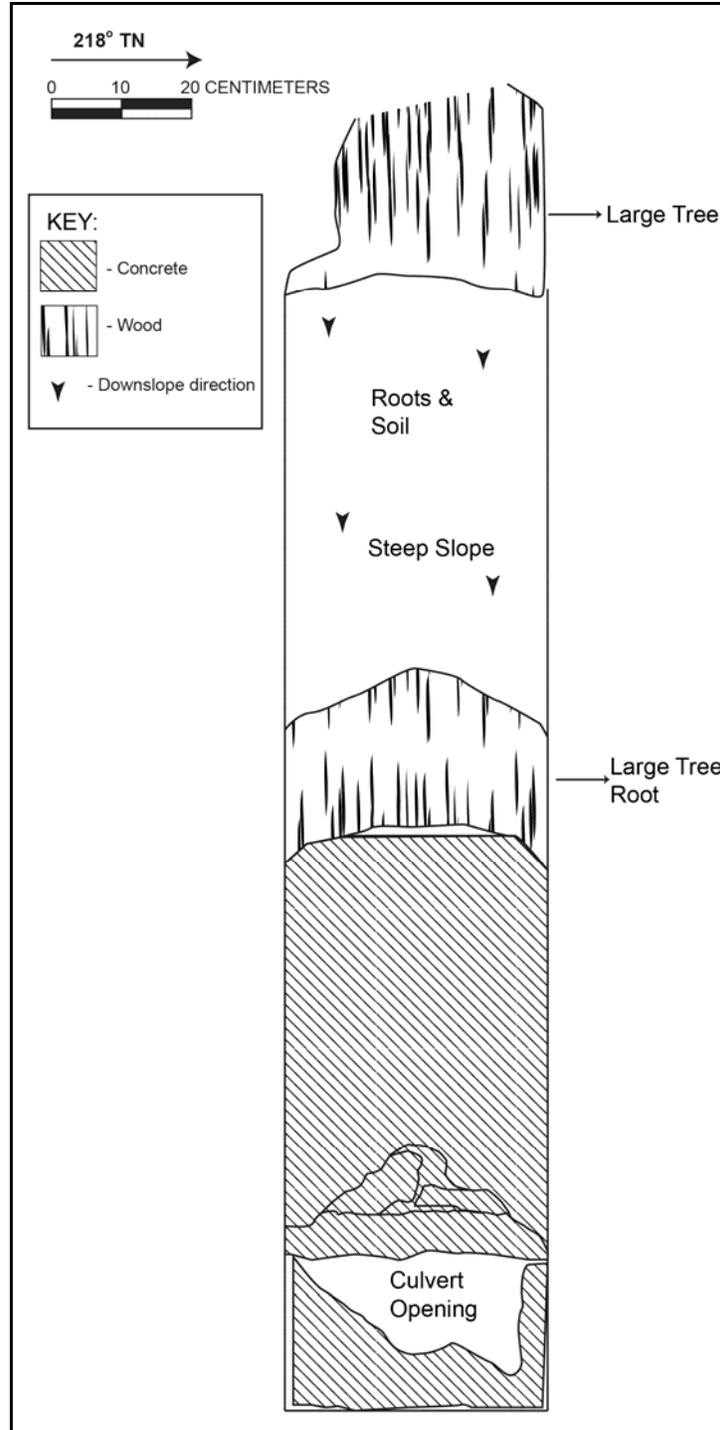


Figure 124. Elevation drawing of SIHP # -2179 Feature D1 at culvert opening in the northwest corner

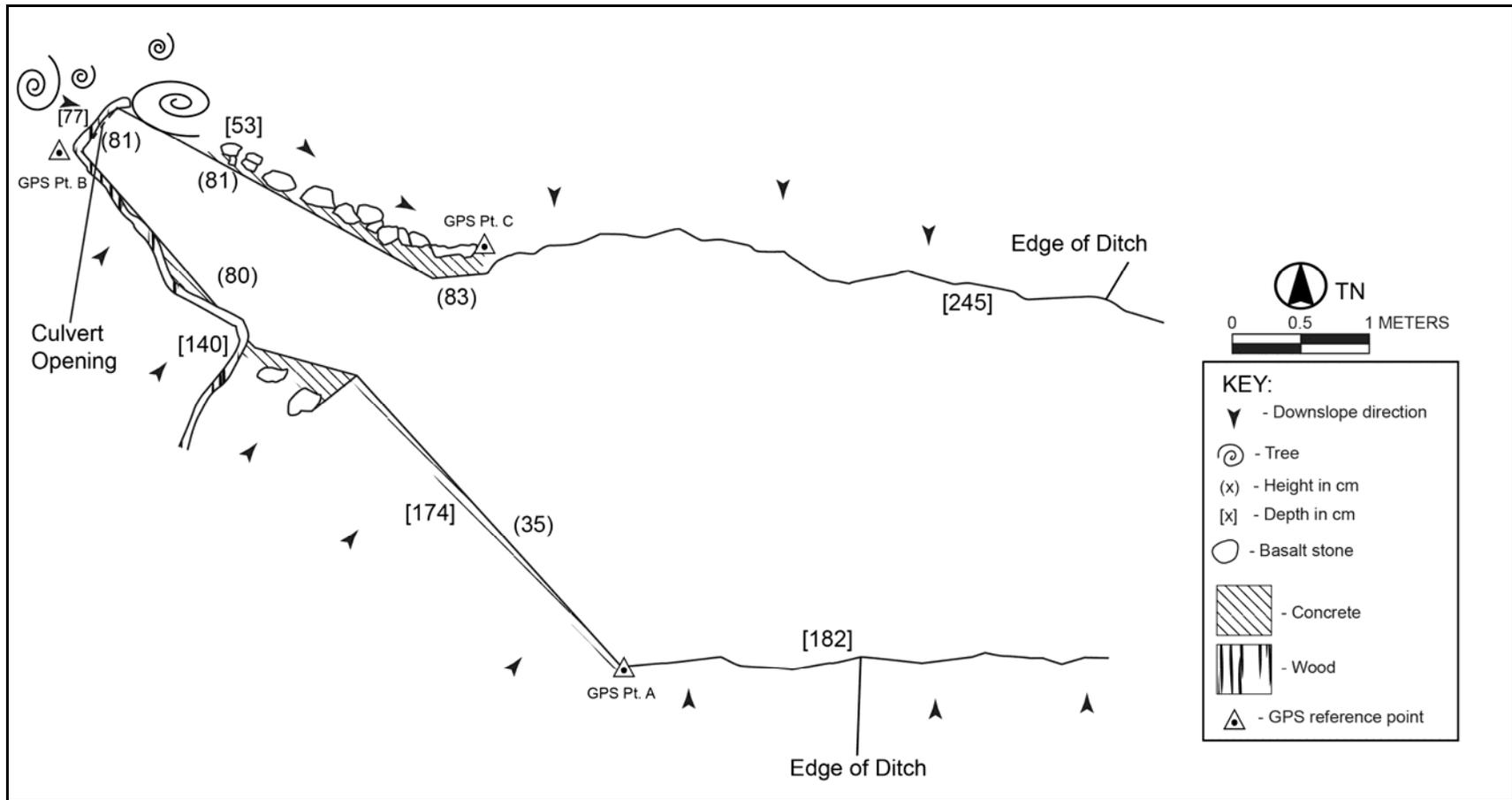


Figure 125. Plan view of SIHP # -2179 Feature D1, portion of an irrigation ditch SIHP # -2179 Feature D

5.3.6 SIHP # 50-30-11-2220

FORMAL TYPE: Hawaii Territory Survey Marker and Transit Station

MEASUREMENTS: 2.70 m long and 1.98 m wide, with a maximum height of 1.72 m

FUNCTIONAL INTERPRETATION: Survey marker

CONDITION: Very Good

TEMPORAL INTERPRETATION: Historic, territorial government survey

DESCRIPTION:

SIHP # 50-30-11-2220 is a basalt and concrete structure built over a Hawaii Territory Survey marker located on the east bank of Feature B (Figure 126 and Figure 127). The structure is approximately 2.70 m long and 1.98 m wide, with a maximum height of 1.72 m. The purpose of the structure is not completely clear (it is rather elaborate to have been intended to just protect the survey marker) but almost certainly served as a transit station as well as a survey marker (see Figure 130).

The walls are composed of stacked small to large sub-angular basalt boulders and mortar. The east and west walls are trapezoid shaped, and the south end of the east wall has two built-in steps. Part of the bank has eroded, exposing part of the west wall base.

The structure is topped with a square concrete slab with sides measuring approximately 1.85 m. At the center of the concrete slab is a “bump” with a hole and a metal pipe protruding upward from the hole. The top of the slab is also covered with hundreds of divots or small depressions (Figure 128). An inscription at the northern end of the slab reads, “KAUAI NORTH BASE 5-10-33-RTM.”

On the inside of the east and west walls, at the base, are short protruding walls made of basalt boulders and mortar, the same construction as the main outer walls. The two small walls support the metal base of a structure that includes the metal pipe that runs all the way to and through the concrete slab at the top of the larger structure (Figure 127). This metal base and pipe component is directly over the survey marker (Figure 129).

The structure appears to have functioned as a viewing or mapping platform. The metal pipe above the marker (Figure 126, Figure 127, and Figure 130) could have allowed a surveyor to set up a transit in such a way as to center a plumb bob above the marker.



Figure 126. Photo of SIHP # -2220, showing the overall structure, including the trapezoid-shaped walls, the steps on the east wall, the square concrete slab topping the structure, and the metal pipe protruding outward from the top



Figure 127. Photo of SIHP # -2220, showing the short protruding inner walls supporting the metal structure with a base and pipe that runs all the way to and through the concrete slab at the top



Figure 128. Photo of SIHP # -2220, showing the top of the cement slab with the words “KAUAI NORTH BASE” and many divots



Figure 129. Photo of SIHP # -2220, showing the Hawaii Territory Survey marker that the structure covers

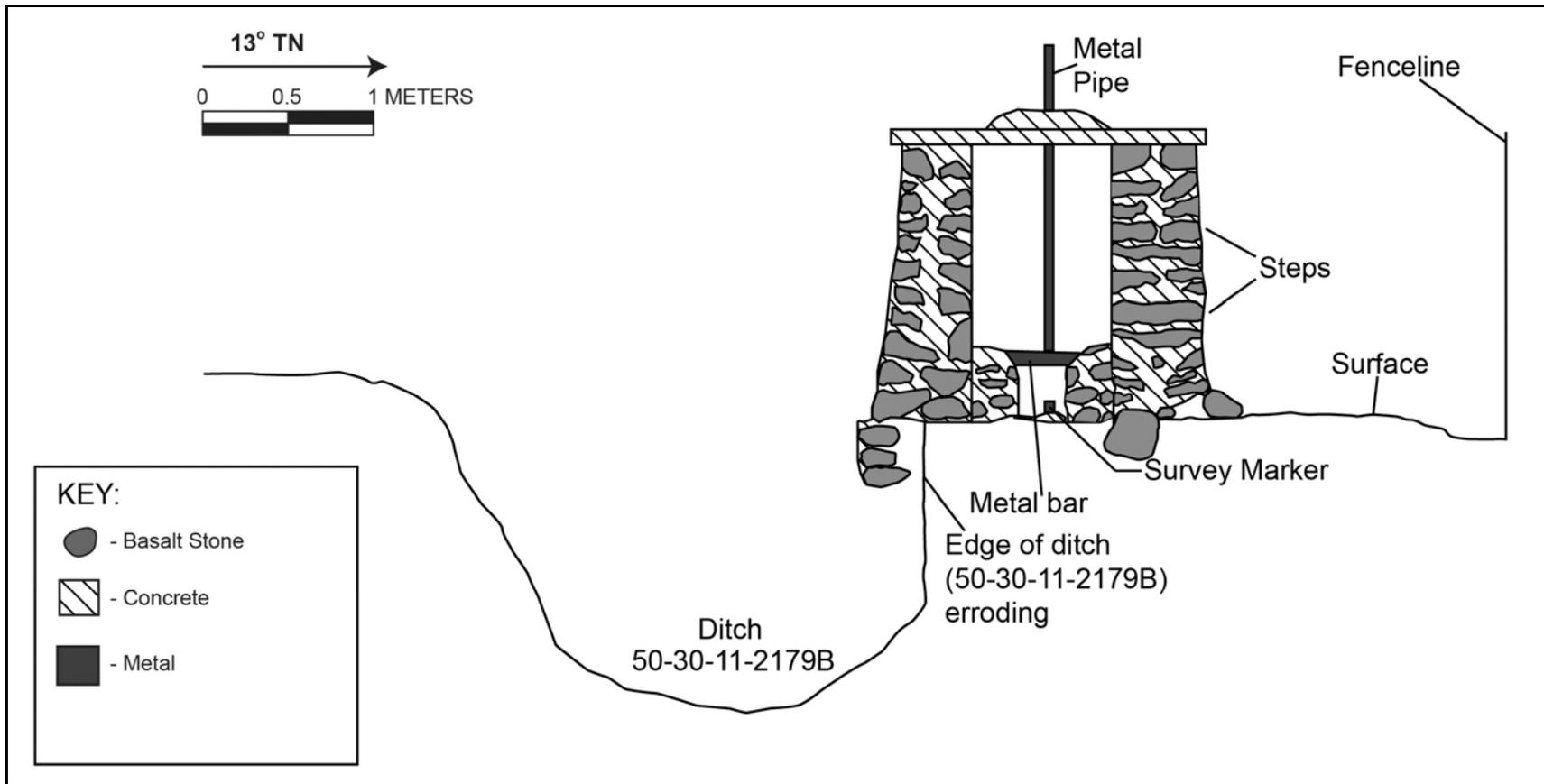


Figure 130. Elevation drawing of SIHP # -2220

Section 6 Significance Evaluations

SIHP # 50-30-11-2179, consisting of a total of four designated historic water control features related to the Lihue Plantation, was evaluated for significance according to the broad criteria established for the Hawai'i Register of Historic Places (see discussion below). The five criteria are:

- A Associated with events that have made an important contribution to the broad patterns of our history;
- B Associated with the lives of persons important in our past;
- C Embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value;
- D Have yielded, or is likely to yield information important for research on prehistory or history;
- E Have an important value to the native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts – these associations being important to the group's history and cultural identity.

SIHP # 50-30-11-2179 has been assessed as significant under Criterion D, meaning that this historic property has “yielded, or is likely to yield, information important for research on prehistory or history.” This reflects its value to our understanding of Plantation-era infrastructure. Water control was essential to Lihue Plantation, as evidenced by the fact that water was transferred from as far away as Hanalei to the plantation (Wilcox 1996:70). SIHP # 50-30-11-2179 is part of the Upper Lihue Ditch, which dates to the early twentieth century, and extends more than 7 km (4 mi) inland. The ditch, which corresponds with SIHP # -2179 Feature C, empties into SIHP # -23179 Feature A (reservoir), and bordered Lihue Plantation fields 39A and 39B (see Figure 12). Features C and D also bordered portions of Lihue Plantation fields 39A and 39B. Features B, C, and D are all part of Upper Lihue Ditch.

The proposed project may have an adverse effect on these historic properties. In accordance with the SHPD review of the Groza and Hammatt (2013) study, an AIS was recommended to provide additional documentation of these features (October 26, 2012; Log No. 2011.0117, Doc. No. 1210SL44).

SIHP # 50-30-11-2220, a Hawaii Territory Survey Marker and transit station, also has been assessed as significant under Criterion D.

Section 7 Project Effect and Mitigation Recommendations

The following project effect discussion and cultural resource management recommendations are intended to facilitate project planning and support the proposed project's required historic preservation consultation. Table 27 summarizes project effects and recommended mitigation. This discussion is based on the results of this archaeological inventory survey investigation.

7.1 Project Effect

7.1.1 Project Description

The purpose of this project is to make additions to the Island Schools facilities into currently unused portions of the project area. These additions will include two new athletic fields at the northern and southeastern sections of the project area, and the construction of approximately eleven new buildings with associated utilities (see Figure 4). Plans to modify the existing conditions of the project area include extensive clearing and grading of its northern and eastern sides for two athletic fields and two buildings at the northeastern most section.

7.1.2 Project Effect

According to the latest design plans, Features C and D of SIHP # 50-30-11-2179, will be adversely affected by the proposed construction. Features C and D will be buried to create a usable surface for the proposed project. Feature C is an active earthen ditch through which water flows into Feature A (reservoir). This ditch will be buried and a pipe will be installed to control the flow of water currently running within Feature C. Feature D is an earthen ditch no longer in use. This ditch will be buried and the infilled area will be graded to create the surface of the south side of an athletic field. SIHP # -2179 Features A, C, and D are all components of the Upper Lihue Ditch system.

No work is planned for areas of Features A and B of SIHP # 50-30-11-2179. Feature A lies outside the project area, and will not be altered in any way for the current proposed project. Feature B will not be modified in any way for the proposed project. No work is planned for the immediate vicinity of the SIHP # 50-30-11-2220, a Hawaii Territory Survey Marker and transit station.

7.2 Mitigation Recommendations

Features C and D are the only components of historic property SIHP # 50-30-11-2179 within the project area that will be affected by the proposed project. AIS fieldwork results, site interpretation and background information on plantation-era land use of the project area indicates low potential for additional historic properties to be discovered during construction-related excavation.

In order to alleviate the proposed project's adverse effect on properties recommended eligible to the Hawai'i Register, CSH offers the following mitigation recommendations:

SIHP # 50-30-11-2179 (historic agricultural infrastructure) is likely part of Lihue Plantation, which was once in operation throughout much of Nāwiliwili. Some areas formerly part of the

plantation are still farmed today. Within the current project area, the agricultural infrastructure has lost its integrity through repeated modification, disuse and extensive ground disturbance and cannot convey its historical significance as part of this larger district. The archaeological remnants of this agricultural infrastructure still contain important information, however. Accordingly, in order to mitigate the destruction of portions SIHP # 50-30-11-2179 during the proposed campus facility expansion project, a program of archaeological data recovery, in the form of an archaeological monitoring program (per the language of HAR Chapter 13-275-8¹), is recommended. This monitoring program should comply with HAR Chapter 13-279 and focus on impacts to plantation-historic era features within the project area and to any yet unidentified subsurface historic properties that may be encountered during construction-related activities.

Because SIHP # 50-30-11-2179 consists only of surface features, the recommended archaeological monitoring should adequately address the project's effect on Features C and D of SIHP # 50-30-11-2179. An archaeological monitoring program with on-site monitoring is recommended for any future work that may adversely affect Features A and B of SIHP # -2179.

Table 27. Project Effect and Mitigation Recommendations for Identified Historic Properties

SIHP #	Site Type	Significance Criteria ¹	Specific Project Effect	Mitigation Recommendation
50-30-11-2179 Feature A	Reservoir	D	No effect	An archaeological monitoring program with on-site monitoring is recommended for any future work that may adversely affect this component of SIHP # -2179.
50-30-11-2179 Feature B	Ditch	D	No effect	An archaeological monitoring program with on-site monitoring is recommended for any future work that may adversely affect this component of SIHP # -2179.
50-30-11-2179 Feature C	Ditch	D	Partial to complete destruction	Archaeological Monitoring
50-30-11-2179 Feature D	Ditch	D	Complete destruction	Archaeological Monitoring
50-30-11-2220	Hawaii Territory Survey Marker and transit station	D	No effect	No further work is recommended as no effect is planned.

¹ See above (Section 5) for explanation of significance criteria

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Appendix A SHPD Correspondence

A.1 SHPD Letter Log. No. 2004.0039, Doc. No. 0401.NM05

<p>LINDA LINGLE GOVERNOR OF HAWAII</p>		<p>PETER T. YOUNG CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT</p>
	<p>STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES HISTORIC PRESERVATION DIVISION KAKUHIHEWA BUILDING, ROOM 555 601 KAMOKILA BOULEVARD KAPOLEI, HAWAII 96707</p>	<p>DAN DAVIDSON DEPUTY DIRECTOR - LAND</p> <p>ERNEST Y.W. LAU DEPUTY DIRECTOR - WATER</p> <p>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</p>
<p>January 13, 2004</p>		
<p>Mr. David Shideler Cultural Surveys Hawaii 733 N. Kalaheo Avenue Kailua, Hawaii 96734</p>		<p>LOG NO: 2004.0039 DOC NO: 0401NM05</p>
<p>Dear Mr. Shideler:</p>		
<p>SUBJECT: Chapter 6E-8 Historic Preservation Review – Request for Determination of the Need for Archaeological Study in Support of Development of the “One-Stop Center Kauai Community College” Project, (Shideler, CSH, 2003) [State/University of Hawai’i] TMK: 3-4-5: 9 Puhī, Lihue, Kauai</p>		
<p>Thank you for submitting the above letter report. We received the request for determination and the attached letter report on December 26, 2003, and provide the following comments (Shideler, 2003. <i>Request for Determination of the Need for Archaeological Study in Support of Development of the “One-Stop Center Kauai Community College” Project (TMK: 3-4-5: 9) CSH ms.</i>).</p>		
<p>Based on your research and the brief field inspection, no historic sites were found nor are any likely to be present, given the extent of past land alterations and development. No further archaeological work is needed for this project.</p>		
<p>We would only ask that a copy of the letter report be provided to our O’ahu office. If you have any questions, please call Nancy McMahon (808) 742-7033.</p>		
<p>Aloha,</p>		
		
<p>P. Holly McEldowney, Administrator State Historic Preservation Division</p>		
<p>c. Ian Costa, Planning Department Chair, Kaua’i Historic Preservation Review Commission</p>		
<p>NM:ak</p>		

A.2 SHPD Letter Log. No. 2011.0117, Doc. No. 1210.SL44

<p>NEIL ABERCROMBIE GOVERNOR OF HAWAII</p>		<p>WILLIAM J. AILA, JR. CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT</p>
	<p>HISTORIC PRESERVATION DIVISION DEPARTMENT OF LAND AND NATURAL RESOURCES</p>	<p>ESTHER KIA'AINA FIRST DEPUTY</p> <p>WILLIAM M. TAM DEPUTY DIRECTOR - WATER</p> <p>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</p>
<p>601 Kamokila Boulevard, Suite 555 Kapolei, HI 96806</p>		
<p>October 26, 2012</p>		
<p>David Shideler Cultural Surveys Hawai'i, Inc. P.O. Box 1114 Kailua, Hawaii 96734 dshideler@culturalsurveys.com</p>	<p>LOG NO: 2011.0117 DOC NO: 1210SL44 Archaeology</p>	
<p>Dear Mr. Shideler:</p>		
<p>SUBJECT: Chapter 6E-42 Historic Preservation Review – Archaeological Literature Review and Field Inspection for the Island School Project Nāwiliwili Ahupua'a, Līhu'e District, Island of Kaua'i TMK: (4) 3-8-002:016</p>		
<p>Thank you for the opportunity to review this draft report titled <i>Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island TMK: (4) 3-8-002:016</i> (Groza and Hammatt, October 2010). Our office received this submittal on January 11, 2011; we apologize for the delay and thank you for your patience. An archaeological literature review and field inspection study was requested by Wilson Okamoto Corporation to assist in identifying historic properties and to provide mitigation recommendations in advance of proposed development. The project area consists of the 38.448-acre campus of the Island School in Puhi, Kaua'i.</p>		
<p>The literature review provides a sufficient discussion of the environmental setting but requires additional discussion of the historical context, particularly the development of irrigation systems and technology within Lihue Plantation in order to better assess the age and significance of the irrigation features identified during the field inspection (see also attached section of map 1900 Monsarrat map of Lihue Plantation). This historic context discussion should incorporate plantation features identified in previous studies conducted within the vicinity, particularly features related to the several reservoirs and to various irrigation and water diversion projects (see also O'Hare and Monahan, Sept 2012, Job Code NAWILIWILI 11, AIS for Ho'omana Road Alignment for recently recorded irrigation and water diversion features within Lihue Plantation).</p>		
<p>One reservoir and three irrigation ditches associated with Lihue Plantation were identified and briefly described. These features comprise components of a historic property that requires assignment of a state site number, completion of a historic property description, and an assessment of historic significance. SHPD requests that this historic property not be adversely affected by any proposed Island School development without prior consultation with and concurrence from SHPD. In addition, we believe the present documentation is not sufficient to mitigate any potential adverse effect to this historic property and request that an archaeological inventory survey be completed.</p>		
<p>We have included an attachment that identifies the issues and concerns that are in need of revision prior to the acceptance of this literature review and field assessment pursuant to Hawaii Administrative Rule §13-276(5)(a) and (c) and §13-284(b)(5)(A). To aid in rapid review of the subsequent revision please include a cover letter that specifies the changes made to this document and their page numbers.</p>		
<p>Please contact Susan A. Lebo at (808) 692-8019 or Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.</p>		
<p>Aloha,</p>		
		
<p>Theresa K. Donham, Archaeology Branch Chief</p>		

Mr. Shideler
October 26, 2012
Page 2

Attachment

Comments and Questions: *Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island*
TMK: (4) 3-8-002:016 (Groza and Hammatt, October 2010).

Management Summary

- (1) Revise (page i) field work effort to state (principal investigator).
- (2) Revise (page ii) summary of findings to insert SIHP numbers for temporary site numbers

Environmental Setting

- (3) Revise (page 1) last paragraph to state "...District, in the southeastern quadrant..."
- (4) Revise (page 2) last paragraph to state "...of existing school and administrative buildings..."

Background Research

- (5) Revise (page 11) end of 4th paragraph to provide citation for statement that "During the whaling era, ...for resupply of the ships.
- (6) Revise (page 16) 1st paragraph to state "An unpaved road..."
- (7) Revise (page 22) 4th paragraph to state "A discussion of the archaeological findings that are relevant..."
- (8) Revise (page 22) Table 1 Ching et al. 1973 is not shown in Fig14.
- (9) Revise (page 27) last sentence to read "...for the project" (see Appendix A)." [no need to say current Appendix A unless you make reference to a previous one]

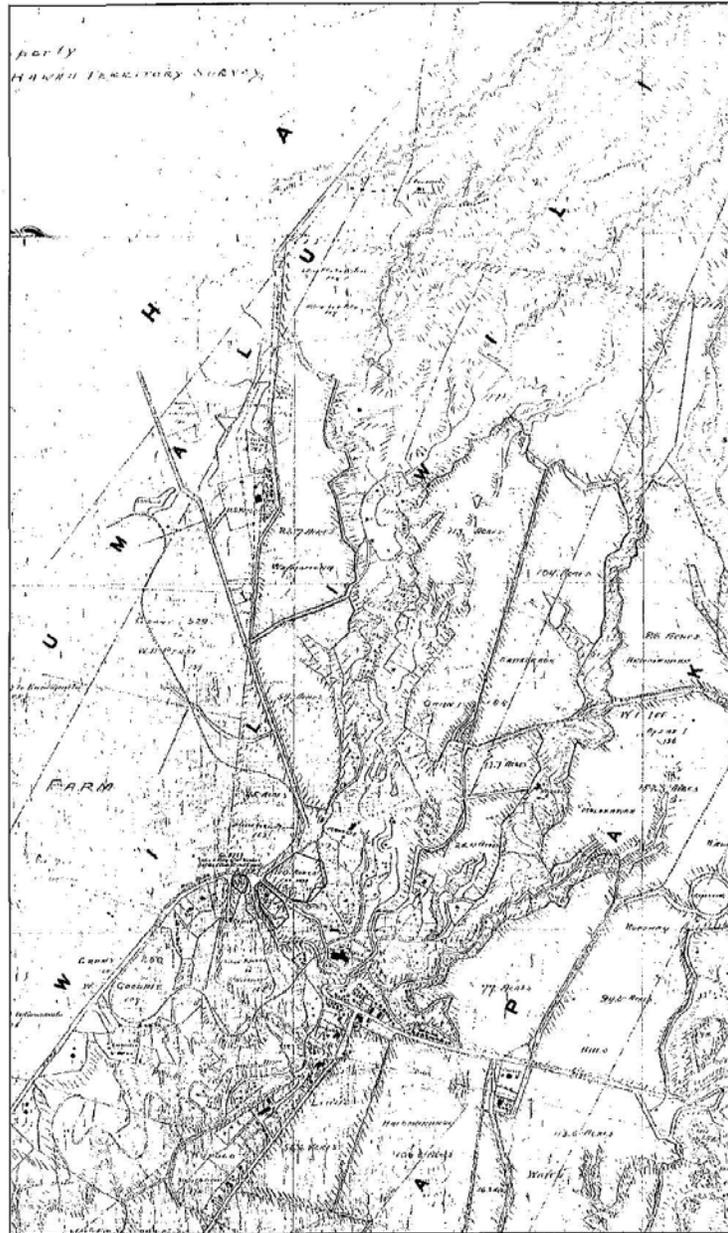
Significance Assessments

- (10) Revise (page 36) to include SIHP for this historic property
- (11) Revise (page 36) to insert a Historic Property Description for this historic property. This description should describe these features in a broad historic context that includes the Lihue Plantation and the other related features identified in the previous archaeological studies in the vicinity.
- (12) Revise (page 36) last paragraph and Table 3 to indicate that additional documentation is recommended. First, none of these features have been sufficiently described. Some do not have dimensions, none are described in terms of when they were constructed, how long were they in use, what is their current use, how have they been altered, what is their integrity, and so forth. This needs to be done. The current recommendation should be preservation.

Recommendations

- (13) Revise (page 37) to state that preservation is recommended. Should development plans be proposed that may adversely affect this historic property, further documentation is recommended to mitigate these possible effects.

Mr. Shideler
October 26, 2012
Page 3



Cropped section of 1900 Monsarrat Map of Lihue Plantation

A.3 SHPD Letter Log No. 2013.0401, Doc. No. 1302.SL09

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



**HISTORIC PRESERVATION DIVISION
DEPARTMENT OF LAND AND NATURAL RESOURCES**

601 Kamehameha Boulevard, Suite 555
Kapolei, HI 96806

WILLIAM J. AILA, JR.
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ESTHER KIA'AINA
FIRST DEPUTY

WILLIAM M. TAM
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

February 11, 2013

David Shideler
Cultural Surveys Hawai'i, Inc.
P.O. Box 1114
Kailua, Hawaii 96734
dshideler@culturalsurveys.com

LOG NO: 2013.0401
DOC NO: 1302SL09
Archaeology

Dear Mr. Shideler:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Literature Review and Field Inspection for the Island School Project
Nāwiliwili Ahupua'a, Lihue District, Island of Kaua'i
TMK: (4) 3-8-002:016**

Thank you for the opportunity to review this revised report titled *Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Lihue District, Kaua'i Island TMK: (4) 3-8-002:016* (Groza and Hammatt, January 2013). Our office received this submittal on January 15, 2013. An archaeological literature review and field inspection study was requested by Wilson Okamoto Corporation to assist in identifying historic properties and to provide mitigation recommendations in advance of proposed development. The project area consists of the 38.448-acre campus of the Island School in Puhī, Kaua'i.

The literature review provides a sufficient discussion of the environs, cultural and historic background, and previous archaeological research. A newly-identified historic property (SIHP 50-30-11-2179) associated with Lihue Plantation was briefly described. SIHP 2179 consists of a reservoir (Feature A) and three irrigation ditches (Features B-D). We concur that the present documentation is not sufficient to mitigate any potential adverse effect to this historic property. The recommendation that an archaeological inventory survey be completed to provide additional documentation supports our previous request for **an archaeological inventory survey of the project area**. We also request that the archaeological inventory survey include subsurface testing. Appropriate mitigation measures will be agreed upon following our review and approval of the archaeological inventory survey report, pursuant to Hawaii Administrative Rules (HAR) §13-276.

The revisions made to this document adequately address the major concerns raised in our prior correspondence (October 26, 2012; Log No. 2011.0117, Doc. No. 1210SL44). It is accepted by SHPD. Please send one hardcopy of the document, clearly marked FINAL, along with a copy of this review letter and a text-searchable PDF version on CD to the Kapolei SHPD office, attention SHPD Library.

Please contact me at (808) 692-8019 or at Susan.A.Lebo@hawaii.gov if you have any questions or concerns regarding this letter.

Aloha,

Susan A. Lebo

Susan A. Lebo, PhD
Oahu Lead Archaeologist

Appendix B David Pratt Letter Report

Commencement of Cane Cultivation On the Island School Parcel

By David W. Pratt

February 2013

After a review of "Archaeological Literature Review and Field Inspection for the Island School State Land Use District Boundary Amendment Project, Nawailiwili Ahupua'a, Lihue District, Kaua'i Island" prepared by Randy Groza, M.A., and Hallett H. Hammatt, Ph. D., a separate search was conducted to find evidence of establishing cane cultivation on the Island School parcel. This paper should be considered as a supplement to the above review by Groza and Hammatt rather than a separate work. My search information follows:

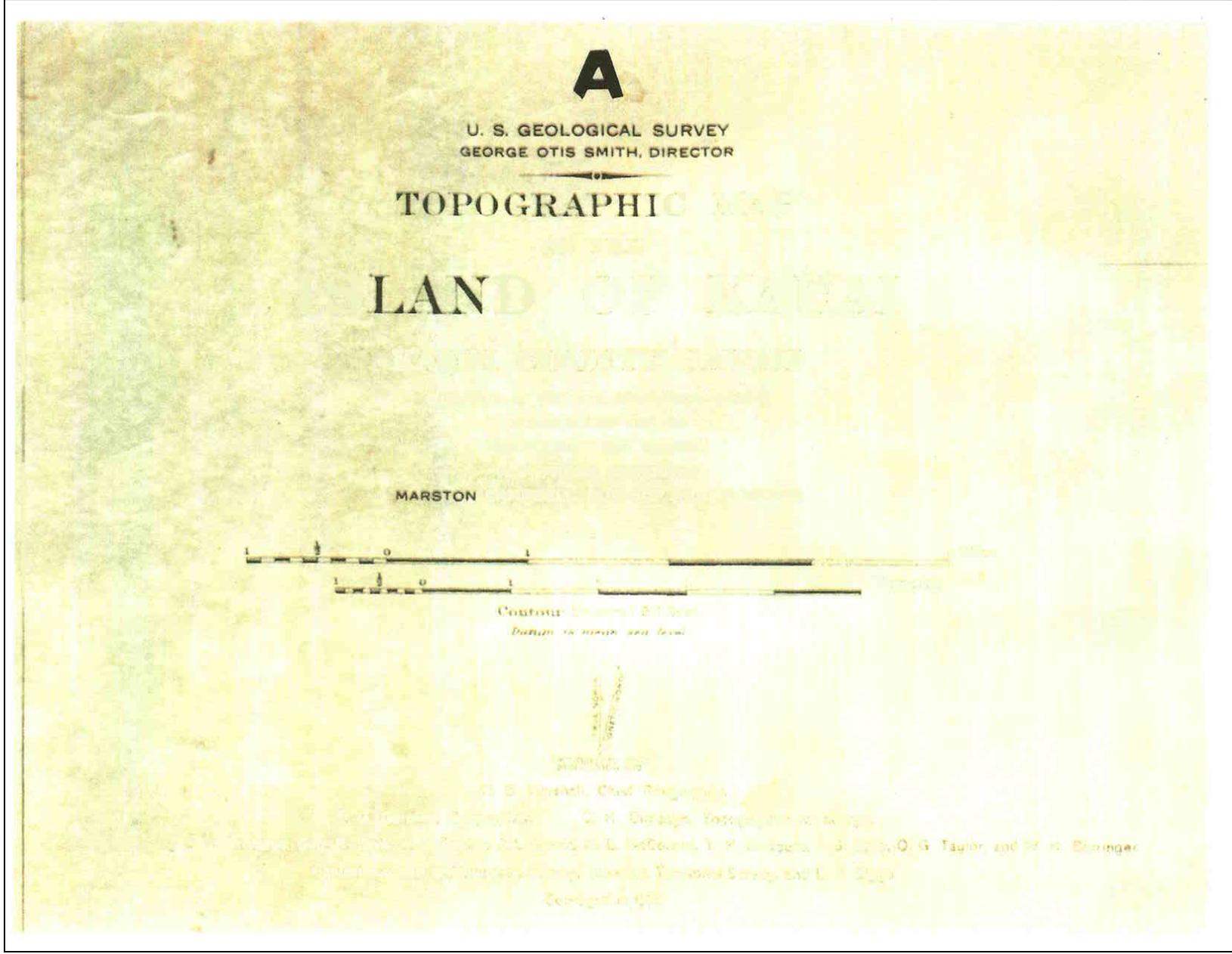
1. A search of Kaua'i Historical Society's collection of maps and documents did not find anything related to the Island School parcel.
2. A review of Kaua'i island maps at the Grove Farm Homestead Museum showed that the 1910 island map (not the quadrangle map), Exhibits A and B attached, clearly delineates the Upper Lihue Ditch feeding the reservoir adjacent to the Island School Parcel.
3. A 1903 Kaua'i island map gave general areas of cane cultivation outlined in orange and pasture areas outlined in green. Exhibits C and D indicate that the Island School parcel as well as the adjacent Kauai Community College (KCC) property were in cane.
4. The 1900 Lihue Plantation Map by M.D. Monsarrat Surveyor, courtesy of the Kauai Museum, also shows the presence of the Upper Lihue Ditch. See Exhibits E and F.
5. A review of documents at Grove Farm Company, Incorporated showed several exchanges of property between G. N. Wilcox, A. S. Wilcox and Lihue Plantation Company in the vicinity of the Island School parcel in 1896. Based on these documents, it is believed that cane cultivation did not begin on the KCC parcel until after 1896.

**Commencement of Cane Cultivation
Of the Island School Parcel
February 2013
Page 2**

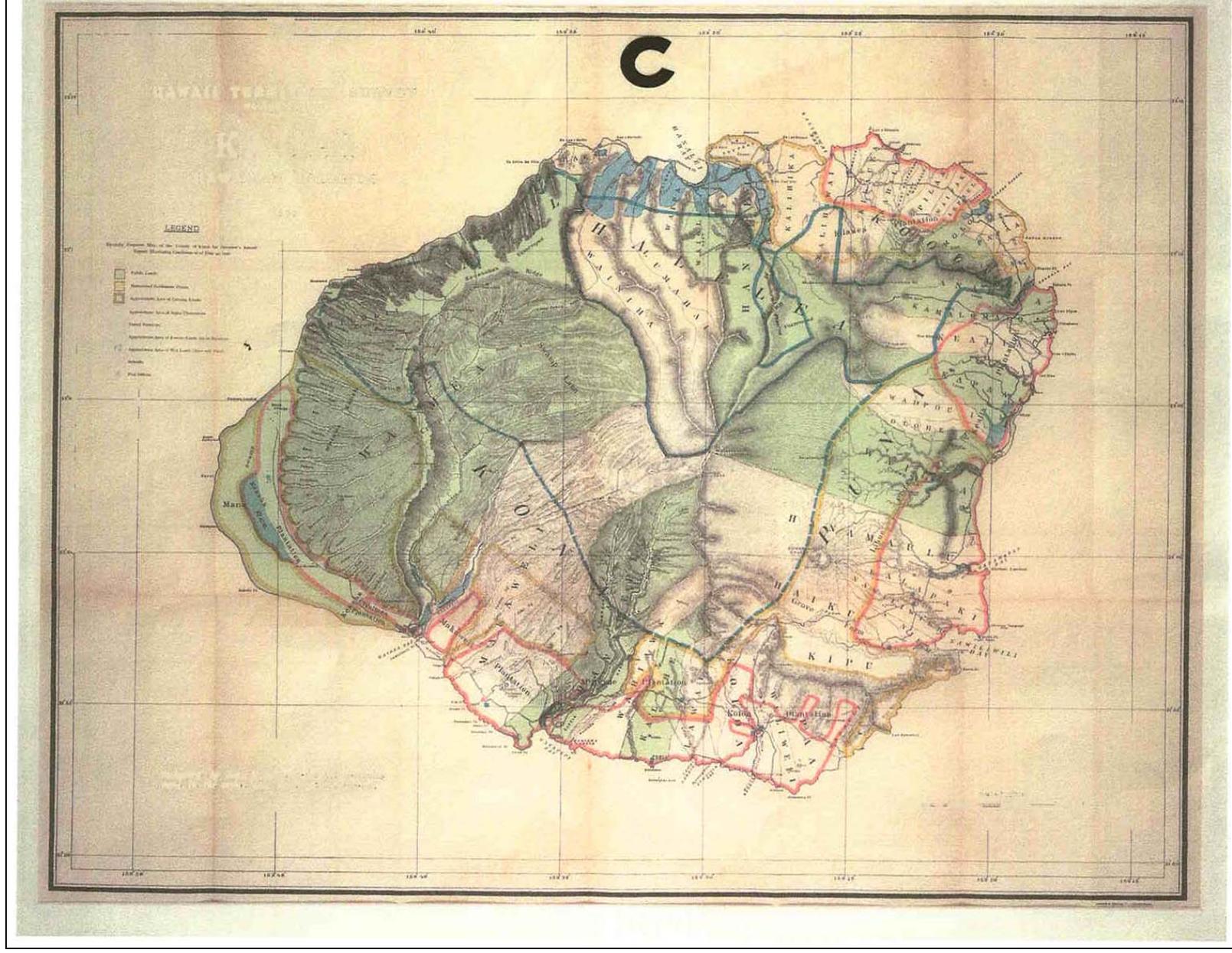
6. As stated in "Sugar Water" by Carol Wilcox, there is no record of the construction of the Upper Lihue Ditch. Also, a search of "Koamalu, Books I and II" by Ethel M. Damon produced descriptions of several Lihue Plantation Company irrigation improvements, but not including the Upper Lihue Ditch.

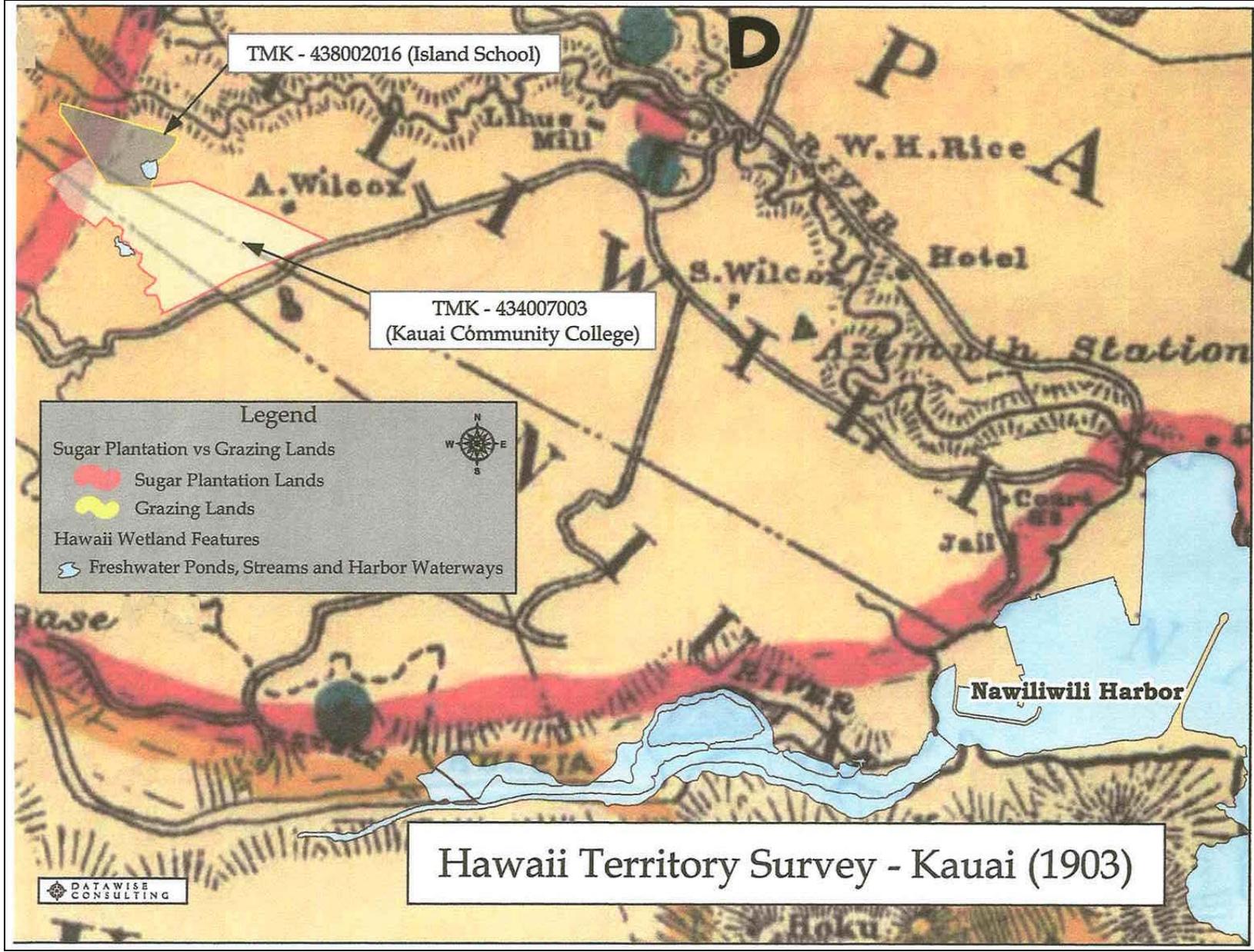
Therefore, it is concluded that most (if not all) of the Island School Parcel was planted to sugar cane in 1900 as evidenced by the 1900 Lihue Plantation Map by M. D. Monsarrat, Surveyor. No record was found of the original planting of cane on this parcel.

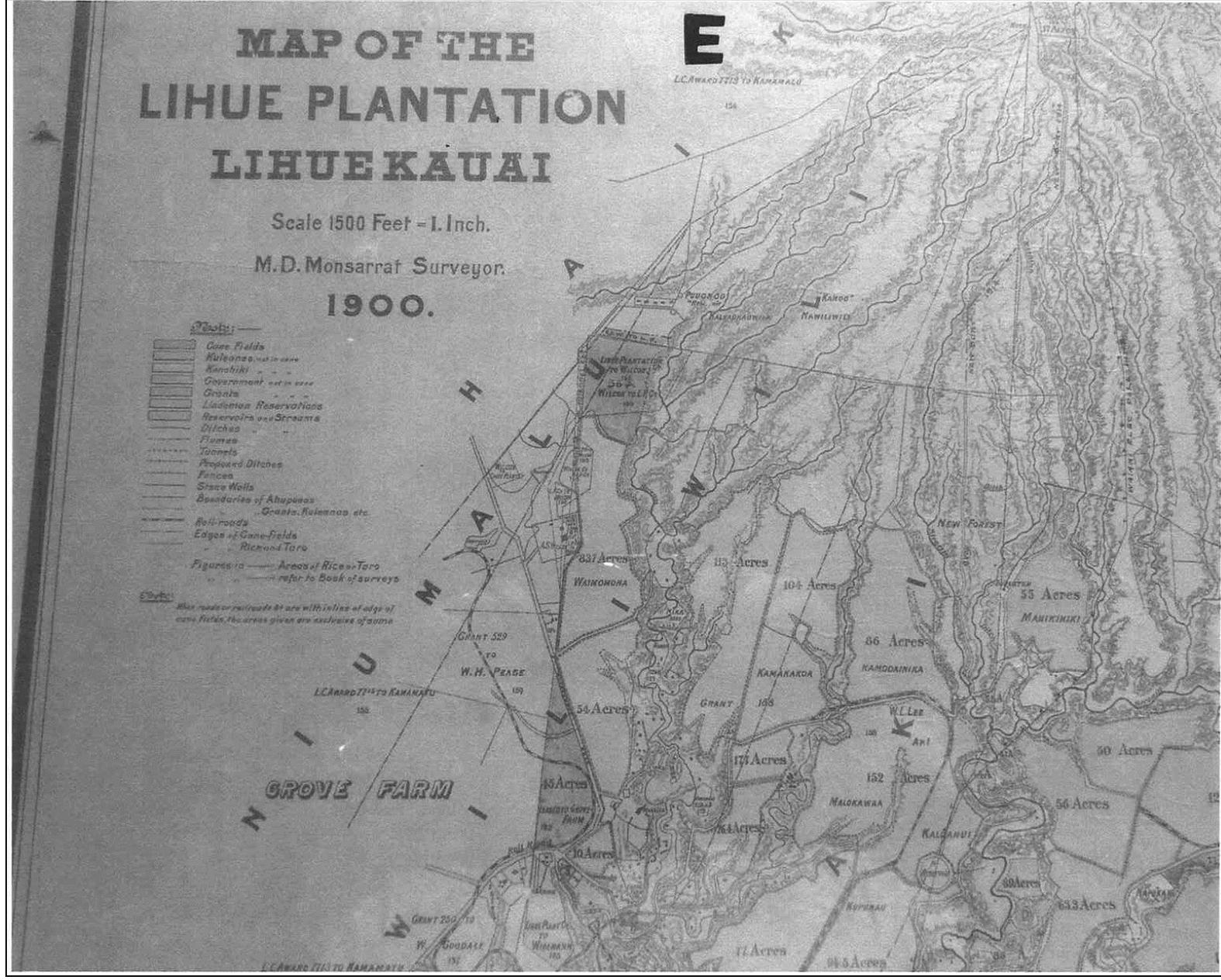
My thanks goes to Mary Requilman of the Kauai Historical Society, Moises Madayag of Grove Farm Homestead Museum, Chris Faye of Kauai Museum and H.P. King of Datawise Consulting for assisting me in this effort.











Draft

**Cultural Impact Assessment for the
Island School State Land Use District Boundary
Amendment Project,
Nāwiliwili and Niumalu Ahupua‘a,
Līhu‘e District, Kaua‘i
TMK: [4] 3-8-002:016**

**Prepared for
Wilson Okamoto Corporation**

**Prepared by
Margaret Magat, Ph.D.,
Angela I. Fa‘anunu, M.S.P.H.,
and
Hallett H. Hammatt, Ph.D.**

**Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code NAWILIWILI 18)**

April 2014

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Prefatory Remarks on Language and Style

A Note about Hawaiian and Other Non-English Words:

Cultural Surveys Hawai'i (CSH) recognizes that the Hawaiian language is an official language of the State of Hawai'i. Hawaiian Language is important to daily life, and using it is essential to conveying a sense of place and identity. As such, CSH does not follow the conventional use of italics to identify and highlight Hawaiian words. However, other non-English words in this report are still presented in italics unless citing from a previous document that does not italicize them. CSH parenthetically translates or defines in the text the non-English words at first mention, and the commonly-used non-English words and their translations are also listed in the *Glossary* (Appendix A) for reference. However, translations of Hawaiian and other non-English words for plants and animals mentioned by community participants are referenced separately (see explanation below).

A Note about Plant and Animal Names:

When community participants mention specific plants and animals by Hawaiian, other non-English, or common names, CSH provides their possible scientific names (Genus and species) in the *Common and Scientific Names of Plants and Animals Mentioned by Community Participants* (Appendix B). CSH derives these possible names from authoritative sources, but since the community participants only name the organisms and do not taxonomically identify them, CSH cannot positively ascertain their scientific identifications. CSH does not attempt in this report to verify the possible scientific names of plants and animals in previously published documents; however, citations of previously published works that include both common and scientific names of plants and animals appear as in the original texts.

Abbreviations

AD	Anno Domini referring to the year of Christ's birth
AIS	Archaeological Inventory Survey
APE	Area of Potential Effect
BC	Boundary Certificate Number
BCT	Boundary Commission Testimony
CIA	Cultural Impact Assessment
CSH	Cultural Surveys Hawai'i
DOH/OEQC	Department of Health/Office of Environmental Quality Control
FB	Field Book Register
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
HSPA	Hawaiian Sugar Planters' Association
HSRM	Hawai'i Survey Registered Maps
KCC	Kaua'i Community College
LCA	Land Commission Award
NHPA	National Historic Preservation Act
NR	Land Commission, National Register
NT	Land Commission, Native Testimony
OHA	Office of Hawaiian Affairs
RM	Registered Map
RPG	Royal Patent Grant
KNIBC	Kaua'i/Ni'ihau Island Burial Council
SIHP	State Inventory of Historic Properties
SHPD	State Historic Preservation Division
TCP	Traditional Cultural Property
TMK	Tax Map Key
UHCC	University of Hawai'i Community College
USGS	United States Geological Survey

Management Summary

Reference	Cultural Impact Assessment (CIA) for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili and Niumalu Ahupua'a, Līhu'e District, Kaua'i, TMK: [4] 3-8-002:016 (Magat, Fa'anunu and Hammatt 2014)
Date	April 2014
Project Number	CSH (Cultural Surveys Hawai'i) Job Code: NĀWILIWILI 18
Agencies	State of Hawai'i Department of Health/Office of Environmental Quality Control (DOH/OEQC)
Project Location	This study is located in the ahupua'a (Land division usually extending from the uplands to the sea) of Nāwiliwili in the district of Līhu'e, on the island of Kaua'i. The TMK parcel for the proposed site is [4] 3-8-002:016
Land Jurisdiction	Private
Project Description	<p>Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre (15.559-hectare [ha]) parcel in Puhī, on Kaua'i Island. The Island School campus is located on TMK parcel [4] 3-8-002:016 and situated adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for its campus that includes new classrooms and other school facilities. Thus, Island School is proposing an amendment to the State Land Use Boundary to redesignate the campus property from its existing land use classification of Agricultural District to Urban District.</p> <p>Existing Island School facilities were approved in the State Agriculture District through Special Permits. Similarly, the neighboring Kaua'i Community College, also on Agricultural District, is seeking an urban rezoning of its campus property to achieve its educational mission. Thus, re-designation of the Island School campus from Agriculture to Urban District, would be consistent with the goals of the community college, as well as the developed character of the surrounding area. Under Urban District designation, both campuses would then be regulated by the County of Kaua'i Comprehensive Zoning Ordinance.</p>
Project Acreage	Approximately 38.448 acres
Area of Potential Effect (APE) and Survey Acreage	For the purposes of this CIA, the APE is defined as the 38.448-acre project area. While this investigation focuses on the project APE, the study area also includes the two ahupua'a of Nāwiliwili and Niumalu.

Document Purpose	The project requires compliance with the State of Hawai'i environmental review process (Hawai'i Revised Statutes [HRS] §343), which requires consideration of a proposed project's effect on cultural practices and resources. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed Project's impacts to cultural practices and resources (per the <i>Office of Environmental Quality Control's Guidelines for Assessing Cultural Impacts</i>), which may include Traditional Cultural Properties (TCP) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places. The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS §6E-42 and Hawaii Administrative Rules (HAR) §13–284.
Consultation Effort	Hawaiian organizations, agencies and community members were contacted in order to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the project area and the vicinity. Outreach included efforts to contact 28 individuals and agencies. The organizations consulted included the State Historic Preservation Division (SHPD), the Office of Hawaiian Affairs (OHA), the Kaua'i/Ni'ihau Island Burial Council (KNIBC), Kaumuali'i Hawaiian Civic Club, and community members of the Līhu'e District.
Results of Background Research	<p>Background research for the proposed project indicates tht the project area, which lies approximately 2 miles southwest of Līhu'e Town, is part of a traditional region encompassing the ahupua'a of Nāwiliwili and Niumalu. Early accounts describe the region as an open, grass-covered land dotted with trees and streams flowing down from lush mountains on the way to the sea, with soils that bore a variety of crops like sugarcane, taro, sweet potatoes, beans, and groves of kukui, (candlenut), hau (beach hibiscus), koa, hala (pandanus), and wiliwili. The abundance of water and water systems, presence of famed fishponds along the coast, along with the concentration of permanent house sites, temporary shelters, and heiau suggests early settlement along coastal areas, with a radiocarbon date of AD 1170 to 1400 near the mouth of Hanamā'ulu Stream, north of Nāwiliwili.</p> <p>In the mid-nineteenth century, the project area became associated with the establishment of commercial sugarcane agriculture which required foreign indentured labor imported from Japan, China, and the Philippines, becoming part of the Grove Farm Plantation before the farm stopped its sugar business in 1974. Adjacent to the project area lie remnants of the Old Puhī Camp, built around 1920 along the present Kaumuali'i Highway, which housed plantation workers of Grove Farm and contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events. Most of the Puhī Camp housing was removed in the 1970s prior to the construction of the</p>

	<p>Kaua'i Community College (KCC) and the last homes of the camp were dismantled in the 1980s.</p> <p>The study area is also linked to many mo'olelo (stories, oral histories) and wahi pana (storied places) that suggest early settlement of the area by a viable Native Hawaiian population. These include mo'olelo about Kuhiau Heiau (the largest heiau in Kaua'i), Ninini and Ahukini Heiau in Kalapakī, the Menehune, wiliwili trees, and the many well-known chiefs, heros, and gods such as the chief Papalinaloa, the three sons of La'a Maikahiki, the hero Lohiau, the contest of Kemamo the sling-thrower and Kapūnohu, the ravishing of Pele by Kamapua'a, demi-god Pōhaku-o-Kaua'i (Hoary Head), as well as a Kaua'i chief sent by Ka'umuali'i to placate Kamehameha I on O'ahu. Mo'olelo with associated bodies of water near the project area are also plentiful which include Alekoko, the largest fishpond in Kaua'i (also known as 'Alekoko, Alakoko, Pēpē'awa), Hulēia (Hulā'ia) Stream, Kilohana, and Nāwiliwili Bay. Many wahi pana of settled areas, such as Puhi, Līhu'e, and various pu'u (hills, ridges) are also associated with the project area.</p> <p>Other important findings from background research are presented and emphasized in more detail:</p> <p>The traditional moku or districts of Kaua'i were replaced in the mid-to-late nineteenth century. Līhu'e became the modern district that includes the ahupua'a of the proposed project, previously under the Puna District. "Līhu'e," which literally translates as "cold chill," was not consistently used until the establishment of commercial sugar cane agriculture in the mid-nineteenth century (Creed et al. 1999). Between the 1830s and the Māhele, the names Nāwiliwili and Līhu'e were used somewhat interchangeably to refer to a settlement along Nāwiliwili Bay.</p> <p>No known heiau currently exists within the study area although Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua'i, existed along the coast of Nāwiliwili Ahupua'a (Damon 1931). Listed by Bennett (1931) as Site No. 99, this heiau is reported to have been about 4 acres and associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua'a. After the Māhele, Victoria Kamāmalu was awarded over 2,000 acres of Nāwiliwili Ahupua'a, along with much of Niumalu. Land Commission Awards (LCAs) describe many lo'i (irrigated fields, especially for taro) and kula (plain, field, open country, pasture) lands within the study area particularly as being in the same 'āpana (piece, slice, portion), a pattern common to the Puna District of Kaua'i, but uncommon elsewhere in Hawai'i. Maka'āinana (commoner) in the Puna District were referring to lands in valley bottoms as kula.</p>
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	<p>Many loko i‘a (fishponds) were prevalent in the study area. LCAs document six in Nāwiliwili and seven in Niumalu. ‘Alekoko Fishpond, also known as Menehune Fishpond, or Niumalu Fishpond, is the largest fishpond on Kaua‘i and still exists in the study area. It has been designated State Inventory of Historic Properties (SIHP) # 50-30-11-501.</p> <p>The project area is near the Grove Farm Plantation—so named after an old stand of kukui trees. The plantation was established in 1850 and taken over by Mr. George Wilcox in 1863. He bought the farm in 1870 for \$12,000 and it flourished under his leadership. In the mid-1960s, Grove Farm donated 200 acres of former sugar land to the State of Hawai‘i for KCC. Grove Farm ended its sugar business in 1974 (Wilcox 1998:76).</p> <p>The Old Puhi Camp, which housed plantation workers of Grove Farm, is next to the project area and consisted of about 600 homes for about 1,200 workers and their families. At the forefront of housing reforms, Puhi Camp dwellings became the standard for the plantation industry in the 1920s (Riznik 1999).</p> <p>One historic property was identified during earlier LRFI work (Groza and Hammatt 2013) for the project area, SIHP # 50-30-11-2179, Features A through D (Feature A, a reservoir; Feature B, an earthen ditch; Feature C, an earthen ditch with running water; Feature D, an earthen ditch). This historic agricultural infrastructure is part of a large historic agricultural district once extant throughout much of Nāwiliwili. Portions of this district are still farmed today.</p>
<p>Results of Community Consultation</p>	<p>CSH attempted to contact 28 community members, government agencies, community organizations, and individuals. Community consultations began in October 2013 and continued until January 2014. One of the three respondents, a kama‘āina (Native-born), participated in a formal interview. Consultation indicates the project area is a much-loved place characterized as “an old playground” and “special place” by community contact Mrs. Bernie Sakoda. According to study participant Mr. David Pratt, the project area was part of a sugar cane field operated by the Lihue Plantation Company in the 1970s and 1980s. Mrs. Sakoda recalled that the project area was “part forest, part cane field” and she described using the tassels from the sugar cane as spears for childhood games. Mrs. Sakoda related that she and her friends used the cane field on their way to obtain what they needed in the area, gathering sweet “rat berries” that grew nearby and making slingshots from guava trees.</p> <p>Previous interviews for the KCC project adjacent to the present project area for Island School indicate the study area and environs—in particular the lo‘i, kula or lands in valley bottoms in this particular context, rivers, streams and Nāwiliwili Bay—has a long history of use</p>

	<p>by Kānaka Maoli (Native Hawaiians) and other kama‘āina groups for a variety of past and present cultural activities and gathering practices. In previous interviews Mr. Pereira and Mr. Chun discussed fishing, gathering ‘opihi (limpets) and limu (seaweed, algae) in Nāwiliwili Bay, and crabbing along Hulē‘ia River, which still continue today among residents of the area. They discussed spear and throw-net fishing which for Mr. Pereira consisted in part of catching akule (big-eye scad), manini (convict tang), and squid using his own throw net which he created and offered for sale to others. Several previous interviewees narrated he‘enalu (surfing) practices and associated mo‘olelo in the past and in the present. At least two participants in previous interviews noted the abundance of freshwater resources and the watershed near the project area and highlighted the ecological relationship of natural and cultural resources within or near the project area.</p> <p>Mo‘olelo from earlier interviews discussed the practice of hukilau (fish with the seine); the origin of the name “Puhi” which is connected to the cave of a shark god in Ha‘ikū, as well as the presence of spirits in the project area in the form of fireballs. The gathering of plants such as bamboo shoots, papaya, mangoes, passionfruit, guava, and pepeiao (cloud ear fungus) in the vicinity of the project area along with the catching of crayfish, ‘o‘opu, and frogs in the irrigation ditches and reservoirs were common practices and two previous participants described hunting pheasants and wild boars. Previous interviews also discussed burials and noted the existence of a historic cemetery surrounded by the project area, and another cemetery nearby. Previous and current interviewees stressed how natural resources were shared with one another, and utilized in cultural practices.</p> <p>Other important findings from community consultations are presented in more detail:</p> <p>The project area was planted with sugar cane by the 1900s according to CIA participant Mr. Pratt.</p> <p>Lihue Plantation operated the cane field in the 1970s and the 1980s. Sugar cane operations had ceased by the 1990s, when Island School acquired acreage from the former Lihue Plantation Company.</p> <p>The project area contains or is near plants such as ginger, eucalyptus, guava, sugar cane, and grey berries that were sweet to eat.</p> <p>The project area is on agricultural land and is part of the historical plantation era. Plantations provided a livelihood for many residents of Kaua‘i like Mrs. Bernie Sakoda and Mr. Pratt. Previous interviewee Mr. Pereira worked in the sugar and pineapple plantations during the summertime as a young boy, which paid for his schooling, while</p>
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	<p>Kupuna Makanani also made a living processing pineapple.</p> <p>The project area is adjacent to the former Puhi Camp, a former plantation camp for the workers of Grove Farm Plantation and their families. Since Puhi Camp is a significant part of the project area's history, Puhi Camp is described in more detail:</p> <p>Cultural practices like the playing of music, dancing, preparing of ethnic dishes, the practice of games and other activities were shared among the many diverse cultures living in Puhi Camp according to Mrs. Sakoda.</p> <p>Previous interviews indicated Puhi was a self-sufficient plantation camp with its own stores, doctors, and medical facilities. Families shopped for groceries in plantation stores, and bought items using credit, to be paid for on payday. Plantation workers lived at Puhi for cheap rent, received kerosene for cooking, and hot water for bathing. Land was also given to anyone who wished to grow vegetables and crops were shared with each other.</p> <p>While various accounts portray plantation life as harsh and unfulfilling, Mr. Takahashi related in a previous interview that the Wilcox family treated their workers very well and life was enjoyable at Puhi. Workers were given the opportunity to own their own homes. Those raised on the camp fondly reminisced of a simple life and special place—a close-knit community where everybody recognized and took care of each other despite their differences.</p> <p>The culture of Puhi Camp was diverse. According to Kupuna Makanani who was interviewed for the KCC CIA, the homes in Puhi were arranged by race though “everybody lived as one people.” Participants who were raised in the camp expressed their appreciation for their multi-cultural upbringing.</p> <p>As revealed in previous consultation, other cultural activities at Puhi Camp included the “Social Box” which was a dance held by the Filipinos once a month. Mr. Pereira also described an annual Filipino carnival called the “Holy Ghost” that occurred every December. On Tuesdays, fresh bread and <i>malasadas</i> (Portuguese pastry) were baked and children collected firewood to keep the fire alive for baking.</p> <p>The transition to unionization of the workers in 1946 brought many changes to Puhi Camp. Kupuna Makanani explained in a previous interview that before the union, though wages were low, housing and water were free and Grove Farm provided equipment and toys for the children. Several strikes ensued but the strikes were peaceful, unlike the massacre at Hanapēpē in 1924. During the strikes, a soup kitchen run by the union provided food for striking workers and their families. Previous consultation indicated the existence of two graveyards, known to Puhi residents as “Old Puhi Cemetery” (SIHP # 50-30-11-</p>
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	<p>B0006) and “Cement Pond,” located outside of but near the project area. The cemetery is divided into two sections for Japanese and Filipino families despite the multi-cultural makeup of Puhi. Other ethnicities chose to be buried elsewhere and many graves were removed by their families. “Cement Pond” exists approximately 200 m north of the project area and consists of three burials. In previous interviews, participants speculated that these burials are not of Puhi Camp residents but possibly of affluent Japanese. Kupuna Makanani recalled how it was possible to bury family members around one’s residence when she was growing up.</p> <p>Filipino migrants came to Hawai‘i in the early 1900s as contract laborers or “<i>sakadas</i>,” searching for a better place to live, related Mr. Takahashi and Kupuna Makanani in previous interviews. Some graves at Old Puhi Cemetery are of Filipino veterans who have no known family with only crosses in the ground for their burial, according to Mr. Takahashi. He wished that relatives of these veterans could find them, allowing younger generations to continue their ties to their culture and family tree.</p> <p>No participants had knowledge of any heiau within the study area. However, one participant in a previous interview shared a mo‘olelo about fireballs, which reflect the presence of spirits in Native Hawaiian culture, near the project area.</p> <p>Previous consultation described an abundance of water in the project area. From Kilohana, water collects in reservoirs that once fed the plantations. Reservoirs and ditches were utilized by Puhi residents as food sources, and for recreational swimming. Mr. Takahashi asserted a gate still exists that controlled water flow to these water sources and regulated flow to prevent floods. Water subsequently flowed down through streams and rivers into Nāwiliwili Bay. The Hulē‘ia National Wildlife Refuge, which includes the Menehune Fishpond, is part of a watershed downstream of the project area. Development has changed water flow patterns, as well as water quality.</p>
<p>Impacts and Recommendations</p>	<p>The following cultural impacts and recommendations are based on a synthesis of all information gathered during preparation of the CIA. To help mitigate the potential adverse impacts of the proposed project on cultural beliefs, practices, and resources, recommendations should be faithfully considered and the development of the appropriate measures to address each concern should be implemented.</p> <p>While the project site is located adjacent to the Old Puhi Camp and Puhi Cemetery, these areas are beyond the Area of Potential Effect (APE). Therefore, no impacts to these sites are anticipated as a result of the proposed project.</p> <p>Should cultural or burial sites be identified during future ground</p>

	disturbance in the project area, all work should immediately cease and the appropriate agencies be notified pursuant to applicable law.
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Table of Contents

Prefatory Remarks on Language and Style.....	ii
Abbreviations	iii
Management Summary	iv
Section 1 Introduction	1
1.1 Project Background	1
1.2 Document Purpose.....	1
1.3 Scope of Work	5
1.4 Environmental Setting	5
1.4.1 Natural Environment.....	5
1.4.2 Built Environment.....	7
Section 2 Methods	8
2.1 Archival Research.....	8
2.2 Community Consultation.....	8
2.2.1 Sampling and Recruitment.....	8
2.2.2 Informed Consent Protocol.....	9
2.2.3 Interview Techniques.....	9
2.2.4 Study Limitations.....	10
2.3 Compensation and Contributions to Community	11
Section 3 Traditional Background.....	12
3.1 Overview.....	12
3.2 Wahi Pana.....	12
3.3 Mo‘olelo	14
3.3.1 Nāwiliwili	14
3.3.2 Ahukini and Ninini	14
3.3.3 Kemamo and Kapūnohu	14
3.3.4 Niumalu and Hulē‘ia.....	15
3.3.5 Menehune Fishpond.....	15
3.3.6 Kuhiau and Paukini.....	16
3.3.7 Kalanipu‘u	16
3.3.8 Kilohana.....	16
3.3.9 The Winds of Kaua‘i.....	17
3.4 Mele (Songs).....	17
3.4.1 Mele Associating Nāwiliwili with the Mokihana (<i>Pelea anisata</i>) Flower	17
3.4.2 Līhu‘e.....	18
3.5 Heiau.....	19
3.5.1 Kuhiau Heiau and Paukini Rock.....	19
3.5.2 Heiau at Kūki‘i Point, Ninini and Ahukini	19
3.6 Freshwater Resources and Fishponds	19
3.6.1 Streams	19
3.6.2 Fishponds.....	22
3.7 Settlement and Subsistence.....	22

Section 4 Historical Background	28
4.1 Overview.....	28
4.2 Early Post-Contact Period.....	28
4.3 The Māhele (1848)	31
4.3.1 Nāwiliwili Ahupua‘a.....	32
4.3.2 Niumalu Ahupua‘a.....	32
4.4 Mid-Nineteenth to Twentieth Century.....	34
4.4.1 Population.....	34
4.4.2 Changing District Names.....	34
4.4.3 Commercial Sugar Cane Agriculture.....	34
4.5 Modern Land Use	44
Section 5 Archaeology.....	49
5.1 Previous Archaeological Research	49
5.1.1 Previous Archaeological Studies in the Study Area	49
5.1.2 Previous Archaeological Studies adjacent to the Project Area.....	53
5.2 Archaeological Study for the Island School State Land Use District Boundary Amendment Project (Hunkin et al. 2013).....	58
Section 6 Community Consultation.....	59
6.1 Other Statements and Brief Responses from Project Participants	64
6.1.2 OHA Response	64
6.1.3 David W. Pratt	66
Section 7 Interviews	68
7.1 Acknowledgements.....	68
7.2 Previous KCC CIA Site Interview with Ms. Audrey Kawado, Kupuna Mabel Makanani, Mrs. Hirokane McClure, Ms. Amber McClure, and Mr. Dennis Takahashi.....	68
7.2.1 Strikes and Unions.....	74
7.2.2 Everyday Life in Puhi Camp	75
7.2.3 Foodways in Puhi Camp	79
7.2.4 Puhi Camp Memories	83
7.2.5 More Foodways	89
7.2.6 The Social Box or Box Dance	90
7.2.7 Recommendations.....	91
7.3 Previous KCC CIA Interview with Mr. Charlie Pereira	92
7.4 Previous KCC CIA Interview with Mr. Dennis Chun	95
7.5 Previous KCC CIA Interview with Mr. Robert White	100
7.6 Mrs. Bernie Sakoda	101
Section 8 Cultural Landscape	103
8.1 Hawaiian Habitation and Agriculture.....	103
8.2 Wahi Pana and Mo‘olelo	103
8.3 Burials.....	105
8.4 Heiau.....	105
8.5 Marine and Freshwater Resources.....	105
8.5.1 Streams	106
8.5.2 Fishing	106

8.5.3 Loko I'a	107
8.5.4 He'enalu.....	107
Section 9 Summary and Recommendations	108
9.1 Results of Background Research	108
9.2 Results of Community Consultation.....	109
9.3 Impacts and Recommendations	112
Section 10 References Cited	113
Appendix A Glossary	120
Appendix B Common and Scientific Names for Plants and Animals Mentioned by Community Participants	124
Appendix C Authorization and Release Form	126
Appendix D Community Consultation Letter	127

List of Figures

Figure 1. 1996 U.S. Geological Survey (USGS) 7.5-minute topographic map showing the project area.....	2
Figure 2. Aerial photograph showing the project area (GeoEye 2001)	3
Figure 3. Tax Map Key showing the project area (Hawai‘i TMK Service 1984)	4
Figure 4. Portion of 1996 Lihue USGS 7.5-Minute Series Topographic Quadrangle, with overlay of the U.S. Department of Agriculture (USDA) Soil Survey of the State of Hawai‘i (Foote et al. 1972), indicating sediment types within the project area	6
Figure 5. An 1881 map of Nāwiliwili Harbor by Lt. George G. Jackson, showing remnant of ancient heiau near Kūki‘i Point; note the area called “Kuhiau” near the courthouse (left), previous location of Kuhiau Heiau	20
Figure 6. Map showing heiau along the coastal areas within and near the study area (adapted from Damon 1931).....	21
Figure 7. Kalapakī Bay, showing two streams with red Xs marking their mauka locations and outlets to Kalapakī Bay; Koena‘awa-nui Stream is on the left (Kauai Historical Society n.d.)	23
Figure 8. Menehune Fishpond, 1912 (Baker 1912)	24
Figure 9. Menehune Fishpond still in use in 1934 (Kauai Historical Society 1934).....	25
Figure 10. Niumalu Flats filled with pond fields and fishponds (Kaua‘i Historical Society, n.d.)	27
Figure 11. A 2013 google earth aerial photograph of Kaua‘i showing some place names of Nāwiliwili and Kalapakī	29
Figure 12. Taro terraces in Nāwiliwili Valley (Kauai Historical Society, n.d.)	33
Figure 13. Taro cultivated in the vicinity of Pu‘ali Stream in 1905 (Kaua‘i Historical Society, 1905)	33
Figure 14. Map showing population estimate for Kaua‘i in 1853 (adapted from Coulter 1931:16)	35
Figure 15. USGS map showing the political districts of the County of Kaua‘i.....	36
Figure 16. Lihue Plantation Sugar Mill, 1941 (U.S. National Archives and Records Administration).....	37
Figure 17. Portion of 1878 Government Survey map by W.D. Alexander, showing location of the project area and Grove Farm (shaded).....	39
Figure 18. Grove Farm showing its approximate location to the Project area, Līhu‘e, Kōloa, and larger southwestern Kaua‘i (adapted from Krauss and Alexander 1984)	41
Figure 19. Plantation housing at Puhi Camp (adapted from Riznik 1999).....	42
Figure 20. Single family plantation style house at Puhi Camp, 1920 (adapted from Riznik 1999)	42
Figure 21. Portion of 1910 Lihue USGS quadrangle, showing the project area	43
Figure 22. Portion of 1941 Lihue Plantation map showing the location of the project area adjacent to the plantation and within Grove Farm.....	45
Figure 23. Portion of 1963 Lihue USGS 7.5-Minute Series Topographic Quadrangle showing the project area.....	46
Figure 24. A 1965 aerial photograph showing the extent of sugar cane within the project area and its vicinity (adapted from Foote et al. 1972).....	47

Figure 25. 1977-1978 USGS aerial photograph of Līhu‘e and vicinity showing the project area 48

Figure 26. Portion of 1996 Lihue USGS 7.5-Minute Series Topographic Quadrangle showing previous archaeological studies in vicinity of the project area 52

Figure 27. Locations of historic resources found within portions of the project area during a 1973 archaeological reconnaissance (adapted from Palama 1973:4) 56

Figure 28. Locations of historic resources found within the project area (base map Google Earth 2012)..... 58

Figure 29. Page 1 of OHA response 64

Figure 30. Page 2 of OHA response 65

Figure 31. Page 1 of David Pratt response..... 66

Figure 32. Page 2 of David Pratt response..... 67

Figure 33. Mr. Takahashi shows Old Puhi Camp Cemetery (CSH 2011) 70

Figure 34. Headstones in the Japanese side of Puhi cemetery (CSH 2011) 70

Figure 35. Mrs. Daphne Hirokane McClure discovers her cousin Alice’s grave in Puhi Cemetery (CSH 2011)..... 72

Figure 36. Grave of a two-month old baby in Puhi Cemetery (CSH 2011) 73

Figure 37. Mr. Takahashi shows the type of vines he used as a child (CSH 2011)..... 75

Figure 38. Kupuna Makanani tells of her childhood home, marked by mango tree in background (CSH 2011) 78

Figure 39. A passion fruit flower grows in the project area (CSH 2011) 80

Figure 40. A picture of *takenoko* growing in the project area (CSH 2011)..... 82

Figure 41. Mr. Takahashi and Mrs. McClure indicate the irrigation ditch that leads to a tunnel they explored as children (CSH 2011)..... 82

Figure 42. Kupuna Makanani points out papaya flowers she used in lei (CSH 2011) 84

Figure 43. A non-native orchid growing near the project area identified by CSH as mostly likely *Spathoglottis plicata* (Philippine ground orchid) (CSH 2011) 84

Figure 44. One of three graves in the Cement Pond cemetery (CSH 2011)..... 87

Figure 45. Mr. Pereira weaving a fishing net (CSH 2011) 92

Figure 46. Mr. Pereira with his first fishing net at age 12 (courtesy of Mr. Pereira) 94

Figure 47. Taro growing along the Nāwiliwili Stream to half a mile up above the mill (Bishop Museum 1886) 104

Figure 48. Menehune (‘Alekoko) Fishpond today (Boynton n.d.) 107

List of Tables

Table 1. Kapu Resources Mentioned in Land Commission Documents from the Ahupua‘a of Nāwiliwili, Niumalu, and Ha‘ikū (source: Ching et al. 1973)	27
Table 2. Previous Archaeological Studies within and near the Project Area	50
Table 3. Historic Features Identified Adjacent to the Project Area	57
Table 4. Results of Community Consultation	59

Section 1 Introduction

1.1 Project Background

At the request of Wilson Okamoto Corporation, CSH conducted a CIA for the Island School State Land Use District Boundary Amendment project on TMK parcel [4] 3-8-002:016, situated in the ahupua‘a of Nāwiliwili and Niumalu, in Līhu‘e District, on Kaua‘i. The proposed property is located in Puhi, approximately 2 miles southwest of the County seat in Līhu‘e. Figure 1 through Figure 3 show the project area.

Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre (15.559-hectare [ha]) property. The Island School campus is located adjacent to the northeast boundary of the University of Hawai‘i’s Kaua‘i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for its campus that includes new classrooms and other school facilities. Thus, Island School is proposing an amendment to the State Land Use Boundary to redesignate the campus property from its existing land use classification of Agricultural District to Urban District.

Existing Island School facilities were approved in the State Agriculture District through Special Permits. Similarly, the neighboring Kaua‘i Community College, also on Agricultural District, is seeking an urban rezoning of its campus property to achieve its educational mission. Thus, redesignation of the Island School campus from Agriculture to Urban District would be consistent with the goals of the community college, as well as the developed character of the surrounding area. Under Urban District designation, both campuses would then be regulated by the County of Kaua‘i Comprehensive Zoning Ordinance.

1.2 Document Purpose

The project requires compliance with the State of Hawai‘i environmental review process (Hawai‘i Revised Statutes [HRS] §343), which requires consideration of a proposed project’s effect on cultural practices. Through document research and ongoing cultural consultation efforts, this report provides information pertinent to the assessment of the proposed project’s impacts to cultural practices and resources (per the *Office of Environmental Quality Control’s Guidelines for Assessing Cultural Impacts*). The impacts may include Traditional Cultural Properties (TCPs) of ongoing cultural significance that may be eligible for inclusion on the State Register of Historic Places. In accordance with Hawai‘i State Historic Preservation guidelines for significance criteria under Hawai‘i Administrative Rules (HAR) §13–275, Criterion “e,” an historic property determined to be significant shall:

Have an important value to the Native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group’s history and cultural identity.

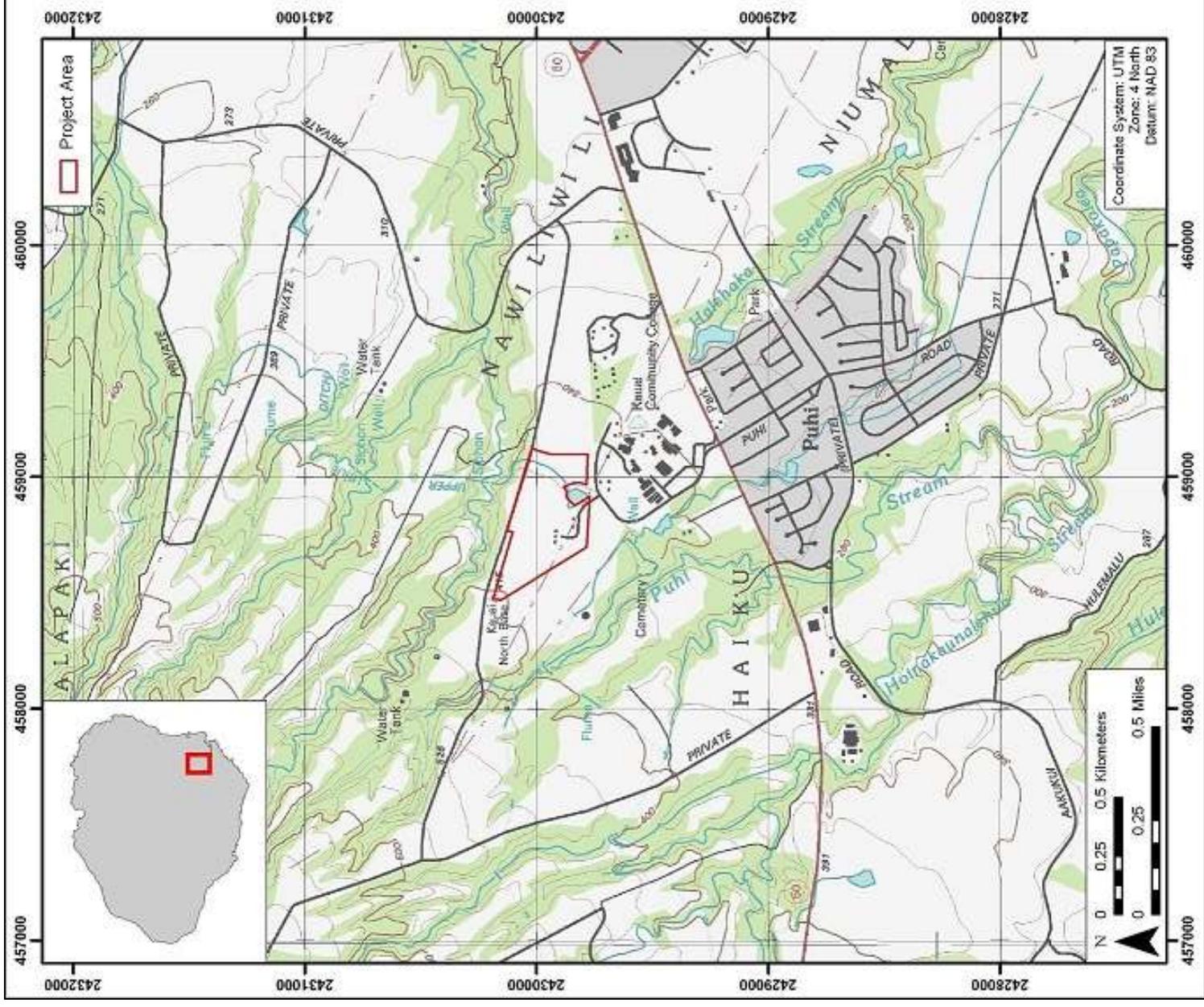


Figure 1. 1996 U.S. Geological Survey (USGS) 7.5-minute topographic map showing the project area



Figure 2. Aerial photograph showing the project area (GeoEye 2001)

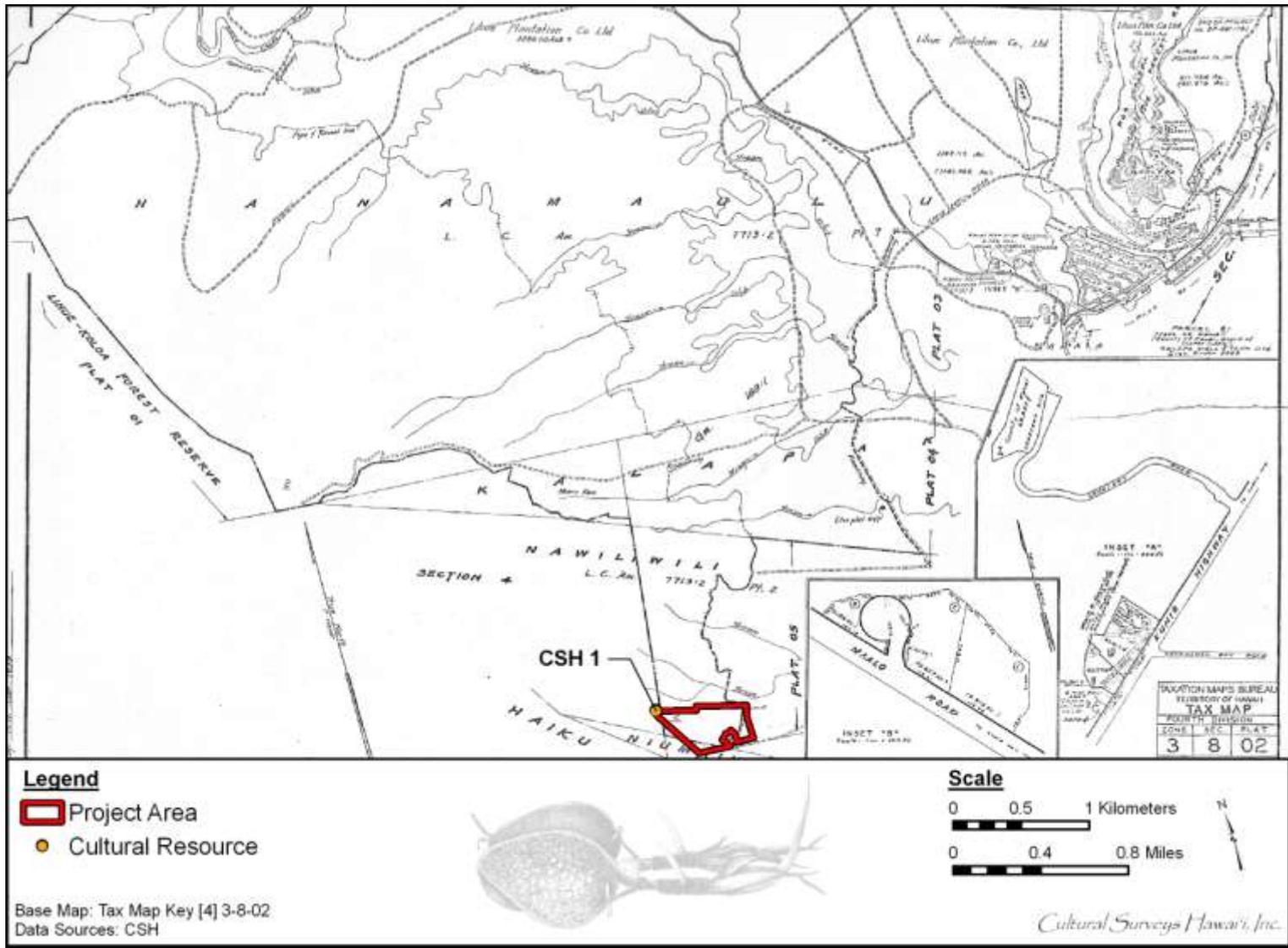


Figure 3. Tax Map Key showing the project area (Hawai'i TMK Service 1984)

The document is intended to support the project's environmental review and may also serve to support the project's historic preservation review under HRS §6E-42 and HAR §13-284.

1.3 Scope of Work

The scope of work for this CIA includes the following:

1. Examination of cultural and historical resources, including Land Commission documents, historic maps, and previous research reports, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal, and other resources or agricultural pursuits as may be indicated in the historic record.
2. Review of previous archaeological work at and near the subject parcel that may be relevant to reconstructions of traditional land use activities; and to the identification and description of cultural resources, practices, and beliefs associated with the parcel.
3. Consultation and interviews with knowledgeable parties regarding cultural and natural resources and practices at or near the parcel; present and past uses of the parcel; and/or other practices, uses, or traditions associated with the parcel and environs.
4. Preparation of a report summarizing the results of these research activities and providing recommendations based on findings.

1.4 Environmental Setting

1.4.1 Natural Environment

The project area is located approximately 2 miles west of Līhu'e, mauka (inland) of Kaunali'i Highway in Nāwiliwili, Niumalu, and Ha'ikū Ahupua'a, Līhu'e District, on the southeastern quadrant of the island of Kaua'i. The parcel is fairly inland, approximately 3 miles from the southeastern coast. The project area is exposed to the prevailing northeast trade winds, and receives up to 254 cm (100 inches) of rainfall annually (Giambelluca et al. 1986). The project area lies on moderately sloping lands that range from approximately 300 to 400 ft above mean annual sea level.

Project area soils predominately consist of Puhi silty clay loam, 3 to 8% slopes (PnB) with a ribbon of Puhi silty clay loam, 8 to 15% slopes (PnC), running along its southwestern boundary. Rough broken land (rRR) abuts the north boundary and extends into the northeastern portion of the project area (Figure 4).

Puhi silty clay loam consists of well-drained soils on uplands. These soils developed in material derived from igneous rock. Slope ranges primarily from 3-15%. The run-off of the Puhi silty clay loam is slow, creating an only slight erosion hazard. Puhi silty clay loam is used for sugar cane, pasture, pineapple, orchards, wildlife habitat, and woodland.

Rough broken land (rRR) consists of very steep land broken by frequent intermittent drainage channels. Slope is 40-70%, runoff and geologic erosion are both rapid (Foote et al. 1972:62, 75, 118:Sheet 22).

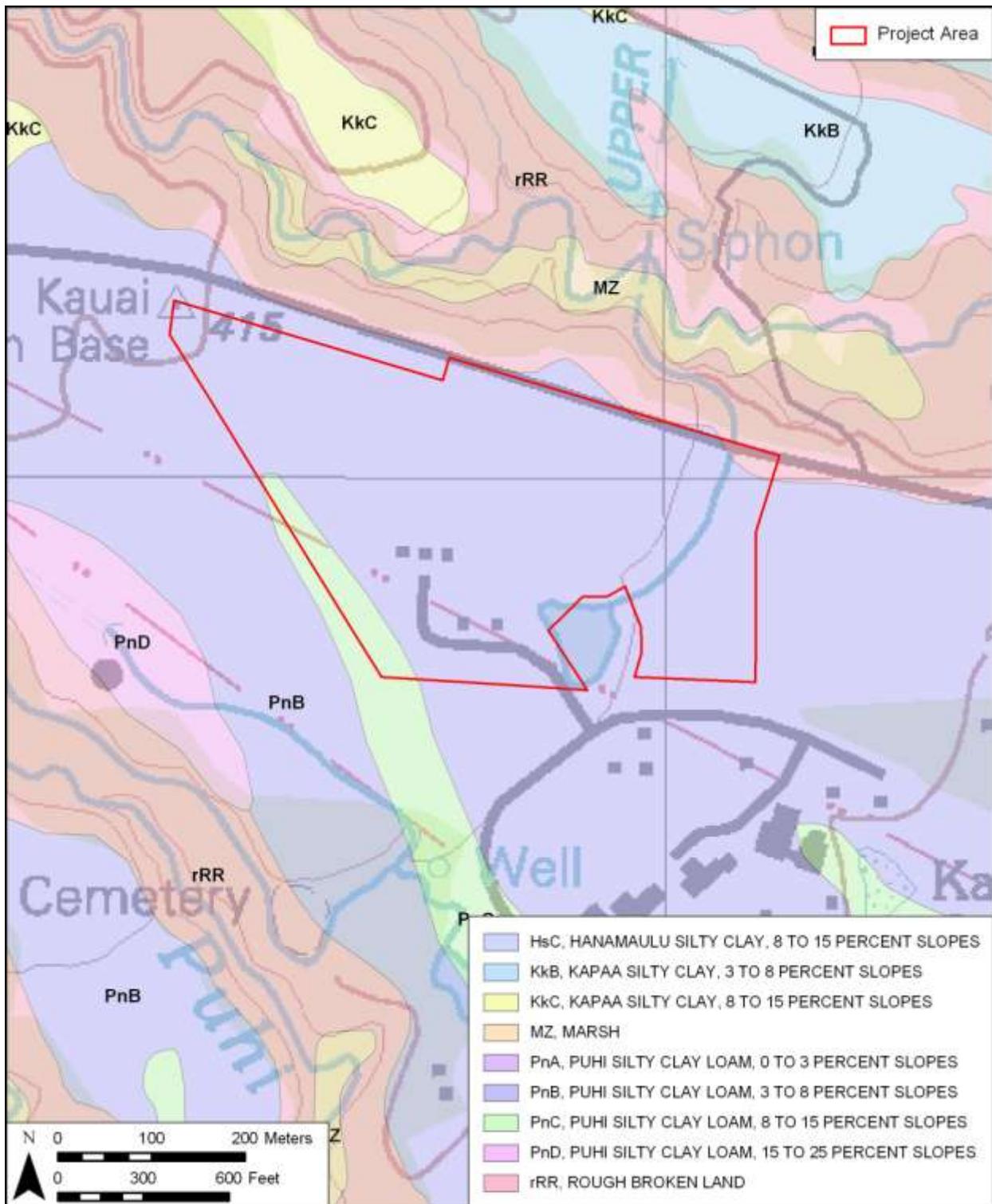


Figure 4. Portion of 1996 Lihue USGS 7.5-Minute Series Topographic Quadrangle, with overlay of the U.S. Department of Agriculture (USDA) Soil Survey of the State of Hawai'i (Foote et al. 1972), indicating sediment types within the project area

In pre-Contact times, vegetation in the project area consisted of lowland mesic (relatively moist) forest, woodland and shrubland (Juvik and Juvik 1998). Most of this native ecosystem was disturbed and severely diminished by early historic activities, including commercial agriculture and ranching. According to Hammatt and Creed (1993), Land Commission documents describe mid-nineteenth century Nāwiliwili Ahupua'a as having native vegetation of hau and wauke (paper mulberry) (See Appendix B for scientific names).

1.4.2 Built Environment

Development within the project area consists of existing school and administrative buildings. The University of Hawai'i's Kaua'i Community College campus is adjacent to the south. The residential community of Puhi lies just south across Kaumuali'i Highway. The lands to the west, north and east are relatively undeveloped (see Figure 1 and Figure 2).

Section 2 Methods

2.1 Archival Research

Historical documents, maps and existing archaeological information pertaining to the project area were researched at the CSH library and other archives including the University of Hawai'i at Mānoa's Hamilton Library, the State Historic Preservation Division (SHPD) library, the Hawai'i State Archives, the State Land Survey Division, and the Bishop Museum Archives. Previous archaeological reports for the area were reviewed, as were historic maps and photographs and primary and secondary historical sources. Information on LCAs was accessed through Waihona 'Aina Corporation's Māhele Database (Waihona 'Aina 2000) as well as a selection of CSH library references.

For cultural studies, research for the Traditional Background section centered on Hawaiian activities including religious and ceremonial knowledge and practices, traditional subsistence land use and settlement patterns, gathering practices and agricultural pursuits, as well as Hawaiian place names and mo'olelo, mele (songs), oli (chants), 'ōlelo no'ēau (proverbs) and more. For the Historic Background section, research focuses on land transformation, development and population changes beginning in the early post-Western Contact era to the present day (see Scope of Work above).

2.2 Community Consultation

2.2.1 Sampling and Recruitment

A combination of qualitative methods, including purposive, snowball, and expert (or judgment) sampling, were used to identify and invite potential participants to the study. These methods are used for intensive case studies, such as CIAs, to recruit people who are hard to identify, or are members of elite groups (Bernard 2006:190). Our purpose is not to establish a representative or random sample. It is to "identify specific groups of people who either possess characteristics or live in circumstances relevant to the social phenomenon being studied . . . This approach to sampling allows the researcher deliberately to include a wide range of types of informants and also to select key informants with access to important sources of knowledge" (Mays and Pope 1995:110).

We began with purposive sampling informed by referrals from known specialists and relevant agencies. For example, we contacted the SHPD, Office of Hawaiian Affairs (OHA), Kaua'i/Ni'ihau Island Burial Council (KNIBC), and community and cultural organizations in the Līhu'e District for their brief response/review of the project and to identify potentially knowledgeable individuals with cultural expertise and/or knowledge of the study area and vicinity, cultural and lineal descendants of study area, and other appropriate community representatives and members. Based on their in-depth knowledge and experiences, these key respondents then referred CSH to additional potential participants who were added to the pool of invited participants. This is snowball sampling, a chain referral method that entails asking a few key individuals (including agency and organization representatives) to provide their comments and referrals to other locally recognized experts or stakeholders who would be likely candidates

for the study (Bernard 2006:192). CSH also employs expert or judgment sampling which involves assembling a group of people with recognized experience and expertise in a specific area (Bernard 2006:189–191). CSH maintains a database that draws on over two decades of established relationships with community consultants; these are cultural practitioners and specialists, community representatives and cultural and lineal descendants. The names of new potential contacts were also provided by colleagues at CSH and from the researchers' familiarity with people who live in or around the study area. Researchers often attend public forums (e.g., Neighborhood Board, Burial Council and Civic Club meetings) in (or near) the study area to recruit participants. Please refer to Table 4, Section 6, for a complete list of individuals and organizations contacted for this CIA.

CSH focuses on obtaining in-depth information with a high level of validity from a targeted group of relevant stakeholders and local experts. Our qualitative methods do not aim to survey an entire population or subgroup. A depth of understanding about complex issues cannot be gained through comprehensive surveying. Our qualitative methodologies do not include quantitative (statistical) analyses, yet they are recognized as rigorous and thorough. Bernard (2006:25) describes the qualitative methods as “a kind of measurement, an integral part of the complex whole that comprises scientific research.” Depending on the size and complexity of the project, CSH reports include in-depth contributions from about one-third of all participating respondents. Typically this means three to 12 interviews.

2.2.2 Informed Consent Protocol

An informed consent process was conducted as follows: 1) before beginning the interview the CSH researcher explained to the participant how the consent process works, the project purpose, the intent of the study and how his/her information will be used; 2) the researcher gave him/her a copy of the Authorization and Release Form to read and sign (Appendix C); 3) if the person agreed to participate by way of signing the consent form or providing oral consent, the researcher started the interview; 4) the interviewee received a copy of the Authorization and Release Form for his/her records, while the original was stored at CSH; 5) after the interview was summarized at CSH (and possibly transcribed in full), the study participant was afforded an opportunity to review the interview notes (or transcription) and summary and to make any corrections, deletions or additions to the substance of their testimony/oral history interview; this was accomplished either via phone, post or email or through a follow-up visit with the participant; 6) the participant received the final approved interview and any photographs taken for the study for their records. If the participant was interested in receiving a copy of the full transcript of the interview (if there is one; not all interviews are audio-recorded and transcribed), a copy was provided. Participants were also given information on how to view the report on the OEQC website and offered a hardcopy of the report once the report is a public document.

If an interviewee agreed to participate on the condition that his/her name be withheld, procedures were taken to maintain his/her confidentiality (see Protection of Sensitive Information below).

2.2.3 Interview Techniques

To assist in discussion of natural and cultural resources and cultural practices specific to the study area, CSH initiated semi-structured interviews (as described by Bernard 2006), asking

questions from the following broad categories: gathering practices and mauka and makai resources, burials, trails, historic properties, and wahi pana. The interview protocol was tailored to the specific natural and cultural features of the landscape in the study area, identified through archival research and community consultation. These interviews and oral histories supplement and provide depth to consultations from government agencies and community organizations that may provide brief responses, reviews and/or referrals gathered via phone, email, and occasionally face-to-face commentary.

2.2.3.1 In-depth Interviews and Oral Histories

Interviews were conducted initially at a place of the study participant's choosing (usually at the participant's home or at a public meeting place) and/or—whenever feasible—during site visits to the project area. Generally, CSH's preference is to interview a participant individually or in small groups (two–four); occasionally participants are interviewed in focus groups (six–eight). Following the consent protocol outlined above, interviews may be recorded on tape and in handwritten notes, and the participant photographed. The interview typically lasts one to four hours, and records the—who, what, when and where of the interview. In addition to questions outlined above, the interviewee is asked to provide biographical information (e.g., connection to the study area, genealogy, professional and volunteer affiliations, etc.).

2.2.3.2 Field Interviews

Field interviews are conducted with individuals or in focus groups comprised of kūpuna and kama'āina who have a similar experience or background (e.g., the members of an area club, elders, fishermen, hula dancers) who are physically able and interested in visiting the project area. In some cases, field visits are preceded with an off-site interview to gather basic biographical, affiliation and other information about the participant. Initially, CSH researchers usually visit the project area to become familiar with the land and recognized (or potential) cultural places and historic properties in preparation for field interviews. All field activities are performed in a manner to minimize impact to the natural and cultural environment in the project area. Where appropriate, Hawaiian protocol may be used before going on to the study area and may include the ho'okupu (offering) of pule (prayer), and oli. All participants on field visits are asked to respect the integrity of natural and cultural features of the landscape and to not remove any cultural artifacts or other resources from the area.

2.2.4 Study Limitations

Cultural impact assessments are limited by the time frame and costs of the study as well as community participation. Often, researchers have little control over the time frame or budget available for a project but may have more discretion over study design and the methodologies employed to illicit public participation. Various factors may affect participation, such as the availability of contact information for community members during the recruitment process, the interest of the community in the project, and the commitment of participants through several phases of the interview process. For example, once an interview is scheduled and conducted, CSH engages the interviewee at least one more time (in person or by emails or phone calls) to gain their approval of the interview transcript or summary and to incorporate any changes they make. The voluntary nature of community participation in this process, combined with restraints

on time and costs, often limits the number of interviews and the depth of information gathered during the interviews.

2.3 Compensation and Contributions to Community

Many individuals and communities have generously worked with CSH over the years to identify and document the rich natural and cultural resources of these islands for cultural impact, ethno-historical and, more recently, TCP studies. CSH makes every effort to provide some form of compensation to individuals and communities who contribute to cultural studies. This is done in a variety of ways. Individual interview participants are compensated for their time in the form of a small honorarium and/or other makana (gift); community organization representatives (who may not be allowed to receive a gift) are asked if they would like a donation to a Hawaiian charter school or nonprofit of their choice to be made anonymously or in the name of the individual or organization participating in the study; contributors are provided their transcripts, interview summaries, photographs and—when possible—a copy of the CIA report; CSH is working to identify a public repository for all cultural studies that will allow easy access to current and past reports; CSH staff do volunteer work for community initiatives that serve to preserve and protect historic and cultural resources (for example in Lānaʻi and Kahoʻolawe). Generally our goal is to provide educational opportunities to students through internships, share our knowledge of historic preservation and cultural resources and the State and Federal laws that guide the historic preservation process, and through involvement in an ongoing working group of public and private stakeholders, collaborate to improve and strengthen the §343 environmental review process.

Section 3 Traditional Background

3.1 Overview

This section focuses on the traditional background of the study area which includes the ahupua'a of Nāwiliwili and Niumalu, within Līhu'e District. Traditionally, the island of Kaua'i was divided into five moku: Halele'a, Kona, Ko'olau, Nāpali, and Puna. The traditional moku were replaced in the mid- to latter part of the nineteenth century by the modern political district names of Hanalei, Kawaihau, Līhu'e, Kōloa, and Waimea. Under the old district classification, the ahupua'a of the study area were in the moku of Puna which became replaced by Līhu'e under the new classification.

3.2 Wahi Pana

A Hawaiian wahi pana, also referred to as a place name, “physically and poetically describes an area while revealing its historical or legendary significance” (Landgraf 1994:v). Wahi pana can refer to natural geographic locations, such as streams, peaks, rock formations, ridges, and offshore islands and reefs, or they can refer to Hawaiian divisions, such as ahupua'a and 'ili (land section usually a subdivision of an ahupua'a), and man-made structures, such as fishponds. In this way, the wahi pana of Niumalu and Nāwiliwili, tangibly link the kama'āina of these ahupua'a to their past.

The source for place names in this section is the online database of Lloyd Soehren's *Hawaiian Place Names* (2010) and Fredrick B. Wichman's *Kaua'i, Ancient Place-Names and Their Stories* (1998). Soehren compiled all names from mid-nineteenth century land documents, such as Land Commission Awards and Boundary Commission Testimony (BCT) reports. The BCT lists boundary points for many of the ahupua'a. The names of 'ili 'āina (land units within an ahupua'a) and 'ili kū (land units awarded separately from a specific ahupua'a) are compiled from the testimony in Māhele Land Commission Awards (LCAs), from both awards successfully claimed and from those rejected. Place names found by authors on U.S. Geological Service (USGS) maps and Hawai'i Survey Registered Maps (HSRM) were also added to the database. The Soehren database includes place name meanings from the definitive book on Hawaiian place names, *Place Names of Hawai'i* (Pukui et al. 1974). For cases in which Pukui et al. (1974) did not provide a meaning, Soehren suggested meanings for simple names from the *Hawaiian Dictionary* (Pukui and Elbert 1986).

Many sources suggest **Nāwiliwili** takes its name from the wiliwili tree (nā is the plural article, as in “the wiliwili trees” or “place of the wiliwili trees”). According to Pukui and Elbert (1986), the wiliwili (*Erythrina sandwicensis*) is a native leguminous tree whose flowers and pods are used for lei, and whose light wood was once used for surfboards, outriggers, and net floats. Handy (1940:67) suggests a kaona (hidden meaning) for the name Nāwiliwili based on a reduplication of the word wili, which means “twisted,” as in the meandering Nāwiliwili Stream.

According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a was known as **Papalinahoa**. Kikuchi (1973) states this was the name of “an early chief,” but Hammatt and Creed (1993)

suggest it may also have been an 'ili or the konohiki (headman of of an ahupua'a land division under the chief). Papalinaloa was also the name of an 'auwai (ditch, canal) on the south side of Nāwiliwili Stream, associated with LCA 3566 (Hammatt and Creed 1993).

Pukui et al. (1974) list but do not translate **Kalapakī**, defined simply as a “beach” in Līhu'e district. Pukui and Elbert (1986) define the word kalapakī (with a small “k”) as “double-yolked egg, Kaua'i.” Aside from its beach and landing, Kalapakī is probably best known in a traditional sense for its heiau of **Ahukini** and **Ninini** (and possibly another at Kūki'i). Ahukini has been translated as “altar [for] many [blessings]” (brackets inserted by Pukui et al. 1974), and this was also the name of a heiau in Kāne'ohe, O'ahu. Ninini has been translated as “pour,” as in ninini wai (to pour water), while Kalapakī was also the name of a village located along the coast. According to Hammatt and Creed (1993:22), Land Commission documents demonstrate the “village of Kalapaki” was synonymous with the “'ili of Kuuha'i.”

Niumalu literally translates as “shade [of] coconut trees,” but the word malu can also refer to “protection” or “shelter.” Niumalu's famous fishpond (also called erroneously Niamalu in some older publications) is traditionally known as either **Alekoko** (or 'Alekoko) or Alakoko depending on the source. According to Kikuchi (1973), **Pēpē'awa** is yet another name for this loko. Pukui et al. (1974) do not include either of these names for the loko at Niumalu, but there are well known mo'olelo references to a pair of brother and sister shark guardian spirits named **Alekoko** and Kahalalehue (see below).

Niumalu is known for a series of pu'u along the high ridge forming the south side of Nāwiliwili Bay and stretching back to Hā'upu. **Kalanipu'u** (779 ft elevation), located right above the entrance to the harbor, translates literally as “the royal hill.” Traditionally, it is known as a pu'u kāhea (“calling hill”) from which the locations and movements of fish were monitored. Further mauka (up the ridge) is Kepaweo (1167 ft elevation) and **Hōkūnui** (1608 ft elevation). Pukui et al. (1974) translated the latter literally as “large star,” but nui can also mean “supreme” or “greatest.”

Pukui et al.'s (1974) entry for **Hulē'ia** refers the reader to **Hulā'ia**, described as an old name for Hulē'ia Stream, which drains into Nāwiliwili Bay. The authors provide this additional intriguing information regarding the literal translation of Hūla'ia: “pushed through (Kama-pua'a ravished Pele here)” (Pukui et al. 1974:53). A survey map of the boundaries of Niumalu Ahupua'a from the mid-nineteenth century (Ching et al. 1973:102) depicts a stream between Nāwiliwili and Hulē'ia Streams identified as “Waikonui Stream.” Pukui and Elbert (1986) define waikō as “water with a very strong current.” This stream is today named Pu'ali on current USGS maps. The broad delta of the **Hulē'ia** river is 1.5 miles long and in the ahupua'a of **Ha'ikū** which is the ahupua'a south of Niumalu.

Līhu'e, literally translated as “cold chill,” became the modern political name for the traditional moku of Puna. Historical documents suggest the name Līhu'e was first applied to this area by Kaikioewa (Governor of Kaua'i) in the 1830s, perhaps after Kaikioewa's upcountry residence on the island. On the other hand, Nathaniel Emerson's translation of the famous oli cycle of Hi'iaka and Pele mentions Līhu'e with the other main place names of this area. It is also well known that Līhu'e was a traditional settlement area near the current Schofield Barracks on O'ahu.

Kilohana, source of Nāwiliwili and Hulē'ia Streams, is associated with mo'olelo of a boy named Lahi and his uncle; there are multiple possible meanings of the name Kilohana (Pukui et al. 1974 list three, "lookout point," "outer tapa," or "best, superior.")

Puhi is a village and stream in the Līhu'e District that literally translates as "blow." Ka-holi-a-Kāne (the sprouting [made] by Kāne) was a shark god who lived in a cave in Puhi.

3.3 Mo'olelo

The presence of many mo'olelo in the study area suggest the place was once well-populated. The following section presents mo'olelo from the region.

3.3.1 Nāwiliwili

The menhune were known to live in the Nāwiliwili area:

It was one of the favorite playgrounds of the tribe of Menehune, the little brown work-people who played as hard as they worked. And again it is William Hyde Rice, who, more than any other teller of stories, has kept for us old tales of this happy playground. [Damon 1931:395-396]

3.3.2 Ahukini and Ninini

According to Wichman (1998), Ahukini Heiau, located near the study area, was named for Ahukini-a-la'a (who lived about AD 1250), one of three sons of La'a-mai-kahiki. An ancestor of the Kaua'i chiefly lines, with a close relationship to O'ahu, Ahukini was also ali'i nui (supreme chief) of the Puna District of Kaua'i (Wichman 2003).

In the 1920s, the Hawaiian legend chronicler Rice (1974), a life-long resident of Kaua'i, published this mo'olelo about Ahukini in the story of "The Goddess Pele":

Two brothers of Pele, who had come from foreign lands, saw Lohiau's body lying as a stone where the lava flow had overtaken him. Pity welled up in their heart and they brought Lohiau to life again. One of these brothers made his own body into a canoe and carried the unfortunate Lohiau to Kauai, where he was put ashore at Ahukini. [Rice 1974:14]

3.3.3 Kemamo and Kapūnohu

Niumalu translates as "shaded coconut trees" and derives from the mo'olelo involving Kemamo and Kapūnohu (Wichman 1998:57). Kemamo, known for his ability to shoot a rock from his sling 5 miles and never missing a shot, is said to have resided on the Kona/Puna Districts boundary. During Kapūnohu's travels through the islands he was warned of Kemamo's challenges to travelers. Upon their meeting, Kapūnohu agreed to a contest with Kemamo, each betting his most prized possession. Kapūnohu bet his spear and Kemamo his sling. Kalalea peak, visible from their location, was the target. Kemamo slung a rock that failed to reach Kalalea and fell near Anahola. Kapūnohu's spear shaded the coconut trees, which led to the naming of Niumalu, "dipped into the Wailua River, hence the name Waiehu, and finally pierces the mountain at Kalalea leaving a large hole that was visible until just a few years ago" (Wichman 1998:57).

3.3.4 Niumalu and Hulē'ia

Ching et al. (1973) recount, without attribution, the following mo'olelo about the origins of 'Alekoko Fishpond in Niumalu Ahupua'a:

Living in the valley between the Kipu River [Hulē'ia] and Niumalu resided Alekoko, the brother, and Ka-lala-lehua, the sister, young chiefs of handsome countenance, who agreed together to construct a fishpond each for themselves. The work on these fishponds was done by the menehunes, it was done in one night (during the night of akua, on which there was a full moon). Stones for the walls were gathered from as far away as the sea beach of Makalii.

(The pond of the brother was built on one side of the river, while the pond of the sister was built in the opposite bend in the river below Kalaeakapapa Point. The menehune women built the sister's pond, and the menehune men built the brother's pond.) As dawn approached the menehunes fled to the mountains. (The sister's pond was never completed.)

The sister, seeing her fishpond was incomplete, was grieved and wept at its unfinished state, while the brother rejoiced at the completion of his. The stones gathered for the sister's pond still remain in the stream to this day. [Ching et al. 1973:28]

Ching et al. (1973) describe mo'olelo associated with Hulē'ia, suggesting its close pili (association) with O'ahu:

The earliest mention of the [Niumalu] area is legendary dating to 1785. After Kahekili defeated Oahu a number of chiefesses of highest rank were killed. Kekelaokalani made her escape to Kaua'i bringing with her some Oahu soil, part of which she deposited at Hulaia [Huleia]. [Ching et al. 1973:19]

3.3.5 Menehune Fishpond

'Alekoko Fishpond was named after Chief 'Alekoko. Today, it is known as Menehune Fishpond and its walls are believed to have been built in one night by menehune (legendary race of small people who worked at night, building fishponds). Chief 'Alekoko and his sister, Chiefess Ka-lālā-lehua, requested the construction of the fishpond across the Hulē'ia River. The menehune agreed to construct the 825-m dirt stone-faced dam only if Chief 'Alekoko and his sister promised to stay in their home and not watch the menehune at work. The two agreed. The menehune formed two lines stretching from the Wahiawa Plains to the Hulē'ia River and passed stone blocks through the night. Before morning, Chief 'Alekoko could no longer just listen to the menehune at work and the shifting of the stone. He made a small hole in the house's grass thatch and peeked through. The menehune dropped their stones, washed their hands, and left the fishpond incomplete as a reminder that promises are not to be broken. The chief's name and that of the fishpond, 'Ale-koko, translates as "rippling blood" and is said to refer to the hands of the menehune, bleeding from passing the rough stone they did not have time to polish (Wichman 1998:57-58). The pond was later completed by Chinese (Rice 1923:37).

3.3.6 Kuhiau and Paukini

Several historic documents discuss the close connection between Kuhiau Heiau, reportedly the largest heiau in Kaua'i, and the pōhaku (rock) known as Paukini, which marks the ahupua'a boundary between Nāwiliwili and Kalapakī. Damon (1931:393) writes:

[Kuhiau Heiau] . . . was in its day the largest and most far-famed temple on the island. Below it, in the bay, is still the rock called Paukini, which was said to be its companion or sister heiau, and was probably also the home of the kahuna [priest], or priest, of Kuhiau. In ancient times this rock was connected with the shore near the site of the former boat landing.

3.3.7 Kalanipu'u

This pu'u kāhea directly above Nāwiliwili Bay is associated with mo'olelo about Pele's older sister Nā-maka-o-Kaha'i, who planted 'awa (kava) and mai'a (bananas) upon it (Pukui et al. 1974).

3.3.8 Kilohana

Damon (1931) described Kilohana as a famous nesting place of 'uwa'u (dark-rumped petrel), a chiefly delicacy. The top of Mauna Kahili, the peak to the west of Kilohana, was a sacred burial place of Hawaiian chiefs. Kilohana is also associated with the menehune.

One of their favorite play places was the little hill of Po-po-pii, Rounded-for climbing-up. This they had themselves built on the top of Kilohana and never were they more delighted than when they could climb it over and over again for the sheer fun of rolling down its sides, frolicking and laughing as they rolled. It was such a sport that their gleeful shouts carried clear across the Kauai channel to the southeast and startled birds at Kahuku on the island of Oahu.

Once, a Menehune called Ka-uki-uki, The-man-of-wrath, boasted that he could climb to the top of this hill at Kilohana and snare the legs of the moon. Ridiculed by his fellow tribesmen, he valiantly attempted to make good his boast, and was turned into a stone when he failed of achievement. For many years this stone was recognized by Hawaiians as a kupua, or demigod, and offerings of lehua-blossoms and fragrant maile [a native twining shrub] leaves were laid upon it in passing, that rain and fog might not hinder the errand which carried the people into the mountains. [Damon 1931:395-396]

Beckwith (1970) in *Hawaiian Mythology* recounts Rice's (1923) telling of the "Wainiha Story," a mo'olelo about bird hunters who lure a giant to his death; and koa (warriors) who come to avenge the giant's murder only to be thrown to their deaths by the young bird hunter Lahi.

Lahi and his uncle Kane-alohi live in the Wainiha valley and go up to Kilohana to catch uwa'u birds for food, a kind of bird that seeks its nest in the cliffs by day, blinded by the light. Their first enemy is a 'giant' whom they lure into a hole and kill. Their next is the chief with 'four hundred' soldiers who objects to the depredations among the birds. They sit on a rock eating birds and watching the rippling of the water below for men approaching . . . The boy hides at the pass and

throws all four hundred men over the cliff. The chief comes last and, recognizing Lahi as his own son, invites him to the village. He prepares a trap, but this boy discovers and, burning down the house with his treacherous father and followers within, takes over the rule of the land. [Beckwith 1970:331]

3.3.9 The Winds of Kaua‘i

One of the oldest and most famous mo‘olelo in Hawaiian oral tradition describes the travels and exploits of Pele, the Hawaiian volcano goddess, and one of her sisters, Hi‘iakaikapoliopole (more commonly known simply as Hi‘iaka). Pele, in her lengthy oli of literally hundreds of named winds of Kaua‘i, lists those of Nāwiliwili, Kalapakī, Ahukini, Līhu‘e, Kapaia, and Hanamā‘ulu (Nogelmeier 2006):

He Hu‘eone ka makani o Nāwiliwili	The wind of Nāwiliwili is a Hu‘eone
He Wāmua ka makani o Kalapakī	The wind of Kalapakī is a Wāmua
He ‘Ehukai ka makani o Ahukini	The wind of Ahukini is an ‘Ehukai
He Pahola ke kiu ho o kii makani lele kula o Līhu‘e	A Pāhola wind is the scout that fetches the winds sweeping the Līhu‘e plains
He Kuli‘āhiu ka makani o Kapaia	The wind of Kapaia is a Kuli‘āhiu
He Ho‘oluako‘inehe ka makani o Hanamā‘ulu	The wind of Hanamā‘ulu is a Ho‘oluako‘inehe

3.4 Mele (Songs)

3.4.1 Mele Associating Nāwiliwili with the Mokihana (*Pelea anisata*) Flower

Bowers (1984) compiled the lyrics (in Hawaiian and English) to over two dozen mele about Kaua‘i, several of which mention Nāwiliwili, Līhu‘e, and Niumalu. These mele are attributed to a variety of composers (sometimes no specific person is listed); most of these songs were probably written in the twentieth century, based on their style (e.g., the second song below uses the term “uapo,” also spelled in some sources as “uwapo,” defined by Pukui and Elbert 1986 as a historically-introduced [i.e., “pidgin”] term for “wharf”). Regardless of their age—whether they are decades or centuries old—these songs are cherished by many people, and speak to a great love for the beauty of Nāwiliwili, in particular.

The following song (Bowers 1984:3), attributed to “Haunani Kahalewai’s Trio with the Waikiki Serenaders” (Kamehameha Schools Archives n.d.), associates Nāwiliwili with the nearby Hā‘upu and the mokihana flower.

Kaulana mai nei a‘o Nāwiliwili	Renowned is Nāwiliwili
He nani nō ninini	Attractive even to Ninini
He nani maoli nō	A beauty unsurpassed.
Kuahiwi nani ‘oe a‘o hā‘upu	Splendid ridge of Hā‘upu
Ka pua mokihana ‘ea	The mokihana flower
Ka pua nani o Kaua‘i	The beautiful flower of Kaua‘i.

Ho'ohihi ka mana'o iā Kaua'i
Eō mai k oleo aloha
Ke kani a'o pi'ilani

The mind is entranced with Kaua'i
Let your beloved voice respond
The sound of Pi'ilani.

Ha'ina 'ia mai ana ka puana
Kaulana mai nei Nāwiliwili
He nani maoli nō

The refrain has been told
Renowned is Nāwiliwili
A beauty unsurpassed.

[Bowers 1984:3]

Another mele entitled “Kaulana ka inoa a'o Kaua'i” (Bowers 1984:2), attributed to a recording (*Music of Old Hawaii*) by the famous Sons of Hawai'i, again mentions the mokihana:

Kaulana ka inoa a'o Kaua'i
Ku'u lei mokihana poina 'ole.

Famous is the name of Kaua'i
My unforgettable mokihana lei.

Ku kilakila 'oe Wai'ale'ale
Me ka nani kaulana 'o Nawiliwili.

Wai'ale'ale you stand majestic
With the famous beauty of Nawiliwili.

Laua'e o makana ka'u aloha
Me ka uapo nani a'o Niumalu

I love the fragrant fern of Makana
With the fine wharf of Niumalu.

E pi'ina I ke 'ike a'o Kipu
Me ka wai 'anapanapa e kaulana nei.

Ascending to see Kipu
With the famous glittering waterfall.

I aloha ia noa'o Waimea
Me ke one kani la a'o Nohili

Beloved is Waimea
With the barking sands of Nohili.

Pu'ili kou aloha ma ku'u poli
Honehona kou leo me he ipo ala.

Your love is held fast in my heart
Sweet your voice like a sweetheart.

Hea aku no au, e o mai 'oe
Lei ana Kaua'i ka mokihana

I call, you answer
Kaua'i, decked in mokihana.

[Bowers 1984:2]

The mokihana is a native (endemic) tree, found only on Kaua'i, considered traditionally to be a variety of 'alani (a general term for citrus tree). The lei made of mokihana is a traditional symbol of the island of Kaua'i. According to Abbott (1992), mokihana were used to make the most treasured and rare seed lei in the Hawaiian Islands.

3.4.2 Līhu'e

The song “Līhu'e” speaks of the rustling leaves of Niumalu:

Aloha 'ia no au Līhu'e

Beloved is Līhu'e

I ka ne'e mai a ka ua Paupili

When the Paupili rain comes.

Ua pili no au me ku'u aloha

I cling to my beloved

Me ke kau nehe mai au Niumalu.

Under the soft rustling [leaves] of Niumalu

[Clark 1990:2]

3.5 Heiau

Historic maps show that only one heiau, Kuhiau Heiau, existed along the shoreline of the study area (Figure 5 and Figure 6) in Nāwiliwili Ahupua'a. This heiau is thought to be associated with its sister heiau, Paukini Rock, which marks the boundary between Nāwiliwili and Kalapakī. Three other heiau nearby (as shown in Figure 5 and Figure 6) were located in Kalapakī Ahupua'a, directly north of Nāwiliwili. These include remnants of an unknown heiau at Kūki'i Point, and two heiau along rocky points at Ninini and Ahukini. Physical evidence of these heiau have been obliterated by historic activities and more recent development. Nevertheless, the sacred nature of the landscape in and around these heiau are still appreciated.

3.5.1 Kuhiau Heiau and Paukini Rock

Kuhiau Heiau, also known as Site 99 (SIHP # 50-30-11-099), was recorded in Bennett's (1931) archaeological survey in the late 1920s. Figure 5 shows Kuhiau Heiau was located near the courthouse and near the ocean. Two decades prior to Bennett's study, Thrum had described this heiau as already "long since destroyed" (Bennett 1931:124). According to Thrum,

[a] large paved heiau, whose enclosure covered an area of about four acres . . . The rock Paukini, now separated from but formerly connected with the shore, was where the kahuna lived. This is said to have been the largest and most famous on Kauai in its day. [Bennett 1931:124]

Damon (1931) describes Kuhiau Heiau's close connection with Paukini, the pōhaku that marks the boundary between Nāwiliwili and Kalapakī. He writes,

[Kuhiau Heiau] . . . was in its day the largest and most far-famed temple on the island. Below it, in the bay, is still the rock called Paukini, which was said to be its companion or sister heiau, and was probably also the home of the kahuna, or priest, of Kuhiau. In ancient times this rock was connected with the shore near the site of the former boat landing. [Damon 1931:393]

3.5.2 Heiau at Kūki'i Point, Ninini and Ahukini

An 1881 map of Nāwiliwili Harbor (Figure 5) depicts "remnants of an ancient heiau" near Kūki'i Point. Ninini Heiau (Site 100; SIHP # 50-30-11-100) and Ahukini Heiau (Site 101; SIHP # 50-30-11-101) were both described by Bennett as totally destroyed. According to Thrum (Bennett 1931:125), Ahukini was "[a] heiau of medium size; foundations only now remain."

3.6 Freshwater Resources and Fishponds

3.6.1 Streams

Nāwiliwili and Hulē'ia Streams originate on the slopes of Kilohana Crater, and (Hulē'ia only) upon more distant Wai'ale'ale. The meandering streams of Nāwiliwili and Hulē'ia have formed extensive natural (alluvial) terraces along their lengths. These abundant terraces consist of small level areas formed along major meanders that could be planted with relatively little preparation of the landscape. Higher terraces were irrigated by diverting some of the stream flow, carefully

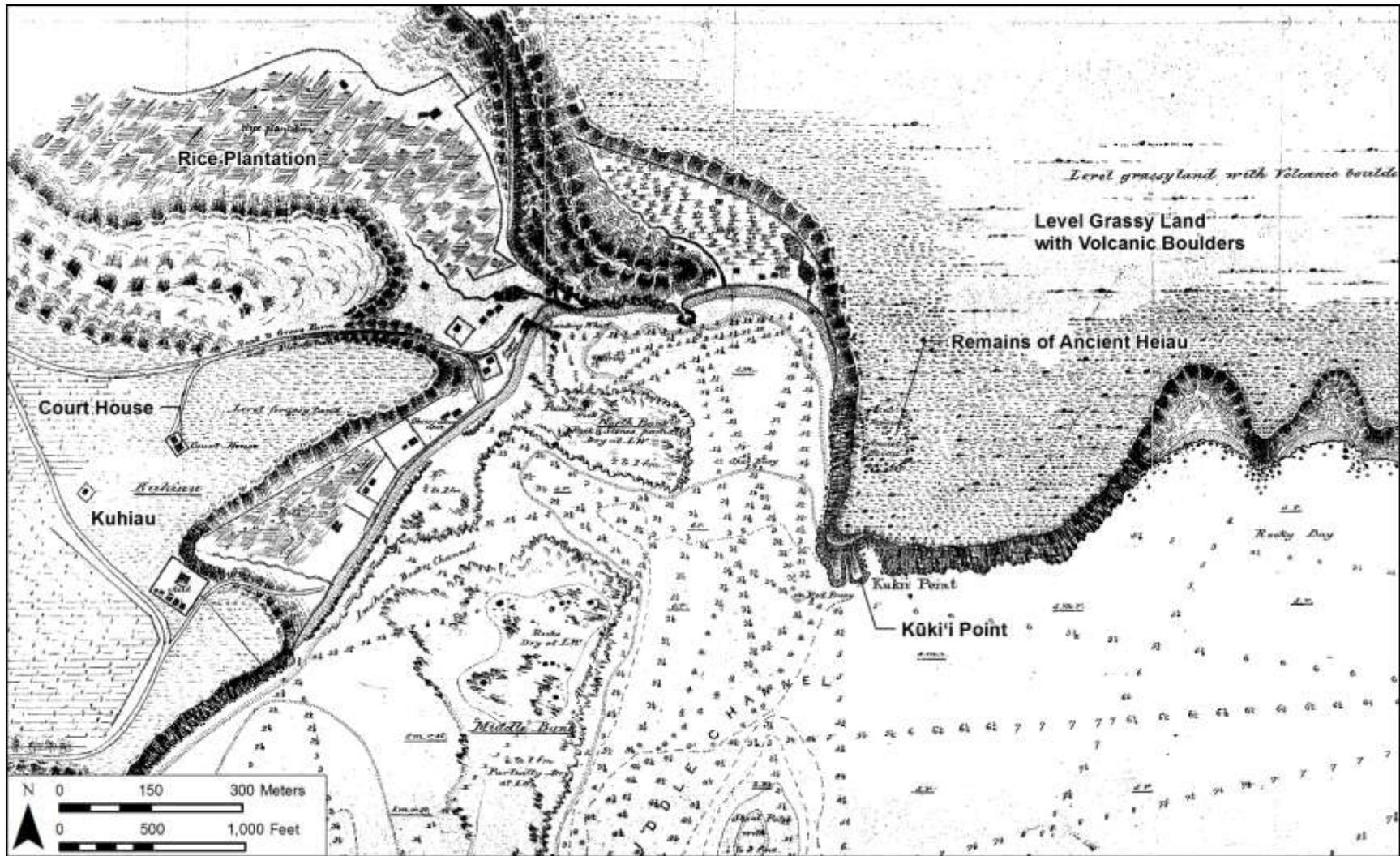


Figure 5. An 1881 map of Nāwiliwili Harbor by Lt. George G. Jackson, showing remnant of ancient heiau near Kūki'i Point; note the area called “Kuhiau” near the courthouse (left), previous location of Kuhiau Heiau



Figure 6. Map showing heiau along the coastal areas within and near the study area (adapted from Damon 1931)

managed by community leaders or konohiki. It is likely there were once other smaller drainages between the Nāwiliwili and Hulē'ia Streams and that native Hawaiian planters used and modified these as 'auwai. Most of these smaller drainages have been changed beyond recognition by historic and modern land use and development. However, it appears some of these smaller streams were still flowing into the early twentieth century. For example, two smaller streams, Koena'awa nui and Koena'awa iki, are identified in Land Commission documents as draining into Kalapakī Bay (Figure 7).

3.6.2 Fishponds

3.6.2.1 Menehune Fishpond/ Niumalu Fishpond/'Aleko Fishpond

Menehune Fishpond, also known as Alakoko in Land Commission documents and alternatively, Alekoko or 'Aleko in other sources (Kikuchi 1987), was first described and mapped scientifically by Bennett in the late 1920s. According to Handy and Handy (1972:426), Bennett incorrectly named this site Niamalu (Niumalu) Fishpond probably due to the proximity of nearby Niumalu Ahupua'a. It is located along the Hulē'ia Stream near its mouth to Nāwiliwili Bay. Kikuchi (1973, 1987) considered it a loko wai (freshwater pond or lake) class fishpond because of its inland location along a meander of the Hulē'ia Stream; other sources (perhaps inaccurately) consider it a loko kuapā (fishpond made by building a wall on a reef). The overall area of the pond has apparently varied through time from as small as 32 acres to as large as 39 acres. Figure 8 shows the fishpond in 1912 and by 1934, it was still in use (Figure 9). Menehune Fishpond was placed on the National Register of Historic Places in 1973 as SIHP # 50-30-11-501.

Bennett (1931) describes the dimensions and construction features of Niamalu [*sic*] Fishpond:

The Niamalu [*sic*] fish pond consists principally of a stone-faced, dirt wall that runs for over 900 yards and cuts off a large bend in the river for use as a fish pond. It is today [in the early 1930s] used both for fish and ducks. Cement walls and iron gates have obscured any old method of controlling the water or the fish. [Bennett 1931:124]

This fishpond is associated with the mo'olelo of the brother and sister shark guardian spirits named 'Aleko and Kahalalehue, who were said to have given the task of construction to the the menehune (Kaiwi 1921). According to Rice (1974), it is said the menehune failed to completely finish their task, thus leaving a small opening later finished by people who did an inferior job of it; this inferior stone-work being still visible in historic times. See Section 3.3.5 for a more detailed description of the mo'olelo associated with the fishpond.

3.7 Settlement and Subsistence

The ahupua'a of Nāwiliwili and Niumalu were permanently inhabited and intensively used in the pre-Contact and early historic periods, based on archaeological, historical, and oral history documentation. The archaeological record of early Hawaiian occupation in this area indicates a date range of ca. AD 1100 to 1650 for pre-Contact Hawaiian habitations (Walker et al. 1991). A radiocarbon date of AD 1170-1400 was obtained from excavated sediments near the mouth of

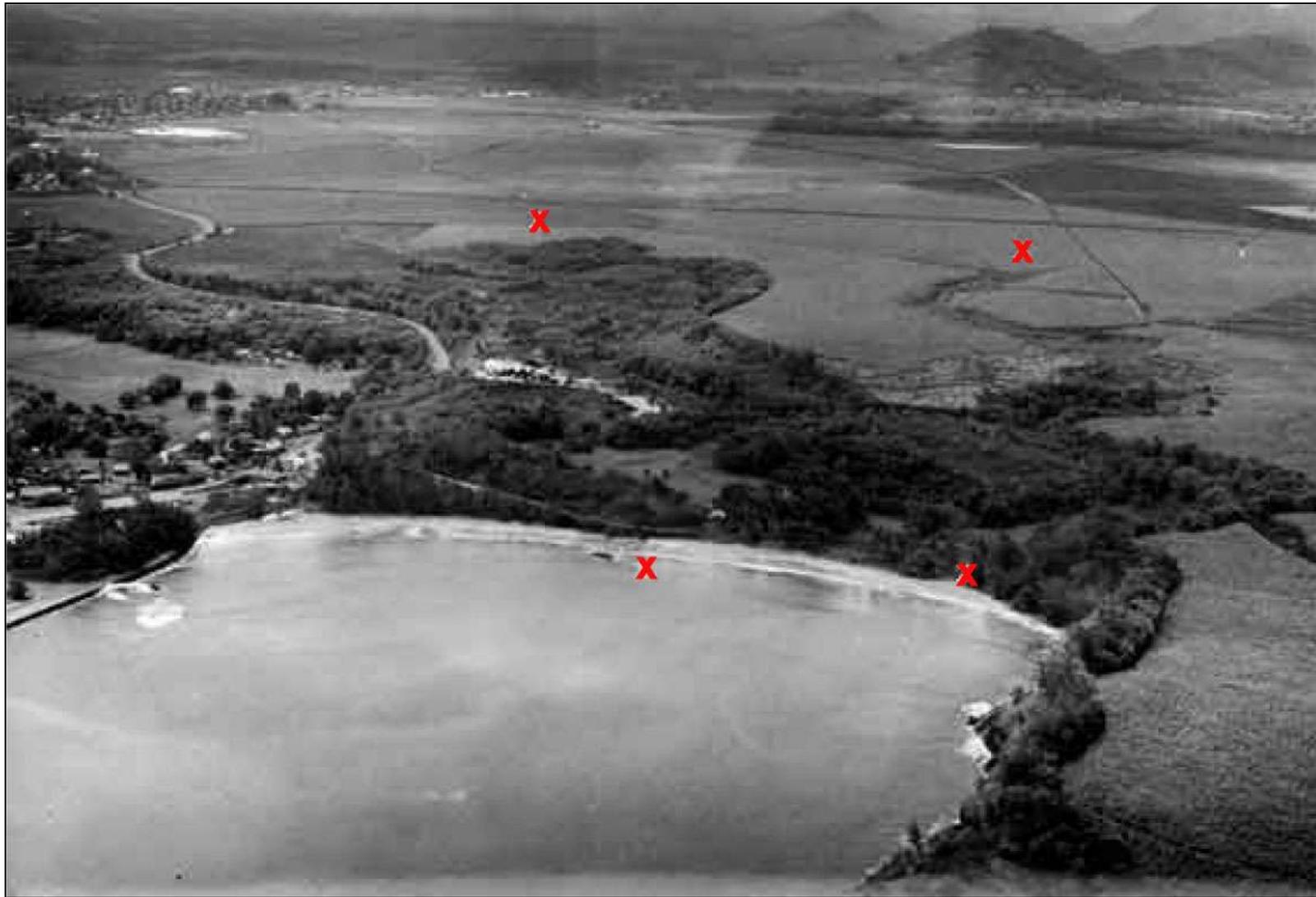


Figure 7. Kalapakī Bay, showing two streams with red Xs marking their mauka locations and outlets to Kalapakī Bay; Koena'awa-nui Stream is on the left (Kauai Historical Society n.d.)

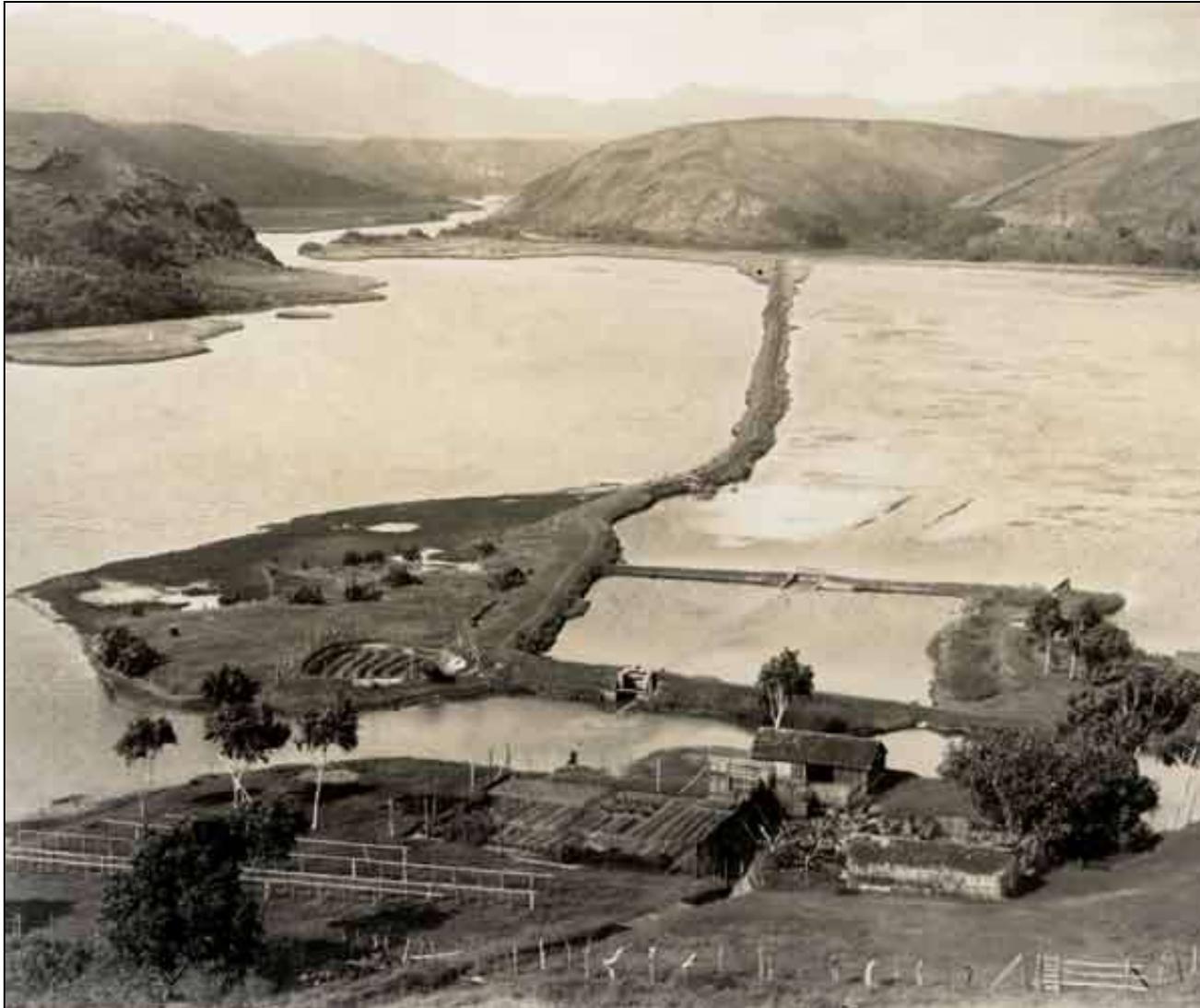


Figure 8. Menehune Fishpond, 1912 (Baker 1912)



Figure 9. Menehune Fishpond still in use in 1934 (Kauai Historical Society 1934)

Hanamā'ulu Stream, north of Nāwiliwili. Mo'olelo associated with the study area are also plentiful suggesting early settlement of the area by a viable Native Hawaiian population. The abundance of water, the presence of distinguished fishponds along the coast, and water systems are testaments to early settlement.

The coastal areas held the concentration of permanent house sites and temporary shelters, heiau, including ko'a (shrine) and kū'ula (both types of relatively small shrines dedicated to fishing gods), numerous trails, and fishponds. There were numerous house sites and intensive cultivation areas within the valley bottoms of Nāwiliwili and Hulē'ia Streams. According to Hammatt and Creed (1993:22), Land Commission documents indicate the shoreline location of several house lots in Nāwiliwili Ahupua'a, known as Papalinaloa. Kikuchi (1973) states this was the name of "an early chief," but Hammatt and Creed (1993) suggest it may also have been the name of an 'ili or of the konohiki. Papalinaloa was also the name of an 'auwai on the south side of Nāwiliwili Stream, associated with LCA 3566 (Hammatt and Creed 1993). Before the historic era, there was a village at Kalapakī (probably between Kalapakī Beach and Ahukini), and another, likely larger, at Nāwiliwili to the southwest. Another village was located near the mouth of the Hanamā'ulu Stream.

Land Commission documents indicate a land use pattern that may be unique to this part of the island, or to Kaua'i, in general, in which lo'i and kula lands are described in the same 'āpana, with house lots in a separate portion. In most places, kula lands are defined as drier landscapes and they do not typically occur next to, and among, wetter lo'i lands. The dryland areas (kula) of these ahupua'a contained native forests and were cultivated with crops of wauke, 'uala (sweet potatoes), and ipu (bottle gourd). According to Hammatt and Creed (1993:23), "there are several [LCA] references to other lo'i next to the beach which indicate wetland cultivation extending right to the shoreline." This is a type of land use that seems to be fairly unique to Kaua'i.

Handy (1940) describes the study area in 1935 as a land with many lo'i and good fishing. He describes Nāwiliwili Valley in his chapter on the main kalo (taro) growing locations in Puna, Kaua'i:

For 3 miles inland from the sea the Nāwiliwili River twists (*wiliwili*) through a flat valley bottom which was formerly all in terraces. Inland, just above the bay, three Hawaiian taro planters cultivate wet taro in a few small terraces. Most of the land is [now] in pasture. There are one small cotton plantation and several small garden plots. For about a half mile below and a half mile above the mill the valley is mostly filled with plantation camp and other structures, with many small clumps of bananas, some garden plots, and a few old breadfruit trees. The old terrace area extended half a mile up into the small valley that opens out northwest just above the mill. Approximately the last mile of flat valley bottom, before the river bed becomes a narrow gulch, used to be in terraces but is now pasture and ranch land. [Handy 1940:67]

Handy describes Niumalu Ahupua'a as having some of the best fishing grounds on the island of Kaua'i.

Niumalu is a tiny ahupua'a, a mere wedge between Nawiliwili and Haiku, but it was, and is, one of the most important fishing localities on Kauai, and contained a

fairly large area of terraces along the lower mile of Puali Stream. There were a few terraces at the lower end of Halehaka Stream where it joins the Puali about 1.5 miles inland. [Handy 1940:67]

Nimalu fields and fishponds are shown in Figure 10. Handy and Handy (1972) additionally note,

. . . southward of the Huleia River and harbor [Niumalu] . . . had fairly large *lo'i* areas at the seaward ends of its two streams, Puali and Halehaka. Niumalu was noted in the past, as it is today, for being one of the most important fishing localities on Kauai. [Handy and Handy 1972:427]

Ching et al. (1973: Appendix 6) list kapu (prohibited) resources for the ahupua'a of the study area (Table 1) which were gleaned from Land Commission documents from these areas. These were akule for Nāwiliwili and Niumalu Ahupua'a. Kapu wood was koa for Nāwiliwili and 'ōhi'a for Niumalu.

Table 1. Kapu Resources Mentioned in Land Commission Documents from the Ahupua'a of Nāwiliwili, Niumalu, and Ha'ikū (source: Ching et al. 1973)

Ahupua'a	Kapu fish	Kapu wood
Nāwiliwili	Akule	Koa
Niumalu	Akule	'Ōhi'a



Figure 10. Niumalu Flats filled with pond fields and fishponds (Kaua'i Historical Society, n.d.)

Section 4 Historical Background

4.1 Overview

This section briefly summarizes the historical background of the study area from the time of the arrival of Captain Cook in Hawai'i in 1778, or the early post-Contact period, to modern times.

4.2 Early Post-Contact Period

The first written accounts of Kaua'i are from travelers, missionaries, and surveying expeditions. Missionary accounts of the first half of the nineteenth century provide the majority of the early written records for this region of Kaua'i. Hiram Bingham's 1820s map of the island identifies the place names Hulaia [Hulē'ia], Niumaru [Niumalu], Haitu [Ha'ikū], and Tipu [Kīpū] (Figure 11).

Damon (1931) wrote about observations Bingham made in 1824 and included in his memoir, *A Residence of Twenty-One Years in the Sandwich Islands*, published in 1847. According to Damon, Bingham described the lands near Kilohana, a summit and crater in the Līhu'e District near the project area, as "finer country than the western part of the island." Damon writes,

In 1824, when walking around the island from Waimea to counsel the people after the wreck of *The Cleopatra's Barge*, Rev. Hiram Bingham crossed from Hanapēpē, as has been seen, over the old upland trail back of Kilohana, and wrote of it as 'a country of good land, mostly open, unoccupied and covered with grass, sprinkled with trees, and watered with lively streams that descend from the forest-covered mountains and wind their way along ravines to the sea, —a much finer country than the western part of the island.' [Damon 1931:401]

In the 1830s, another missionary, Rev. Peter Gulick, was living on Kaua'i at Waimea and Kōloa. He made the following observation about the kind of provisions one could find in Hanamā'ulu, a place immediately north of the study area, at the time.

The governor [Kaikioewa] reached Hanamaulu in his canoe just as we entered on horse back . . . This is the governor's custom, when he travels. A man is sent before to give notice that provision may be made, at the different stopping places, for him and his train: which frequently amounts to two hundred [people] . . . I with a few natives had a comfortable house at Hanamaulu. The inhabitants brought us fish fresh from the ocean, fowls, taro, potatoes, and a pig, all except the fish roasted or baked in the ground . . . A youth who went with me for the purpose prepared my food. My bed, which was made with mats, was covered with ten tapas; these were the bed clothes which according to custom were presented to the guest for whom they were spread. [Damon 1931:360]

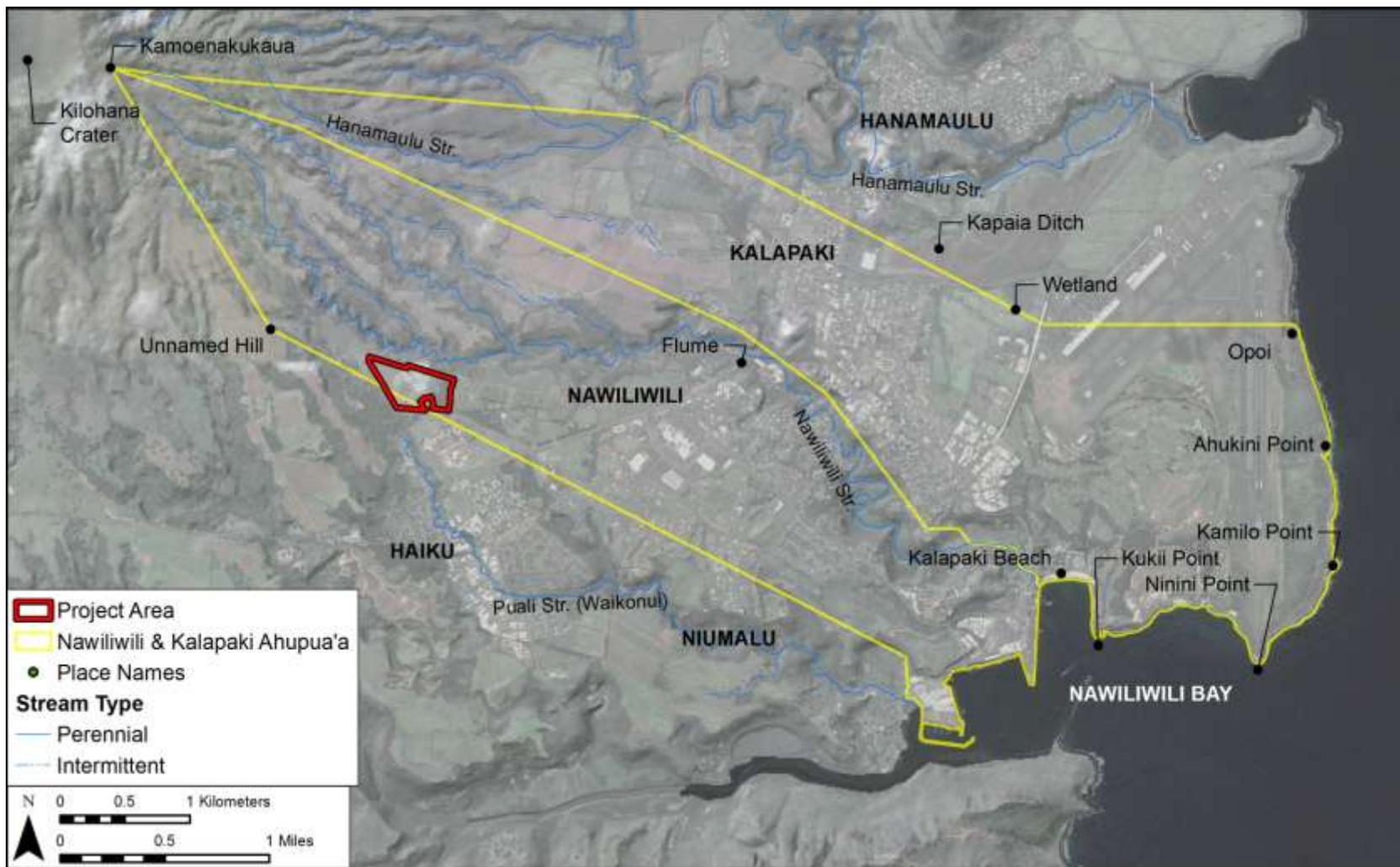


Figure 11. A 2013 google earth aerial photograph of Kaua'i showing some place names of Nāwiliwili and Kalapaki

Also at this time in the 1830s, Governor Kaikioewa founded a village at Nāwiliwili that eventually developed into Līhu'e. According to Hammatt and Creed (1993), the name Līhu'e was not consistently used until the establishment of commercial sugar cane agriculture in the mid-nineteenth century; and from the 1830s to the Māhele, the names Nāwiliwili and Līhu'e were used interchangeably to some extent to refer to a settlement along Nāwiliwili Bay. Some sources attribute the decision to call this area Līhu'e to Kaikioewa, who apparently named it after his nearby upcountry home. Waimea and Kōloa were preferred anchorages compared with Nāwiliwili, which opens directly east to the trade winds. Gales were known to blow ships onto the rocks. During the whaling era, Kōloa, which was home to the earliest major commercial operations in the Hawaiian Islands, was the preferred anchorage because of the ready supply of nearby food stuffs for resupplying the ships.

By 1830, the sandalwood trade had waned and the whaling industry was just beginning. At the same time, commercial agriculture was being established on Kaua'i. When the first crop of sugar cane was harvested at Kōloa, the king himself commanded that portions of his private land be planted in cane. In 1839, Governor Kaikioewa began farming the slopes of Nāwiliwili Bay where there was more rain than at Kōloa (Dorrance and Morgan 2000). He also built a house and church in Nāwiliwili Ahupua'a.

Donohugh (2001) describes Governor Kaikioewa's attempt to establish the first commercial sugar mill and plantation in Līhu'e in 1839:

During the early decades of Kōloa Plantation, other sugar plantations had started up on the island. One was to result in the ascendancy of Līhu'e to the principal town and seat of government on Kaua'i, replacing Wailua. When Kaikio'ewa was appointed governor, he located his home in what is now the Līhu'e District. He planned to grow sugar cane but died in 1839 before his plans could be realized. Kaikio'ewa was responsible for the name [Līhu'e], which means 'cold chill,' the name of his previous home at a higher and chillier altitude on O'ahu. [Donohugh 2001:94]

As mentioned by Donohugh (2001:4), Kaikioewa died in 1839 soon after the start of the sugar plantation, which lasted only one year and closed down in 1840 (Dorrance and Morgan 2000).

Around this time, perhaps as late as 1842, the first missionaries settled in the Līhu'e area led by Dr. and Mrs. Thomas Lafon, and assisted by Rev. and Mrs. Peter Gulick from Kōloa. Schools were opened, and some missionaries attempted to grow cotton as the first intensive cash crop, but were unsuccessful (Damon 1931).

An account of the United States Exploring Expedition, which passed through Līhu'e in 1840, talks about the area, but also mentions the forced removal of kama'āina from the coastal areas:

At noon they reached Lihui, a settlement lately undertaken by the Rev. Mr. Lafon, for the purpose of inducing the natives to remove from the sea-coast, thus abandoning their poor lands to cultivate the rich plains above. Mr. Lafon has the charge of the mission district lying between those of Koloa and Waioli. This district [Līhu'e] was a short time ago formed out of the other two.

The principal village is Nāwiliwili, ten miles east of Koloa. This district contains about forty square miles, being twenty miles long by two broad. The soil is rich: it

produces sugar-cane, taro, sweet-potatoes, beans, etc. The only market is that of Koloa. The cane suffers somewhat from the high winds on the plains.

The temperature of Lihui has much the same range as that of Koloa, and the climate is pleasant: the trade-winds sweep over it uninterruptedly, and sufficient rain falls to keep the vegetation green throughout the year. No cattle are to be seen, although the pasturage is good. [Wilkes 1845:67-68]

With the death of Kaikioewa, governorship of Kaua'i was transferred for a brief period to his widow Keaweamahe. The brief tenure of Chiefess Kekauonohi and her husband Kealiihonui (son of King Kaumuali'i) followed after which the governorship passed to Paulo Kanoa in 1848. Kanoa had two houses overlooking Nāwiliwili Bay, one on the bluff south of Nāwiliwili Stream (the present site of Kaua'i High School) and another at Papalinahoa, north of the bay (Damon 1931).

William DeWitt Alexander, son of Waioli missionary William P. Alexander, traveling from Kōloa to the north shore of Kaua'i in 1849 recorded some descriptive notes of Hanamā'ulu, north of the project area:

A few miles further on we crossed the picturesque valley of Hanamaulu. This valley is prettily bordered by groves of Kukui, koa, & hala trees, and is well cultivated with taro. A fine stream flows through the midst of it, which makes a remarkable bend at this place like a horse shoe. We then traveled along the seashore at the foot of a range of hills through groves of hau, & among hills of sand. It was now after dark, but the moon shone brightly, and there was no difficulty in finding our way. About eight o'clock we arrived at the banks of the Wailua river. [Kauai Historical Society 1991:121]

One of the last vestiges of the pre-cash crop landscape is depicted in the diary entry for the Rice family's arrival on Kaua'i in 1854. During the second half of the nineteenth century, western settlers and entrepreneurs set their sights on southeast Kaua'i. Damon describes the Līhu'e landscape at the time of the family's arrival at Nāwiliwili Bay:

From the deck of their river craft in 1854 Mrs. Rice and the children could plainly see above the rocky shore and ruins of Kuhiau, the old heiau, or temple, and nearby on the bluff the flaming blossoms of a great wili-wili tree among koa trees which ten grew almost down to the water's edge. [Damon 1931:17-18]

4.3 The Māhele (1848)

Prior to 1848, all land belonged to the akua (gods), held in trust for them by the paramount chief and managed by subordinate chiefs. In the mid-1800s, Kamehameha III decreed a division of lands called the Māhele, which divided land for private land ownership in Hawaiian society (Chinen 1958). In 1848, lands were divided into three portions, crown lands, government lands, and lands set aside for the chiefs. Individual plots, called kuleana (Native Hawaiian land rights) awards, were granted within these divided lands to native inhabitants who lived on and farmed these plots and came forward to claim them. The chiefs and konohiki were required to pay a commutation fee for their lands, usually about one-third the value of any unimproved lands.

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

The Kuleana Act was legislated in 1950 allowing maka‘āinana (folk; commoners) to own land parcels which they were currently and actively cultivating and/or using for residence. In theory, this “set aside” hundreds of thousands of acres as potential kuleana parcels which led to about 10,000 claimants obtaining approximately 30,000 acres. The konohiki, 252 chiefs, divided up about a million acres. Many Hawaiians were disenfranchised by these acts (Cordy et al. 1991).

4.3.1 Nāwiliwili Ahupua‘a

Victoria Kamāmalu was awarded over 2,000 acres of Nāwiliwili Ahupua‘a (LCA 7713), along with much of Niūmalu, Ha‘ikū, and Kīpū, as well as Kalapakī and Hanamā‘ulu. In addition to Kamāmalu’s large award at Nāwiliwili, there were many smaller kuleana awards. Within the ahupua‘a of Nāwiliwili, there were 33 LCAs of which 20 were awarded (Waihona ‘Aina 2000). A study by Hammatt and Creed (1993) describes LCAs in Nāwiliwili Valley:

Within the valley floor and adjacent to the alluvial plain [in Nāwiliwili] . . . are 14 land Commission Awards for which there are testimonies available in the Land Commission records . . . The awards vary in size between one to two acres and are generally around one acre. The majority of land recorded is for lo‘i (wetland agriculture) but kula (dryland plots) are present as are a few house lots.

In all there are 54 lo‘i recorded. Each award is generally two to three lo‘i plots. The largest award comprised eight lo‘i; a single award consisted of one lo‘i. All awards contained lo‘i and nine of the fifteen total awards had kula lots. Without exception, the nine awards containing kula mention only one kula per award. This is of interest because it shows that the alluvial plain was not entirely dedicated to wetland planting and that a small kula lot was essential for subsistence agriculture. [Hammatt and Creed 1993:20]

Some awards at Nāwiliwili mention house lots along the shoreline. Figure 12 and Figure 13 depict Nāwiliwili Valley with its many lo‘i near the ocean.

According to Kikuchi (1973), Nāwiliwili was home to at least five other fishponds in addition to Alekoko (Menehune) Loko. The names of two of these were unknown, but the others are Kalalalehua, Lokoponu, and Papalinaloa. LCA documents identify the konohiki for Nāwiliwili at the time of the Māhele as Daniela Oleloa.

4.3.2 Niūmalu Ahupua‘a

As described earlier, Victoria Kamāmalu was awarded much land in Niūmalu Ahupua‘a. According to Ching et al. (1973), there are 21 LCAs for Niūmalu which contained 80 lo‘i. Many lo‘i and kula lands are described as being in the same ‘āpana, a pattern common to Puna District of Kaua‘i, but not common elsewhere in Hawai‘i. Perhaps maka‘āinana were creating kula lands by piling up soil adjacent to wet lands. Throughout most of the Hawaiian Islands, kula lands refer specifically to dry sloping lands between the mountains and the sea. However, maka‘āinana were referring to lands in valley bottoms as kula in the Puna District of Kaua‘i. Some claimants describe their lands as being trampled by cattle.



Figure 12. Taro terraces in Nāwiliwili Valley (Kauai Historical Society, n.d.)



Figure 13. Taro cultivated in the vicinity of Pu'ali Stream in 1905 (Kaua'i Historical Society, 1905)

Niumalu had seven other ponds in the vicinity of the well-known Alekoko (Menehune) Loko. Survey notes (Ching et al. 1973:105) for Niumalu Ahupua‘a state that “[t]he fishing privilege [sic] of Huleia River belongs to the Ahupua‘a of Niumalu from its mouth to the Road crossing it to Kīpū Kai.”

4.4 Mid-Nineteenth to Twentieth Century

4.4.1 Population

A map by Coulter (1931) shows the population of Kaua‘i ca. 1853 concentrated in the coastal areas. Within the Puna District, the map indicates an estimated population of approximately 1,700 people in the vicinity of Nāwiliwili Bay (Figure 14).

4.4.2 Changing District Names

The traditional moku or districts of Kaua‘i were replaced in the middle to latter part of the nineteenth century by modern political district names (Figure 15). Given its economic importance to the island, Līhu‘e became the modern district name and includes the ahupua‘a of the proposed project, previously under the Puna District. Rice writes,

The name, Lihue, applied in a larger sense, included the districts of what are now Kawaihau and Lihue, reaching from Anahola to the Gap, being made so by law in about the year 1861, according to early court records, but some years later divided into the present two districts. The large district was also known as the Puna district, and is found on early maps as such. It was August thirteenth, 1880, that the district was divided into two, by act of Legislature with King Kalākaua’s signature . . . Lihue, in a local sense, and from which the name of the district was derived meant only that little portion of land upon which the present village, as consisting of bank, post office and store, now stands. [Rice 1914:46]

4.4.3 Commercial Sugar Cane Agriculture

As Western dominance grew in Hawai‘i, sugar came to dominate economic, political, and social life in the islands. In 1835, commercial cultivation of sugar began at Kōloa on Kaua‘i which created needs for a larger supply of indentured, contract laborers (Riznik 1999). Plantations were established throughout Hawai‘i, but by the beginning of the mid-nineteenth century, reduced Native Hawaiian populations could no longer meet plantations’ needs for a constant supply of cheap labor. Thus, foreign labor was imported by plantations particularly from Japan, China, and the Philippines (Riznik, 1999).

4.4.3.1 Lihue Plantation

Following the Māhele and the availability of large tracts of land for sale, Lihue Plantation “was established on the site Kaikio‘ewa had chosen, and the cluster of homes and stores around it was the start of the town of Līhu‘e.” (Donohugh 2001:94). Situated adjacent to the project area, Lihue Plantation began as a partnership between Henry Augustus Pierce, Judge William Little Lee, and Charles R. Bishop in 1849 (Damon 1931). The first 3,000 acres were purchased

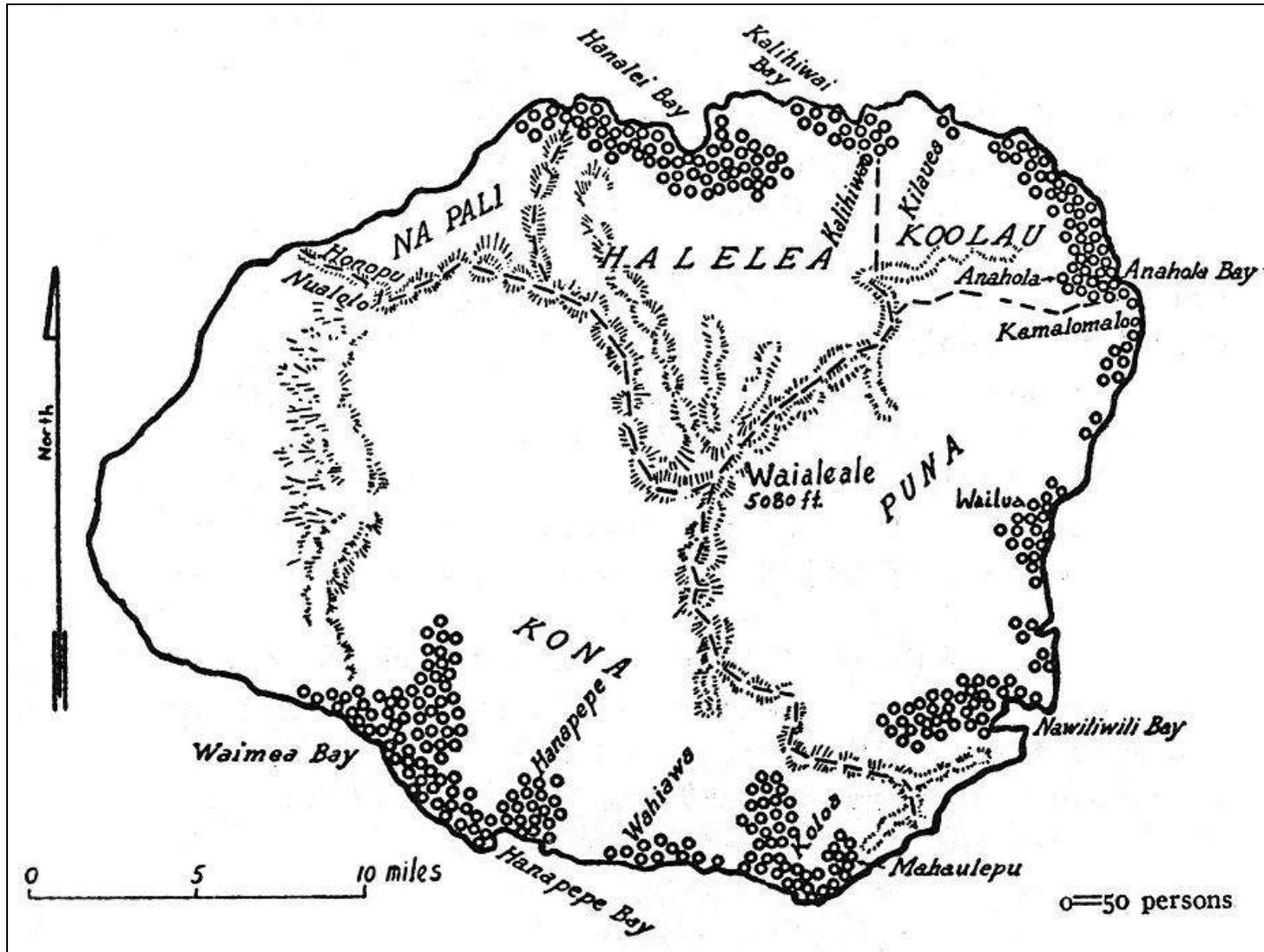


Figure 14. Map showing population estimate for Kaua'i in 1853 (adapted from Coulter 1931:16)



Figure 15. USGS map showing the political districts of the County of Kaua'i

in Nāwiliwili and an additional 300 acres were purchased in Ahukini in 1866. The Lihue Plantation became the most modern plantation at that time in all of Hawai'i. It featured a steam-powered mill built in 1853, the first use of steam power on a Hawaiian sugar plantation. The 10-mile-long Hanamā'ulu Ditch was also built in 1856 by plantation manager William H. Rice, the first large-scale irrigation project for any of the sugar plantations (Moffatt and Fitzpatrick 1995:103).

Hawaiians made up the labor force of Lihue Plantation, and many built their homes on the land surrounding the mill (Figure 16). Planting began in 1850 and the first crop was ground in 1853 (Joesting 1984:173). From 1854 to 1862, under the management of William Harrison Rice, the plantation invested heavily in irrigation ditch infrastructure known initially as “Rice’s Folly” (Krauss and Alexander 1984:67). George Norton Wilcox, son of the ABCFM teacher Abner Wilcox, was raised on Kaua'i and observed Rice's successful utilization of irrigation. Wilcox attended Yale University and studied engineering and surveying, earning a certificate in 1862. Upon returning to Kaua'i in 1863 he soon began work as a surveyor for Judge Herman Widemann, owner of the Grove Farm Plantation at the time.

Commercial sugar cane agriculture continued in Līhu'e until 2000, when Lihue Plantation and the Kekaha Sugar Company finally shut down and terminated approximately 400 workers. The nearby Kipu Plantation, founded in 1907, operated until 1942 (Dorrance and Morgan 2000).

Lihue Plantation remained a vibrant and successful commercial operation throughout most of the twentieth century, in part because of a continuing investment in technological innovation. For



Figure 16. Lihue Plantation Sugar Mill, 1941 (U.S. National Archives and Records Administration)

example, in 1912 Lihue Plantation installed two 240-kilowatt generators above the cane fields on the slopes of Kilohana Crater, becoming one of the first hydroelectric power producers (along with Kekaha, Kaua'i) in the Hawaiian Islands (Dorrance and Morgan 2000).

First-hand recollections about life in the early twentieth century plantation days of Līhu'e are documented and archived at the Grove Farm Museum. The following example, which appeared in the *Honolulu Advertiser* on 24 April 2000, describes the struggles of 78-year-old Tadeo Suemori to keep his house at the so-called Rice Camp (TenBruggencate 2000:B-1). Mr. Suemori was born and lived his whole life at this house, which was previously one of a total of 18 plantation cottages on a 14-acre parcel owned by Wm. Hyde Rice, Ltd. When the landowner began moving people out in 1989 to sell the property to the museum, Mr. Suemori refused to vacate, "They never evicted me. I said, 'I ain't moving out' (TenBruggencate 2000:B-1). He was eventually allowed to rent the place for the remainder of his life, but had wished to restore and rehabilitate the old Rice Camp. The reporter recorded Mr. Suemori's concerns:

He is concerned about the environment, and particularly about pollution in Nawiliwili Stream, which runs below his house. It was clean when he and his childhood friends skinny dipped there while the U.S. stock market was crashing in 1929. It was the place where they caught prawns and 'o'opu and frogs . . . Today the stream runs brown and smells bad. Only a few frogs and mosquito fish live

there. That angers Suemori. He wants someone to clean it up. [TenBruggencate 2000:B-2]

4.4.3.2 Grove Farm Plantation (1864-1974)

Grove Farm Plantation, which was named after an old stand of kukui trees, was established by Warren Goodale after acquiring the land in 1850. He sold the property the same year to James F. B. Marshall for \$3,000 who sold it to Judge Widemann for \$8,000 in 1856. At the end of 1863 Judge Widemann asked George Wilcox to undertake the supervision of the cutting of a water lead or irrigation ditch for the Grove Farm Plantation using Hawaiian labor. The following year, Wilcox leased Grove Farm Plantation from Widemann and rapidly expanded development of the irrigation infrastructure.

Western commerce between Kōloa and Līhu'e took off during the second half of the nineteenth century. A visitor to Kaua'i in 1865, William T. Brigham, described the route between Līhu'e and Kōloa.

From Līhu'e the road led over the plain with the mountains on the left. A ditch crossed and recrossed the road as it wound along the hills from the mountains to the canefields below. Owls (pueo) were very abundant. The Pass over the mountains was very good and not at all steep, and all the way which was some twelve miles, the road was very good, in fact a carriage road. Two hours riding brought me to Dr. Smith's [in Kōloa] at eight. [Lydgate 1991:143]

The "ditch" Brigham described probably included "1st Ditch" excavated in 1864 and "2nd Ditch" which was completed in 1865. Prior to the completion of 1st Ditch, Krauss and Alexander write that Wilcox

drove an ox cart to the beach and around the bay to a Hawaiian settlement called Niumalu where the natives grew sugar cane, as a supplementary food crop, on the earthen dams that separated their taro patches, George carefully chose stands of healthy cane, making sure that they were original plantings and not rations. [Krauss and Alexander 1984:133]

In 1870, Wilcox bought Grove Farm from Widemann for \$12,000, three-quarters of which was borrowed. Four years later he had 200 acres under cultivation. The cane was milled at the Lihue Mill and exported from Nāwiliwili. In 1874, Wilcox renewed a 25-year lease with Princess Ruth Ke'elikōlani for 25 years, for a 10,000-acre tract of Ha'ikū Ahupua'a (Krauss and Alexander 1984:179). On 1 April 1881 George Wilcox bought 10,500 acres of Ha'ikū Ahupua'a from Princess Ruth, increasing the acreage of Grove Farm nearly ten-fold (Krauss and Alexander 1984:206). The sale was part of a package deal whereby Mr. Rice also received Kīpū and Kīpū Kai for a total price of \$27,500—money Princess Ruth used to build her palace that rivaled Kalākaua's palace, on Emma Street in Honolulu.

An 1878 Government Survey map (Figure 17) also shows little development within the project area vicinity and sugar plantations which have not expanded to their later extent; Grove Farm fields are to the southeast, and Lihue Plantation is to the east. Kaumuali'i Highway appears to be an unimproved or dirt road.

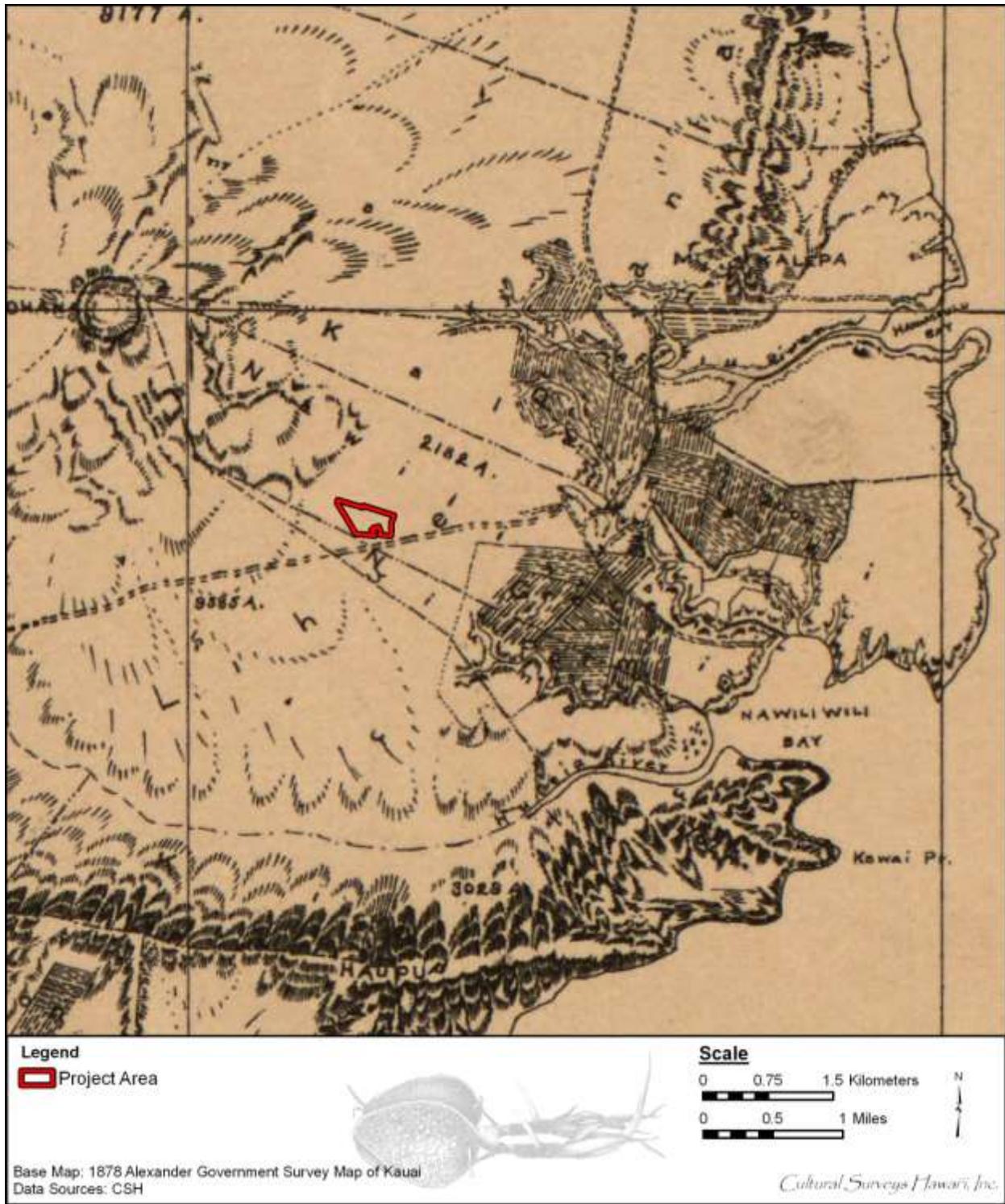


Figure 17. Portion of 1878 Government Survey map by W.D. Alexander, showing location of the project area and Grove Farm (shaded)

4.4.3.3 Puhi Camp

Grove Farm (Figure 18) operated under George Wilcox until 1933 when he died. During that time, the plantation flourished and many innovations like new cultivation and planting methods developed. Grove Farm was also at the forefront of housing improvements during a time when plantation housing throughout the Hawaiian Islands was inadequate (Riznik 1999). Unsanitary and crowded housing for workers compounded the spread of infectious diseases which spurred interest in housing reform on individual plantations. From 1917 to 1920, Grove Farm built 120 houses in a single new camp for workers which became known as Puhi Camp. The new housing at Puhi attracted the attention of the Hawaiian Sugar Planters' Association (HSPA) and the dwellings became the standard for the plantation industry in the 1920s (Figure 19 and Figure 20).

In 1917, Robert S. Thurston, the Experiment Station's associate agriculturalist, described the buildings at Grove Farm.

The buildings being erected are of three types: (1) Two or three rooms in a row, all under an inverted V roof, without a kitchen. (2) Two rooms under the same kind of roof, but with a kitchen adjoining in the rear. (3) A three room bungalow [sic] with adjoining kitchen in the rear. The first type is for bachelors; the second for a couple and one or two children; and the third for larger families. The kitchen floors are of concrete. The stove is built of concrete and cast iron and has a concrete smoke stack, thereby reducing to a minimum the chance of fire. Just outside the kitchen is a concrete floor about 4' x 5' on which a wash tub may be set. This floor drains into a concrete gutter which runs past and drains all the houses.

The buildings are of wood and are set out in 3 double rows, each row front on a street. Cross walks will be put in, making a double row of 8 buildings, or 16 buildings per block. Each building is set on a lot 50' x 75'. Running water is piped to each kitchen and an open concrete ditch is furnished for drainage from the kitchens. If the laborers wish to cultivate their gardens the plantation will furnish a team and plow with which to plow up the land. (Riznik 1999:134)

In the 1920s, Grove Farm began a new building program at Puhi, along the route of the present Kaunualii Highway and just south of the project area. The continuing lack of development in the area prior to this is evident on the 1910 USGS map (Figure 21).

About 1920 George Wilcox began construction of a completely modern camp at Puhi in the heart of the expanding plantation. Instead of building houses haphazardly as new families moved in, a complete village was laid out with streets, a playground, room for gardens, and lawns. The houses had proper kitchens equipped with running water and enough bedrooms for each family depending upon the number of children. [Krauss and Alexander 1984:310]

Puhi Camp also extended into the current project area, adjacent to Kaunualii Highway. The plantation camp consisted of some 600 homes occupied by up to 1,200 workers and their families. Puhi Camp also contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events (Chang 2007).

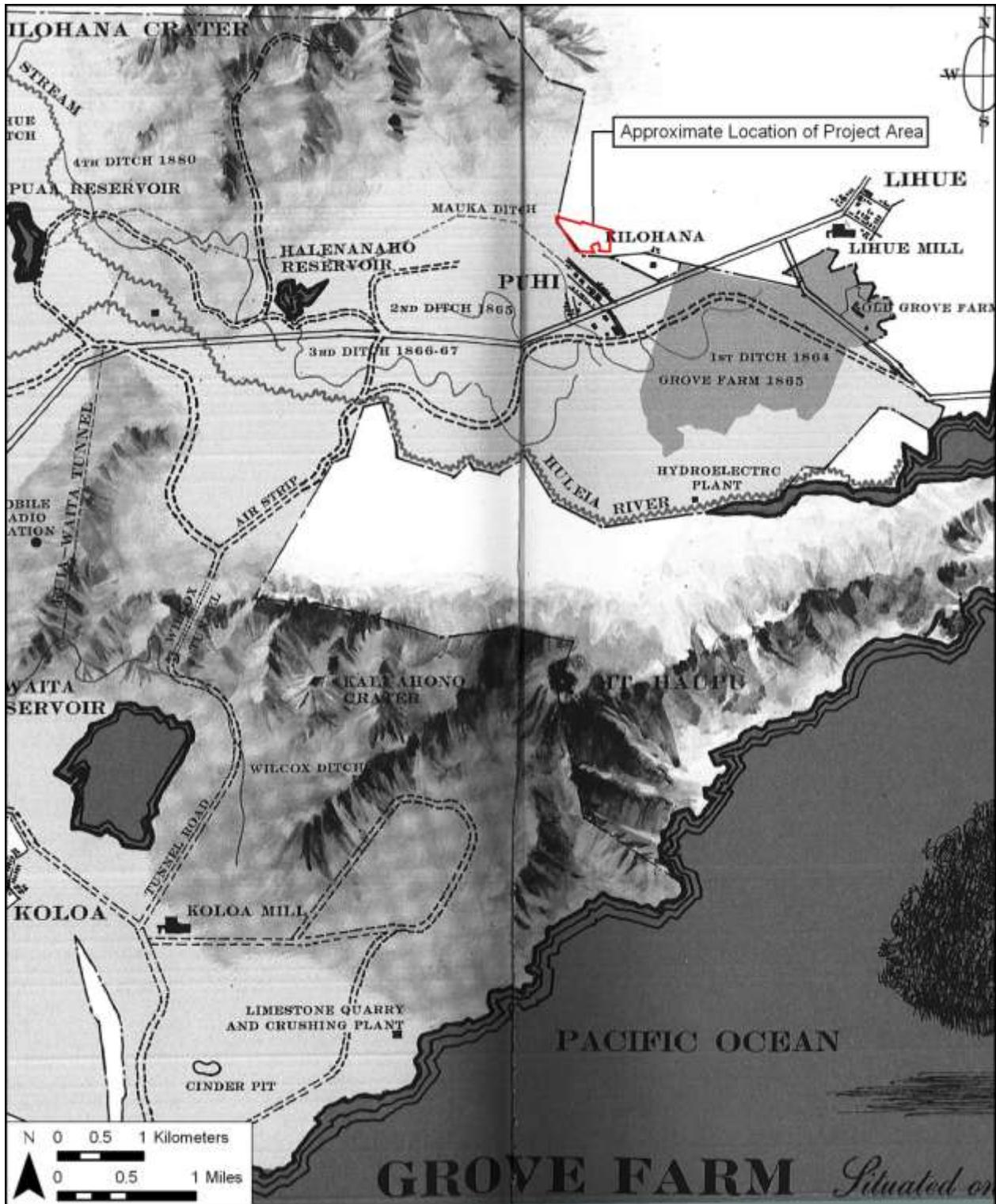


Figure 18. Grove Farm showing its approximate location to the Project area, Līhu'e, Kōloa, and larger southwestern Kaua'i (adapted from Krauss and Alexander 1984)



Figure 19. Plantation housing at Puhī Camp (adapted from Riznik 1999)

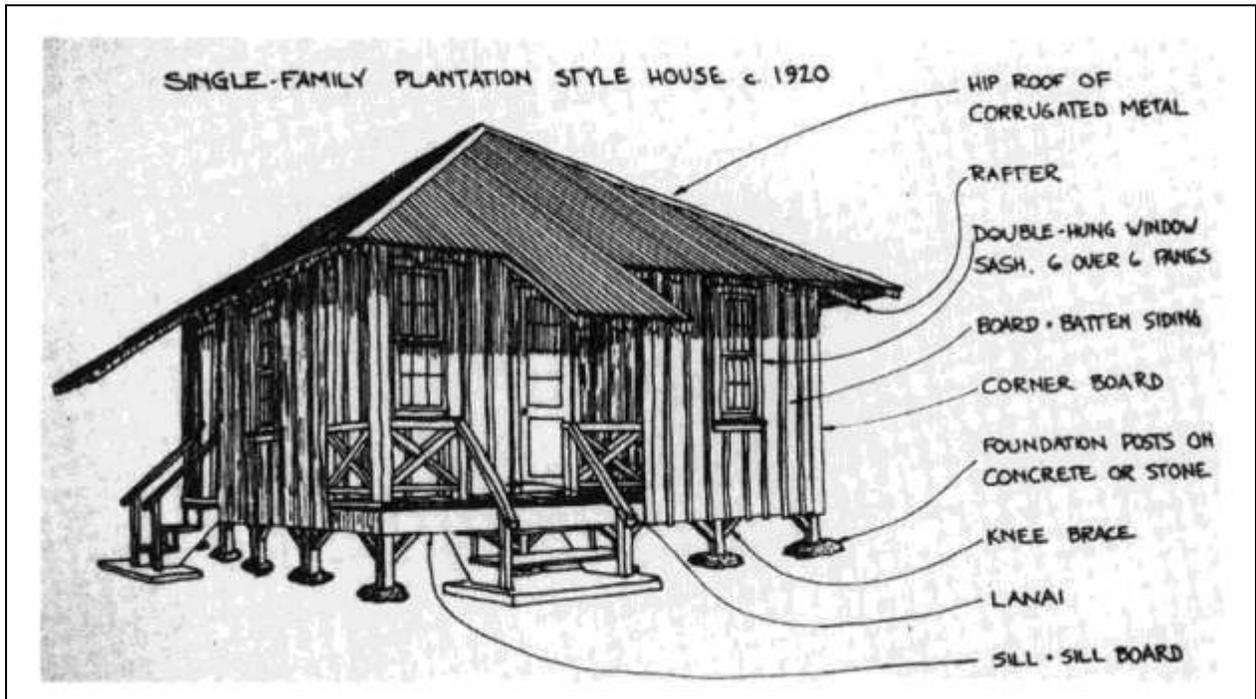


Figure 20. Single family plantation style house at Puhī Camp, 1920 (adapted from Riznik 1999)

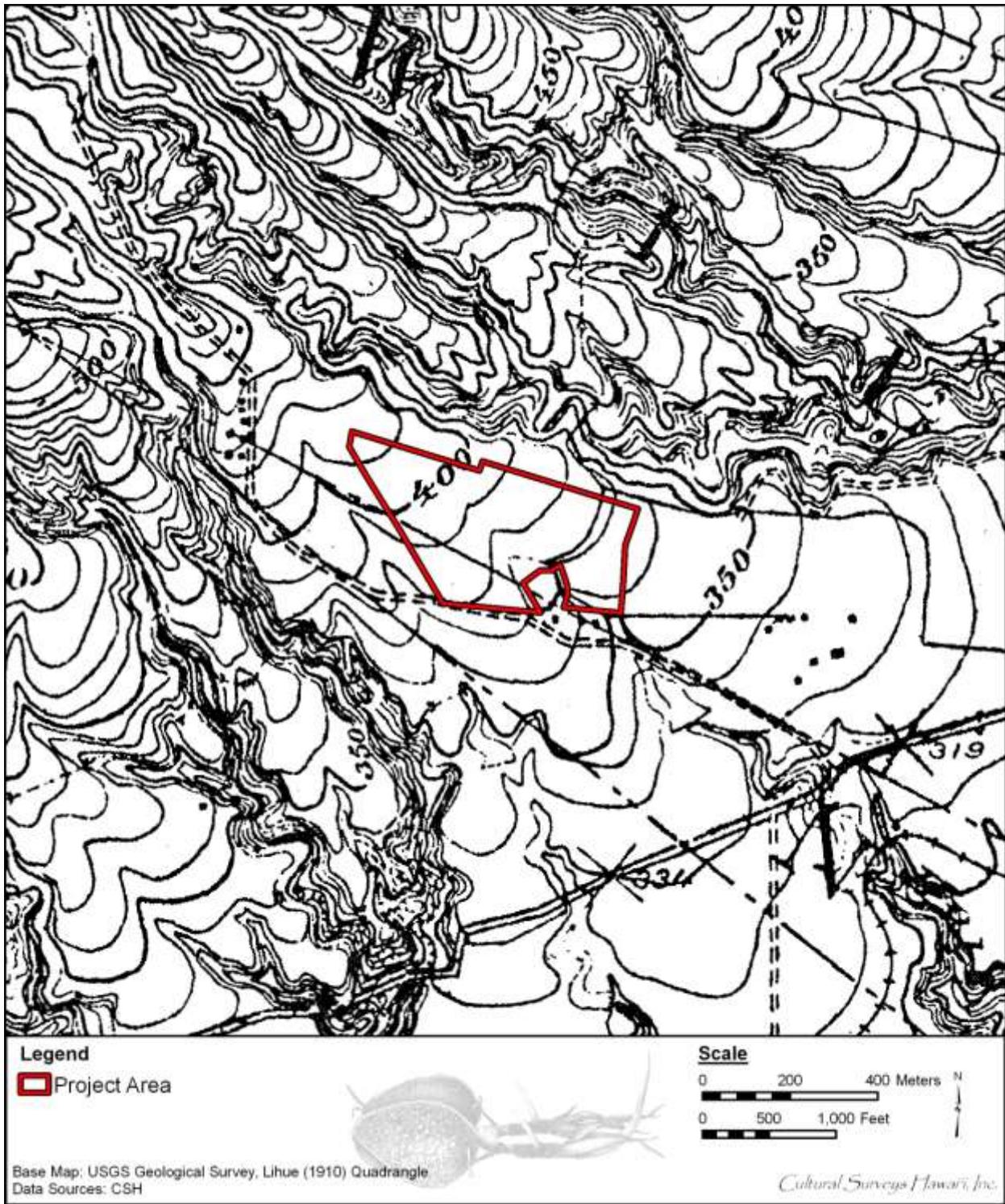


Figure 21. Portion of 1910 Lihue USGS quadrangle, showing the project area

At the beginning of the twentieth century, Grove Farm developed agreements to secure sufficient water and also to sell any surplus. A right-of-way with Koloa Plantation was secured in 1906 that provided water from Kuia Stream. Grove Farm's "Upper Ditch" was constructed between 1914 and 1917 and by the 1920s "Grove Farm had 16 miles of ditches delivering 26 mgd" (Wilcox 1998:74).

During the 1930s, federal funds became available to assist the Territory of Hawai'i's highway construction program. Between 1933 and 1937, the reconstruction of the Belt Road, or what is now the present Kaunali'i Highway, was completed incrementally. Ho'omana Overpass (Ho'omana Road Bridge) was constructed in 1928, Waihohonu Bridge was built in 1934, the Lihue Mill Bridge was constructed in 1936, and the Weoweopilau Bridge was built in 1937.

At the same time that the Belt Road construction program was underway, during the mid-1930s, Grove Farm was further expanding into Puhi with its new headquarters and the construction of a new office building, shop, and stables. Figure 22 shows the 1941 location of Grove Farm in relation to Lihue Plantation. At that time, Grove Farm was still dependent on Lihue Plantation's mill for processing its sugar.

In 1948, Grove Farm purchased Koloa Plantation. This doubled the size of Grove Farm, gave Grove Farm its own sugar mill for the first time, and eliminated duplication in manpower, equipment and administrative costs. In 1948-1949, a cane haul truck tunnel (the Wilcox Tunnel) was excavated under the Hoary Head Range connecting the sugar cane fields of Ha'ikū to the Koloa Mill (Krauss and Alexander 1984:366-368). Figure 18 shows Grove Farm, identifying the plantation's original areas and subsequent acquisitions. The graphic also shows "Mauka Ditch" extending north to south through the center of the Project area.

In 1954, an airstrip was developed at Ha'ikū for aerial spraying of fertilizer and herbicides. In the early 1960s, the nearly 1-mile-long Kuia-Waita Tunnel was completed bringing Ha'ikū water to the drier Kōloa side. Development within the project area and its vicinity can be seen on the 1963 USGS map (Figure 23). The symbols for buildings adjacent to Kaunali'i Highway on Figure 23 are the homes within Puhi Camp.

Wilcox (1998:76) reports that despite almost 100 years of irrigation ditch construction, "Grove Farm's ditch system was a modest one not known for any outstanding technical or physical achievements. This may reflect the limited watershed available to Grove Farm, the small size of the plantation's acreage, or G.N.'s [Wilcox] personal sense of scale."

4.5 Modern Land Use

In the mid-1960s, Sam Wilcox of Grove Farm donated 200 acres of former sugar land to the state for KCC. A 1965 aerial photograph (from Foote et al. 1972) (Figure 24) shows the extent of sugar cane cultivation within the project area and vicinity prior to the construction of KCC (Kamins and Potter 1998:275). Grove Farm ended its sugar business in 1974, setting aside lands for development and also for the continuation of sugar cultivation by leasing its Lihue'e lands to Lihue Plantation, and its Koloa lands to McBryde Sugar (Wilcox 1998:76). A 1977-1978 aerial (Figure 25) shows the new college campus and development within its vicinity although the northern- and western-most portions of the approximately 200-acre campus still appear to be undeveloped.

Most of the Puhi Camp housing was removed in the 1970s prior to the construction of KCC. In the 1980s, the last homes in Puhi Camp were dismantled (Chang 2007). Currently, newer buildings for the Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School, and a few agricultural plots occupy some of the former Puhi Camp lands.

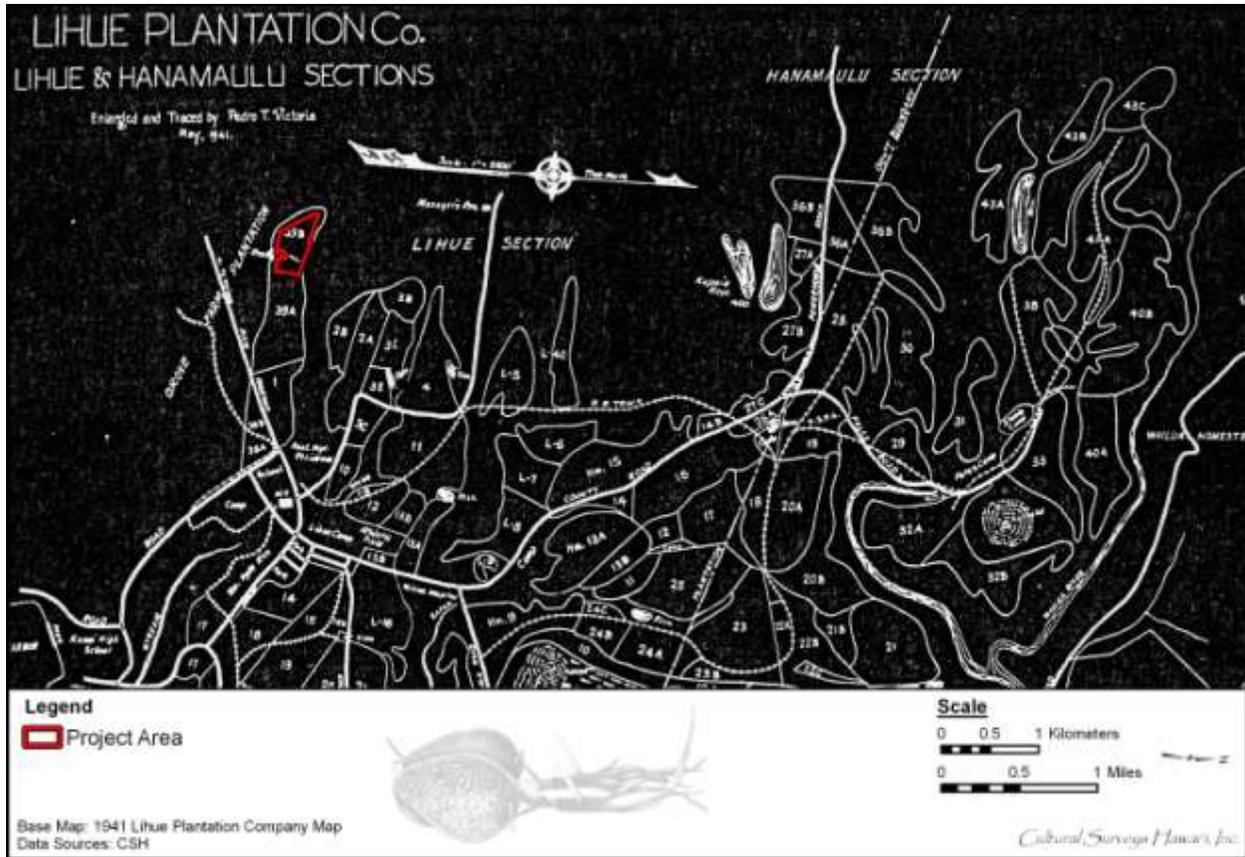


Figure 22. Portion of 1941 Lihue Plantation map showing the location of the project area adjacent to the plantation and within Grove Farm

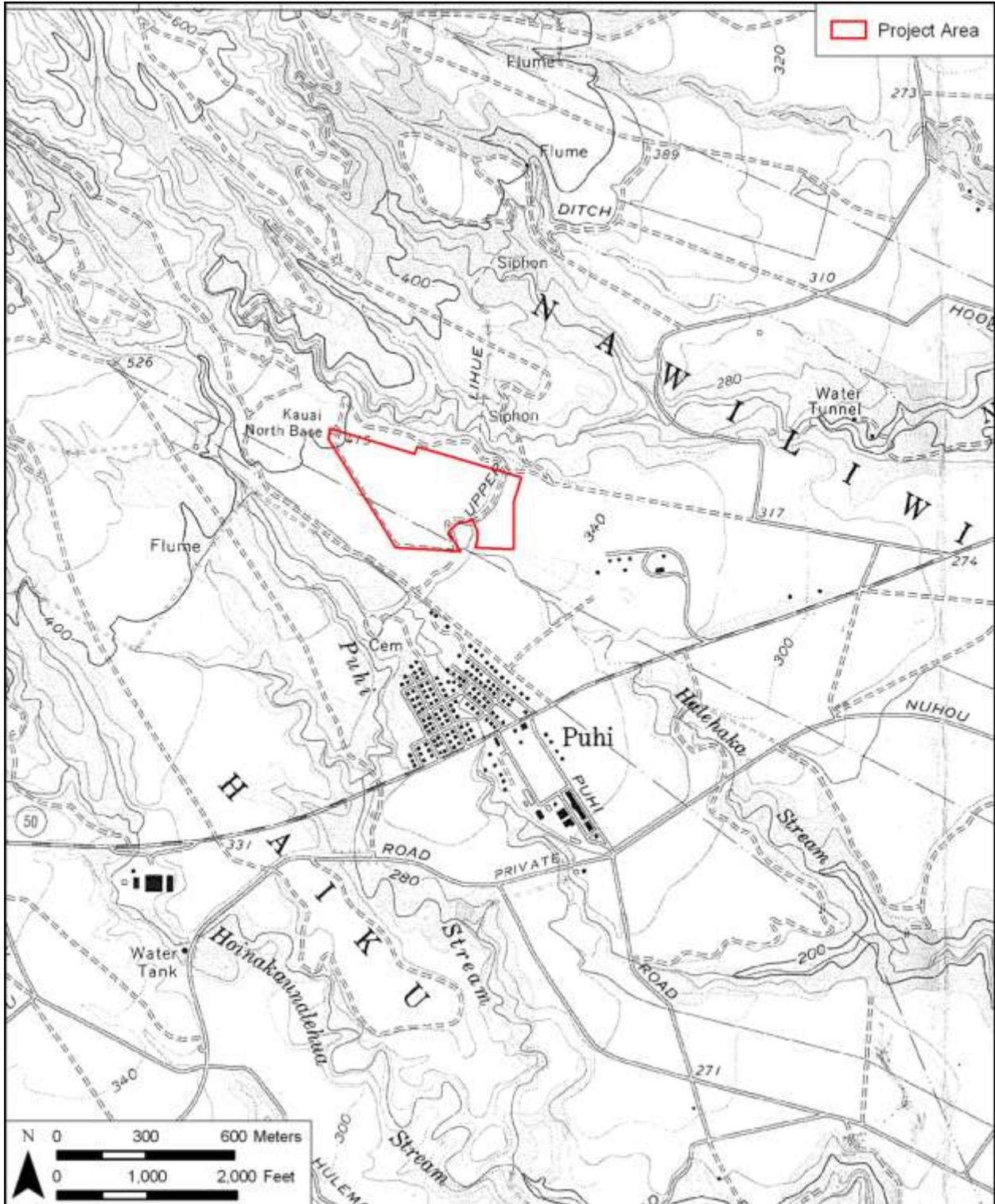


Figure 23. Portion of 1963 Lihue USGS 7.5-Minute Series Topographic Quadrangle showing the project area

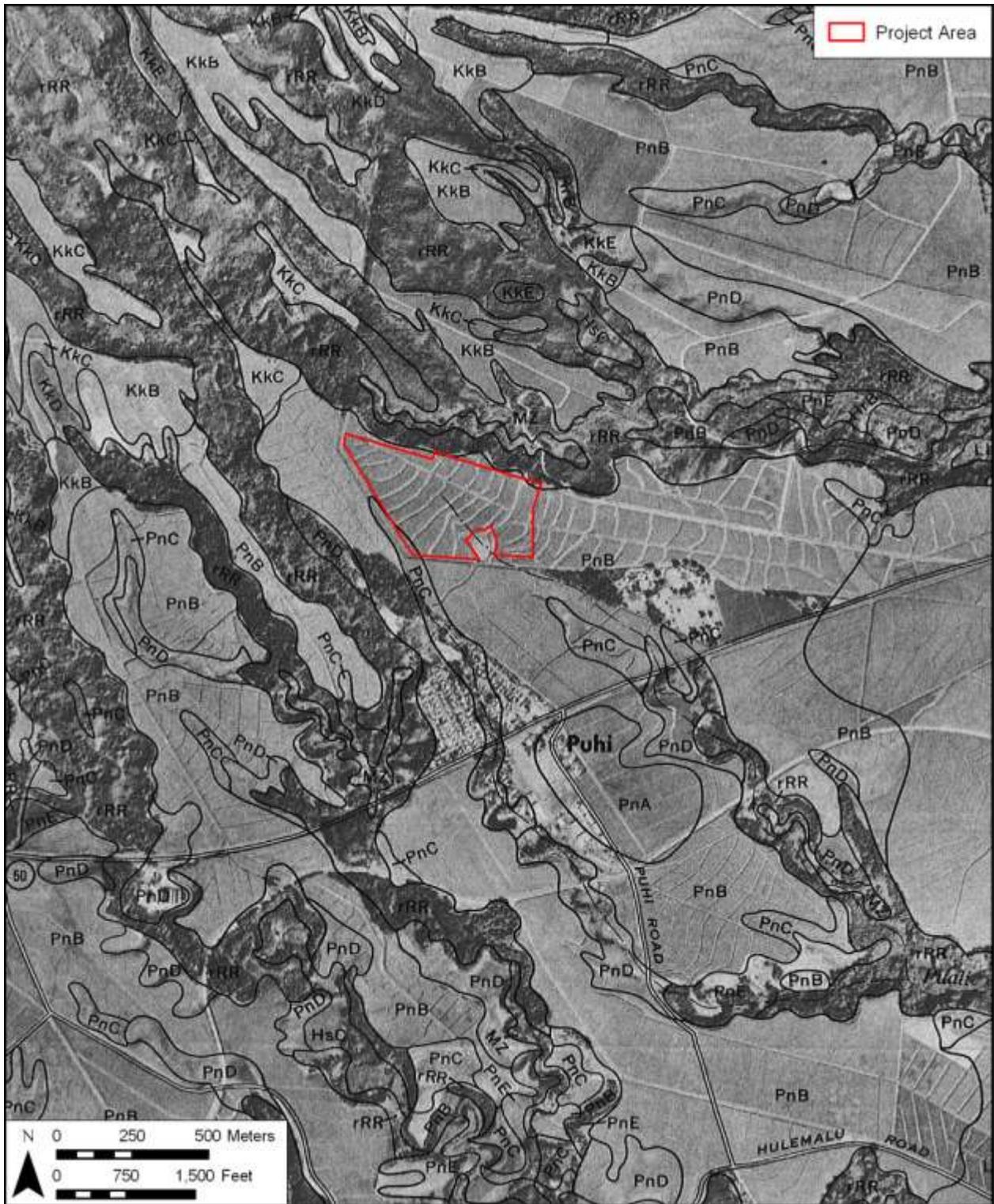


Figure 24. A 1965 aerial photograph showing the extent of sugar cane within the project area and its vicinity (adapted from Foote et al. 1972)



Figure 25. 1977-1978 USGS aerial photograph of Līhu'e and vicinity showing the project area

Section 5 Archaeology

5.1 Previous Archaeological Research

5.1.1 Previous Archaeological Studies in the Study Area

The first comprehensive archaeological survey of Kaua'i was conducted by Bennett (1931) of the Bishop Museum. Bennett's survey report identifies no archaeological sites within or in the immediate vicinity of the project area. The report identifies Bennett Site 98 as the "Niamalu" or "Menehune" Fishpond located approximately 3 km southwest of the project area. According to Bennett,

The Niamalu [sic] fish pond consists principally of a stone-faced, dirt wall that runs for over 900 yards and cuts off a large bend in the river for use as a fish pond. It is today [in the early 1930s] used both for fish and ducks. Cement walls and iron gates have obscured any old method of controlling the water or the fish. [Bennett 1931:124]

The focus of more recent archaeological studies in the vicinity of the project area has been along the mouth of the Hulē'ia River, Nāwiliwili Bay, and the associated river banks leading down to Nāwiliwili Bay. The agricultural fields within and surrounding the project area have been slowly converted to other uses, particularly in the 1990s, and some archaeological work has been undertaken within these areas. Archaeological studies near the project area are summarized in Table 2 and Figure 26.

Neller and Palama (1973) carried out an archaeological reconnaissance of the lower portion of the Hulē'ia River and its vicinity, recording a number of historic properties. The archaeological richness of the area from the "Menehune Fishpond" downstream and near the crest of the trail to Kīpū Kai is clear. They did, however, also document four historic properties upstream of the Menehune Fishpond, the nearest of which (SIHP # -3010) consists of contiguous rock wall enclosures and several other features. This historic property is described as

a compound, probably belonging to a chief or other important person. Nearby there are stone-faced river terraces, irrigation ditch (auwai), and a stone bridge crossing the auwai. The area is worth restoring to its prehistoric condition. It is an impressive site. [Neller and Palama 1973:3]

SIHP # -3009, also identified by Neller and Palama, is approximately 1.6 km from the current project area, and consists of an "agricultural area along both sides of the river, including rock-walled terraces and irrigation ditches ('auwai). Also includes cement covered grave of G. Kalili, died Dec. 17, 1898" (Neller and Palama 1973:11).

Ching et al. (1973) conducted detailed research on Alekoko (Menehune) Fishpond and its vicinity. Nine archaeological features and feature complexes were identified and documented, including three fishpond features (loko kuapā and two loko wai), two 'auwai, and four lo'i complexes.

Walker and Rosendahl (1988) conducted an archaeological surface and subsurface inventory survey of 450-acre Grove Farm from Puhi Town, south of Kaumuali'i Highway nearly to

Table 2. Previous Archaeological Studies within and near the Project Area

Study	Location	Type	Results
Bennett 1931	Island-wide survey	Recordation of major pre-Contact sites	Identified one site in the area (Site 98)
Palama 1973	Kaua'i Community College area	Reconnaissance survey	Noted portions of 'auwai, possible lo'i, a cemetery and a historic military complex
Neller and Palama 1973	Lower portion of the Hulē'ia River	Reconnaissance survey	Identified 31 sites including one historic human burial
Ching et al. 1973	Kanoa Estate, Niumalu	Reconnaissance survey	Nine features associated with the 'Alekoko (Menehune) Fishpond identified and documented
Walker and Rosendahl 1988	Grove Farm Līhu'e/Puhi project	Surface and subsurface survey	Identified two historic properties, Japanese cemetery SIHP # -503; and historic residence SIHP # -9390
Kido 1986	Alekoko Fishpond and Hulē'ia Estuary	Preliminary survey	Mangrove encroachment on pond wall, breaks in wall and rubbish used to fortify wall; recommends more comprehensive survey
Rosendahl 1989	Eight additional areas of the Grove Farm Līhu'e/Puhi project	Archaeological inventory survey	No cultural material observed
McMahon 1990	Līhu'e	Archaeological fieldcheck	Three previously identified historic residential sites (SIHP #s -9390, -9401, -9402)
Walker et al. 1991	Līhu'e District	Archaeological inventory survey	Identified ten historic properties; three pre-Contact, seven historic including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and an historic cemetery
Henry et al. 1993	590-acre Grove Farm Līhu'e/Puhi project site	Inventory survey with subsurface testing	Two historic properties identified including a cemetery and residence (revised report same as Walker and Rosendahl 1988)
O'Hare et al. 1993	100-acre Puakea Golf and Country Club, Līhu'e	Inventory survey with subsurface testing	No cultural material observed

Study	Location	Type	Results
Hammatt and Chiogioji 1998	11.5 km portion of Kaumuali'i Hwy corridor	Archaeological assessment	Four historic properties identified, Grove Farm office building in Puhi, Lihue Mill Bridge, Ho'omana Overpass Bridge, and Lihu'e Public Cemetery
Hammatt and Shideler 2004	One-Stop Center at KCC	Archaeological and cultural impact evaluation study	No cultural material observed and no cultural impacts anticipated
Groza and Hammatt 2010	KCC	Archaeological literature review and field inspection	Ten historic surface features identified; 'auwai and cemetery (SIHP # -B006) previously recorded by Palama (1973) and other features related to Grove Farm dated to plantation era
Groza and Hammatt 2013	Island School	Archaeological literature review and field inspection	SIHP # -2179 observed, reservoir and three associated irrigation ditches related to Lihue Plantation

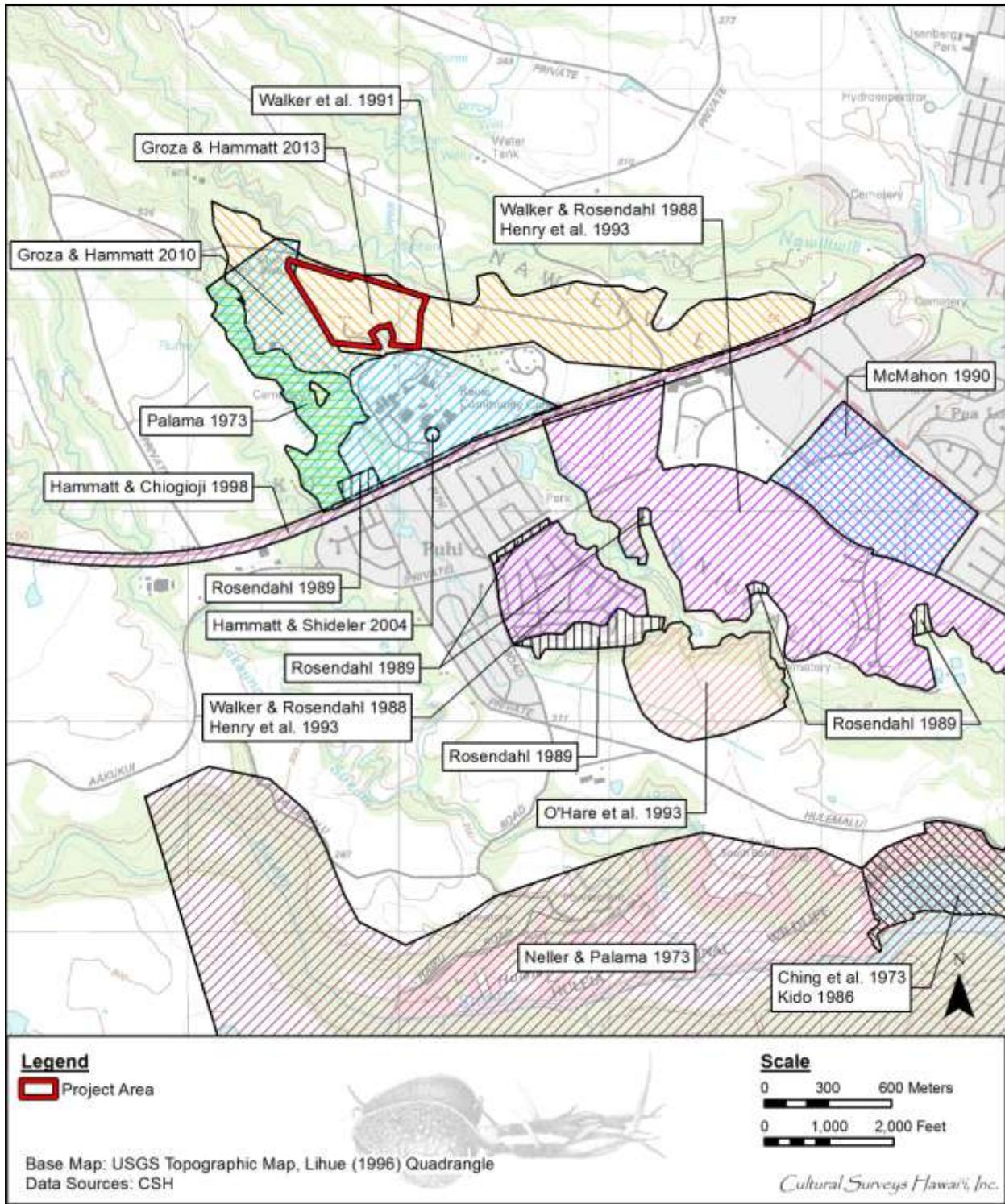


Figure 26. Portion of 1996 Lihue USGS 7.5-Minute Series Topographic Quadrangle showing previous archaeological studies in vicinity of the project area

Nāwiliwili Bay. A total of two historic properties were identified, a historic Japanese cemetery (SIHP # -503), and an historic residence (SIHP # -9390). The following year, Paul Rosendahl (1989) produced an addendum report covering eight additional separate small adjacent areas. No historic properties or cultural material were identified. Henry et al. (1993) covers the same project area and is the final archaeological inventory survey for this area.

O'Hare et al. (1993) carried out an archaeological inventory survey on a 100-acre Puakea Golf and Country Club project area located approximately 1 km south east of Puhi Town. No historic properties or cultural materials were identified.

5.1.2 Previous Archaeological Studies adjacent to the Project Area

5.1.2.1 KCC Archaeological Reconnaissance (Palama 1973)

In 1973, the Archaeological Research Center Hawaii conducted an archaeological reconnaissance of approximately 57 acres of the gully portion of KCC (Palama 1973), an area north and west of the currently developed portion of KCC. During the archaeological reconnaissance an "old 'auwai," an old military complex, a Japanese cemetery, old plantation camp remains, an extant plantation camp, and possible lo'i were found (Figure 27). Palama (1973:2) asked plantation camp residents whether they ever found evidence of taro cultivation or if they farmed within the gully in the western-most portion of the current project area. Apparently only very limited farming had ever been conducted in the gully, and the plantation workers were not aware of any taro cultivation. Palama (1973:2) "recommended that no further work is warranted" for the historic features he identified and no state site numbers were assigned.

5.1.2.2 Rosendahl (1989)/ Henry et al. (1993) Archaeological Inventory Survey

One of the eight additional separate small adjacent areas surveyed by Paul Rosendahl (1989) in the addendum report described above, is within the southwestern portion of the project area and adjacent to Kaumuali'i Highway. Designated as Area 1, it is described as consisting of "residential homesteads and yards" (Henry et al. 1993:18).

5.1.2.3 Līhu'e/Puhi/Hanamaulu Master Plan (Walker et al. 1991)

Approximately 220 acres within and adjacent to the project area were included in the 1,550-acre Lihue/Puhi/Hanamaulu Master Plan (Walker et al. 1991). Designated as Section No. 1, this area is described as

bounded on the north and east by the Nawiliwili Stream gulch, on the south by Kauai Community College and Kaumualii Highway, and on the west by the Puhi Stream gulch. This entire parcel has been modified and is presently in sugar cane (*Saccharum officinarum* L. hybrid) cultivation. [Walker et al. 1991:2]

The report states,

areas in sugar cane were only sampled . . . [and] were not generally surveyed . . . because areas altered by sugar cane cultivation are unlikely to contain archaeological features, and because sugar cane cultivation within the present

project area does not occur in low swale or alluvial flat areas that may contain buried cultural deposits. [Walker et al. 1991:7]

While Section No. 1 is listed as an area subjected to “inventory-level survey” in the report, this statement is further explained with “only very limited surface survey was done in sugar cane fields . . . [and] no subsurface testing was performed in sugar cane fields” (Walker et al. 1991:18). No additional descriptions of the project area and its vicinity are included in the report. Additionally, none of the ten historic properties (SIHP #s -1838 through -1847) identified during the Walker et al. (1991) study—including a concrete bridge, concrete wharf, cultural deposits, terraces, roads, walls, retaining walls, a possible agricultural area, and a historic cemetery—was identified in or within close proximity to the project area.

5.1.2.4 Kaumuali'i Highway Archaeological Assessment (Hammatt and Chiogioji 1998)

CSH (Hammatt and Chiogioji 1998) conducted an archaeological assessment of an approximately 11.5-km-long portion of the Kaumuali'i Highway corridor, a portion of which is adjacent to the southern boundary of KCC. During the reconnaissance survey, no historic properties were found in the vicinity of the school campus. No surface traditional Hawaiian archaeological sites were observed during the entire survey although four historic properties (two bridges, a cemetery and an office building) were noted. No state site numbers were assigned.

5.1.2.5 2004 KCC One-Stop Center AIS and CIA (Hammatt and Shideler 2004)

In 2004, CSH conducted an archaeological and cultural impact evaluation study for the One-Stop Center at KCC (Hammatt and Shideler 2004). The project involved construction of a two-story building of approximately 35-40,000 net sq ft (about 55-60,000 gross sq ft) located in the southwest side of the existing KCC campus. A field inspection of the vicinity of the proposed project was conducted and observed to be a graded, established lawn with no observed indicators of any archaeological concern. As the area for that project was under sugar cane cultivation for many decades and its location observed to be graded with an established lawn, the study concluded that cultural impacts associated with the proposed project were unlikely.

A summary of the proposed project and its findings was mailed to Dr. Pua Aiu (then) of the Office of Hawaiian Affairs and to Mr. Dennis Chun of the Hawaiian Studies program at KCC on 23 December 2003. Follow-up telephone consultation was held with Mr. Chun on 19 February 2004 and with Dr. Aiu on 24 February 2004. A brief telephone conversation on the subject was also held with Ms. LaFrance Kapaka-Arboleda of the Kaua'i Office of Hawaiian Affairs and the Kaua'i/Ni'ihau Islands Burial Council on 20 February 2004. None of these parties expressed any concerns of adverse impacts to cultural practices by the proposed project. Subsequently, the SHPD concluded, “No further archaeological work [was] needed for the project.”

5.1.2.6 AIS for KCC (2010)

CSH archaeologists completed a field inspection of the KCC campus between 18 and 25 August 2010. A total of ten historic surface features, including two previously identified historic features (CSH 9, CSH 10), were found during the field inspection. CSH 9, an “old ‘auwai” that conforms to a portion of Grove Farm’s “Mauka Ditch,” (Figure 27) was previously found during an archaeological reconnaissance (Palama 1973) of the western portion of the project area.

Palama (1973) also recorded the location of a cemetery identified during the current field inspection as CSH 10. The Puhi Camp Cemetery, SIHP # -11-B006/CSH 10, is outside of the KCC property.

The nine features found within the KCC property appear to be related to Grove Farm and date to the plantation era. The historic surface features consist of five irrigation ditches (CSH 1, CSH 2, CSH 4, CSH 6, CSH 9), one of which (CSH 1) is abandoned; three reservoirs (CSH 3, CSH 5, CSH 7) of which CSH 3 is abandoned; and an abandoned wooden flume (CSH 8).

Palama's (1973) archaeological reconnaissance had identified old plantation camp remains associated with Puhi Camp, and an area containing possible lo'i. These features were not present during the field inspection. An old military complex identified by Palama (1973) is outside of the KCC property and no evidence of the complex was found during the field inspection.

As discussed in Section 4.5, all Puhi Camp plantation housing was removed by the 1980s. Currently, newer buildings for the Pūnana Leo o Kaua'i Pre-School and Kawaikini New Century Public Charter School and a few agricultural plots occupy some of the former Puhi Camp lands.

Descriptions and photograph documentation of each of the historic features identified during the field inspection are shown in Table 3 and Figure 28.

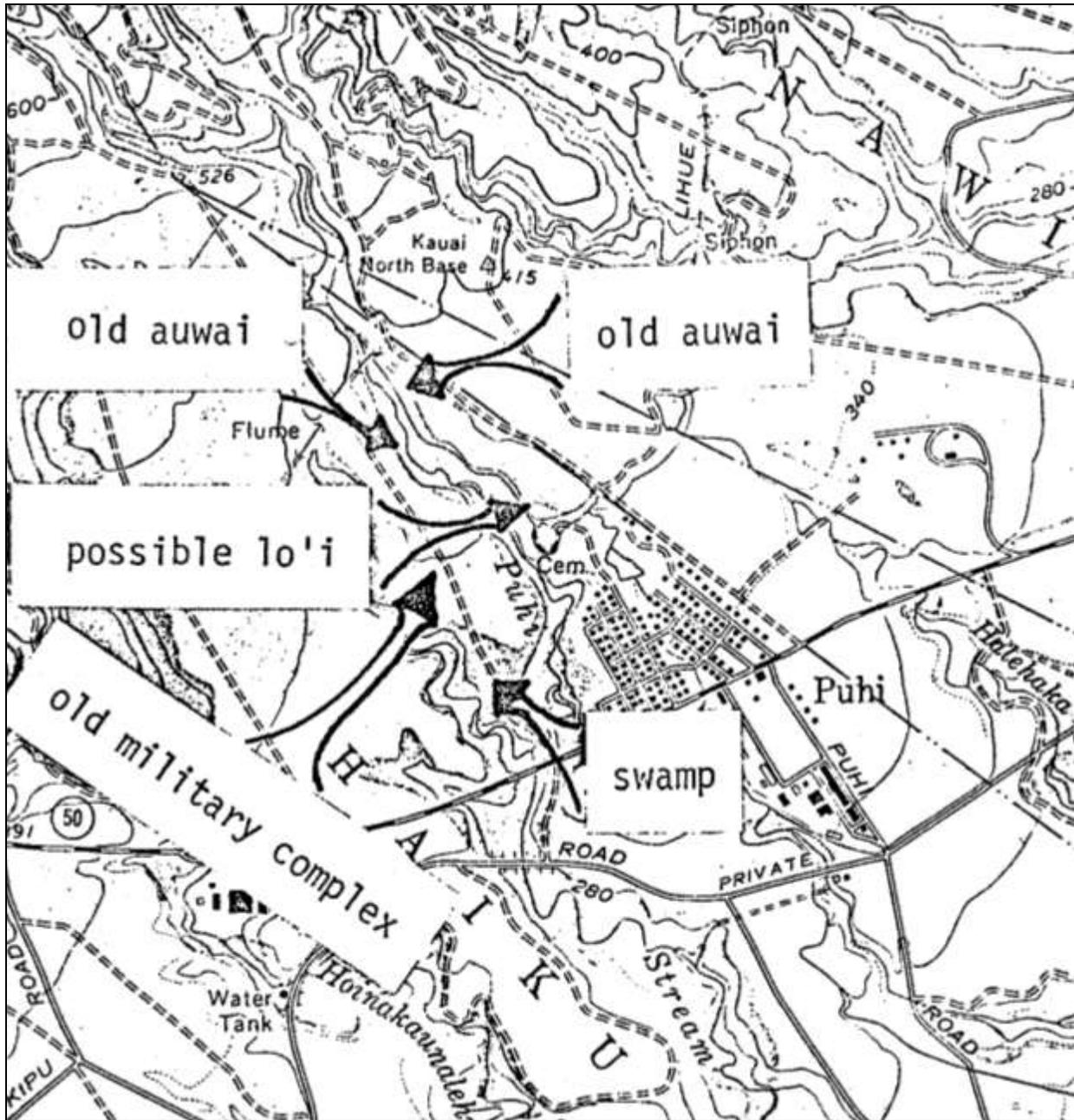


Figure 27. Locations of historic resources found within portions of the project area during a 1973 archaeological reconnaissance (adapted from Palama 1973:4)

Table 3. Historic Features Identified Adjacent to the Project Area

Feature	Feature Type	Function	Age	Notes
CSH 1	Irrigation ditch	Water control	Plantation era	Abandoned
CSH 2	Irrigation ditch	Water control	Plantation era	Currently in use for run-off
CSH 3	Reservoir	Water control	Plantation era	Abandoned
CSH 4	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 5	Reservoir	Water control	Plantation era	Currently in use
CSH 6	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 7	Reservoir	Water control	Plantation era	Currently in use
CSH 8	Flume	Water control	Plantation era	Abandoned
CSH 9	Irrigation ditch	Water control	Plantation era	Currently in use
CSH 10/ SIHP # -B006	Cemetery	Burial	1920-1977	Designated as SIHP # 50-30-11-B006 (Kikuchi and Remoaldo 1992:134)

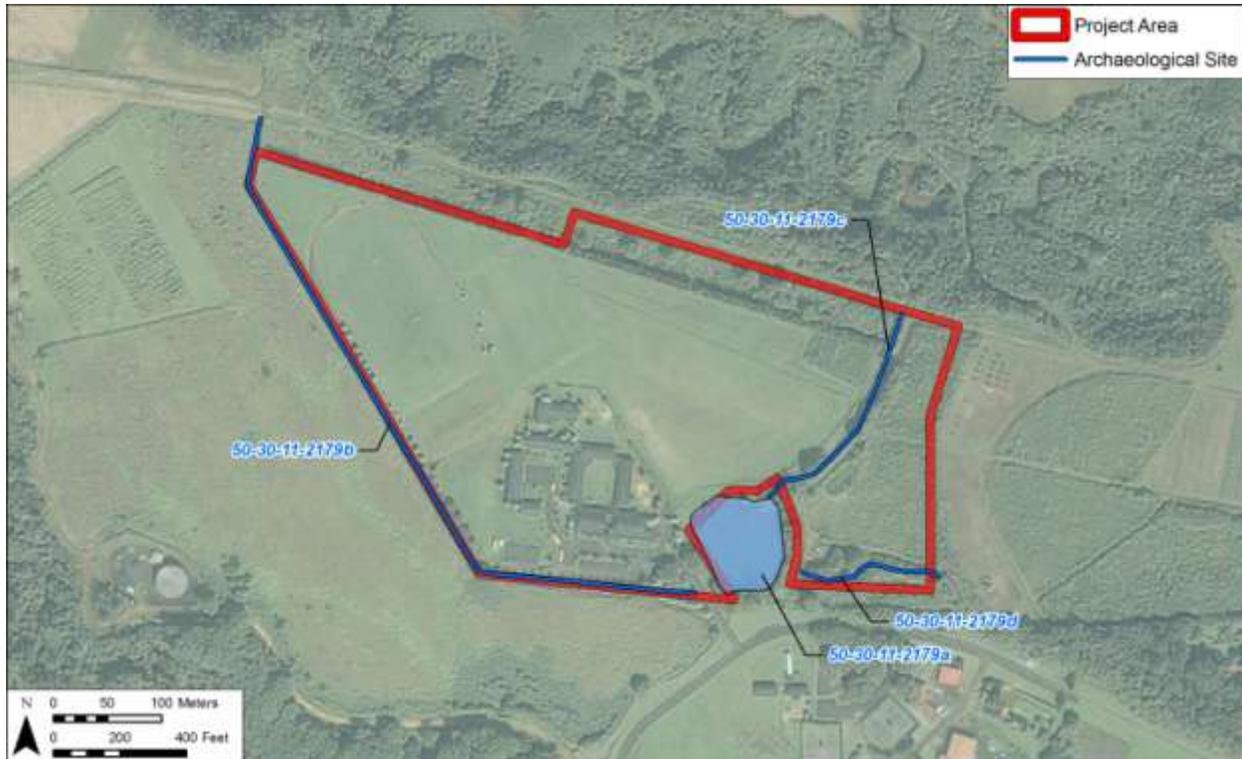


Figure 28. Locations of historic resources found within the project area (base map Google Earth 2012)

5.2 Archaeological Study for the Island School State Land Use District Boundary Amendment Project (Hunkin et al. 2013)

In 2013, CSH archaeologists completed an AIS of the project area. One historic property was identified during earlier LRFI work (Groza and Hammatt 2013) for the project area, SIHP # -2179. SIHP # -2179 contains Features A through D (Feature A, a reservoir; Feature B, an earthen ditch; Feature C, an earthen ditch with running water; Feature D, an earthen ditch).

Although the south side of the project area curves around the reservoir, the reservoir is not part of Island School and is located on another parcel. For more details on the findings and recommendation, please see Hunkin et al. 2013.

Section 6 Community Consultation

Throughout the course of this assessment, an effort was made to contact and consult with Hawaiian cultural organizations, government agencies, and individuals who might have knowledge of and/or concerns about traditional cultural practices specifically related to the study area. This effort was made by letter, email, telephone, and in-person contact. The initial outreach effort began in October 2013 and community consultation was completed in January 2014.

In the majority of cases, a letter (Appendix D), map, and an aerial photograph of the project area were mailed. In most cases, one to multiple attempts were made to contact individuals, organizations, and agencies apposite to the CIA for the project. The results of the community consultation process are presented in Table 4. Written statements from organizations, agencies, and community members are presented in Sections 6.1 below and summaries of interviews with individuals are presented in Section 7.

The previous interviews for the Kaua'i Community College CIA (Fa'anunu et al. 2012) are also included in this report, due to its proximity to the current project area. CSH sought all the interviewees' approval to reuse their previous interviews during the course of this consultation for the Island School CIA, and the efforts and results are reflected in Table 4 below. The previous interviews for the KCC CIA are in Section 7.

Table 4. Results of Community Consultation

Community Group/Member	Affiliation	Comments
Agena, Robert "Bobby"	Kama'āina; former resident of Puhi Camp	CSH mailed letter and figures on 3 October 2013. CSH called and left message on 7 November 2013.
Ayau, Halealoha	Hui Mālama I Nā Kupuna O Hawai'i Nei	CSH emailed letter and figures on 8 October 2013.
Cataluna, Donald	OHA Trustee, Kaua'i/Ni'ihau Ho'okipa Network	CSH mailed letter and figures on 3 October 2013. OHA replied with a letter dated 23 October 2013, referring CSH to Grove Farm and Bernie Sakoda (see Section 6.1 below).
Chun, Dennis	Chair, Department of Hawaiian Studies	CSH mailed personal letter and figures on 22 October 2013. CSH emailed Mr. Chun on 13 December 2013 and Mr. Chun emailed CSH on 14 December 2013, approving the use of previous interview for KCC CIA.
Crabbe, Dr. Kamana'opono	Head, Office of Hawaiian Affairs	CSH mailed letter and figures on 3 October 2013. OHA replied with a letter dated 23 October 2013, referring CSH to Grove Farm and Bernie Sakoda (see Section 6.1 below).

Community Group/Member	Affiliation	Comments
Dacay, Manny	Kama'āina	CSH mailed letter and figures on 3 October 2013. CSH called 7 November 2013 and was unable to leave message.
Ellamar, Frederic	Kupuna	CSH mailed personal letter and figures on 4 October 2013. CSH mailed a copy of KCC CIA on 8 October 2013, as requested by Mr. Ellamar. CSH called on 7 November 2013 and was unable to leave message.
Grove Farm Company		CSH mailed letter and figures on 3 October 2013.
Hussey-Albao, Liberta	President, Queen Deborah Kapule Hawaiian Civic Club	CSH mailed letter and figures on 3 October 2013.
Kajiwara, Dr. Robert	Head Librarian, Kaua'i Community College	CSH mailed letter and figures on 3 October 2013.
Kaumuali'i Hawaiian Civic Club	Civic Club	CSH emailed letter and figures on 8 October 2013.
Kawado, Audrey	Kama'āina	CSH mailed personal letter and figures on 4 October 2013. CSH called and left message on 7 November 2013. CSH called and left message on 12 December 2013. CSH got approval to use previous interview for KCC CIA on 19 December 2013.
Kealoha, Keone	Executive Director, Mālama Kaua'i	CSH mailed letter and figures on 3 October 2013. Letter was returned with no forwarding address on 21 October 2013. CSH received new contact information and emailed Mr. Kealoha on 22 October 2013.
Lovell-Obatake, Cheryl	Kupuna	CSH mailed letter and figures on 3 October 2013.
Madayag, Moises	Curator, Grove Farm Museum	CSH emailed letter and figures on 8 October 2013.
Makanani, Mabel	Kupuna	CSH mailed personal letter and figures on 4 October 2013. CSH emailed letter and figures on 8 October 2013. CSH called on 7 November 2013 and talked with Mrs. Makanani. She approved the use of her previous interview for KCC CIA.

Community Group/Member	Affiliation	Comments
McClure, Amber	Kama'āina	CSH mailed personal letter and figures on 4 October 2013. CSH called and left message on 7 November 2013. CSH emailed Ms. McClure on 26 November 2013. Ms. McClure emailed CSH on 1 December 2013 asking how she could help and giving her approval for previous statement for KCC CIA to be used. CSH emailed on 2 December 2013. Ms. McClure emailed CSH on 19 December 2013 and conveyed the approval for her mother, Daphne McClure and for her aunt, Audrey Kawado, for their previous interviews for KCC CIA to be used.
McClure, Daphne	Kama'āina	CSH mailed personal letter and figures on 4 October 2013. CSH called Mrs. McClure on 7 November 2013 and talked with Mrs. McClure who requested a detailed map comparing project areas of KCC CIA to the new Island school CIA. CSH emailed detailed map on 7 November 2013. CSH called on 12 December 2013 and left message. CSH received approval to use previous interview for KCC CIA on 19 December 2013.
Pereira, Mr. Charlie	Kupuna	CSH mailed personal letter and figures on 22 October 2013. Letter came back on 29 October 2013. CSH called Waipā on 20 November 2013 in attempt to contact Mr. Pereira. CSH talked with Mr. Pereira on 21 November 2013. CSH mailed letter and figures on 22 November 2013 to new address. Mr. Pereira called CSH on 19 January 2014 and gave approval to use previous interview for KCC CIA.
Pratt, David	Island School Board Member; former irrigation specialist; acquainted with residents associated with Puhi Camp	CSH mailed letter and figures on 3 October 2013. Mr. Pratt replied via email on 28 October 2013 (see Section 6.1 for Mr. Pratt's statement)
Requilman, Mary	Director, Kaua'i Historical Society	CSH mailed letter and figures on 3 October 2013.

Community Group/Member	Affiliation	Comments
Rodrigues, Hinano B.A., J.D.	Cultural Historian/Acting History and Culture Branch Chief DLNR, State Historic Preservation Division–Maui	CSH mailed letter and figures on 3 October 2013.
Rossi, Pualiiliimaikalan i	Instructor, Hawaiian Studies	CSH mailed letter and figures on 3 October 2013.
Sakoda, Bernie	Kama'āina	CSH mailed personal letter and figures on 4 October 2013. CSH emailed Mrs. Sakoda on 20 November 2013. CSH interviewed Mrs. Sakoda on 21 November 2013. CSH emailed on 2 January 2014 and 7 January 2014. Mrs. Sakoda emailed CSH on 7 January 2014 with her revisions and gave approval of her interview. She also approved the use of her previous interview for the KCC CIA.
Santos, Kaliko	Office of Hawaiian Affairs, Kaua'i	CSH emailed letter and figures on 8 October 2013. OHA replied with a letter dated 23 October 2013, referring CSH to Grove Farm and Bernie Sakoda (see Section 6.1 below).
Takahashi, Dennis	Kama'āina	CSH mailed personal letter and figures on 4 October 2013. CSH mailed a copy of KCC CIA on 8 October 2013, as requested by Mr. Takahashi. Mr. Takahashi called CSH on 17 October 2013. CSH called Mr. Takahashi on 21 October 2013 and Mr. Takahashi approved the use of a previous interview give for the KCC CIA in 2011, stating the new project area covers much of the same area as the project area of the KCC CIA. He also made a correction to the previous contact table for the KCC CIA, noting that Mr. Henry Sasaki is not deceased and that he will contact him for comments on the Island School project.
White, Robert	Niumalu resident	CSH emailed personal letter and figures on 22 October 2013. CSH emailed letter on 25 October 2013. Mr. White replied via email on 26 October 2013, noting he does not have direct information for the project area and that CSH can use his previous interview for the KCC CIA for this current project.

Community Group/Member	Affiliation	Comments
Yap, Keith	Kaua'i/Ni'ihau Island Burial Council, Vice Chairman	CSH mailed letter and figures on 3 October 2013.

6.1 Other Statements and Brief Responses from Project Participants

6.1.2 OHA Response

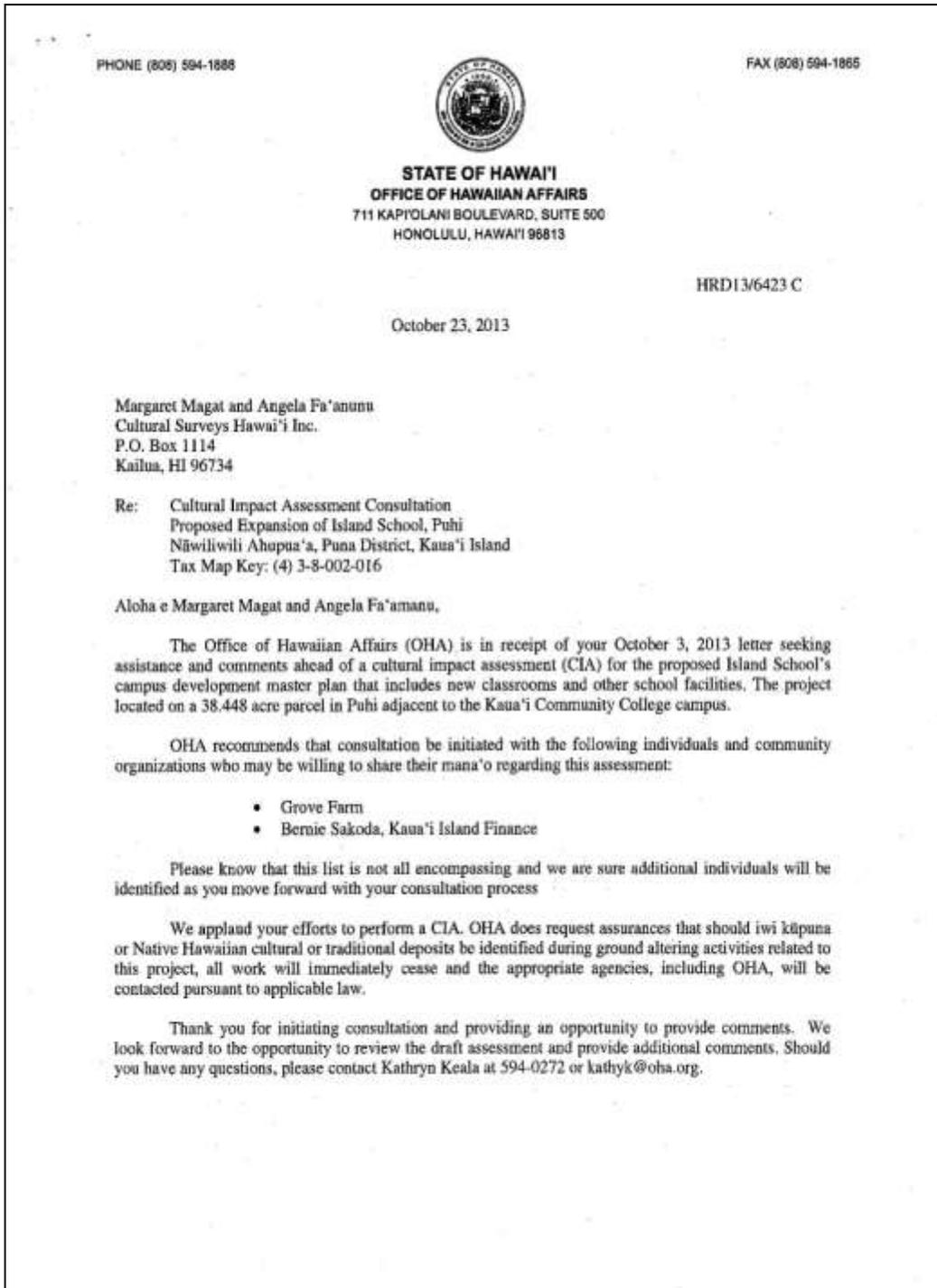


Figure 29. Page 1 of OHA response

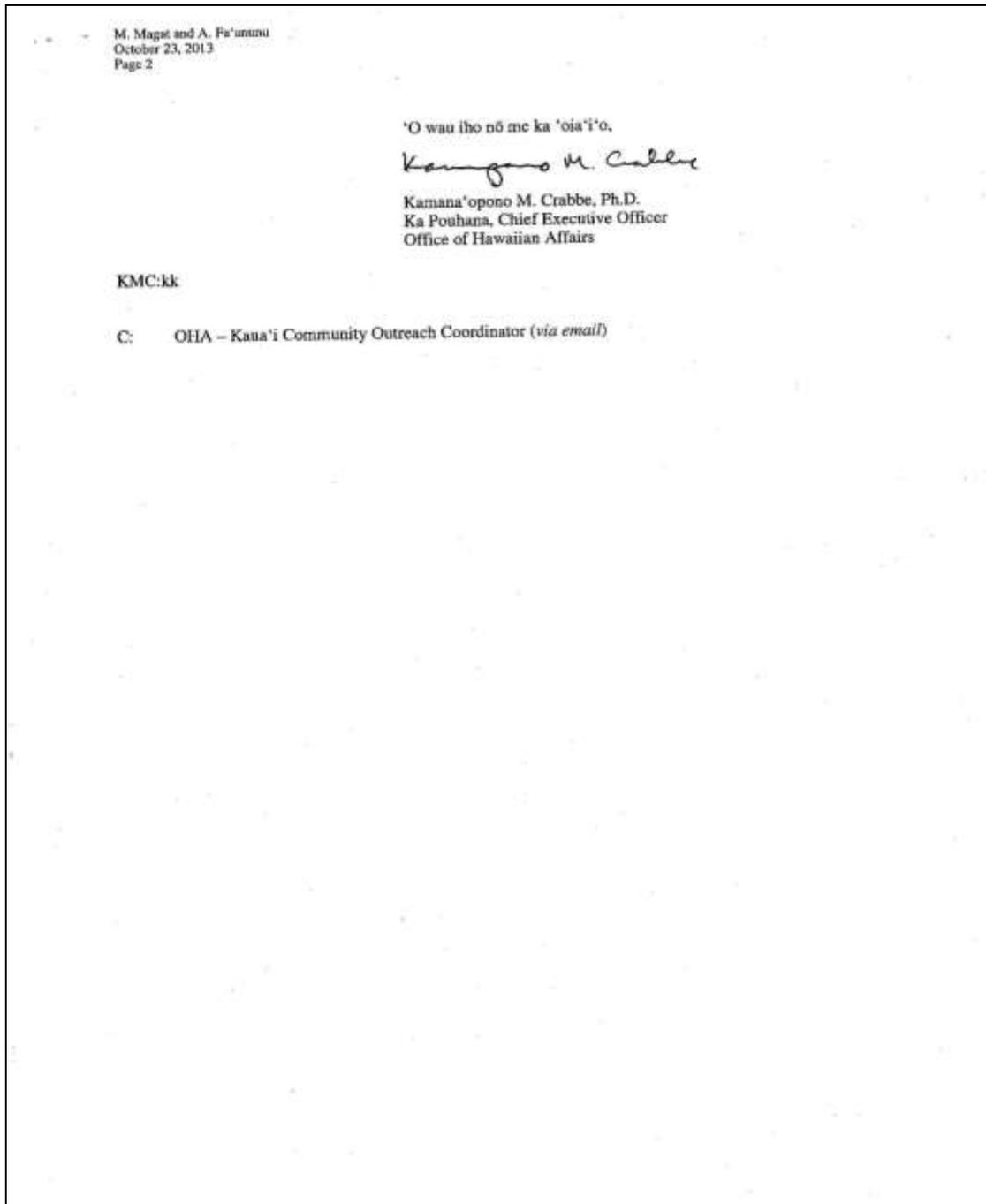


Figure 30. Page 2 of OHA response

6.1.3 David W. Pratt

David W. Pratt
P. O. Box 662096
Lihue, Hawaii 96766

October 28, 2013

Margaret Magat and Angela Fa'anunu
Cultural Surveys Hawai'i Inc.
P. O. Box 1114
Kailua, Hawai'i 96734

Re: Cultural Impact Assessment for
Island School

Margaret and Angela,

The following is my qualifications and effort to provide information on the historic, archaeological, and cultural history of the 38.448-acre Island School project site (the Project) next to the Kauai Community College.

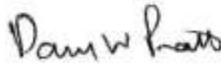
1. My knowledge of the Project dates back to 1972 when I began my employment with Grove Farm Company, Ltd. (GFC). The company (GFC) was in the process of donating approximately 200 acres to the University of Hawaii for the Kauai Community College which is adjacent to the Project. I was President of Grove Farm Company, Ltd. from 1975 to 1996. I recall the Project site was a portion of a cane field operated by The Lihue Plantation Company in the 1970s and 1980s.
2. I did some research on the commencement of cane cultivation on the Project site and determined that most, if not all, of the Project site was planted to cane by the year 1900. See Appendix B to the May 2013 Draft Archaeological Inventory Survey for the Island School Project prepared by Cultural Surveys Hawai'i, Inc.

Figure 31. Page 1 of David Pratt response

Margaret Magat and Angela Fa'anunu
October 28, 2013
Page 2

3. I have been a Board member of Island School since 1987. I was President of the Board from 1997 to 2009. I have been Vice President of the Board since 2009. The Lihue Plantation Company committed 10 acres of the Project site for use by Island School by way of a license agreement dated July 13, 1990. Cane cultivation on most, if not all, of the Project ceased by this time. Island School acquired 20 additional acres in 1999 and 8.448 acres in 2005 from the former Lihue Plantation Company cane field.
4. I was a member of the Kauai & Niihau Island Burial Council for 8-years between 1989 and 1999. I do not recall any discussion of burial or cultural significance of the Project area while on the Council. An Archaeological Inventory Survey for the Island School Project by Cultural Surveys Hawai'i Inc. did not find any Hawaiian burial or cultural deposits.
5. I was employed at various Amfac sugar plantations between 1960 and 1972. During a portion of that employment I served as an irrigation specialist. The Archaeological Inventory Survey identifies several irrigation facilities within the Project as significant and worth monitoring. While these facilities may be historic, they are not unique in my opinion.

If you have any questions, please call me at (808) 651-5029.



David W. Pratt

Cc: Earl Matsukawa
Wilson Okamoto Corp.

Figure 32. Page 2 of David Pratt response

Section 7 Interviews

Kama'āina and kūpuna with knowledge of the proposed project and study area were contacted to participate in semi-structured interviews for this CIA. From October 2013 to January 2014, CSH contacted 28 individuals and organizations of which three responded and one participated in a formal interview. Participants in the KCC CIA were invited to participate with new interviews as well as specifically requested to approve use of their previous interviews, as the Island School project area is adjacent to the KCC. All the KCC CIA participants gave their approval to use previous interviews. Mrs. Bernie Sakoda also provided an interview for this project (see Section 7.6).

7.1 Acknowledgements

The authors and researchers of this report extend our deep appreciation to everyone who took time to speak and share their mana'o with CSH whether in interviews or brief consultations. We request that if these interviews are used in future documents, the words of contributors are reproduced accurately and not in any way altered, and that if large excerpts from interviews are used, report preparers obtain the express written consent of the interviewee/s.

7.2 Previous KCC CIA Site Interview with Ms. Audrey Kawado, Kupuna Mabel Makanani, Mrs. Hirokane McClure, Ms. Amber McClure, and Mr. Dennis Takahashi

CSH interviewed five community contacts for a previous CIA for the Kaua'i Community College on 5 December 2011. The site interview took place on and near the current project area with the following study participants: Ms. Audrey Hirokane Kawado, Kupuna Mabel Makaniole Makanani, Mrs. Daphne Hirokane McClure, her daughter Ms. Amber McClure, and Mr. Dennis Takahashi. During the site interview, the group toured the former Puhi Plantation Camp, now part of the Kaua'i Community College, in Līhu'e, Kaua'i. The entire group, with the exception of CSH staff and Ms. Amber McClure, was raised in Puhi Camp. As mentioned above, Puhi Camp was built for Grove Farm plantation workers in the early 1920s. In 1974, an area consisting of about 200 acres of the camp became part of what is now KCC.

At 84 years old, Kupuna Mabel Makanani was the oldest member of the group. With the possible exception of one other family, Kupuna Makanani's family was the only Native Hawaiian family in Puhi Camp. At the start of the site visit, she provided CSH with a written statement summing up her life in Puhi Camp. The following is entirely Kupuna Makanani's words, with the exception of two words in brackets included by CSH for clarity:

This is what I remember as a child growing up in Puhi. It was a typical plantation-style camp. We all grew up together as one people, although we lived in homes by race. I think my dad was the only pure Hawaiian in the camp, with the exception of Mr. Malaia, I'm not sure if he was pure, but he spoke the language, I often heard them together. We lived in rows by race and shared cultural practices in music, dance and games, even movie nights, where we had a Hall for movies and monthly events—Filipino movies, Japanese, English, etc. The only people that

lived away from us were the Chinese—they lived in a valley close by, called ‘Pake Valley.’

We lived simple lives. Grove Farm gave us [land], who ever wanted a piece of land to grow vegetables and we shared what we grew with each other. We bought from our crops.

Someone in the camps also raised (bee) hives. Going swimming up in the hills, called ‘Cement Pond,’ we passed the bee hives and if the owner was there, he’d give us some honey dripping from the wax and it was a treat for us.

We learned a lot growing up in a camp especially the different kinds of instruments different races used and their cultural customs and dances; for me, born and raised in Puhi was great, [I] learned the background of my mother and was amazed at all the instruments my dad could play. My mom taught me everything she knew from her mom. I was raised as a Catholic and followed all.

Stating that her heart is here in Puhi Camp, Kupuna Makanani explained what made it special:

I was born and raised here. It was a different lifestyle. It was one people. A generation of one people. No matter who you were, you recognized each other. It is not like today.

The first stop of the project site tour was at the Old Puhi Camp Cemetery, which is divided into two sections, a Japanese cemetery and a Filipino cemetery. Although there were other ethnicities such as Portuguese who worked in Puhi camp, most of them chose to be buried elsewhere. As she looked over the old graves, Kupuna Makanani voiced her concern about the protection of the remaining Puhi Camp places, especially the cemetery.

Beside her was Mr. Takahashi who also expressed his worry that no one will be left to take care of the cemetery (Figure 33). Although many of the graves had been removed by families already, there are still some that remain (Figure 34). He recalled that when he was a young boy, a group of Japanese workers kept a community fund to be used to maintain the graves. Once a year, before the Obon festival, the designated group would come and clean up the graves using hoes and rakes. Mr. Takahashi would assist in caring for the graves, something which he continues to do even now.

While at the Puhi Camp Cemetery, Mr. Takahashi pointed to a proposed project area aerial map and asked if the proposed rezoning would affect the cemetery and cause a disturbance of burials. To him, it seemed from the aerial map that the project would be developed very close if not in the actual area where the cemetery is. Both Kupuna Makanani and Mr. Takahashi stressed the need for Puhi Cemetery to be taken care of as the current volunteer caretaker, Mr. James Kazuo Amimoto, is getting older. In addition, both sides of the cemetery need to be maintained, including the Filipino side which contained more weeds than the Japanese section.

Besides some of the graves in the Japanese cemetery are vases for flowers (Figure 34). Mr. Takahashi admitted that one of his goals is to get all the headstones cleaned and then translated by a Buddhist priest. He has always been interested in learning about Kaua‘i history and genealogy. Since he was young, he has made it a point of reading old newspapers and spending



Figure 33. Mr. Takahashi shows Old Puhi Camp Cemetery (CSH 2011)



Figure 34. Headstones in the Japanese side of Puhi cemetery (CSH 2011)

time with elders. “You know after the older generation pass on, the younger ones, they [are] not gonna know nothing, yeah,” Mr. Takahashi stated.

Kupuna Makanani’s father drove Grove Farm’s train. According to her, men had the freedom to move all over the place. Her father was George Makaniole, and he drove Train Number 1. When the plantation days were over, his train was sold to China. Somewhere possibly in Grove Museum, there is a nice picture of her father posing with the Number 1 train.

Mr. Takahashi’s father was Takeshi Takahashi, who was a machinist for Grove Farm, and his mother was Katsuko Takahashi, who worked for Kaua’i Inn and Kaua’i Surf Hotel. His parents had three boys, and Mr. Takahashi was the middle child. He was born in 1945 in Līhu‘e, and his family moved to the camp in the early 1950s. Although his parents did not attend college as they were too busy working for their families starting from a young age, they instilled the importance of a college education in their children and as a result, all of the Takahashi boys went on to college, with Mr. Takahashi obtaining a degree in business management. He later worked for Times Supermarket in Honolulu, and retired in 2007.

Although Mr. Takahashi noted he understands the school has to grow, he considers the preservation of the Puhi Camp cemetery to be of utmost importance. After pointing out to CSH how erosion is causing some of the headstones to be close to toppling over, Mr. Takahashi also remarked how big trees near the graves should be removed in case a large storm causes the tree or its branches to fall and destroy the headstones.

When asked about the KCC project, Mr. Takahashi commented,

The development is okay, but they should preserve you know the past, yeah. Because this is supposed to be the final resting place of the people, ah. You know, who worked on our plantation . . . so they shouldn’t be disturbed.

The significance of the continuing relevance of the Puhi Camp cemetery to the living community was underscored during the site visit, when shortly after Mr. Takahashi expressed his recommendation for preservation, Mrs. McClure discovered the grave of a relative, Alice, located in the cemetery (Figure 35). Up until that point, she had no idea her cousin was buried in the cemetery, and using the headstone as a guide, she shared with the group her family ties and memories of her cousin Alice, who passed away at 30 years old and who was married to Tomas. Kupuna Makanani also shared her memory of Alice as a young girl and how much she enjoyed playing with paper dolls.

Like Mr. Takahashi, Kupuna Makanani would like the place to be preserved, relating an additional recommendation that in her opinion, families who still have ties to the cemetery and project area should be consulted before anyone else, and that project proponents should take care of the preservation financially.

I would go along with whatever the people who live here, the people who have families here, their concerns would be number one . . . If ever in time that they would still continue to develop, then I think the community should make an amendment where whoever is building, would provide a separate place for them and take care of all the finances to remove and to preserve and to set up.



Figure 35. Mrs. Daphne Hirokane McClure discovers her cousin Alice's grave in Puhī Cemetery (CSH 2011)

Kupuna Makanani recollected that when she was growing up, she it was possible to bury family members around one's residence. It does not surprise her that now burials are found whenever there is construction being done or a building being renovated. The only people who would know and who should be consulted are those who lived in the area, and if graves are unknown, it illustrates the need to continue to care for the place and for the new generation to have the information to do it. This makes it even more crucial to have meetings and exchange of cultural information, much like the site visit tour for the KCC CIA. Stated Kupuna Makanani,

That the people would . . . get together like how we're meeting, cultural . . . It's the ones that [are] left behind that plant the importance of their ancestors to upkeep.

Mr. Takahashi pointed out how some of the graves in the Filipino side of the cemetery are those of Filipino veterans who have no known family, and only crosses in the ground mark their burial. It would be ideal if somehow relatives of these veterans would be able to find them and be reunited. He decried the forgetting of one's roots and expressed his hopes that the younger generation would continue their ties to their culture and family tree.

Indicating a grave with "Unknown" in the marker, Mr. Takahashi stated the following:

Maybe . . . whoever this is, has relatives in the Philippines. Maybe they've been over here but they have no family here and he died. But, we don't know who this person is.

Both Kupuna Makanani and Mr. Takahashi related the history of Filipino migrants to Hawai'i, how Filipinos came to Hawai'i starting in the early 1900s as contract laborers, “*sakadas*,” searching for a better place to live. They remarked on how Filipinos maintain their ties to the Philippines by supporting their families through remittances. The group found one Filipino veteran’s grave dated to World War I. In addition, children are also buried in the graveyard. One grave in the Filipino side of the Puhi Cemetery held a two-month-old baby (Figure 36).

Given this example and others, Kupuna Makanani emphasized that whatever can be preserved should be protected because soon people will lose access to the knowledge. She cited the example of Mrs. McClure finding the grave of her cousin.

Like Kupuna Makanani, Mr. Takahashi remembered the old days with fondness, describing when everybody was like one big family. For him, it was the close-knit feeling of community and family, where people knew each other and looked after one another.

All the different nationalities . . . you know all the da kids, eh? We were so close. You know we go to each others’ homes . . . people just open up their home, [share] da food. You normally have like weddings, birthday parties, all kinds [of] parties you know. We intermingle with all different nationalities. Everybody was on an equal basis, eh. Which is, you know, rare today, eh.



Figure 36. Grave of a two-month old baby in Puhi Cemetery (CSH 2011)

Despite the fact that various accounts of plantation life portrayed it as a harsh, unfulfilling life, Mr. Takahashi related that the Wilcox family treated their workers very well and life was enjoyable in Puhi Camp. According to Mr. Takahashi, everyone who was a Grove Farm worker agreed they were looked after by the Wilcox family, and people were provided the opportunity to own their own home.

Families shopped for groceries in plantation stores and bought items using credit, to be paid for when payday came. As a young child, Mr. Takahashi was given the specific job of tending to the vegetable garden. For extra money, he cleaned the yards of neighbors. The Takahashi family moved out of Puhi Camp in 1969 when Grove Farm built a subdivision across the road from what is now KCC, selling the lots to workers.

7.2.1 Strikes and Unions

Both Mr. Takahashi and Kupuna Makanani described the strikes and the effects of unionization on Puhi Camp. During one strike in the 1960s, plantation workers had a soup kitchen provided by the union that was able to provide them food. Mr. Takahashi related how at dinner time, each family would be given their allotted share of rice and main dish. Workers would bring their pot so it could be filled with rice as well as the viands for the day. If the family had several children, the soup kitchen provided enough for each member. The soup kitchen lasted as long as the strike. Mr. Takahashi recalled one particularly long strike that lasted six months.

The strikes of Grove Farm plantation workers were mostly peaceful affairs that did not turn bloody as the one in Hanapēpē in 1924 did, when 16 Filipino workers were killed along with four local policemen. Mr. Takahashi put it this way, “Yeah, they would picket, but in the meantime you know everybody had to report and then take care of the garden because no more food!”

Although most Puhi Camp residents had their own gardens they used to supplement their meals, the main source of food during strikes was the soup kitchen, which Mr. Takahashi noted as a “real humble experience.” But those were the times too, when the community came together, and when all the workers from different nationalities would “chip in” and work “side by side.” Life during strikes was undeniably difficult, according to Kupuna Makanani:

It was hard, but you know, because we lived simple lives you know we survived.

It was like, ‘Oh my goodness, what’s gonna happen now . . . we have no food!’

But we were . . . we were standing in line for food.

The transition from non-union to union came in 1946 and was not without controversy. With unionization came changes, some as major as housing which was no longer provided free to workers. Kupuna Makanani noted, “We had free water, free house, we had everything free! Our equipment to play was free, the plantation would provide bats and balls and everything that the kids needed.”

Once the union came in, stipulations were made. Kupuna Makanani listed some of the advantages before unionization:

You don’t have to pay house rent . . . you don’t have to pay water, you could use as much water as you can, you know . . . there it was. The pay was very small but

you learned to live without . . . You don't go over it, you live without . . . And everybody trusted each other. Not like today . . . you gotta lock doors and lock windows and put alarms and you see these people doing that in the house and it's sad because who do you trust? There's no trust.

7.2.2 Everyday Life in Puhī Camp

The group also reminisced about life each day in the camp. Some of Mr. Takahashi's favorite memories of growing up at Puhī Camp included making swords from straight tree branches and swimming in one of the three reservoir ponds, which were clean. Pointing out the type of vines he once used, Mr. Takahashi shared how he would cling to the vines to swing about and imagine he was Tarzan (Figure 37).

He recalled searching for special V-shaped branches from guava or strawberry guava trees and breaking it off in order to make homemade slingshots using the inner tube from wheels of old cars. With the slingshot, he and his friends would practice by shooting pebbles at bottles before attempting to hunt for birds. Laughing at the memory, he admitted he failed catching birds with his slingshot.

It was a great childhood for Mr. Takahashi. For him, a typical day involved attending Līhu'e School in the morning, and after school, he did chores such as chopping firewood to heat up



Figure 37. Mr. Takahashi shows the type of vines he used as a child (CSH 2011)

water. He collected firewood from eucalyptus trees surrounding the camp which had been planted by the Wilcox family years before. The Wilcox family allowed their employees to utilize the trees for their firewood.

After chores and school, he would visit friends, and they would then go around to visit other houses. One of his former neighbors was a Filipino family who had one of the first televisions in the camp. Mr. Takahashi chuckled at the memory of how he and all the other children in the camp would go to the house with the television and watch shows during the 1950s.

Mr. Takahashi also explored the irrigation tunnels with friends such as Mrs. Kawado and Mrs. McClure, who are sisters. Mrs. McClure was born in 1948 and her memories of Puhi Camp in the 1950s remain clear. She vividly described the days when houses stood side by side where current roads now run and when the road to the Puhi cemetery was once covered with camp buildings. Mrs. McClure lived in the camp until she went away to college in 1966, and by the time she came back, the camp was already gone. However, her daughter Amber helped capture some of the memories on film when she recorded the oral histories of former Puhi Camp residents for her ethnographic film *From Where We Come*, in fulfillment of a master's degree for the University of London.

Kupuna Makanani was the youngest of three siblings and had two older brothers. When she was growing up, she was raised differently from them in the sense that it was in a more protective manner. However, she did enjoy activities such as swimming in the irrigation ditches with her school friends. She remembered,

All of the kids swam. I remember Shigeno Amimoto . . . behind where they lived, there was an irrigation ditch . . . we would put on our swimsuit and swim in the ditch because it wasn't polluted, you know . . . and we would go down the stream together.

She recalled there were softball teams for boys and girls, with different ethnic groups having their own games. For example, Filipinos had "*sipa*," which consists of the player continuously trying to hit a designated "mark" on the side of their feet without losing the "mark." Kupuna Makanani shared how the games were "so good" and enjoyable.

Like many others in Puhi Camp, Kupuna Makanani attended Līhu'e Grammar School and walked with her brothers to go to school, until the time came when she was forbidden to walk to school. World War II began when she was in high school, and she decided to sneak out and sign up to work in the Kapa'a Pineapple Cannery. Eventually her family, first her brothers, found out she was working as the truck from Kōloa came very early to pick up all the workers. By then, however, she had already committed to working.

I said, 'No,' but all my friends in high school they fine working . . . I never wanted to sit and do nothing, I wanted to do something. And so they couldn't do anything—I signed up already.

Kupuna Makanani continued to work while she attended school. She worked only on weekends and during vacations.

Every summer I would go work. What we had [was] office work at the coffee building, we had different things that you could go. But, because my family didn't

want me to go work, I stayed in class. And unless on Fridays, this was every Friday they could go. The boys would put up barbwire, you know all the kinds at beaches and whatever you had to work and the girls could go work in the office or where ever work was needed. Yeah . . . so it was like . . . but it was good because I got to work.

Like the majority in Puhi Camp, her family maintained a vegetable garden. In addition to all kinds of vegetables, Kupuna Makanani shared memories of her mother's flower garden.

My mom loved flowers so we had all kinds of flowers. She had everything from lilies to orchids to ferns, maiden-hair . . . I remember conifers. We used to come and tell her, 'Please we want you to take out your maiden-hair,' she had gorgeous maiden-hair . . . all different varieties, begonias . . . Our yard was full of flowers, tuberose, roses, [for] my dad every weekend, my mom would make a hat for him . . . [for] riding or where ever we would go.

Her mother would also make all of her father's leis, using the flowers growing in her garden. Kupuna Makanani recalled fondly how much her father loved roses, and how carnations bloomed along the walkway from the gate to their house in Puhi Camp. There were always two patches of carnations along the path.

One of the few Puhi Camp places that is left is the cement house, which has been converted to become the Pūnana Leo o Kaua'i School. Kupuna Makanani took the group to the site of her former house that once stood in the upper part of Puhi Camp. Although the house is no longer standing, a huge mango tree that once served as a landmark still remains (Figure 38).

She described a valley that went down past her childhood home which was the family's original vegetable garden. Across the street from their house was a vegetable garden for everybody.

Although Kupuna Makanani's father knew many legends, he did not readily talk about them to the family as he was "very protective" of them. She was raised as a Catholic while her father was born into a Mormon family. She identified with her Portuguese background.

So we were brought up Catholics, you know to worship God and do all the right things and so my dad was born a Mormon so it's two different lines of worship. Although you are worshipping God, but the rules was different. But, my dad never did stop my mom from raising us as Catholics but he stopped going to Mormon church [temple]. I think he was ordained as an elder. I remember something about him going into the Mormon temple so you have his family, my dad's family were Mormon, very strong Mormon. My mom's family was coming from Portugal so the [maternal] line is Catholic. And my great-grandparents served the priests and took care of the priests and their house and their clothes. And so that tradition came to Hawai'i with my grandmother, so my mom has that tradition. Now I'm born, I do the same thing.

Her Catholic faith is a source of strength and to serve God is the reason she maintains her involvement in numerous activities helping others.



Figure 38. Kupuna Makanani tells of her childhood home, marked by mango tree in background (CSH 2011)

It's that culture steering me to serve the one God. And so I'm still doing it and . . . I go back in time and it's telling me that my generation for my ancestors were serving God from the beginning. It's from Portugal coming here. My grandmother lives in Kōloa and goes to that church. It's still that church and that ministry . . . I'm born and raised in that same line of service and that's what I do today. I serve the Lord whatever. And it's always in hospitality. You know, it's serving. Making food for the ones who need, taking care of those that don't have nothing, you know you give, that's my life . . . that's my life.

Sharing her mana'ō about the project area is part of her desire to serve:

I feel for the people because I grew up here in a wonderful time. You know, we didn't steal from each other . . . if your neighbor needed something, they could come to your house and go through your cabinets and take whatever they need and then the next day they would bring back. Somebody is sick in the camp . . . so you raise chickens, ducks, pig or whatever you make something and you would bring to their house . . . You never had to call, 'Oh so and so is sick, can you provide a meal?' Not before, before it came natural. You serve your friends, your neighbors and you don't think of their color, creed or whatever. You know they're neighbors, they're friends, you're growing up with them, you learn from them.

Kupuna Makanani lived in Puhi Camp until her early years of marriage, and moved only when her own house was constructed in Wailua Houselots, the first house in that area. Even after she and her husband moved and they had a child, her parents remained in Puhi Camp and took care of their granddaughter during the day. She learned to shoot with a .22 rifle with her husband, and practiced by shooting cans with her rifle before hunting for pheasants with her husband when he came home from work. Once they caught a pheasant, they would return home and roast it. She credited her childhood spent growing up with many ethnicities for her ability to enjoy eating different kinds of foods and being appreciative of other cultures.

So now, I can eat any other food, I can go to any party and I can say, 'I can eat that,' not, 'I don't like that, it doesn't look good' or you know, 'I don't want that.' We were brought up different, our generation is really different . . . to appreciate one another and love them.

These days, Kupuna Makanani's daily diet consists of mostly vegetables and fish. She likes to eat everything, but does not care too much for meat. Her advice is not to overdo eating. She usually bakes her food and sometimes fries it. In particular, she loves baked salmon and fried fish. As for sashimi, she does not eat it probably because when her children were growing up, she gave them sashimi and she did not acquire a taste for it. But she enjoys eating poke which her children did not favor when they were little.

7.2.3 Foodways in Puhi Camp

Throughout the project area tour, the group freely recalled many memories which involved the tastes of their childhood and how the food incorporated the marine and plant resources around them. Kupuna Makanani shared that whenever her family needed some vegetables, they went to their garden, or foraged for bamboo shoots by the back of the three reservoirs which were connected and had bamboo on one side. This is where many people in Puhi Camp came to get their bamboo shoots. They also took care of their own chickens as well as ducks.

Mr. Takahashi described foraging during spring for young bamboo shoots, called "*takenoko*" by the Japanese, and hunting for a type of fungus called "pepeiao" (edible jelly fungus) which was gathered around the camp boundaries. For seafood, he and his friends fished for crayfish by lowering lines with small meat bait, and they also caught fish like bass in the reservoir.

The pepeiao was prepared by Mr. Takahashi's mother to be fried or cooked with chop suey, chicken, or pork. Chickens were usually bought from the store as the wild chickens tended to roam in the valley away from Puhi Camp, but there were lots of wild boars that could be hunted, which Mr. Takahashi's uncle regularly did.

For treats, he and other children usually enjoyed homemade goodies like pickled green mangoes and guava jelly and jam. The children were sent off to pick ripe guavas on the roadside to be used for making preserves and for juice. Mr. Takahashi reminisced how his mother would squeeze the guavas for their juice and freeze the juice in ice trays. Passion fruit juice was also a favorite; the fruit grew in vines all around the project area (Figure 39). Mr. Takahashi shared his memories:



Figure 39. A passion fruit flower grows in the project area (CSH 2011)

That passion fruit, you know, that vine that's growing wild, in the summer time, the thing [fruit] drops, and then we would take 'em home and squeeze 'em, eh, and make passion guava and mix the two together, eh.

As for pickling mango seed, his grandparents, aunts, and uncles made this by taking green mangoes, peeling their skin, cutting them and drying them for about two days before boiling them in sugar and adding Chinese spices like five-spice. Mr. Takahashi described the fibrous seed as the “best part, because all the flavor would soak into that.” He lamented that nowadays, hardly anyone makes pickled mango seed from scratch anymore.

There was a small mom-and-pop store in Puhi Camp run by the Funada family, and in addition to canned goods and everyday items, dried abalone was available in glass jars. For about 50 or 60 cents, each child got a nice chewy slice cut from the big piece that could be chewed for what seemed like hours. “Real delicious, eh. Today so expensive you can't even buy it now,” Mr. Takahashi noted. The Funada store was located in the Puhi Camp area. There were three stores in Puhi Camp, including a Chinese meat market.

Gathering and hunting for tasty edible food sometimes took on a competitive edge. The search for bamboo shoots or *takenoko* heated up as people came up with ways to try and hide the tender shoots that sprout up after storms. Kupuna Makanani stated,

We used to go when it stormed, yeah, when it stormed, the bamboo would grow and so we'd always get our grab bags and a clean knife or a sharp knife and we'd go right across the street. Yeah, we used to wear long sleeves, shirt and then dig

and then you cheat because some people know that . . . maybe [a] couple of weeks more rain . . . it's gonna come up so they cover it. Yeah.

The *takenoko* had to be harvested before it got too hard and too bitter, as both characteristics became more pronounced, the older the bamboo shoot. It therefore needed the right time to grow before being picked. To help ensure that, people would cover the place with dirt and hide the shoot until harvest time. The group reminisced how much fun it was to walk around hunting for shoots underneath small piles of freshly dug earth (Figure 40).

The preparation of the *takenoko* involved boiling and changing the water. Kupuna Makanani recalled that her mother boiled and changed the water which was red, and Mr. Takahashi shared that once the water was clear or white, then the *takenoko* was ready to be eaten. Slices were enjoyed in chop suey and other stir-fried dishes and also in *nishime*, a Japanese stew made with root vegetables.

The group then walked to an irrigation ditch, where Mr. Takahashi pointed out the minnows and other small fish swimming in the low-level water. He described how he and other children frequently waded in the water through a tunnel. Mr. Takahashi noted how he used to catch frogs in the ditch and bring them home so they could be fried, "like chicken." Toads were another matter, though, and when they appeared at night with their big eyes gleaming, the toads scared Mrs. Kawado.

Going through the tunnel was an exciting, scary adventure for the young Mr. Takahashi and his childhood friends Mrs. Kawado and Mrs. McClure (Figure 41). He stated,

Small kid time we used to play. You could walk all the way to outside, yeah. Even when the water is like this, not too bad. You know, you can walk through, eh. This is the tunnel that go under the road . . . We used to catch frogs over here, too.

He shared that he would make spooky sounds to scare the girls while they were going into the tunnel and they would respond with screams, prompting Mrs. Kawado to remember how she did not like going through the tunnel.

Besides frogs, Mr. Takahashi also caught crayfish in the irrigation ditches and reservoirs. According to Mr. Takahashi, crayfish looked and tasted a lot like regular shrimp and were delicious when pan fried with shoyu and sugar. He detailed how he caught them, employing pieces of meat like pork dangled in the water using a fishing line.

What we do is catch it . . . and then we'd lure it and then the thing would just grab onto the meat and then roll and pick it up and then we would have a bucket . . . Little meat fire 'em up through a string or a fishing line, yeah. No hook or anything, but the thing would come out and then with the hook, that pincher they'll go for the meat, eh and get stuck on there. And you gotta be real careful you know and they fall off . . . Just shake 'em and they fall off 'cause there's no hook, yeah.

'O'opu also flourished in the irrigation ditches and reservoir and were enjoyed by Mr. Takahashi and other Puhi Camp residents. However, he believes that 'o'opu are no longer



Figure 40. A picture of *takenoko* growing in the project area (CSH 2011)



Figure 41. Mr. Takahashi and Mrs. McClure indicate the irrigation ditch that leads to a tunnel they explored as children (CSH 2011)

present. ‘O‘opu was pan fried, sometimes flavored with shoyu and sugar. “Lot of bones, but the thing was delicious,” he recalled.

Mr. Takahashi pointed out a gate that still exists to control water flow to the irrigation ditch. He noted that Grove Farm still likely owns the water rights. For Mr. Takahashi, the gate remains an integral part of history as it provided water to the ditches and reservoirs and regulated the flow to prevent floods.

At one point during the site tour, the group came upon a papaya tree full of flowers. Kupuna Makanani illustrated how she would use the flowers to make leis (Figure 42). Both Kupuna Makanani and Mr. Takahashi enjoyed green papaya soup with chicken, or chicken tinola, a Filipino dish. Another fond memory the group shared was the regular baking of fresh bread, usually done on Tuesdays along with *malasadas*. Even the yeast was made by hand, with a little piece taken out, used, and replaced each baking.

During baking days at Puhī Camp, the children’s the job was to gather wood and keep the fire going. The children were given a special kind of bread baked in a long pan, like a muffin pan, made just for them, according to Kupuna Makanani:

And when we were full, we would go out and play. And then the other kids would come, and they would take care [of the fire]. And they would give the kids some bread and butter. And you know because you can smell the bread coming out.

The group took note of plants that grow in and around the project area, including orchids (Figure 43), koa trees, as well as fruit trees like mango, papaya, and others.

7.2.4 Puhī Camp Memories

When the group hiked toward a second cemetery, referred to by Mr. Takahashi as being near the “Cement Camp,” located in the perimeter just outside the project area, Mrs. Kawado reminisced with CSH about her experiences in Puhī Camp. Mrs. Kawado was born in 1945 and grew up in Puhī Camp. Her maiden name was Hirokane. She was the eldest child in a family of four children, two girls and two boys. The children were each born a year apart and the first letter of each of their names corresponded to the order of their birth. Since she was the oldest, her name was Audrey, followed by Boyd, her brother, then Chad another brother, and Daphne, the youngest (now Mrs. McClure).

Mrs. Kawado continued to share her cherished memories of Puhī Camp:

The fact that, even though all of us were from families that didn’t have a lot of money, it didn’t feel like we were missing out on anything because we had good friends, people take care of you . . . they didn’t treat you like you were lacking anything . . . we didn’t have beautiful houses; some of us had out houses, we didn’t have toilets that flushed. But still . . . it was such a special place for me.

Each day as a young child, Mrs. Kawado walked to Līhu‘e School with her friends. During her seventh grade they built a new school, the Elsie H. Wilcox elementary school. Her mom prepared hot cocoa for breakfast for her and her siblings. For lunch, she ate peanut butter sandwiches. At the time, the peanut butter in the jar was very hard to spread, so her



Figure 42. Kupuna Makanani points out papaya flowers she used in lei (CSH 2011)



Figure 43. A non-native orchid growing near the project area identified by CSH as mostly likely *Spathoglottis plicata* (Philippine ground orchid) (CSH 2011)

mother dipped the spoon in a cup of warm water before using it to spoon the peanut butter spread for sandwiches.

After school, she swam in the reservoirs and fished there too. For after school treats, one of her favorites was called "V apple," a tart local fruit eaten with a mixture of shoyu, vinegar, sugar, and pepper. Another treat was slices of dried abalone, bought and eaten like beef jerky, confirming what Mr. Takahashi remembered.

It was Mrs. Kawado's responsibility after school to get the daily newspaper and bread at the store. She recalled the Afong store, which was also a meat market, and another store called Puhi store. The post office was also in the store. Her friends were Filipino, Portuguese, Puerto Rican, and Japanese, and she became familiar with their favorite foods, including the tastes and terms for each one. Mrs. Kawado also played the folk games from her friends' cultures. One of her favorites was a Filipino children's game called "*panio*" or "*alapanio*" where they ran around the cane fields and hid from people designated to find them.

She admitted it was a hard life with no running water for toilets and baths taken in a "*furo*" (Japanese bath tub) where water had to be heated up by hand. Before using the *furo*, they all had to scrub and wash up to be clean, since the *furo* water would be used by everyone. After everyone had their baths, the water would be recycled to water the plants. Her father planted lots of vegetables including lima beans which grew on a wire fence. It was a happy childhood where she played with her siblings and helped out with the chores.

When she was 14, the day of her brother's 13th birthday, their father died from a sudden stroke, an event that in a way marked the end of a happy childhood. Mr. Hirokane supplemented their table with the wild fruits and vegetables that grew around them, in addition to planting their own.

He used to do that, he used to get wild liliko'i, *takenoko*, so we kinda lived off the land in that way . . . and he never came home one day. So I guess my mom called the police. She was reporting him missing and he had a stroke, he had fallen . . . some place where they have *takenoko*.

After her father's death, her mother continued to work as a maid for the Wilcox family. The Wilcox family owned the Kilohana Plantation and a 16,000-sq-ft mansion in the Tudor style close to Puhi Camp. The mansion was built in 1935 by Gaylord Wilcox and his wife, Ethel. Gaylord Wilcox was the descendant of Abner Wilcox who was among the first missionaries in Hawai'i (Kilohana Plantation n.d.). Mr. Gaylord Wilcox was the manager of Grove Farm Plantation at the time the mansion was built.

Each morning, Mrs. Hirokane walked to her work as she did not know how to drive. She raised all four of her children single-handedly, and two of them went to college. Years later, Mrs. Kawado remained in awe of what her mother had done for her and her siblings.

Yeah! And you know, we never went on welfare or food stamps. Well we didn't have food stamps in those days, but social security I think saved us. Yeah, my dad had been working many years so he had. He just didn't earn a lot of money because he worked for the plantation, but it was enough for her, she was the one who practically raised me all the way . . . to go to college. But I said, 'You know, I want to go to college, but you know what are the chances?' . . . And then she

made all arrangements, she looked into college, she looked into getting a loan for me and all that! She was amazing! I think she wanted that for her kids, to be self-sufficient.

Mrs. Kawado first went to Maui to Maunaolu Junior college surrounded by cane fields and which reminded her of the days in Puhī camp. Then she went on to the University of Hawai'i and majored in Sociology. Shortly after she graduated in 1968, she was offered a position with the State of Hawai'i in the Department of Social Services. The year she graduated, Mrs. Kawado married Mr. Alan Kiyoji Kawado, and they had three sons. Her husband passed away recently, before they could celebrate their 43rd anniversary. She recalled with a laugh how he was known to everyone as "Mr. Aloha Airlines." He was fiercely loyal to the airline. If friends ever flew another airline, they knew better than to tell him.

The last site the group visited was located off a dirt trail some 200 m north of the project area. Mr. Takahashi referred to the second graveyard as the "Cement Pond" cemetery. In the 1950s, when he was about 10 or 12 years old, Mr. Takahashi was bicycling with a friend when they came across the cemetery. According to him, the general area where the second cemetery is located is called "Cement Pond" by Puhī Camp residents because there had been a big tank there where all the drinking water came from, and when a new tank was built, all the children swam there.

The Cement Pond cemetery contains at least three graves with headstones (Figure 44). As for the graves, a royal palm tree marks their location on the side of the trail. The tree has been there as a marker ever since Mr. Takahashi was a child.

It has been at least two years since Mr. Takahashi has been able to clean the graves. He showed the group the heavy moss covering the headstones and pointed out the leaves and debris. He posited that the graves do not look like they belonged to people from Puhī Camp, but rather, someone or some people who may have been well-to-do. The headstones are engraved in Japanese and one of them dates from 1918.

Across the road from the Cement Pond cemetery is a field where according to Mr. Takahashi, a fireball once appeared. He narrated the mo'olelo he had heard:

They were plowing the field one day and the tractor operator seen there's a fireball coming out of ground . . . and then the guy just took off [laughs]. And they said there's a kahuna eh, spirit of a kahuna, that's what the Hawaiians claim. So that's an old area too because when I was young, I see lot of broken fragments you know like ceramics, yeah. Dishes or something here so had to have a big camp over here before.

Mr. Takahashi's story of the fireball led Kupuna Makaanani to share her own, similar experience, which did not take place in the project area, but by Stable Camp, in Kapahi, where she had been visiting friends. That day, she decided to take a path that led her past an area by a water tank where she saw white smoke:

The smoke was coming out, was coming out, and it seemed the whole place would be burned down. But no . . . meantime I was passing, and I never seen that. Only [that] one time I saw it. And so coming back the next day, there's two ways to go up there, so coming back, I thought to check, because I saw the smoke.



Figure 44. One of three graves in the Cement Pond cemetery (CSH 2011)

There was nothing burned, nothing. It was in the field by a big water tank. The smoke was white, white, white, like a cloud.

The similarity of the environment around Cement Pond and the area around Stable Camp made Kupuna Makanani recall more details about what she had seen:

There was also a water tank . . . I seen the forest and I seen smoke so I said, 'Oooh . . . that's spooky, they gonna make fires and there's the trees,' and so I went to my friend's house and then, I didn't tell them anything and the next time I went up, I told them, 'Ooooh, you know, funny there' smoke, but when I came back the next day, there was nothing burning.' But I say, 'I seen it.' And then he told me, 'Oh we forgot to tell you that that road is "*obake*" [Japanese term for "spirit"].' Yeah. And I said, 'What?' So I never wanted to go that time and I usually go in usually when I get to work.

For Kupuna Makanani, both the smoke she witnessed and the fireball were one and the same; they are "spirits" according to the Hawaiian belief system. Mr. Takahashi agreed with her.

Mr. Takahashi pointed out no one knows how old the area is. He noted that Kaua'i is the oldest of islands:

And the first to be probably inhabited so what was here before the missionaries came, nobody know . . . A lot of the heiau were all run down when the missionaries came, so might have been a heiau up here and nobody knows, you know.

He related that a while back, he had seen some shards of glass and opium bottles as well as pottery bits when he was working in the field. This led to his theory that Chinese people as well as Hawaiians were former inhabitants of the area where the fireball was seen.

After the site visit to Cement Pond cemetery, the group discussed their thoughts about the project. Mr. Takahashi noted would be good for KCC to eventually be a four-year program, in order to attract more students. He saw the need for new buildings, and a new parking lot so the school can grow. He and others like Mrs. Kawado also wanted to preserve the remnants of Puhi Camp for the education of future generations.

Kupuna Makanani was of the same mindset as Mr. Takahashi. She thought the expansion of the community college was good, providing there were some limitations. "Your children and your grandchildren will benefit, but if they have nothing, they are going to move," she stated. She wanted to know what project proponents have in mind in order to provide her recommendations.

Kupuna Makanani knew, however, what she didn't want. She did not want the burials to be moved but she could see that the reservoir and graveyard are in the middle of the project area. Kupuna Makanani appreciated that a CIA was being done.

Later during the day, a smaller group consisting of Kupuna Makanani, Mr. Takahashi, Amber McClure, and CSH visited the offices of Bernie Sakoda, who has been instrumental in organizing past Puhi Camp reunions. Born in 1946, Mrs. Sakoda was raised in Puhi Camp and two generations of her family worked for Grove Farm (see Section 7.6 for Mrs. Sakoda's interview for the Island School project).

Mrs. Sakoda recalled her weekly chore of collecting firewood, as well as certain ingredients needed for the homemade pig stew. Ingredients for the stew included honohono grass, papayas, and avocados.

My family thought I was crazy but I thought it was the greatest job, it was hard work but I didn't mind chopping and cooking it. We would cook it once a week and the 50 gallon slop would last the whole week. Everyday, we could re-heat some of it and put it in a can on the wagon and take it to the piggery.

If the pig was slaughtered, all the parts of the pig were used and nothing was left to waste. Mrs. Sakoda recalled with some pride how her family raised rabbits, ducks, turkeys, and had "a most beautiful garden" in the backyard. "We lived off the land pretty much, we can be very self-sufficient. It was wonderful times, and the community was really a solid community," she related. Even if her parents were having hard times, she did not realize it because her father provided meat from the family "mini-farm" as well as produce from the garden.

Kupuna Makanani added that no one wanted to be on welfare.

You shamed if you were on welfare . . . You worked and everything went on the table. Nobody said this is mine; there was one pot for everybody. If you had a dollar or 50 cents, you were satisfied. You don't ask questions why, you were satisfied.

All of the group members present, including Mr. Takahashi, Kupuna Makanani, and Mrs. Sakoda, emphasized the importance of respect that was instilled in them. Mrs. Sakoda shared

that just a stare from her parents was enough to make her stop her misbehavior. But the lack of respect she sees in children brought up today may be due to the different circumstances in the home:

You can't blame the kids, I think both parents are struggling in this age now, and both parents work. In our days, we had someone at home all the time, watching over us. The discipline was so different in the past . . . We were brought up in the Asian custom of 'you listen to adults and you respect the adults.' If we answered back, we were sent out of the room. It's so amazing how respectful we were to our parents and when we knew we were doing wrong.

The rod was not spared either, the group agreed. Mrs. Sakoda noted that as older children, they received a spanking and they knew when it was coming. Overall, her childhood was a wonderful experience where she learned the value of not just respect but also the meaning of sharing with one another. Puhi Camp residents came from all over. For example, she cited how Japanese residents came from different prefectures in Japan as well as from Okinawa.

Everybody's culture was different. We shared. We had 'Up' and 'Down' camp, and a lot of people in between. In our camp, we had a good mixture of Filipino, Portuguese, Puerto Rican, Chinese . . . We grew up in the community where everyone shared food . . . and it's not only the food, but all of their history. For us, it was playing with 'taiko' [Japanese percussion instrument] drums and concerts with Okinawans, for the Portuguese, who did all the cooking in the outdoor oven, we baked bread. We ate 'kimchi' [Korean fermented spicy cabbage].

7.2.5 More Foodways

Food was an important part of the cultural education for Mrs. Sakoda, and she related how *miso* was made by fermenting beans in a huge barrel. She also shared the recipe for an Okinawan dish plantation families enjoyed. It involved boiling down pork fat until it got crispy. Then *miso*, sugar, and ginger were added so that it was like a paste. The crispy pork pieces were mixed into the paste and the whole thing was served over hot rice.

Food was such an indelible part of life in Puhi Camp that during the camp reunion in 2003, the amount of food prepared was enormous. Dishes Mrs. Sakoda credited as being part of the Puhi Camp repertoire included Chicken Hekka, Hulihuli chicken, and Chicken Papaya with *malunggay* (*moringa*) leaves. The group then traded stories of foodways, specifically the different ways to prepare dishes from all the ethnic groups, including the taste of *pansit* (a Filipino noodle dish), *pinakbet* (Filipino vegetable stew with vegetables) and *bagoong* (fermented shrimp paste) or shrimp with pork as flavoring. There was also mochi rice, adobo, *cascaron* (also known as *bitsu-bitsu* balls, a Filipino dessert usually served on a stick made with mochi flour, coconut, and sugar).

Even today, Mrs. Sakoda prepares many of the dishes she ate at Puhi Camp. She related,

I have a *malunggay* tree in my backyard because we love it so. Wild bitter melon and green beans and squash—we love *pinakbet*. We love *adobo* [Filipino dish involving meat cooked with vinegar, soy sauce, and bay leaves, most likely from Mexico].

7.2.6 The Social Box or Box Dance

An important part of Puhi Camp was the hall provided by Grove Farm, a gathering place near Puhi store, where people celebrated holidays, weddings, and other events. According to the group, Filipinos held an occasion called “the Social Box.” At pay day once a month, all the women prepared whatever delicacy or dish they wanted to make, such as *musubi* (rice with seaweed usually filled with something such as spam), which they placed into a box the size of a shoebox. They then took the box lunches to a dance in the hall. Ostensibly, the dance was held for single Filipino men, but everybody participated because it was a fun evening. According to Mrs. Sakoda,

It was a night to go out and socialize, and we didn't have TV at that time. The women would auction off their boxed lunch, that's why it was called a 'Box Dance.' They would auction off their boxed lunch to the highest bidder. The highest bidder gets to dance with them and to eat the lunch . . . It's like matchmaking.

The women could also have someone prepare lunches for them if they were too busy working in the pineapple field or cannery. Mrs. Kawado and Mrs. McClure's mom, Mrs. Hirokane, was well-known for her cooking and her boxed lunches were in demand among busy, working women. When asked what the primary goal of the dance was, Mrs. Sakoda described it as a way for men and women to socialize. The boxed lunches were also a way to make some extra money on the side. Kupuna Makanani noted there was no alcohol served but the dance was still fun with music and an emcee. Social events like these are credited by Mrs. Sakoda for teaching her about other cultural practices:

There was Filipino music, Japanese music from the Japanese and so on . . . That's why we all know how to do the bamboo dance, we all know how to do the hula, we all could play the 'ukulele. That's what the communities all were [doing] on weekends. If you wanted to take 'ukulele, you could go there, if you wanted to sew, you could go there.

Both Mrs. Sakoda and Mr. Takahashi traded memories of Chinese men who sold *manapua* (steamed meat buns), and delicious hot saimin. Eggs and milk were delivered to residents. Other vendors included tofu sellers, including one particular lady from Līhu'e. Mrs. Sakoda described the following:

She had a stick across her back, and the cans, cracker cans would be balanced. The cans had tofu. One would bring one's bowl to buy the tofu. If you wanted bean curd . . . there was also *nishime*.

The holidays were a special time for the children in Puhi Camp, marked by food. Mrs. Sakoda described how at Christmas each child received a gift from Grove Farm:

Every Christmas, we would have a handful of mixed nuts, fruit, an apple, and an orange and some candy. It was so precious for us to get that each Christmas, that little brown bag with just that. If we only could re-create that, it was so valuable to have that apple and orange . . . we were fortunate. The unions were very good to our camps.

7.2.7 Recommendations

The group then discussed the certain style of plantation homes in Puhi Camp. Old Japanese homes, for example, usually had a “china hutch” for food with screens on the doors to keep flies from coming in. The legs of the china hutch sat in containers of water to keep ants from climbing up. Although no more Puhi Camp houses remain standing, Mrs. Sakoda drew attention to the Grove Farm Museum where there are replicas of plantation homes. Preserving the past became an issue for Puhi Camp residents when the 2003 reunion committee pondered what was valuable to remember. Mrs. Sakoda stated,

It never crossed our minds until we did the [Puhi] camp reunion, and then we realized it was really too late because all the homes were destroyed. When they asked to relocate the remains in the cemetery, that's the first we knew that there were going to be development there . . . Those days, we were never aware or made aware of all the history that was going to be lost.

The significance of the camp bulletin board and the role it played in the everyday life of the workers was one of the main things the Puhi Camp reunion committee wanted to preserve. The board contained communication vital to the daily life of the camp, everything from union meetings, holiday events and seasonal announcements. Because there were no computers in those days, the bulletin board was one centralized area that effectively communicated all upcoming events affecting the camp's residents.

According to Mrs. Sakoda, the reunion committee had asked Grove Farm to make a replica of the bulletin board as a memorial to Puhi Camp. It could then be located somewhere on campus where students and visitors could read about its history. Mrs. Sakoda stated,

When we were doing this [2003] reunion, we thought it would be a good idea because we remember our laborers had that bulletin board . . . We want to use that as a re-created one or restore it to use again. It was a bulletin board with an attached roof, with all the announcements pertinent to the camp life . . . We know KCC has a carpentry department, and it would nice for them to re-create that bulletin board, and restore our oven. But keep it on campus, so it would remind people [of Puhi Camp], and it has to look the same as when we were growing up.

As for the Puhi Cemetery, Mrs. Sakoda shared that her little brother could still be buried somewhere in the cemetery. Her first preference is that the graves will remain where they are. The group talked about who will clean the graves in the future. In the end, Mrs. Sakoda, Mr. Takahashi, and Kupuna Makanani agreed that if it is possible, a columbarium containing all the graves should be built on site. Then it would be able to maintain itself. The columbarium has to be in the area so people will know it was Puhi Cemetery.

Mrs. Sakoda shared the following question that she would like answered by project proponents:

What is the intent, their intentions regarding Puhi cemetery? The group is wondering why they have not gotten notification about the project proponents' intentions regarding the cemetery. They would like to be part of the discussion when a decision has been made.

7.3 Previous KCC CIA Interview with Mr. Charlie Pereira

CSH interviewed Mr. Charlie Pereira at the Waipā Foundation site in Hanalei, Kaua'i, on 8 December 2011 for the KCC CIA. Mr. Pereira is from Niumalu Ahupua'a where he spent the majority of his childhood years. He stated that it was during those years that he learned to fish. Mr. Pereira is a reknowned fisherman and a master fishing net weaver who was weaving his most recent fishing net during parts of the interview with CSH (Figure 45). As a young boy, Mr. Pereira worked in the sugar and pineapple plantations then at 21 years of age, he was drafted into the U.S. Army. During his time in the military, Mr. Pereira spent 11 years at Scholfield Barracks then worked in Korea, Germany, and Texas. When he retired from the military, Mr. Pereira returned to Kaua'i and worked at Coco Palms for 24 years. He lamented that he missed the fishing. He has two daughters, five grandchildren, and five great-grandchildren. He currently lives in Namaholo with his two daughters. On Thursdays, Mr. Pereira volunteers at the Waipā Foundation in Hanalei, making poi.

Regarding his connection to the KCC project area, Mr. Pereira explained that his uncle, Joe Texeria, lived at Puhi Camp, which was formally located in the project area. Mr. Pereira told of spending a lot of time with his uncle and visiting him at the camp often. During a flooding event, water reached their home in Niumalu so his family spent the night at Puhi with his uncle.

Mr. Pereira recalled that the location of the KCC was formally agricultural land with pineapple, cattle, and later, sugar cane. He explained that it was a hard life living in the plantation camp. He shared his memories of Puhi:



Figure 45. Mr. Pereira weaving a fishing net (CSH 2011)

Where the college is at KCC, that used to be all agriculture and pineapple. They also had cattle grazing there. They only raised cattle and pineapple and then sugar. They got their water from reservoirs. They had ponds. They got them in Puhi. I remember the plantation having the bathrooms outside. They had water running for the bathroom and the plantation gave them kerosene for their cooking and for hot water for baths. Their life was pretty hard. The Filipinos got together once a year around December I think. We'd go too, but it was a Filipino celebration. When I was growing up, they called the celebration the 'Holy Ghost.' The Catholic Church had a carnival and now they call it 'Carnival' but at that time, it was 'Holy Ghost.' They made sweet bread, you know, *malasadas*. As the years went by they made some pretty good stuff.

Mr. Pereira worked for the sugar and pineapple plantation for many years especially during the summer time as a young boy. He explained,

It was sugar and pineapple. I was twelve years old when I worked for the plantation. I worked there in the summer time. That's how we made our money for school. We had to buy our clothes. I worked in the plantation for a dollar and a quarter a day. I had a German boss. The only thing I didn't do in the sugar cane was irrigate, you know, water the cane, but I was in the fertilizing and the harvesting of the field. There was very little machinery when we first started but as the years went by, they had more improved machinery for cutting the cane.

When asked about fishing practices in Niumalu, Mr. Pereira shared the following recollections. He also told of his passion for fishing and making nets and shared with CSH a picture of himself casting his first fishing net at the age of 12 (Figure 46):

There was a lot of fishing in Niumalu. There was a guy, Mr. Coney, who caught the akule with the net. We'd go out to catch the akule in the bay. We'd bring it in and take out the fish and we'd sell it and eat some of it too. We were always playing in the bay. I'd be on the break water picking up 'opihi and spear. I did a little spear fishing with the boys but my interest was the net, once I got into the net. We'd catch mostly small fish—manini [convict tang], squid [he'e], and other good fish [See Appendix B for scientific names].

Fishing is my thing. I make the nets. I sell them to whoever wants to buy them. I learnt from my dad and he learnt from the Hawaiian people. My dad was Portuguese. Grandpa and Uncle were fishermen. Commercial fishermen, and now it's my nephew. He uses the nets with the floaters and the weights and surrounds the akule schools of fish. The nets I make are smaller. Throw net they call it.

They dredged the harbor [Nāwiliwili] to make it deeper. It was too shallow for the big boats. I have a picture of me there with my fishing net. Where I'm standing in the picture, today, there's gas tanks there. This one here, this is the picture [as he shows CSH his picture]. I had a bigger one with my net in my folder, but I don't have it in my wallet. This picture was taken when I was twelve years old with my first net. My mom took this picture.



Figure 46. Mr. Pereira with his first fishing net at age 12 (courtesy of Mr. Pereira)

In addition to net fishing, ‘opihi-picking, and spear-fishing, Mr. Pereira also fished for crab using crab nets.

I used to go crab fishing with the crab net and catch crabs. It’s a round net with the wire ring. We used to catch crabs over there at Niumalu Bay. We used to catch a white crab [possibly kūhonu] and the Samoan crab with the blue pinchers. They call it Samoan crab [See Appendix B for scientific names].

Mr. Pereira also used to paddle from Niumalu on his surfboard to surf in Nāwiliwili Bay. He said, “from Niumalu, I’d go on the surf board. I went all the way around the harbor to where that Marriott Hotel is, just to catch a couple of waves. I went all the way back too on the surfboard and the surfboards were made out of plywood.”

Mr. Pereira reminisced about growing up in Niumalu and portrayed a picture of rural life during that time:

We didn’t have our electricity until probably after the war—1945 or 1946. We didn’t have electricity before that so my mom used kerosene for cooking. Mom was good at making bread. Home-made bread. I used to sell it to the Hawaiians for ten cents and I couldn’t collect ten cents. You could buy a loaf of bread for ten cents and an ice-cream for a nickel. I remember those days. We didn’t have electricity. Same thing with my wife in Anahola. They didn’t get electricity until about 1957 or 1958. Then I lived in Moloaa. Our house is there. My wife got the property through her dad and we didn’t get electricity until 1982 over there. Everything was kerosene. My wife was raised with kerosene lamps the same way

I was raised. You know, you had to push it out! If you went too high . . . what happened? They called it 'da chip nail.' The glass would get all black.

Mr. Pereira volunteers at Waipā Foundation for the organization's "Poi Day" every Thursday. He shared with CSH how he became involved with the organization and described the poi-making activities at Waipā.

My wife started coming here before. After the hurricane we had in '92, she came here to make poi and then took it out to the old people. I was in Europe when she did it by herself. My daughters used to help her sometimes. After that, I started coming here and I kinda look forward to it. It's an outing for me to come out here. She was the one coming out here then she passed away. So then my grandson started coming here. He works for the county and he's off Wednesdays and Thursdays so we come here. When I come here, I come in, bring taro, then we get caught up cleaning the taro and start grinding it.

When asked if there are any resources or practices within the KCC project area that people should be aware of, should there be any development, Mr. Pereira responded, "I wouldn't know." However, Mr. Pereira is supportive of the KCC project as he supports education. He stated, "The more you have [education], the better it is for you." Mr. Pereira's grandson attended Pūnana Leo, the Hawaiian Language Immersion program at the Kaua'i Community College, for five years.

7.4 Previous KCC CIA Interview with Mr. Dennis Chun

CSH met with Mr. Dennis Chun on 6 December 2011 at the KCC where he has been a faculty member in the Department of Hawaiian Studies for 22 years. He, along with several other faculty, was instrumental in establishing the college's Department of Hawaiian Studies. Prior to KCC, Mr. Chun worked in alternative education for Kamehameha Schools. Mr. Chun is an experienced sailor and seaman with almost 40 years of experience in traditional Polynesian navigation. He has been associated with Hōkūle'a, the traditional Hawaiian sailing canoe, since 1974, on which he sailed his first deep-sea voyage to Tahiti in 1985.

Mr. Chun is connected to the KCC project area, not only through his experience and familiarity with the KCC campus, but also as a resident of Nāwiliwili Ahupua'a, where he was raised and currently resides. Although his family is originally from O'ahu, Mr. Chun moved to Kaua'i when he was a young boy. He shared with CSH his memories of growing up in Nāwiliwili, portraying the cultural and environmental landscape of the place at the time.

I've been there [Nāwiliwili] since small-kid time. I grew up in that area, in Kupolo, the name of that subdivision just above Nāwiliwili. If you're driving toward Nāwiliwili from Rice Street and the road starts going down the hill, there's a subdivision on the right hand-side. That's it. It overlooks Nāwiliwili Valley between Kaua'i High School, Wailers and the entrance to the Marriott. My grandparents were from O'ahu but we moved here when I was young, eight to ten or something like that, and we were raised here since then.

Mr. Chun described the valley of Nāwiliwili as being a small town when he was growing up where taro was once cultivated, later replaced by pastures for cattle.

It [Nāwiliwili] was a small town at the time. I remember that valley, it's not on these maps [pointing to maps]. The mill is over here and the valley comes around here and goes toward Kalapaki. Down in that valley where we used to live, there were taro patches. Now it's all pastures and grassland but before, they used to be taro patches. Someone is still planting taro there. There's still some taro patches down here. In Niumalu, there's taro way in the back. I remember when we wanted lū'au [young taro tops, especially as baked in coconut cream and chicken or octopus] leaves or taro, we'd go down there. There's only one family I knew who had taro but they got old and didn't continue it. I think the landowner down there was Kanoa Estates. They sold some parcels but they leased out the land for cattle. The Andrades, from Kalaheo, used to have cattle down there. This was around the sixties to mid-seventies. After that, the place just went to grass.

He recalled the sugar cane industry as a child and a railway that brought sugar from the plantations to a mill in Nāwiliwili. Mr. Chun remembered that by the seventies, trucks replaced the rail system.

Sugar was there when I was a child. In fact, they still had the railway run to the mill and down alongside this valley. They used to bring sugar to the mill. That ended around the seventies. I remember that lasted only for ten years or so and then it stopped. Everything went to trucks after that. Trucks transported sugar from the fields to the mill.

According to Mr. Chun, the land on which the KCC campus is located was also cultivated in sugar cane. He recalled that Puhi Camp, a plantation camp, was also located within the project area. He was doubtful that any archeological, historical, or cultural sites remain within the project area due to the prior cultivation of sugar cane on the property. He stated,

This campus used to sit on sugar cane land. I remember as a kid that this side over here [pointing to map], was a plantation camp. The Puhi Camp. It was here and also here. This was all sugar. As far as archaeological, historic, or cultural sites, I don't know if there'd be anything left because this was all sugar cane land.

Mr. Chun shared his memories of Puhi Camp and explained that the camp was predominantly Filipino. He described life in the plantation camp:

Puhi Camp was all single-family homes. Old style. It was run by Lihue Plantation or it may have been Grove Farm. They provided housing for their plantation workers. I think the workers paid for their housing but it was cheap. That was part of the plantation mentality at the time. Workers were brought in, paid the minimum wage, and housing was provided. At that time, most of the camp was Filipino because that was the latest immigration group that was brought in to work the plantations. They were the majority of this plantation camp. They [Puhi Camp] had their own plantation doctor, medical facilities, and plantation store. So the money stayed within the company. It was like that for awhile. You know where the Macy's is located at the Shopping Center? Back then, Liberty House was there. It started off as a plantation store for American Factor's Corporation which was one of the Big Five Corporations. They had their own plantation stores

to supply their own plantation workers so that the money would come back into the corporation. Originally, it was called Heckfield and Sons which is a German family but then during the war, World War I, they didn't want to have any affiliation with something German so they changed the name to Liberty House. Something American.

Mr. Chun explained how water flowed down from Kilohana mountain and fed the plantations. He described an abundance of water that collected in reservoirs. However, he suggested that developments such as roads have changed how water once flowed. He explained,

One of these sites here was a reservoir. The water for that reservoir came from a spring up here . . . down from Kilohana. There's another reservoir here, and another here and here. So the water fed these reservoirs then the water went out to the sugar cane fields in this area. Now, the water comes down still. This one is dry, right outside of our building [Hawaiian Studies Building]. When it rains, the water runs off and overflows. When there's heavy rain, the water drains and kind of fills up the road that comes out in front of here. This one [reservoir] still runs and goes to this stream that comes down here some place [pointing to map]. They're putting in culverts and all sorts of thing in the road construction in front of the campus so I have no idea where the water all goes. Before, the water used to just go across the road and go down here [pointing to map]. This was all Puhi Camp, plantation camp over here.

Mr. Chun explained that freshwater flows down into Nāwiliwili Bay through rivers and streams such as the Hule'ia River. He had observed changes in the water quality of Nāwiliwili Bay over time and attributed muddy water in the bay not only to heavy rains flooding the Hule'ia River but to activity upstream at the sugar mill, as well as the development of the Marriott Hotel. He explained,

When there's heavy rains in the Hule'ia River, the whole bay gets muddy. That river flushes. Another stream comes up from the mill up this way and brings water down to Kalapakī side. When I think back, Nāwiliwili Bay wasn't always muddy from rain because it didn't depend on the rain, at least on the Kalapakī side. It depended on what the mill was doing. It didn't depend on the weather. If it rained hard, yeah, then it would get muddy from the Hule'ia River but on this side [Kalapakī], it was more dependent on the mill. I think what happened is that the sugar mill up here used that stream to wash their cane so the stream would get silty and rubbish from the mill would come down into the bay. The water quality used to be junk.

Today, there's another runoff stream that comes up here [pointing to map]. It used to come down on the backside of the Marriott. When the Marriott Hotel was built, they diverted the stream and made underground culverts for the water. Remember those really heavy rains when it rained everyday for a long time? Four years ago? When the dam broke, these culverts they had underground to divert the stream collapsed, and made major damage to the hotel parking area and entrance. It was major. Because of that, whenever it rains, silt comes down through this and here too and joins and makes this real muddy.

Mr. Chun believes fresh water has shaped the ecology of Nāwiliwili Bay in that corals do not grow where there is fresh water. He believes the sandy bottoms of the bay and the location of the coral reef further out in the bay is due to the decreased salinity of the water from fresh water.

There's a rock here in the middle of the beach where water comes along here and out. That's why it's all sandy in the middle of the bay because coral is not going to grow where there's fresh water. That's why the reef is further out. In between this area, it's all sandy on the bottom because fresh water comes in here and here [pointing to map].

Mr. Chun described Nāwiliwili Bay during his childhood and shared surfing stories from the bay. He also told of mo'olelo associated with sharks and shark gods in the bay.

The jetty wasn't like the harbor where it is today. We didn't have the breakwater outside. When they dredged this harbor, they made this jetty. Here's inside lighthouse and outside lighthouse there. There's a rock over here I heard a story about. I don't know the name but they say that one of the shark gods came to this place. When we were kids, we used to surf over here and I'd think, 'I don't know if I wanna go surf over there. Sharks come around.' See these lighthouse here? There's a break over here. They say that on this side, there's another cave where the sharks give birth. So everytime we'd surf over here, we'd always look around. One time, we're out here surfing as kids, maybe fourteen, fifteen and we looked around behind us and we saw this fin swimming behind us coming around this way. It's all cliff here but there's a little indentation that's kind of low over here so we paddled to it. We climbed up this little indentation and we looked behind us and there's this ten-foot shark behind us. That's why I hardly go surfing there nowadays. They say, and it still holds today with the kids, some of them say, sharks give birth over here. A number of years ago, we're surfing in this area along the rock where the reef is when these guys shout, 'shark coming in,' so we're all paddling and jump on the wall along here. The shark came. It was a hammerhead shark. The water was only chest-deep but it gave birth so there was a lot of thrashing and blood in the water. They kind of swam around here and went out. That doesn't happen often but that's one of the stories.

Mr. Chun recited previous survey research that his colleague, Mr. Pila Kikuchi, had conducted in the area which indicated the place name "Puhi" was the name of a cave where a shark god lived. He believed the cave was located in Ha'ikū, near the Menehune Fishpond. He explained,

The place name, 'Puhi,' means 'to blow.' A shark god lived in a cave in the area. The name of the cave was Puhi, therefore, the name of the area. But where? See this? This area is in the ahupua'a of Ha'ikū. So it would have to be down in this area, near the fishpond [Menehune].

Regarding fishing practices in the bay, Mr. Chun recalled seeing a hukilau event at the bay as a child. He shared the story:

The first time I saw a hukilau was over there. It was in front of the Old Kaua'i Surf. It was old style Hawai'i kine of a hotel, part of the Big Five hotel chain. It was pretty low key, like Coco Palms, and open. They'd just started building it

when I saw the hukilau. They had it here [pointing to map] and I thought it was so cool. They were just pulling in ropes with leaves tied to it and all these fish were coming in. It was pretty cool. I saw that once and I never saw that again. It was one family. I don't even know whose family it was. Maybe it was Aunt Sarah's family. Kailikea was the family. She passed away already but they were one of the old time Hawaiian families that lived in this area. In fact, they still have one house along here and I think the son still lives there. There was also uncle Gable 'Ii. The Lovells were another one. Those are the families I remember.

Mr. Chun talked more about fishing practices in the bay and stated that not too much fishing occurs in the bay today. Instead, people go to Wailua to fish. However, he maintained that people still gather limu and 'opihi inside the bay and go crabbing along the Hulē'ia River. He stated,

There's not too much fishing in the bay. There is some but not that much. For us, we'd kind of go this side, to Wailua for fishing. We'd also walk down to Ninini Point, by the outside lighthouse. We'd use the roads and go down, park our cars, and go down along the coastline. Before, I don't know if there still is, but there used to be a dirt road that goes there. You could also go by the airport and go along the coastline to the outside lighthouse. As far as limu and 'opihi, we could get them right inside the bay. It was not a problem. People would go crabbing right along here, the Hule'ia. We used to do that. People still do that. 'Opihi, you can still get all along there in the bay, along the seawall. But, it's so easy, people pick them small because it's convenient. If people just want a handful for eating tonight, they'd go there.

Mr. Chun also mentioned Menehune Fishpond as the largest fishpond in Kaua'i and the main one in the vicinity of the project area.

Menehune Fishpond is probably the largest. There's one in Hanalei that I know of, right behind the Wilcox family house, Hanalei Bay. But, Menehune Fishpond is the main one in this area.

When asked about his knowledge of burials and other features of cultural significance within the project area, Mr. Chun indicated he knew of a cemetery located near the campus. He identified the cemetery on the map. He reiterated that the sugar cane plantations would have displaced features of cultural significance within the project area and also pointed out that the population centers would have been concentrated along the coast or along the Hulē'ia River. Therefore, the likelihood of finding heiau and other cultural features would be higher along the coast than within the project area. He knew of no heiau in the ahupua'a of the project area.

There's a cemetery up here. It's on the map. It's a separate parcel. That's the only burials that I know of, at least, in recorded times but I don't know as far as pre-history. I haven't heard of anything here. I think because this was all sugar cane fields, everything got reburied, hidden, displaced, or destroyed by the time we came about. If there's anything remaining, it's probably destroyed. I'm sure there were stories. If we go back far enough, we'll find written accounts of things but to find that now is difficult. I know what people would look for in digging around this area. They'd be looking for artifacts like old bottles and things like that. I see

that happening more than for Hawaiian artifacts. In those days, I don't think the population centers would have been up here. If anything, it would down along this area along the coast or along Hulē'ia. I don't know of any heiau around here. Heiau I know that would've been around the coastline. Not any that I know of in any of these ahupua'a.

7.5 Previous KCC CIA Interview with Mr. Robert White

CSH met with Mr. Robert (Bob) White on 7 December 2011 at his residence in Niumalu. Mr. White and his family moved to Kaua'i in 1970 and spent most of the summers surfing and camping at the beach in Kalapakī since he was ten years old. He has lived in Wailua and 'Ōma'ō, but moved to his current residence approximately 15 years ago. His home is located directly adjacent to the Hulē'ia River and minutes away from the Menehune Fishpond. Mr. White, therefore, lives within the study area and near the KCC project area. He and his wife have two children who grew up in Niumalu and attended Kaua'i High School. They have a strong sense of place and love the island and its people. Mr. White expressed the following sentiments about Kaua'i, "We have a really strong sense of feeling for this island. So, we're very open to this project because we love Kaua'i. We love the area, and we love the people." He shared with CSH his mana'o regarding the KCC project.

Mr. White acknowledged the importance of the KCC project to the well-being of the island of Kaua'i and supports the plans to develop the school. He stated, "I think it makes perfect sense to develop the school. It's in a great location." Being familiar with the area, Mr. White pointed out that should the college expand, mitigation plans to ease potential traffic problems should be addressed. He explained that motor vehicles turning into the Chevron station near the main intersection on Puhi Street, directly in front of the campus, currently cause traffic congestion and he foresees the problem exacerbated if the campus expands. He shared his views on the traffic problem:

Numerous times, I have seen dangerous driving behavior and unnecessary traffic congestion at the intersection of Puhi Road and Kaunauli'i Highway. The issue is that cars are turning left on Puhi Road into the Chevron station but there are cars generally stopped at the traffic light along Puhi Road. This creates an unnecessary traffic jam as the traffic along Puhi Road blocks the cars attempting to turn left into the station. In terms of easing traffic, it might make sense for Kaua'i's Public Works to mark the road 'Do not block' so people can make their left turns into the Chevron station without holding up traffic. It would also make ingress and egress into the Chevron station safer for motorists.

Mr. White recommended the following:

As they expand the school, it would make sense to have that intersection flow better. Even though the State is improving the highway there, there is still going to be a traffic issue at this corner unless the County can install the necessary signage or asphalt marking.

Mr. White also pointed out that should the college expand, he was concerned about the potential effects of any herbicide usage for weed control on the surrounding areas. Mr. White

acknowledged that the study area is a watershed which includes the Hulē'ia National Wildlife Refuge near and downstream from the project area. He stated,

One thing that is a valuable point to mention is the County or the State's use of herbicide or weed control. I just wonder how many of those chemicals end up in our watershed and how much that is affecting our aquatic reserves and resources. I would say, they should be sensitive about the fact that this is a watershed and that it is feeding down to the National Wildlife Refuge. This is actually a wildlife refuge, just around the corner. This whole area, where the Menehune Fishpond is, is in a wildlife refuge now. So, all the more reason to consider careful usage of spray or pesticides.

He was concerned about potential contamination of the watershed, particularly that of the Hulē'ia National Wildlife Refuge near the project area, from any use of herbicides and methods of weed control. He recommended careful usage of these substances by the State of Hawai'i and/or the County of Kaua'i.

7.6 Mrs. Bernie Sakoda

CSH interviewed Mrs. Bernie Sakoda on 21 November 2013, regarding the Island School Land Use District Boundary Amendment. Mrs. Sakoda also graciously provided her approval for CSH to use her previous interview for the KCC CIA (see Section 7.2). Mrs. Sakoda was born just a short distance from the project area and was raised in Puhi Camp and two generations of her family worked for Grove Farm. Her father, Robert Seiyei Tokuda, was a truck driver for Grove Farm and her brothers worked in the pineapple fields during summer vacations.

Mrs. Sakoda noted that she and Mr. Robert Agena, another former Puhi Camp resident, discussed the Island School proposed project and also reviewed the previous interviews made during the site interview at Puhi Camp for the KCC CIA. They reminisced about the old days at Puhi Camp, which was adjacent to the current project area of Island School. Regarding the Island School project, Mrs. Sakoda shared, "We believe what Island school is planning will be a nice addition to their campus. Our community is very fortunate to have their project at the chosen site."

Pointing out that the proposed project area is away from the Puhi Camp cemetery which was and is the main area of concern for her, Mrs. Sakoda expressed her satisfaction that the planned project would not impact the cemetery.

When asked if she could recall any cultural practices and resources in and around the Island School project area, Mrs. Sakoda related that all cultural practices like music, dancing, ethnic dishes, games, and other activities were shared among the many diverse cultures living in the camp.

As a child, Mrs. Sakoda lived just down the highway from the project area and she hiked all around with her friends and spent many days exploring.

It was a special place growing up for all of us. As children, being able to go into the forest area, and into the field at the time where there was sugar cane and pineapple. We also made homemade toys from the resources around the area. We

would use the tassels from the sugar cane to use as spears. We would make slingshots from guava trees, and we picked 'rat berries' (berries that had a grey furry skin) that were sweet and delicious.

The grey berries could be picked off bushes. They grew all over the project area during her years in Puhi Camp, between 1946 when she was born to 1964, when she left for college. These days, the berries can be found just past the Humane Society, but she is not sure if it is still there inside the project area.

Describing how the project area looked during her childhood, Mrs. Sakoda stated, "The way it looked like was different, part forest, part cane field . . . We used the cane field to get to the bushes and everything we needed in the area."

Besides the ginger plants and berries, Mrs. Sakoda also mentioned the eucalyptus trees in the project area. She did not recall when the area changed for Island School. To this day, she still has fond memories of the project area, characterizing it as "an old playground."

Section 8 Cultural Landscape

Discussions of specific aspects of traditional Hawaiian culture as they may relate to the project area are presented below. This section integrates information from Sections 3–7 in order to examine cultural resources and practices identified within or in proximity to the project area in the broader context of the encompassing landscape of Nāwiliwili, Niumalu, and Ha'ikū. Excerpts from consultations are incorporated throughout this section where applicable.

8.1 Hawaiian Habitation and Agriculture

As discussed in Section 3.7, the ahupua'a of Nāwiliwili and Niumalu were permanently inhabited and intensively used in pre-Contact and early historic times as far back as possibly AD 1100 (Walker et al. 1991). Historically, settlement of the study area was predominantly along the coastal areas as evidenced by the concentration of permanent house sites, temporary shelters, heiau, fishponds, and intensive cultivation in these areas. In 1853, Coulter recorded the population around Nāwiliwili Bay to be approximately 1,700 and indicated on his map that settlement was predominantly along the coast, most likely reflecting a high dependence on marine resources for subsistence. An 1886 photograph of Nāwiliwili, shown in Figure 47, suggests that some 40 years later, the study area was still highly engaged in taro cultivation. However, observations by Handy (1940) of Nāwiliwili in 1935 suggest major changes to the landscape of the study area occurred between 1886 and 1935 during which time lo'i cultivation significantly decreased and was replaced by pastureland and sugar cane plantation-related activities.

This drastic change in the landscape was likely attributed to the prevalence of the sugar cane industry, particularly in the early twentieth century. Mr. Chun, who grew up in Nāwiliwili in the 1960s, described the valley of Nāwiliwili during his childhood as a small town where taro was once cultivated, later replaced by pastures for cattle. He related that even during the 1960s, taro was still being cultivated in the area, though probably to a lesser extent than in 1935. Today, taro patches are almost non-existent in the study area with only a few families still cultivating taro.

Consultations with residents of the study area and of the former Puhi Camp indicate the landscape of the project area was formerly under sugar cane cultivation, though Mr. Pereira also made references to the farming of pineapple and of cattle.

8.2 Wahi Pana and Mo'olelo

Wahi pana and mo'olelo provide a unique insight into the cultural and natural landscape of the past. Wahi pana and mo'olelo associated with the study area are plentiful suggesting early settlement of the area by a viable Native Hawaiian population. In the case of the project area, the wahi pana of "Puhi," the name of the area in which the project area is located, is associated with a shark god. Mr. Chun explained:

The place name, 'Puhi,' means 'to blow.' A shark god lived in a cave in the area. The name of the cave was Puhi, therefore, the name of the area. But where? See this? [Pointing to map] This area is in the ahupua'a of Ha'ikū. So it would have to be down in this area, near the fishpond [Menehune].

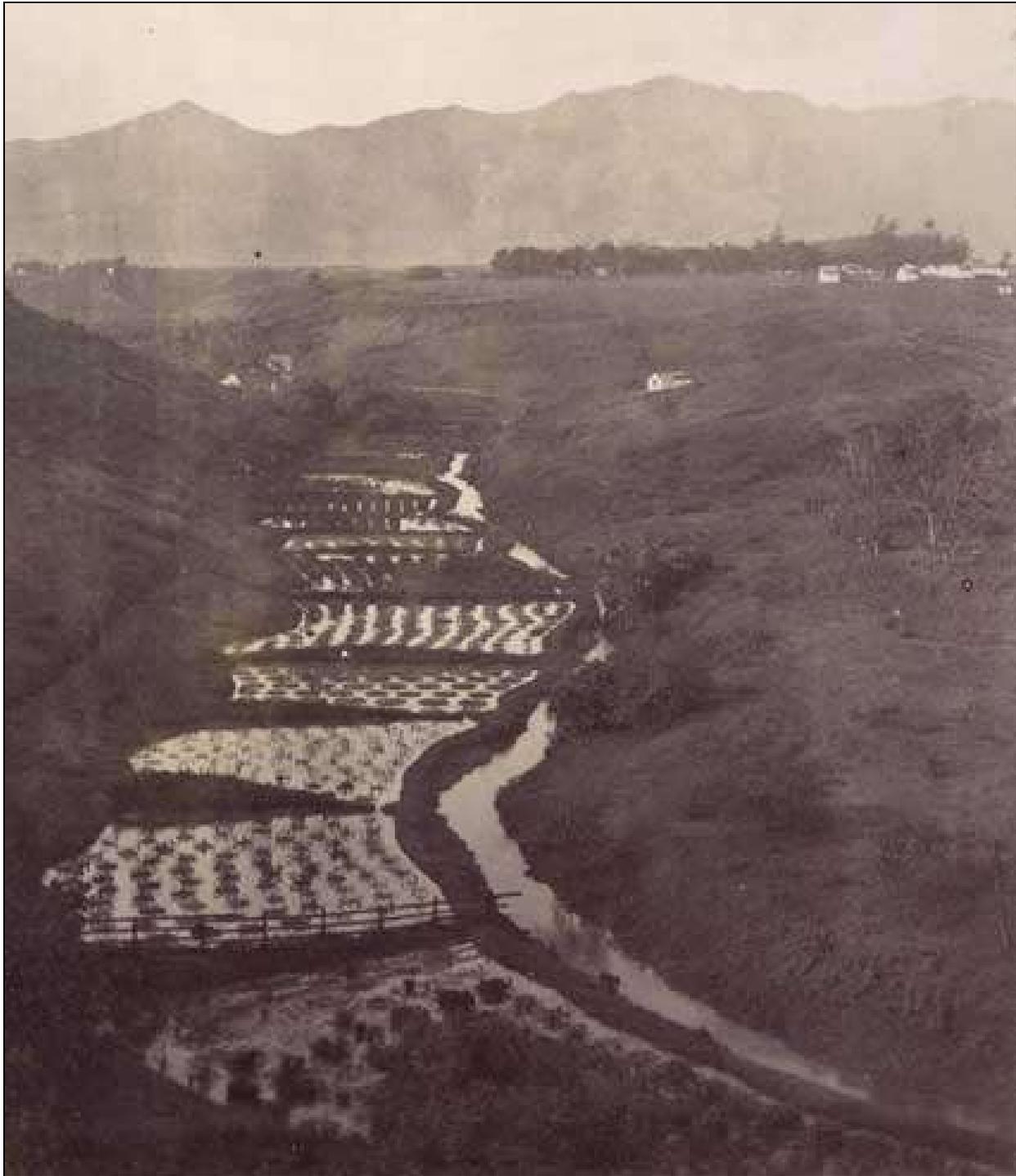


Figure 47. Taro growing along the Nāwiliwili Stream to half a mile up above the mill (Bishop Museum 1886)

Thus, Puhi was the cave of a shark god, which is thought to be possibly located within the ahupua'a of Ha'ikū, near the Menehune Fishpond. Though Puhi is located several miles inland from the coast, the association with sharks reflects a culture deeply connected with the ocean and emphasizes the mauka–makai orientation of the land that is central to Native Hawaiian culture. Mr. Chun also shared other mo'olelo associated with sharks and shark gods residing in and around Nāwiliwili Bay.

8.3 Burials

Archaeological studies discussed in Section 5 and consultations presented in Section 6 and 7 indicate two graveyards, the Puhi Camp Cemetery and Cement Pond, though outside the project area, are located near the Island School project area. Thus, known burials in the vicinity of the project area are historically relatively recent. Kupuna Makanani recalled in a previous interview that it was possible to bury family members around one's residence when she was growing up; therefore, she expressed that discovering inadvertent burials is possible. Acknowledging the agricultural history of the project area, Mr. Chun explained in a previous interview that “the sugar cane plantations would have displaced features of cultural significance within the project area.”

8.4 Heiau

Literature research indicates no known heiau currently exists within the study area though Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua'i, once existed along the coast of Nāwiliwili Ahupua'a (Damon 1931). This heiau is described as covering about four acres and associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua'a. Previous consultation revealed that no participant had any knowledge of heiau in the study area, probably because these structures have been physically obliterated.

However, in previous interviews, residents of the study area shared some knowledge of mo'olelo associated with heiau that existed in the project area. Mr. Chun described a rock near the lighthouses along Kalapakī linked to stories of a shark god. The rock he described may be Paukini rock, the sister heiau of Kuhiau Heiau described above.

8.5 Marine and Freshwater Resources

Early accounts describe the study area as a rich land with abundant fresh water and marine resources. Niumalu Ahupua'a in the mid-twentieth century was described as having some of the best fishing grounds on the island of Kaua'i. Inhabitants of the study area fished the reefs, farmed fishponds, and utilized the many freshwater streams and rivers flowing seaward from Kilohana not only for lo'i cultivation, but for fishing. During the sugar cane plantation era, which began in the 1830s in Kaua'i, freshwater was utilized to support the largest industry driving the economy of the project area at the time. Nearby the project area, Grove Farm Plantation diverted freshwater streams to build reservoirs and ditches supporting the life and daily activities of the plantation. The literature and previous consultations with residents of the study area suggest that since the mid-

nineteenth century, demands of population increase and its associated development have negatively affected the health and quality of these water systems.

8.5.1 Streams

Section 3.61 discusses streams within the study area in more detail and affirms that modern development has modified the flow of these water systems. Previous consultations with residents of the study area revealed the types of changes they have observed over their lifetimes. Mr. Chun explained that fresh water flows down into Nāwiliwili Bay through rivers and streams such as the Hule'ia River. He has observed changes in the water quality of Nāwiliwili Bay over time and attributes muddy water in the bay not only to heavy rains flooding the Hule'ia River but to activity upstream at the sugar mill, as well as the development of the Marriott Hotel.

Mr. Chun's observations highlight the mauka-makai connection of the land in that the impacts of land-based activities are not only localized but may have more far-reaching impacts on distant locations and ecosystems. Streams and rivers act as media connecting points along the land with the ocean. Mr. White acknowledged the study area is a watershed which includes the Hulē'ia National Wildlife Refuge located near to and downstream from the project area. He is concerned about potential contamination of the watershed, particularly of the Hulē'ia National Wildlife Refuge, with herbicides and methods of weed control used by local businesses.

8.5.2 Fishing

As discussed earlier, the study area was known for being one of the best fishing places in Kaua'i. Handy (1940:67) relates that, "Niumalu is a tiny ahupua'a, a mere wedge between Nawiliwili and Haiku, but it was, and is, one of the most important fishing localities on Kauai." Thus, by the mid-twentieth century, fishing within the study area was widely practiced and there was an abundance of fish. However, previous consultation indicated marine resources have declined over time and though people continue to gather limu, pick 'opihi in the bay, and crab, many prefer to fish in Wailua, north of the study area. Mr. White no longer eats fish from Niumalu Bay due to pollution.

Mr. Chun, Mr. White, and Mr. Pereira, long-time residents of Niumalu and Nāwiliwili who have spent many years fishing in the area, shared their knowledge and experience of fishing. They indicated that fishing mainly occurred along the coastal areas of the study area, particularly at Nāwiliwili Bay. They recalled fishing for akule with large nets, picking 'opihi on the break water along the bay, spearfishing, netting, and crabbing for a white crab (possibly kūhonu) and Samoan crabs along the Hulē'ia River and in Niumalu Bay. Mr. Pereira also recalled catching he'e and fish like manini. Mr. Chun remembered a hukilau event at Nāwiliwili Bay during his childhood but has never seen another in his lifetime.

Mr. Chun believes freshwater has shaped the ecology of Nāwiliwili Bay in that corals do not grow where there is freshwater. He believes the sandy bottoms of the bay and the location of the coral reef further out in the bay is due to the decreased salinity of the water from freshwater.

Closer to the project area, Puhī Camp residents fished for 'o'opu and crayfish, and caught frogs in nearby ditches and reservoirs to supplement their diet (See Appendix B for scientific

names). It is not clear whether these reservoirs are still utilized by residents of the study area for fishing.

8.5.3 Loko I'a

According to LCA records, fishponds were abundant in the study area with six in Nāwiliwili, and seven in Niumalu. Menehune Fishpond, the largest of all fishponds in Kaua'i, still exists, as shown in Figure 48. Menehune Fishpond has experienced many changes as documented in Section 3.6.2.1. Comparisons of recent imagery of the fishpond in Figure 48 to those from a century ago (Figure 8 and Figure 9), show that mangroves have encroached upon the fishpond, decreasing its size. Today, the fishpond is a historic property (SIHP # 50-30-11-501) that is a major tourist attraction in Kaua'i.

8.5.4 He'enalu

Previous consultations for this project indicate surfing was and continues to be a Native Hawaiian cultural practice within the coastal areas of the study area. Mr. Chun, Mr. White, and Mr. Pereira all shared surfing stories from the bay. Mr. Pereira recalled using surfboards made of plywood. Today, surfing is a significant recreational activity, not only for residents of the study area but also for visitors.



Figure 48. Menehune (‘Alekoko) Fishpond today (Boynton n.d.)

Section 9 Summary and Recommendations

CSH undertook this CIA at the request of Wilson Okamoto Corporation. The cultural survey broadly included the entire study area, and more specifically the approximately 38.448-acre project area.

9.1 Results of Background Research

Background research for the proposed project indicates the project area, which lies approximately 2 miles southwest of Līhu'e Town, is part of a traditional region encompassing the ahupua'a of Nāwiliwili and Niumalu. Early accounts describe the region as an open, grass-covered land dotted with trees and streams that flowed down from lush mountains on the way to the sea, with soils that bore a variety of crops like sugar cane, taro, sweet potatoes, beans, and groves of kukui, (candlenut), hau (beach hibiscus), koa, hala (pandanus), and wiliwili. The abundance of water and water systems, presence of famed fishponds along the coast, along with the concentration of permanent house sites, temporary shelters, and heiau suggests early settlement along coastal areas, with a radiocarbon date of AD 1170 to 1400 near the mouth of Hanamā'ulu Stream, north of Nāwiliwili.

In the mid-nineteenth century, the project area became associated with the establishment of the commercial sugar cane agriculture which required foreign indentured labor imported from Japan, China, and the Philippines. The project area became part of the Grove Farm Plantation before the farm stopped its sugar business in 1974. Adjacent to the project area lie remnants of the Old Puhi Camp, built around 1920 along the present Kaumuali'i Highway. It housed plantation workers of Grove Farm and contained a movie hall, three stores, a Chinese laundry, a slaughterhouse, and an area for social events. Most of the Puhi Camp housing was removed in the 1970s prior to construction of the Kaua'i Community College (KCC) and the last homes of the camp were dismantled in the 1980s.

The study area is also linked to many mo'olelo (stories, oral histories) and wahi pana (storied places) that suggest early settlement of the area by a viable Native Hawaiian population. These include mo'olelo about Kuhiau Heiau, the largest heiau in Kaua'i, Ninini and Ahukini Heiau in Kalapakī, the Menehune, wiliwili trees, and the many well-known chiefs, heros, and gods such as the chief Papalinaloa, the three sons of La'a Maikahiki, the hero Lohiau, the contest of Kemamo the sling-thrower and Kapūnohu, the ravishing of Pele by Kamapua'a, demi-god Pōhaku-o-Kaua'i (Hoary Head), as well as a Kaua'i chief sent by Ka'umuali'i to placate Kamehameha I on O'ahu. Mo'olelo with associated bodies of water near the project area are also plentiful which include Alekoko, the largest fishpond in Kaua'i (also known as 'Alekoko, Alakoko, Pēpē'awa), Hulēia (Hulā'ia) Stream, Kilohana, and Nāwiliwili Bay. Many wahi pana of settled areas, such as Puhi, Līhu'e, and various pu'u (hills, ridges) are also associated with the project area.

Other important findings from background research are presented and described in more detail:

1. The traditional moku or districts of Kaua'i were replaced in the mid-to-late nineteenth century. Līhu'e became the modern district that includes the ahupua'a of the proposed

project, previously under the Puna District. “Līhu‘e,” which literally translates as “cold chill,” was not consistently used until the establishment of commercial sugar cane agriculture in the mid-nineteenth century (Creed et al. 1999). Between the 1830s and the Māhele, the names Nāwiliwili and Līhu‘e were used somewhat interchangeably to refer to a settlement along Nāwiliwili Bay.

2. No known heiau currently exists within the study area although Kuhiau Heiau, reported to be the largest and most famed heiau on Kaua‘i, existed along the coast of Nāwiliwili Ahupua‘a (Damon 1931). Listed by Bennett (1931) as Site 99, this heiau is reported to have been about 4 acres and was associated with Paukini Rock, its sister heiau that marks the boundary between Nāwiliwili and Kalapakī Ahupua‘a.
3. After the Māhele, Victoria Kamāmalu was awarded over 2,000 acres of Nāwiliwili Ahupua‘a, along with much of Niumalu. Land Commission Awards (LCAs) describe many lo‘i (irrigated field, especially for taro) and kula (plain, field, open country, pasture) lands within the study area particularly as being in the same ‘āpana (piece, slice, portion), a pattern common to the Puna District of Kaua‘i, but uncommon elsewhere in Hawai‘i. Maka‘āinana (commoner) in the Puna District referred to lands in valley bottoms as kula.
4. Many loko i‘a (fishponds) were prevalent in the study area. LCAs document six in Nāwiliwili and seven in Niumalu. ‘Aleko Fishpond, also known as Menehune Fishpond, or Niumalu Fishpond, is the largest fishpond on Kaua‘i and still exists in the study area. It has been designated SIHP # 50-30-11-501.
5. The project area is near the Grove Farm Plantation—so named after an old stand of kukui trees. The plantation was established in 1850 and taken over by Mr. George Wilcox in 1863. He bought the farm in 1870 for \$12,000 and it flourished under his leadership. In the mid-1960s, Grove Farm donated 200 acres of former sugar land to the State of Hawai‘i for KCC. Grove Farm ended its sugar business in 1974 (Wilcox 1998:76).
6. The Old Puhi Camp, which housed plantation workers of Grove Farm, is next to the project area and consisted of about 600 homes for about 1,200 workers and their families. At the forefront of housing reforms, Puhi Camp dwellings became the standard for the plantation industry in the 1920s (Riznik 1999).
7. One historic property was identified during earlier LRFI work (Groza and Hammatt 2013) for the project area, SIHP # -2179, Features A through D (Feature A, a reservoir; Feature B, an earthen ditch; Feature C, an earthen ditch with running water; Feature D, an earthen ditch). This historic agricultural infrastructure is part of a large historic agricultural district once extant throughout much of Nāwiliwili. Portions of this district are still farmed today.

9.2 Results of Community Consultation

CSH attempted to contact 28 community members, government agencies, community organizations, and individuals. Community consultations began in October 2013 and continued until January 2014. Of the three respondents, one kama‘āina (Native-born) participated in a formal interview. Consultation indicates the following:

The project area is a much-loved place characterized as “an old playground” and “special place” by community contact Mrs. Bernie Sakoda. According to study participant Mr. David Pratt, the project area was part of a sugar cane field operated by the Lihue Plantation Company in the 1970s and 1980s. Mrs. Sakoda recalled that the project area was “part forest, part cane field” and she described using the tassels from the sugar cane as spears for childhood games. Mrs. Sakoda related that she and her friends used the cane field on their way to obtain what they needed in the area, gathering sweet “rat berries” that grew nearby and making slingshots from guava trees.

Previous interviews for the KCC project adjacent to the present project area for Island School indicate the study area and environs, in particular the lo‘i, kula or lands in valley bottoms in this particular context, rivers, streams and Nāwiliwili Bay, have a long history of use by Kānaka Maoli (Native Hawaiians) and other kama‘āina groups for a variety of past and present cultural activities and gathering practices. Mr. Pereira, and Mr. Chun discussed in previous interviews fishing, gathering ‘opihi (limpets) and limu (seaweed, algae) in Nāwiliwili Bay, and crabbing along Hulē‘ia River which still continue today among residents of the area. They discussed spear and throw-net fishing which for Mr. Pereira consisted in part of catching akule (big-eye scad), manini (convict tang), and squid using his own throw net which he created and makes for sale to others. Several previous interviewees shared he‘enalu (surfing) practices and associated mo‘olelo in the past and in the present. At least two participants in previous interviews noted the abundance of freshwater resources and the watershed near the project area and highlighted the ecological relationship of natural and cultural resources within or near the project area.

Mo‘olelo from earlier interviews discussed the practice of hukilau (fish with the seine), the origin of the name “Puhi” which is connected to the cave of a shark god in Ha‘ikū, as well as the presence of spirits in the project area in the form of fireballs. The gathering of plants such as bamboo shoots, papaya, mangoes, passionfruit, guava, and pepeiao (cloud ear fungus) in the vicinity of the project area along with catching crayfish, ‘o‘opu, and frogs in the irrigation ditches and reservoirs were common practices; two previous participants talked about hunting pheasants and wild boars. Previous interviews also discussed burials and noted the existence of a historic cemetery surrounded by the project area, and another cemetery nearby. Previous and current interviewees stressed how natural resources were shared with one another, and utilized in cultural practices.

Other important findings from community consultations are presented in more detail:

1. The project area was planted with sugar cane by the 1900s according to CIA participant Mr. Pratt.
2. Lihue Plantation operated the cane field in the 1970s and the 1980s. Sugar cane operations had ceased by the 1990s, when Island School acquired acreage from the former Lihue Plantation Company.
3. The project area contains or is near plants such as ginger, eucalyptus, guava, sugar cane, and grey berries that were sweet to eat.
4. The project area is on agricultural land and is part of the historical plantation era. Plantations provided a livelihood for many residents of Kaua‘i like Mrs. Bernie Sakoda and Mr. Pratt. Previous interviewee Mr. Pereira worked in the sugar and

- pineapple plantations during the summertime as a young boy, which paid for his schooling, while Kupuna Makanani also made a living processing pineapple.
5. The project area is adjacent to the former Puhi Camp, a former plantation camp for the workers of Grove Farm Plantation and their families. Since Puhi Camp is a significant part of the project area's history, Puhi Camp is described in more detail:
 - a. Cultural practices like the playing of music, dancing, preparing of ethnic dishes, the practice of games and other activities were shared among the many diverse cultures living in Puhi Camp according to Mrs. Sakoda.
 - b. Previous interviews indicate Puhi was a self-sufficient plantation camp with its own stores, doctors, and medical facilities. Families shopped for groceries in plantation stores, and bought items using credit, to be paid for on payday. Plantation workers lived at Puhi for cheap rent, received kerosene for cooking, and hot water for bathing. Land was also given to anyone who wished to grow vegetables and crops were shared amongst families.
 - c. While various accounts portray plantation life as harsh and unfulfilling, Mr. Takahashi related in a previous interview that the Wilcox family treated their workers very well and life was enjoyable at Puhi. Workers were provided the opportunity to own their own homes. Those raised in the camp fondly reminisce of a simple life and special place—a close-knit community where everybody recognized and took care of each other despite their differences.
 - d. The culture of Puhi Camp was diverse. According to Kupuna Makanani who was interviewed for the KCC CIA, the homes in Puhi were arranged by race though “everybody lived as one people.” Participants who were raised in the camp expressed their appreciation for their multi-cultural upbringing.
 - e. Other cultural activities at Puhi Camp included the “Social Box” which was a dance held by the Filipinos once a month. Mr. Pereira also described an annual Filipino carnival called the “Holy Ghost” that occurred every December. On Tuesdays, fresh bread and *malasadas* (Portuguese pastry) were baked and children collected firewood to keep the fire alive for baking.
 - f. The transition to unionization of workers in 1946 brought many changes to Puhi Camp. Kupuna Makanani explained in a previous interview that before the union, though wages were low, housing and water were free and Grove Farm provided equipment and toys for the children. Several strikes ensued but the strikes were peaceful, unlike the massacre at Hanapēpē in 1924. During the strikes, a soup kitchen run by the union provided food for workers on strike and their families.
 6. Previous consultation indicated the existence of two graveyards, known to Puhi residents as “Old Puhi Cemetery” (SIHP # -B0006) and “Cement Pond,” located outside but near the project area. The cemetery is divided into two sections for Japanese and Filipino families despite the multi-cultural makeup of Puhi. Other ethnicities chose to be buried elsewhere and many graves were removed by their families. Cement Pond exists approximately 200 m north of the project area and consists of three burials. In previous interviews, participants speculated that these

- burials are not of Puhi Camp residents but possibly of affluent Japanese. Kupuna Makanani recalled how it was possible to bury family members around one's residence when she was growing up.
7. As related by Mr. Takahashi and Kupuna Makanani in previous interviews, Filipino migrants came to Hawai'i in the early 1900s as contract laborers or "*sakadas*," searching for a better place to live. Some graves at Old Puhi Cemetery are of Filipino veterans with no known family; only crosses in the ground mark their burial, according to Mr. Takahashi. He wished that relatives of these veterans could find them, allowing younger generations to continue their ties to their culture and family tree.
 8. No participants had knowledge of any heiau within the study area. However, one participant in a previous interview shared a mo'olelo about fireballs, which reflect the presence of spirits in Native Hawaiian culture, near the project area.
 9. Previous consultation described an abundance of water in the project area. From Kilohana, water collects in reservoirs that once fed the plantations. Reservoirs and ditches were utilized by Puhi residents as food sources, and for recreational swimming. Mr. Takahashi maintained a gate still exists that controlled water flow to these water sources and regulated flow to prevent floods. Water subsequently flowed down through streams and rivers into Nāwiliwili Bay. The Hulē'ia National Wildlife Refuge, which includes the Menehune Fishpond, is part of a watershed downstream of the project area. Development has changed water flow patterns, as well as water quality.

9.3 Impacts and Recommendations

The following cultural impacts and recommendations are based on a synthesis of all information gathered during preparation of the CIA. To help mitigate the potential adverse impacts of the proposed project on cultural beliefs, practices, and resources, recommendations should be faithfully considered and the development of the appropriate measures to address each concern should be implemented.

1. While the project site is located adjacent to the Old Puhi Camp and Puhi Cemetery, these areas are beyond the Area of Potential Effect (APE). Therefore, no impacts to these sites are anticipated as a result of the proposed project.
2. Should cultural or burial sites be identified during future ground disturbance in the project area, all work should immediately cease and the appropriate agencies be notified pursuant to applicable law.

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Appendix A Glossary

To highlight the various and complex meanings of Hawaiian words, the complete translations from Pukui and Elbert (1986) are used unless otherwise noted. In some cases, alternate translations may resonate stronger with Hawaiians today; these are placed prior to the Pukui and Elbert (1986) translations and marked with “(common).”

Diacritical markings used in the Hawaiian words are the ‘okina and the kahakō. The ‘okina, or glottal stop, is only found between two vowels or at the beginning of a word that starts with a vowel. A break in speech is created between the sounds of the two vowels. The pronunciation of the ‘okina is similar to the sound between the “ohs” in “oh-oh.” The ‘okina is written as a backwards apostrophe. The kahakō is only found above a vowel. It stresses or elongates a vowel sound from one beat to two beats. The kahakō is written as a line above a vowel.

Hawaiian Word	English Translation
<i>adobo</i> (Filipino)	Filipino dish involving meat cooked with vinegar, soy sauce, and bay leaves
ahupua‘a	Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua‘a), or because a pig or other tribute was laid on the altar as tax to the chief
akua	God, goddess, spirit, ghost, devil, image, idol, corpse; divine, supernatural, godly
ali‘i	Chief, chiefess, officer, ruler, monarch, peer, headman, noble, aristocrat, king, queen, commander
‘āpana	Piece, slice, portion, fragment, section, land parcel
‘auwai	Ditch, canal
<i>bagoong</i> (Filipino)	Fermented shrimp paste
<i>bitsu-bitsu</i> balls	Filipino dessert; also known as <i>cascaron</i>
<i>furo</i> (Japanese)	Japanese bathtub
he‘enalu	To ride a surfboard, surfing, surf rider
heiau	Pre-Christian place of worship, shrine; some heiau were elaborately constructed stone platforms, others simple earth terraces; many are preserved today
ho‘okupu	Offering, gift
hukilau	To fish with a seine
hula	To dance the hula, a Native Hawaiian dance
‘ili	Land section, next in importance to an ahupua‘a and usually a subdivision of an ahupua‘a
‘ili ‘āina	Land area; an ‘ili land division chief pays tribute to the chief of the ahupua‘a of which it is a part, rather than directly to the king

Hawaiian Word	English Translation
‘ili kū	Short for ‘ili kūpono; a nearly independent ‘ili land division within an ahupua‘a, paying tribute to the ruling chief and not to the chief of the ahupua‘a
kāhea	To call, cry out, invoke, greet, name
kahuna	Priest, sorcerer, magician, wizard, minister, expert in any profession; kāhuna—plural of kahuna
kama‘āina	Native-born, one born in a place, host; native plant; acquainted, familiar, <i>lit.</i> , land child
kānaka maoli	Full-blooded Native Hawaiian person
kaona	Hidden meaning, as in Hawaiian poetry
kapu	Taboo, prohibition; special privilege or exemption from ordinary taboo
<i>kimchi</i> (Korean)	Korean fermented spicy cabbage
ki‘owai	Pool of water, water hole, fountain
ko‘a	Fishing grounds, usually identified by lining up with marks on shore; shrine, often consisting of circular piles of coral or stone, built along the shore or by ponds or streams, used in ceremonies as to make fish multiply
koa	Brave, bold, to act as a soldier
kōkua	Help, aid, assistance, relief, assistant, associate, deputy, helper; cooperation, old term for lawyer before loio was used; to help, assist, support, accommodate, second a motion
konohiki	Headman of an ahupua‘a land division under the chief
kuapā	Dashing, slashing, as waves on a shore; wall of a fishpond; fishpond made by building a wall on a reef
kula	Plain, field, open country, pasture; an act of 1884 distinguished dry or kula land from wet or taro land
kuleana	Native Hawaiian land rights (common); right, privilege, concern, responsibility, title, business, property, estate, portion, jurisdiction, authority, liability, interest, claim, ownership, tenure, affair, province
kū‘ula	Heiau near the sea for worship of fish gods
kupua	Demigod or culture hero, especially a supernatural being possessing several forms; one possessing mana; to possess kupua (magic) powers
kupuna	Elders (common); grandparent, ancestor, relative or close friend of the grandparent’s generation, grandaunt, granduncle; kūpuna—plural of kupuna
limu	A general name for all kinds of plants living under water, both fresh and salt

Hawaiian Word	English Translation
lei	Garland, wreath, necklace of flowers, shells, ivory, feathers, or paper, given as a symbol of affection; any ornament worn around the head or about the neck
lo'i	Irrigated terrace, especially for taro, but also for rice; paddy
loko i'a	Fishpond (common)
loko wai	Freshwater pond or lake
loko kuapā	Fishpond made by building a wall on a reef
lū'au	Young taro tops, especially as baked in coconut cream and chicken or octopus
Māhele	Land division of 1848
maka'āinana	Commoner, populace, people in general
makai	Seaward
makana	Gift
<i>malasada(s)</i> (Portuguese)	Portuguese pastry
malu	Shade, shelter, protection
mana'o	Thought, idea, belief, opinion, theory
<i>manapua</i>	Steamed meat buns
mauka	Inland
mele	Song, anthem or chant of any kind; poem, poetry; to sing, chant
menehune	Ledendary race of small people who worked at night, building fishponds, roads, temples
<i>miso</i> (Japanese)	Japanese soup
moku	District, island, islet, section
mo'olelo	Story, tale, myth, history, tradition, literature, legend, journal, log, yarn, fable, essay, chronicle, record, article; minutes, as of a meeting; (from mo'ō 'ōlelo, succession of talk; all stories were oral, not written)
<i>musubi</i> (Japanese)	Rice with seaweed that usually has a filling such as spam
<i>nishime</i> (Japanese)	Japanese vegetable stew
nui	Big, large, great, important
<i>obake</i> (Japanese)	Spirit
'ohana	Family, to gather for family prayers
'ōhi'a	Two kinds of trees; see 'ōhi'a ai and 'ōhi'a lehua
'ōlelo no'eau	Proverb, wise saying, traditional saying

Hawaiian Word	English Translation
oli	Chant that was not danced to, especially with prolonged phrases chanted in one breath, often with a trill at the end of each phrase; to chant thus
‘ono	Delicious, tasty, savory
<i>pansit</i> (Filipino)	A Filipino noodle dish
pili	To cling, stick, adhere, touch, join, adjoin, associate with
<i>pinkabet</i> (Filipino)	Filipino stew with vegetables
pōhaku	Rock, stone, mineral
poi	Poi, the Hawaiian staff of life, made from cooked taro corms, or rarely breadfruit, pounded and thinned with water
pu‘u	Any kind of a protuberance from a pimple to a hill, hill, peak
pule	Prayer, blessing
<i>sakada(s)</i>	Term used to describe Filipino men imported by the HSPA to Hawai‘i as unskilled laborers
<i>sipa</i> (Filipino)	To kick, Filipino traditional sport
<i>taiko</i> (Japanese)	Japanese percussion instrument
<i>takenoko</i> (Japanese)	Young bamboo shoots
‘ukulele	Leaping flea, probably from the Hawaiian nickname of Edward Purvis, who was small and quick and who popularized the instrument brought to Hawai‘i by the Portuguese in 1879
wahi pana	Storied place (common); legendary place
wai	Water, liquid or liquor of any kind other than sea water

Appendix B Common and Scientific Names for Plants and Animals Mentioned by Community Participants

Common Names		Possible Scientific Names		Source
Hawaiian	Other	Genus	Species	
akule	big-eyed scad	<i>Selar</i>	<i>crumenophthalmus</i>	Hoover 2003
‘alani	any kind of orange, both fruit and tree	<i>Citrus</i>	<i>sinensis</i>	Pukui and Elbert 1986
‘awa	kava	<i>Piper</i>	<i>methysticum</i>	Pukui and Elbert 1986
hala	pandanus	<i>Pandanus</i>	spp.	Wagner et al. 1999
hala kahiki	pineapple	<i>Ananas</i>	<i>comosus</i>	Pukui and Elbert 1986
hau	beach hibiscus	<i>Hibiscus</i>	<i>tiliaceus</i>	Wagner et al. 1999
he‘e	octopus, squid, <i>tako</i>	Multiple families and species		Hoover 1993
kalo	taro	<i>Colocasia</i>	<i>esculenta</i>	Wagner et al. 1999
koa		<i>Acacia</i>	<i>koa</i>	Pukui and Elbert 1986
kuawa	guava	<i>Psidium</i>	<i>guajava</i>	Pukui and Elbert 1986
kukui	candlenut	<i>Aleurites</i>	<i>moluccana</i>	Wagner et al. 1999
kūhonu	spotted-back crab	<i>Portunus</i>	<i>sanguinolentus</i>	Hoover 1993
liliko‘i	passion fruit	<i>Passiflora</i>	<i>edulis</i>	Wagner et al. 1999
mai‘a	banana	<i>Musa</i>	<i>xparadisiaca</i>	Wagner et al. 1999
maile	a native twining shrub	<i>Alyxia</i>	<i>olivaeformis</i>	Pukui and Elbert 1986
<i>malunggay</i>	drumstick tree	<i>Morringa</i>	spp.	
manini	convict tang	<i>Acanthurus</i>	<i>triostegus</i>	Hoover 2003
mokihana	citrus tree native to Kaua‘i	<i>Pelea</i>	<i>anisata</i>	Pukui and Elbert 1986

Common Names		Possible Scientific Names		Source
Hawaiian	Other	Genus	Species	
‘ōhi‘a		<i>Metrosideros</i>	<i>polymorpha</i>	Wagner et al. 1999
‘o‘opu	general name for fishes included in the families Eleotridae, Gobiidae, and Blennidae			Pukui and Elbert 1986
‘opihi	limpet	<i>Cellana</i>	spp.	Pukui and Elbert 1986
pepeiao	cloud ear fungus	<i>Auricularia</i>	<i>auricula</i>	Pukui and Elbert 1986
poloka	frog	<i>Canna</i>	<i>indica</i>	Wagner et al. 1999
pueo	Hawaiian short-eared owl	<i>Asio flammeus</i>	<i>sandwichensis</i>	Pukui and Elbert 1986
‘uala	sweet potato	<i>Ipomoea</i>	<i>batatas</i>	Wagner et al. 1999
‘uwa‘u	dark-rumped petrel	<i>Pterodroma phaeopygia</i>	<i>sandwicensis</i>	Pukui and Elbert 1986
wauke	paper mulberry	<i>Broussonetia</i>	<i>papyrifera</i>	Pukui and Elbert 1986
wiliwili	leguminous tree	<i>Erythrina</i>	<i>sandwicensis</i>	Wagner et al. 1999
	beans	<i>Phaseolus</i>	spp.	Wagner et al. 1999
	mango	<i>Mangifera</i>	<i>indica</i>	Wagner et al. 1999
	Philippine ground orchid	<i>Spathoglottis</i>	<i>plicata</i>	
	sugar cane	<i>Saccharum</i>	spp.	Wagner et al. 1999

*spp. = multiple species

Appendix C Authorization and Release Form

Cultural Surveys Hawai'i, Inc.
Archaeological and Cultural Impact Studies
Hallett H. Hammatt, Ph.D., President



P.O. Box 1114 Kailua, Hawaii 96734 Ph: (808) 262-9972 Fax: (808) 262-4950

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AUTHORIZATION AND RELEASE FORM

Cultural Surveys Hawai'i (CSH) appreciates the generosity of the *kāpuna* and *kama'āina* who are sharing their knowledge of cultural and historic properties, and experiences of past and present cultural practices for the proposed Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island. The general area of the proposed Project limits are within Tax Map Key: (4) 3-8-02:16 situated adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus.

We understand our responsibility in respecting the wishes and concerns of the interviewees participating in our study. Here are the procedures we promise to follow:

1. The interview will not be tape-recorded without your knowledge and explicit permission.
2. If recorded, you will have the opportunity to review the written transcript of our interview with you. At that time you may make any additions, deletions or corrections you wish.
3. If recorded, you will be given a copy of the interview notes for your records.
4. You will be given a copy of this release form for your records.
5. You will be given any photographs taken of you during the interview.

For your protection, we need your written confirmation that:

1. You consent to the use of the complete transcript and/or interview quotes for reports on cultural sites and practices, historic documentation, and/or academic purposes.
2. You agree that the interview shall be made available to the public.
3. If a photograph is taken during the interview, you consent to the photograph being included in any report/s or publication/s generated by this cultural study.

I, _____, agree to the procedures outlined above and, by my
(Please print your name here)
signature, give my consent and release for this interview to be used as specified.

(Signature)

(Date)

Appendix D Community Consultation Letter

Cultural Surveys Hawai'i, Inc.
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October 2, 2013

Aloha e,

At the request of Wilson Okamoto Corporation, Cultural Surveys Hawai'i, Inc. (CSH) is preparing a cultural impact assessment (CIA) for the Island School State Land Use District Boundary Amendment Project, Nāwiliwili Ahupua'a, Līhu'e District, Kaua'i Island. Please see accompanying USGS, Aerial and Master Plan maps.

The Island School is an existing Pre-K through Grade 12 private school located on a 38.448-acre (15.559 hectare [ha]) parcel in Puhi, on Kaua'i Island. The Island School campus is located on Tax Map Key: (4) 3-8-002:016 situated adjacent to the northeast boundary of the University of Hawai'i's Kaua'i Community College campus. To meet increased enrollment projections, Island School has prepared a development master plan for its campus that includes new classrooms and other school facilities. Toward implementing its master plan, Island School is requesting the boundary amendment, which will re-designate the property from State Agriculture to Urban District.

The existing Island School facilities were approved in the State Agriculture District through Special Permits. Re-designation to the Urban District would be consistent with the urban character of the campus, as well as that of the neighboring Kaua'i Community College, which is also seeking an Urban re-designation of their campus. Once re-designated Urban, both campuses would then be regulated under the County of Kaua'i Comprehensive Zoning Ordinance.

We are seeking your *kōkua* (help) and guidance regarding the following aspects of our study:

- General history and present and past land use of the Project area.
- Knowledge of cultural sites which may be impacted by future decommissioning of the Project area, for example, historic, archaeological, and burial sites.
- Knowledge of traditional gathering practices in the Project area, both past and ongoing.
- Cultural associations of the Project area, such as legends and traditional uses.
- Referrals of *kāpuna* or elders and *kama'āina* (native-born) who might be willing to share their cultural knowledge of the Project area and the surrounding *ahupua'a* (land division from upland to the sea) lands.
- Any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the Project area.

We invite you to contact us, Margaret Magat, at (808)-990-6340 (e-mail: mmagat@culturalsurveys.com) or Angela Fa'anunu, at (808)-227-8855 (e-mail: afaanunu@culturalsurveys.com), if you have any information you would like to share.

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of) DOCKET NO. A16-800
)
ISLAND SCHOOL) ISLAND SCHOOL
)
To Amend the Agricultural Land Use)
District Boundary into the Urban District for)
approximately 38.448 acres at Puhi, Lihu`e,)
Island of Kauai, State of Hawai`i,)
TMK: (4) 3-8-002: 016)
_____)

AFFIDAVIT OF SERVICE OF PETITION
FOR LAND USE DISTRICT BOUNDARY AMENDMENT

STATE OF HAWAII)
) ss.:
CITY AND COUNTY OF HONOLULU)

CURTIS T. TABATA, being first duly sworn on oath, deposes and says:

A. Affiant is the attorney for Petitioner ISLAND SCHOOL and agent of the Petitioner for a State of Hawai'i Land Use District Boundary Amendment from Agricultural Land Use District to Urban District, identified as Docket No. A16-800, for land situated at Puhi, Lihu`e, Kaua`i, Hawai`i, identified as Tax Map Key No. (4) 3-8-002: 016.

B. In compliance with § 15-15-48(a) of the Hawai'i Administrative Rules ("HAR"), Affiant did on December 2, 2016, deposit in the United States Mail, postage

prepaid, by certified mail or hand delivered, a copy of the Petition for District Boundary

Amendment, to the following:

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HAWAIIAN TELCOM, INC.
Legal Department
P.O. Box 2200
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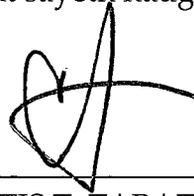
LPC CORPORATION fka THE LIHUE
PLANTATION COMPANY, LIMITED
c/o KLC Land Company, LLC
212 Merchant Street, Suite 227
Honolulu, Hawai`i 96813

GROVE FARM COMPANY, INCORPORATED
3-1850 Kaumuali`i Highway
Lihu`e, Kauai, Hawai`i, 96766

[The remainder of this page is intentionally left blank.]

C. This Affidavit is provided in compliance with § 15-15-50(c)(5), (C), HAR.

That further Affiant sayeth naught.



CURTIS T. TABATA
Attorney for Petitioner
ISLAND SCHOOL

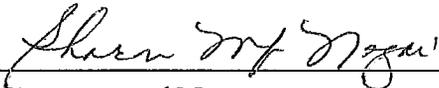
Subscribed and sworn to me
this 1st day of December 2016



Name: **SHARON M.F. NAGAI**
Notary Public, State of Hawai'i
My Commission expires: 04-21-2017



NOTARY CERTIFICATE (Hawaii Administrative Rules § 5-11-8)
Document Identification or Description: Affidavit of Service of Petition For Land Use
District Boundary Amendment
Doc. Date: December 1, 2016 No. of Pages: 4
Jurisdiction: FIRST Circuit
(in which notarial act is performed)



Signature of Notary Date of Certificate

SHARON M.F. NAGAI

Printed Name of Notary



(Official Stamp or Seal)

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of) DOCKET NO. A16-800
)
ISLAND SCHOOL) ISLAND SCHOOL
)
To Amend the Agricultural Land Use)
District Boundary into the Urban District for)
approximately 38.448 acres at Puhi, Lihu`e,)
Island of Kauai, State of Hawai`i,)
TMK: (4) 3-8-002: 016)
_____)

AFFIDAVIT OF SENDING OF NOTIFICATION OF PETITION FILING

STATE OF HAWAI'I)
) ss.:
CITY AND COUNTY OF HONOLULU)

CURTIS T. TABATA, being first duly sworn on oath, deposes and says:

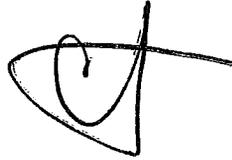
A. Affiant is the attorney for Petitioner ISLAND SCHOOL and agent of the Petitioner for a State of Hawai'i Land Use District Boundary Amendment from Agricultural Land Use District to Urban District, identified as Docket No. A16-800, for land situated at Puhi, Lihu`e, Kaua`i, Hawai`i, identified as Tax Map Key No. (4) 3-8-002: 016.

B. In compliance with § 15-15-50(d) of the Hawai'i Administrative Rules ("HAR"), Affiant did on December 2, 2016 deposit in the United States Mail, postage prepaid, by regular mail, a copy of the Notification of Petition Filing, attached hereto as

Exhibit "1", to the persons identified in the required mailing list, attached hereto as Exhibit "2."

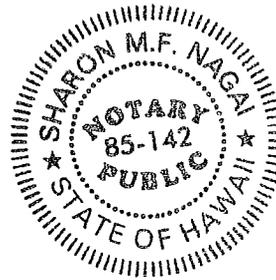
C. This Affidavit is provided in compliance with § 15-15-50(d), HAR.

That further Affiant sayeth naught.



CURTIS T. TABATA

Subscribed and sworn to me
this 1st day of December 2016
Sharon M.F. Nagai
Name: SHARON M.F. NAGAI
Notary Public, State of Hawai'i
My Commission expires: 04-21-2017



NOTARY CERTIFICATE (Hawaii Administrative Rules § 5-11-8)

Document Identification or Description: Affidavit of Sending of Notification of Petition Filing

Doc. Date: December 1, 2016 No. of Pages: 6

Jurisdiction: FIRST Circuit
(in which notarial act is performed)

Sharon M.F. Nagai 12-1-2016
Signature of Notary Date of Certificate

SHARON M.F. NAGAI

Printed Name of Notary



(Official Stamp or Seal)

December 2, 2016

NOTIFICATION OF PETITION FILING

This is to advise you that a Petition to Amend the State Land Use District Boundaries with the following general information has been submitted to the State of Hawaii's Land Use Commission:

Docket No: A16-800
Petitioner/Address: Island School
3-1875 Kaunuali'i Highway
Lihue, Kauai, Hawaii 96766-9597
Landowners and Island School
Tax Map Key Number: (4) 3-8-002: 016
Location: Puhi, Lihue, Island of Kauai, Hawaii
Requested Reclassification: Agricultural to Urban
Acreage: Approximately 38.448 acres
Proposed Use: Additional campus facilities for future increase in its student enrollment, currently at approximately 370 students, to approximately 500 students. An increase of approximately 22 full time equivalent ("FTE") faculty and staff, to the current 62 FTE members, for a total of 84 FTE members, will be required for the future increase in student enrollment.

You may review detailed information regarding the petition at the Land Use Commission ("Commission") office or the County of Kauai, Kauai County Planning Department located at 4444 Rice Street, Suite A473, Lihue, Kauai, Hawaii 96766. The Commission's office is located at 235 S. Beretania Street, Room 406, Honolulu, Hawaii. Office hours are from 7:45 a.m. to 4:30 p.m., Mondays through Fridays.

A hearing on this petition will be scheduled at a future date. If you are interested in participating in the hearing as a public witness, please write or call the Commission office at P.O. Box 2359, Honolulu, Hawaii 96804-2359; telephone (808) 587-3822. If you intend to participate in the hearing as an intervenor, pursuant to § 15-15-52, Hawaii's Administrative Rules, you should file a Notice of Intent to Intervene with the Commission within 30 days of the date of this notice. Please contact the Commission office for further information.

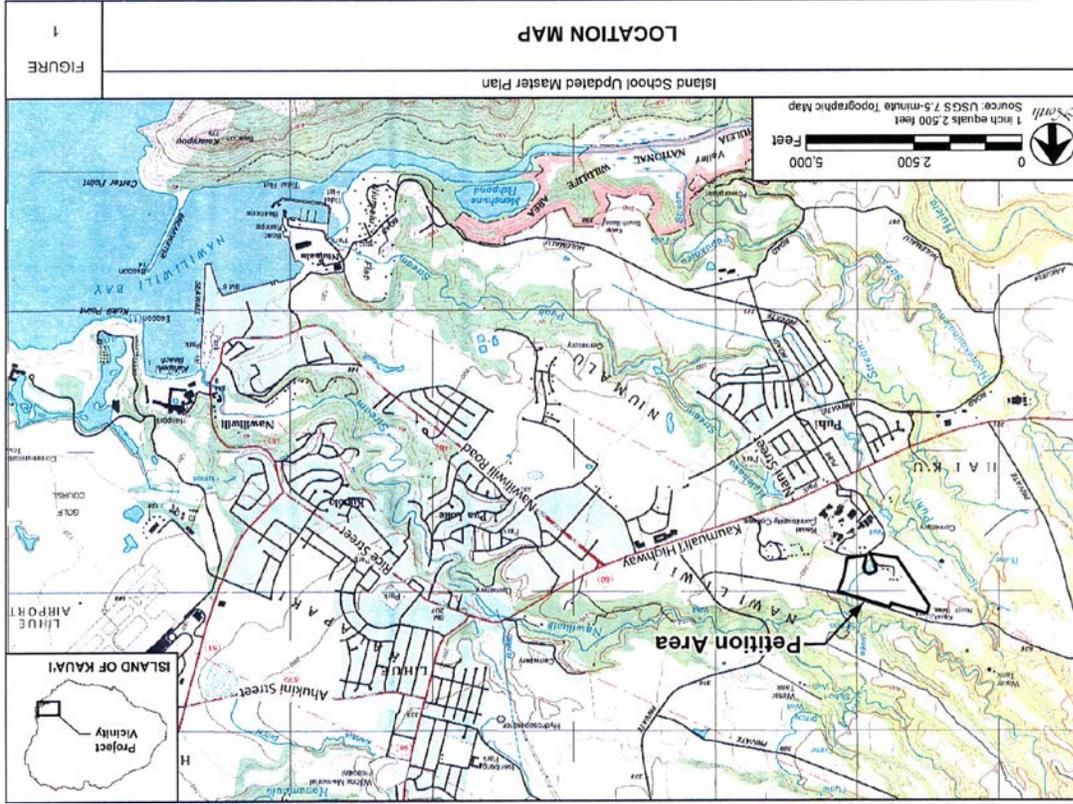


FIGURE 1

LOCATION MAP

Island School Updated Master Plan

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Last Updated: 10/24/16**

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Honolulu, HI 96817**

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI'I

In the Matter of the Petition of)	DOCKET NO. A16-800
)	
ISLAND SCHOOL)	ISLAND SCHOOL
)	
To Amend the Agricultural Land Use)	
District Boundary into the Urban District for)	
approximately 38.448 acres at Puhi, Lihu'e,)	
Island of Kauai, State of Hawai'i,)	
TMK: (4) 3-8-002: 016)	
_____)	

CERTIFICATE OF SERVICE

I hereby certify that a file-marked of the foregoing document was duly served upon the following AS INDICATED BELOW on December 2, 2016.

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CERTIFIED MAIL
RETURN RECEIPT
REQUESTED

DATED: Honolulu, Hawai`i, December 2, 2016.



Of Counsel:
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