DAVID Y. IGE
GOVERNOR

FILE COPY
MAY - 8 2017

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI`I

DEPARTMENT OF EDUCATION

P.O. BOX 2360

HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

RECEIVED
'17 APR 25 P12:07
OFC. OF ENVIRONMENTAL QUALITY CONTROL

April 18, 2017

TO: Scott Glenn
Director, Office of Environmental Quality Control
Department of Health

FROM: Duane Y. Kashiwai
Public Works Administrator, Facilities Development Branch

SUBJECT: **Wai'anae High School Connection of Buildings SP and T**
Tax Map Key: 8-5-002: 018, 8-5-015: 001
Wai'anae-Kai, District of Wai'anae, O'ahu, Hawai'i
DOE Job No. Q85002-15

The State of Hawaii, Department of Education, has reviewed all comments received during the 30-day public comment period for the subject project and has issued a Finding of No Significant Impact (FONSI). Please publish this determination in the next issue of the Environmental Notice.

One printed copy of the Final Environmental Assessment and a CD with the document in PDF format are attached. The Environmental Notice publication form will be e-mailed to OEQC.

Should you have any questions of concerns, please contact Robert Purdie, Project Coordinator of the Facilities Development Branch, at 784-5117 or via email at robert_purdie@notes.k12.hi.us.

DYK:lm
Enclosures: Final EA (1Printed Copy/1 CD)

c: Facilities Development Branch

17-461

AGENCY
PUBLICATION FORM

Project Name:	Wai'anae High School Connection of Buildings SP and T
Project Short Name:	WHS Searider Production Building Addition
HRS §343-5 Trigger(s):	343-5(a)(1) propose the use of state land or funds
Island(s):	Oahu
Judicial District(s):	Wai'anae
TMK(s):	8-5-002: 018, 8-5-015: 001
Permit(s)/Approval(s):	Variance from Pollution, Chapter 6E Review, Perform Work Within a State Highway Right-of-Way, Special Management Area Permit, Waiver to Height and Lot Coverage, Grubbing Grading and Stockpiling, Building Permit, Certificate of Occupancy,
Proposing/Determining Agency:	Department of Educaton Office of School Facilities and Support Services
Contact Name, Email, Telephone, Address	Robert W. Purdie, Jr. Project Management Section, Facilities Development Branch Office of School Facilities and Support Services 3633 Waialae Avenue Honolulu, HI 96816 T: (808) 784-5117 E: robert_purdie@notes.k12.hi.us
Accepting Authority:	(for EIS submittals only)
Contact Name, Email, Telephone, Address	
Consultant:	Gerald Park Urban Planner
Contact Name, Email, Telephone, Address	Gerald Park 95-595 Kanamee Street #324 Mililani, HI 96789 T: (808) 625-9626 E: gpark@gpup.biz

Status (select one)	**Submittal Requirements**
__ DEA-AFNSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
X FEA-FONSI	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the proposing agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the proposing agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
____ FEIS	Submit 1) a transmittal letter to the OEQC and to the accepting authority, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
____ FEIS Acceptance	The accepting authority simultaneously transmits to both the OEQC and the proposing agency a letter

Determination	of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
FEIS Statutory Acceptance	Timely statutory acceptance of the FEIS under Section 343-5(c), HRS, is not applicable to agency actions.
____ Supplemental EIS Determination	The accepting authority simultaneously transmits its notice to both the proposing agency and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary (200 words or less)

A two-story building will be erected connecting Building SP (Searider Productions) and Building T a two-classroom building. Both buildings are located on the western (or northwest) side of the campus between the existing Gymnasium and swimming pool. A two-story structure, elevator tower, open courtyard, and lanai comprise the major design elements. Measured from grade to top of the roof the new building is approximately 28-feet in height and the elevator tower approximately 30-feet.

The above ground swimming pool will be demolished and approximately one-third of the pool site repurposed for at-grade parking for 28 vehicles.

An existing two-way driveway will be widened to 20 feet (from 15 feet) and the driveway apron at Farrington Highway widened to accommodate a fire apparatus. Improvements associated with the widening include removing guardrails at specified locations, removing and relocating a drainage headwall, and installing concrete aprons over sections of existing drain lines along the driveway shoulders.

The cost of the project is estimated at $7.265 million and will be funded by the State of Hawai'i. The improvements will be constructed in one phase tentatively scheduled to commence in early 2018 with completion in 12 to 18 months.

The proposed action will not permanently displace any school activity. For the duration of construction, however, activities in both buildings will be temporarily displaced and relocated to other available space on campus.

FINAL ENVIRONMENTAL ASSESSMENT

WAIʻANAE HIGH SCHOOL CONNECTION OF BUILDINGS SP AND T

Waiʻanae-Kai, District of Waiʻanae, Oʻahu, Hawaiʻi
Department of Education Job. No. Q85002-15

Prepared for

Department of Education
State of Hawaiʻi
Project Management Section, Facilities Development Branch
Office of School Services and Support Services
3633 Waialae Avenue
Honolulu, Hawaiʻi 96816

ʻApelila 2017

FINAL ENVIRONMENTAL ASSESSMENT

WAI'ANAE HIGH SCHOOL
CONNECTION OF BUILDINGS SP AND T

Wai'anae-Kai, District of Wai'anae, O'ahu, Hawai'i
Department of Education Job. No. Q85002-15

Prepared in Partial Fulfillment of the Requirements of Chapter 343, Hawai'i Revised Statutes and Title 11-200, Hawai'i Administrative Rules, Department of Health, State of Hawai'i

Prepared for

Department of Education
State of Hawai'i
Project Management Section, Facilities Development Branch
Office of School Services and Support Services
3633 Waialae Avenue
Honolulu, Hawai'i 96816

Prepared by

Gerald Park Urban Planner
95-595 Kaname'e Street #324
Mililani, Hawai'i 96789

and

Whitespace Architects
2051 Young Street, Suite 200
Honolulu, Hawai'i 96826

'Apelila 2017

PROJECT PROFILE

Project:	Waia'nae High School Connection of Buildings SP and T DOE Job No. Q85002-15
Street Address:	Wai'anae High School 85-251 Farrington Highway Wai'anae, O'ahu, Hawai'i
Proposing/Determining Agency:	Department of Education State of Hawai'i 3633 Waialae Avenue Honolulu, Hawai'i 96816
Tax Map Key: **Land Area:** **Land Owner:**	8-5-002: 018 23.8 acres State of Hawai'i
Tax Map Key: **Land Area:** **Landowner:**	8-5-015: 001 14.064 acres City and County of Honolulu
State Land Use Designation: **General Plan:** ***Sustainable* Communities Plan (SCP):** **SCP Land Use Map:** **Zoning:** **Special Management Area:**	Urban Rural Wai'anae Rural Residential P-2 General Preservation Inside Special Management Area
Existing Use:	Classroom Building, Vacant Space
Need for Environmental Assessment:	Chapter 343, Hawai'i Revised Statutes §343-5(a)(1) Propose the use of state or county lands or state or county funds
[~~Anticipated~~] Determination:	Finding of No Significant Impact
Project Contact:	Robert W. Purdie, Jr. Department of Education, State of Hawai'i Project Management Section Facilities Development Branch Office of School Facilities and Support Services 3633 Waialae Avenue Honolulu, Hawai'i 96816 Phone: 784-5117

Note: Substantive revisions to the text of the Draft Environmental Assessment are in ***bold italic*** type. Deleted text is indicated by [~~strikethrough~~]

TABLE OF CONTENTS

	PROJECT PROFILE	i
SECTION 1	**DESCRIPTION OF THE PROPOSED ACTION**	**1**
	A. Purpose of the Proposed Action	1
	B. Technical Characteristics	1
	C. Sustainability	3
	D. Economic Characteristics	4
	E. Social Characteristics	4
SECTION 2	**DESCRIPTION OF THE AFFECTED ENVIRONMENT**	**11**
	A. Existing Conditions	12
	B. Climate	13
	C. Topography	13
	D. Soils	13
	E. Water Resources	13
	1. Surface Water	13
	2. Ground Water	14
	F. Flood Hazard and Drainage	14
	G. Biological Resources	16
	H. Archaeological Resources	16
	I. Land Use Controls	18
	J. Public Facilities	18
	K. Views	20
SECTION 3	**SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS**	**22**
	A. Assessment Process	22
	B. Short-term Impacts	22
	1. Air Quality	22
	2. Noise	22
	3. Erosion	23
	4. Biological Resources	24
	5. Archaeological Resources	24
	6. Traffic	24
	C. Long-term Impacts	25
SECTION 4	**ALTERNATIVES TO THE PROPOSED ACTION**	**26**
	A. No Action/Delay the Action	26
	B. Alternate Sites	26
SECTION 5	**AGENCIES AND ORGANIZATIONS TO BE CONSULTED**	**27**
SECTION 6	**PERMITS AND APPROVALS**	**28**

TABLE OF CONTENTS

SECTION 6	PERMITS AND APPROVALS	28
SECTION 7	DETERMINATION OF SIGNIFICANCE	29
REFERENCES		32
APPENDIX A	Archaeological Literature Review and Field Inspection Report for the Wai'anae High School Connection of Buildings SP and T Project, State of Hawai'i Department of Education (DOE) Job Number Q85002-15, Wai'anae Ahupua'a, Wai'anae District, O'ahu TMKs: [1] 8-5-002: 018 (por.) and 8-5-015: 001 (por.)	
APPENDIX B	*ENVIRONMENTAL ASSESSMENT COMMENTS AND RESPONSES*	

FIGURES

Figure	Title	Page
1	Vicinity Map	5
2	Tax Map	6
Sheet 1	Site Plan / First /Floor	7
Sheet 2	Second Floor / Character Sketches	8
Sheet 3	Exterior Elevations	9
Sheet 4	Building Sections	10
3	Flood Insurance Rate Map	15
4	Zoning / Special Management Area	19

TABLES

Table	Title	Page
1	Area Tabulation	2
2	Aquifer Classification System	14

PHOTOGRAPHS

Photograph	Title	Page
1	East View of Building Site. Buildings T in Background and SP on Right.	12
2	*Mauka* View of Building Site. Gymnasium in the Background and Building T on the Right.	12
3	*Makai* View of Building Site. Buildings T and SP Shown Partially on the Left. Swimming Pool in Background	12
4	Site of Proposed Lanai in Foreground and Covered Courtyard in Background Between Buildings T on the Right and SP on the Left	12
5	Site of Covered Courtyard Area Between Buildings SP on the Left and T on the Right.	12
6	Driveway to Farrington Highway. Gymnasium in Left Background	12

SECTION 1
DESCRIPTION OF THE PROPOSED ACTION

The Department of Education, State of Hawai'i, proposes to construct building improvements at Wai'anae High School, located at Wai'anae-Kai, District of Wai'anae, O'ahu, Hawai'i. Wai'anae High School ("School") is bounded by Farrington Highway on the north, undeveloped land previously called Wai'anae Regional Park on the east, the Pacific Ocean on the south, and the Makaha Surfside a low-rise multi-unit housing development on the west.

The building site is on the western side of the campus between the Gymnasium on the north, the swimming pool on the south, Buildings SP and T on the east, and the Makaha Surfside development on the west. A paved driveway at this location provides access to the swimming pool, School buildings, a parking area, and athletic field. A Vicinity Map and Tax Map are shown as Figures 1 and 2.

The School comprises two separate lots. The larger lot is owned by the State of Hawai'i and bears tax map key 8-5-002: 018 with an area of 23.8 acres. The smaller lot is owned by the City and County of Honolulu and bears tax map key 8-5-015: 001 with a land area of 14.064 acres. The proposed action will occur across the tax map key boundary between the two lots.

A. Purpose of the Proposed Action

The project will provide additional classrooms and shop space for expanding the School's creative arts curriculum (Searider Productions). Students and teachers engage in a hands-on approach/solution for creating, designing, and producing digital and print media, banners, 3D models, posters, apparel, laser engraving, and more. Students often work late into the evening and overnight on some occasions. There is concern that the abandoned swimming pool building provides places for vagrants to hide and conduct illicit activities making it a safety concern for a high school campus. Connecting Buildings SP and T will provide a secure setting for the safety of all.

B. Technical Characteristics

A two-story building will be erected connecting Building SP (Searider Productions) and Building T a two-classroom building. Both buildings are located on the western (or northwest) side of the campus between the existing Gymnasium and swimming pool.
A two-story structure, elevator tower, open courtyard, and lanai comprise the major design elements. New interior and exterior construction is tabulated in Table 1. The two classrooms and makery shop are designed for a capacity of 25-30 students.

A triangular shaped open courtyard will be created by the joining of Buildings SP, T, and the new building. The lanai on the parking lot side between the elevator tower and the new building will be secured by metal fencing and a gate.

Vertical access will be provided by two interior stairways and an elevator.

Table 1. Area Tabulation

Wai'anae High School Connection of Buildings SP and T			
New Interior Construction		New Exterior Construction	
Space	**Square Feet**	**Space**	**Square Feet**
Lobby	650	Circulation 1st Floor	1,690
Lobby 2nd Floor	80	Circulation 2nd Floor	905
Shop	1,200	Covered Courtyard/Lanai	965
Classroom #1	750	Open Courtyard	805
Classroom #2	750		
Office	270		
Conference Room	0		
Kitchen	130		
RR ADA Unisex	55		
RR Entries 1st Floor	0		
RR Unisex	35		
RR Unisex	25		
Mech & Elect Room	230		
Totals	4,175		4,365

Source: Whitespace Architects, 2016.

The building will be erected on a poured in place concrete slab and framed by reinforced concrete sheer walls. Concrete slab (or pre-cast concrete panels) is proposed for the second floor and roof with concrete columns supporting the second floor. The roof will be insulated and topped with asphalt shingles.

Measured from grade to top of the roof the new building is approximately 28-feet in height and the elevator tower approximately 30-feet. Both exceed the allowable 25-foot building height for the zoning district. Waivers to exceed the building height will be requested from the Department of Planning and Permitting, City and County of Honolulu.

The front entry to Building SP will be redesigned for use as a lobby and display area. Metal gates will secure access/entry to the interior courtyard from exterior areas.

Plumbing, electrical, air conditioning, and fire sprinkler systems in Building SP will be upgraded. Exterior walls sections of both building will be demolished for new doors to the interior courtyard.

The new building will be air conditioned. Motors, fans, and compressors will be located in the Mechanical room on the ground floor.

A fire service line will be routed between Building T and the Gymnasium to the vicinity of the proposed Mechanical Room. The line will provide flow for the new building's fire sprinkler system.

The existing above ground swimming pool will be demolished at the start of construction. The 1,688 square foot pool was constructed in 1973 (Department of Education, 2006) but has not been used since 2007. The pool is structurally unsound and unsafe due to excessive corrosion. It also a site for illicit activities and hang out for vagrants making it a safety concern on a high school campus.

Approximately one-third of the demolished swimming pool site will be repurposed for at-grade parking. The area will be graded, paved, and striped for 28 vehicles. The parking area will be lighted for safety and security.

Construction will disturb approximately one acre of which grading is estimated at 40,000 square feet. Earthwork quantities are rough estimated at 1,100 CY of excavation and 1,200 CY fill. A National Pollution Discharge Elimination System ("NPDES") will be required if grading >1 acre is to occur.

Storm water from roof downspouts and an area drain from the interior courtyard will be piped to an existing drain field. At the drain field, water will be discharged into underground drainage chambers and allowed to infiltrate into the ground. The drainage chambers were originally constructed to receive deck discharge from the swimming pool.

Where feasible on-site runoff will be directed to bio-filtration areas for storage and filtering of some pollutants before infiltrating into the ground or evaporating. Typically, bio-filtration areas are comprised of landscape features such as groundcover and plants.

Power will be extended from an existing utility pole serving the swimming pool. ***Hawaiian Electric Company offered no objections to the project (HECO Comment Letter).***

The existing two-way driveway will be widened to 20 feet (from 15 feet) and the driveway apron at Farrington Highway widened to accommodate a fire apparatus. Improvements associated with the widening include removing guardrails at specified locations, removing and relocating a drainage headwall, and installing concrete aprons over sections of existing drain lines along the driveway shoulders.

A construction base yard will be located in the grass area between the new building and the property line fence. The yard will be fenced and secured during non-working hours.

C. Sustainability

The building will be designed according to a high performance building rating program developed to specifically facilitate the design, construction, and operation of high performance schools. The rating system is termed the Hawaii Collaborative for High Performance Schools or HI-CHPS. A high performance school is defined as having learning environments that are healthy and comfortable, energy resource and water efficient, safe, secure and adaptable, and easy to operate and maintain.

HI-CHPS criteria will be used to develop sustainability features for the project during design, construction, and performance phases. Design strategies will be developed and documented for the design phase; construction related criteria will be developed and documented for the construction phase; and operation and maintenance criteria documented for the performance phase.

A "punch list" of general HI-CHPs features considered at this early stage of the design process includes:

- High performance air filtration for the HVAC system
- Occupancy sensors and timers for air conditioning operation
- Energy efficient equipment
- Low flow plumbing fixtures, water closets, and urinals
- Collecting recyclable materials
- Reduction in potable water use
- Outdoor water budget and irrigation system performance
- Minimize construction waster

Specific features will be incorporated into the design drawings by respective design disciplines associated with the project.

D. Economic Characteristics

The cost of the project is estimated at $7.265 million (J. Uno & Associates, 2016) and will be funded by the State of Hawai'i. The improvements will be constructed in one phase tentatively scheduled to commence in early 2018 with completion in 12 to 18 months.

E. Social Characteristics

The proposed action will not permanently displace any school activity. For the duration of construction, however, activities in both buildings will be temporarily displaced and relocated to other available space on campus.

Source: USGS, Waianae Quadrangle

Gerald Park
Urban Planner
January 2017

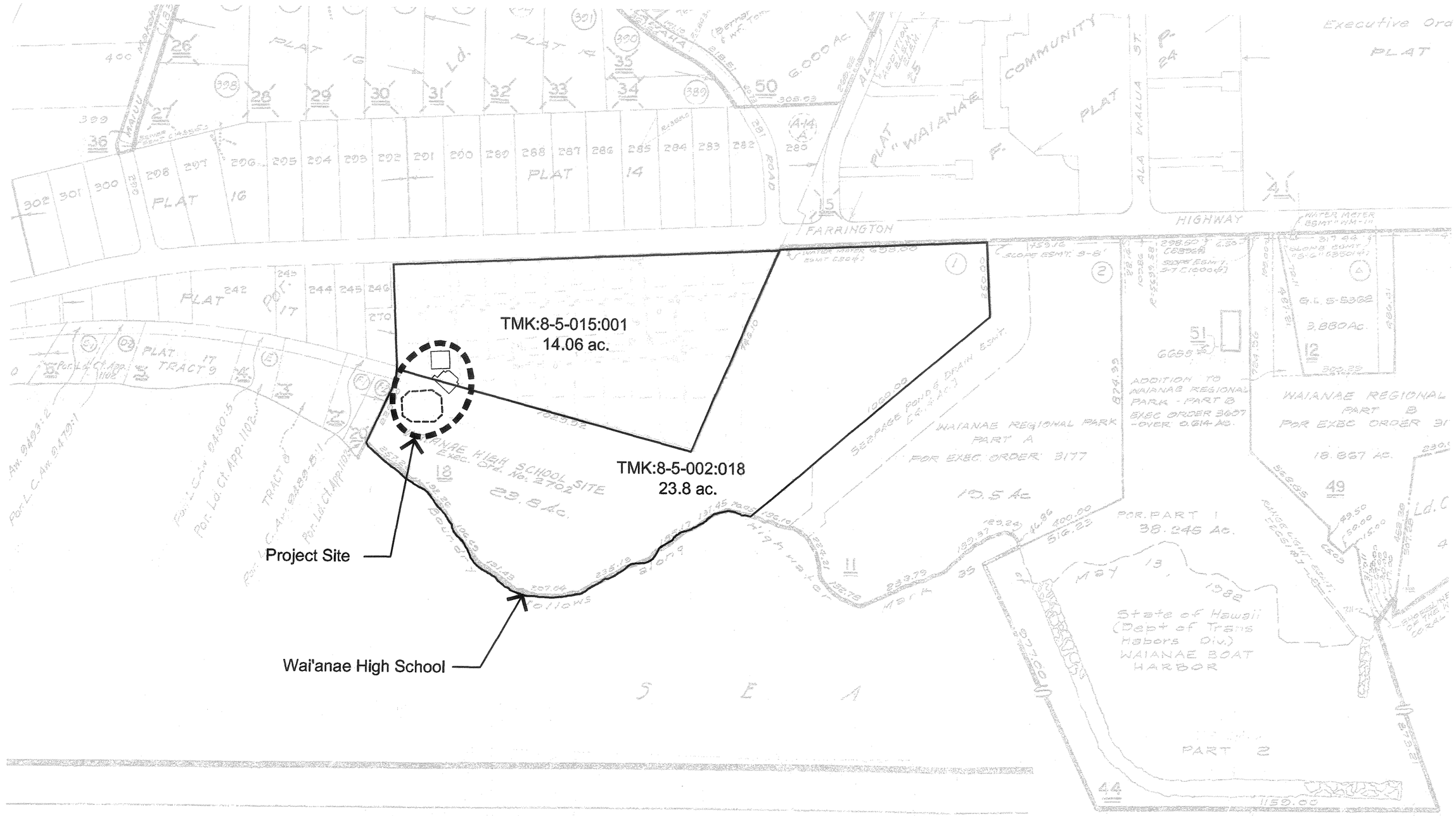
LINEAL SCALE (FEET)
250 125 0 125 250 500

NORTH

Figure 1
Vicinity Map
Wai'anae High School
Connection of Buildings SP and T

Wai'anae Kai, District of Wai'anae, Oahu, Hawai'i

Department of Education, State of Hawai'i



Source: City & County of Honolulu Database

Gerald Park
Urban Planner
January 2017

LINEAL SCALE (FEET)
150 75 0 75 150 300

NORTH

Wai'anae Kai, District of Wai'anae, Oahu, Hawai'i

Figure 2
Tax Map
Wai'anae High School
Connection of Buildings SP and T

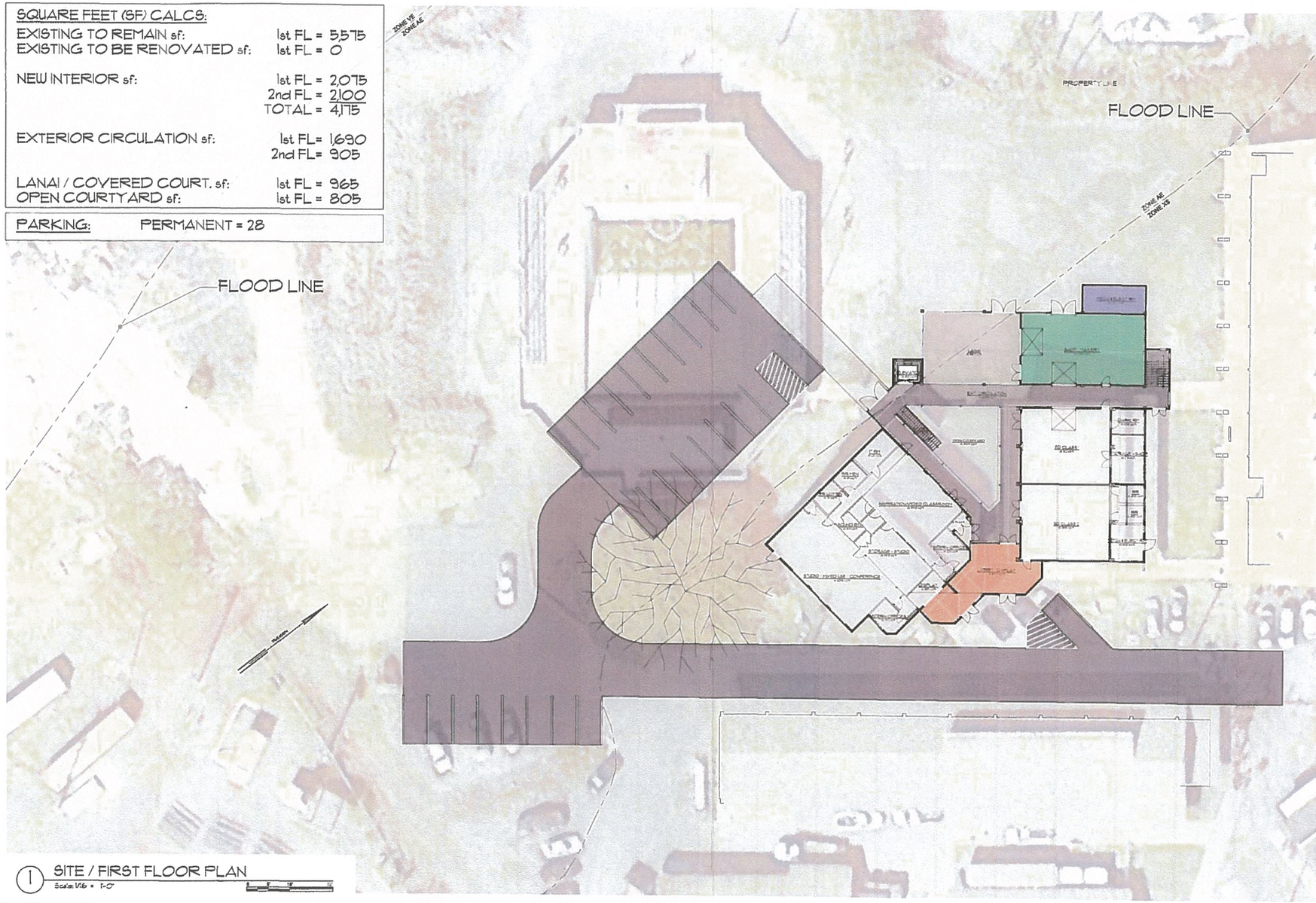
Department of Education, State of Hawai'i

WHS - JUST RIGHT

SQUARE FEET (SF) CALCS:

EXISTING TO REMAIN sf:	1st FL =	5,575
EXISTING TO BE RENOVATED sf:	1st FL =	0
NEW INTERIOR sf:	1st FL =	2,075
	2nd FL =	2,100
	TOTAL =	4,175
EXTERIOR CIRCULATION sf:	1st FL=	1,690
	2nd FL=	905
LANAI / COVERED COURT. sf:	1st FL =	965
OPEN COURTYARD sf:	1st FL =	805

PARKING: PERMANENT = 28



1 SITE / FIRST FLOOR PLAN
Scale: 1/16 = 1'-0"

WHITESPACE ARCHITECTS
2051 YOUNG STREET, SUITE 200
HONOLULU, HI 96826
TEL. 808-596-0260
www.whitespacearchitects.com

Project Name:
WAIANAE HIGH SCHOOL CONNECTION OF BUILDINGS SP AND T

TMK Number
8-5-002:018

Address
85-251 FARRINGTON HWY
WAIANAE HI 96792

Sheet Content
FIRST FLOOR

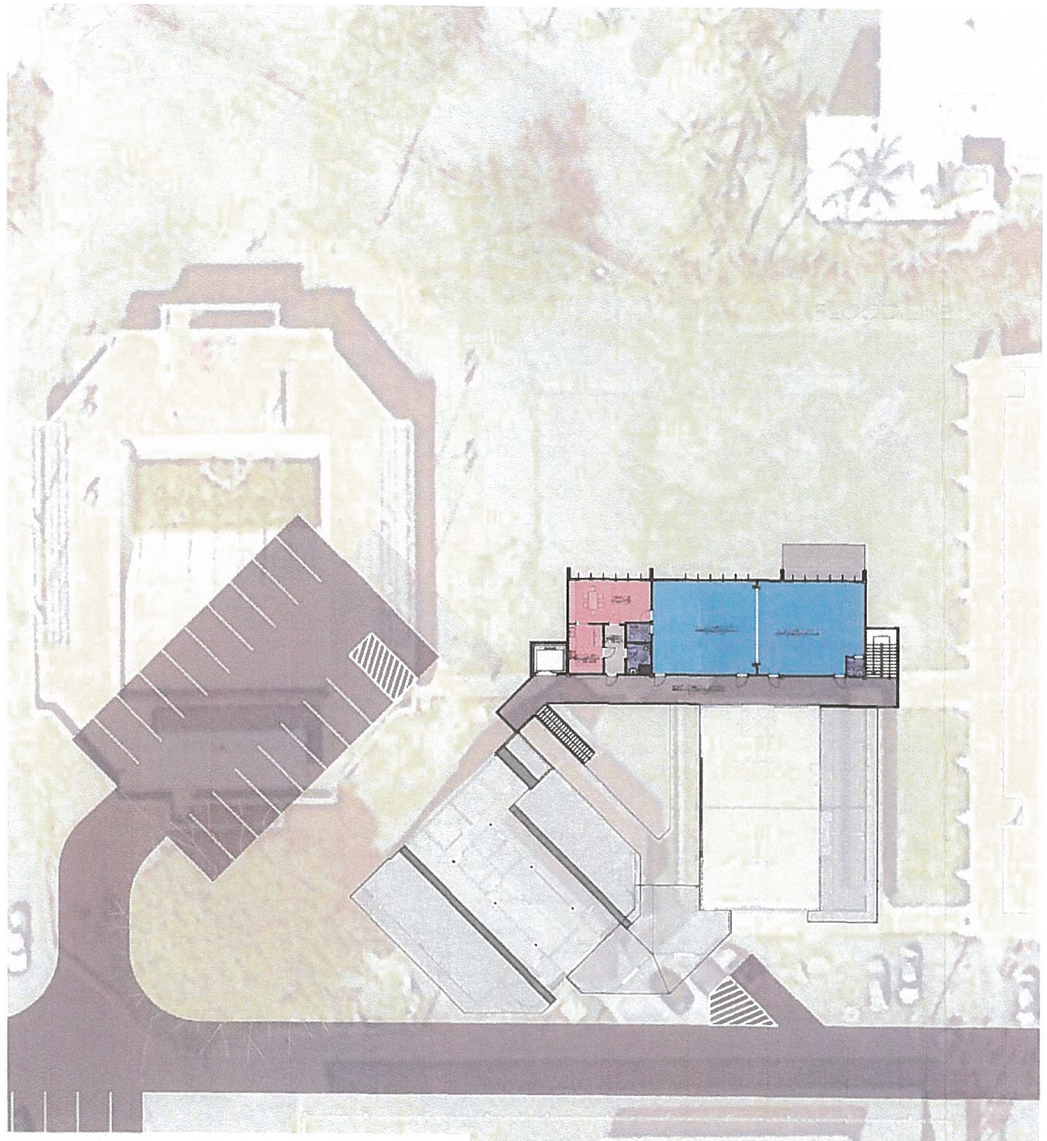
Project Number 085002-15

Sheet Number
1

Date: 1-4-16
Phase: CONCEPTUAL DESIGN

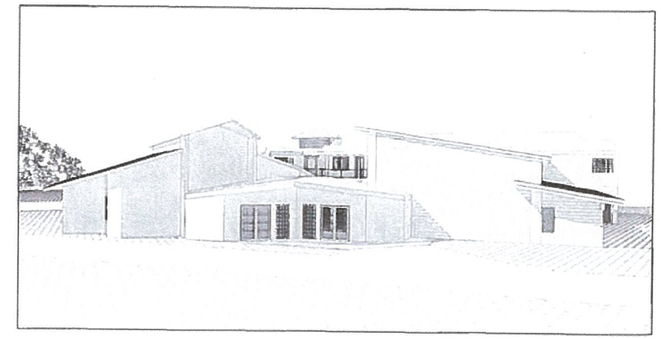
FIRST FLOOR Plotted on 11-4-16 at 10:05 AM by Ana. File Path: \\Volumes PKWA \Shared Projects \2015-25 Punahou Academy Learning Commons 90 ArchiCAD and CAD 01 CURRENT 2015-15 WHS- AM - 2. JUST RIGHT - views 4 - front 2.pln

WHS - JUST RIGHT

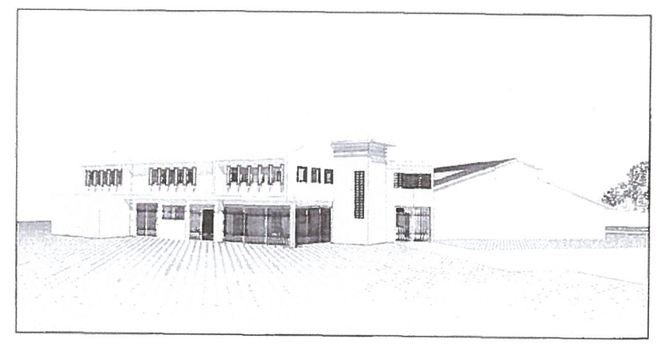


1 SECOND FLOOR PLAN

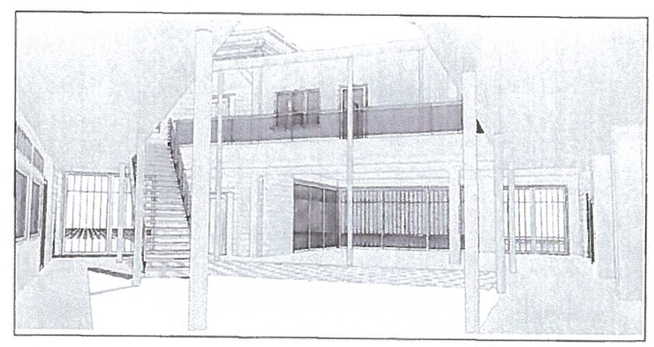
Scale: 1/16 = 1'-0"



FRONT VIEW



REAR VIEW



COURTYARD VIEW

2 CHARACTER SKETCHES

NOT TO SCALE

WHITESPACE ARCHITECTS
2051 YOUNG STREET SUITE 200
HONOLULU, HI 96826
TEL. 808-596-0260
www.whitespacearchitects.com

Project Name:
WAIANAE HIGH SCHOOL
CONNECTION OF BUILDINGS SP AND T

TMK Number
8-5-002:018

Address:
85-251 FARRINGTON HWY
WAIANAE, HI 96792

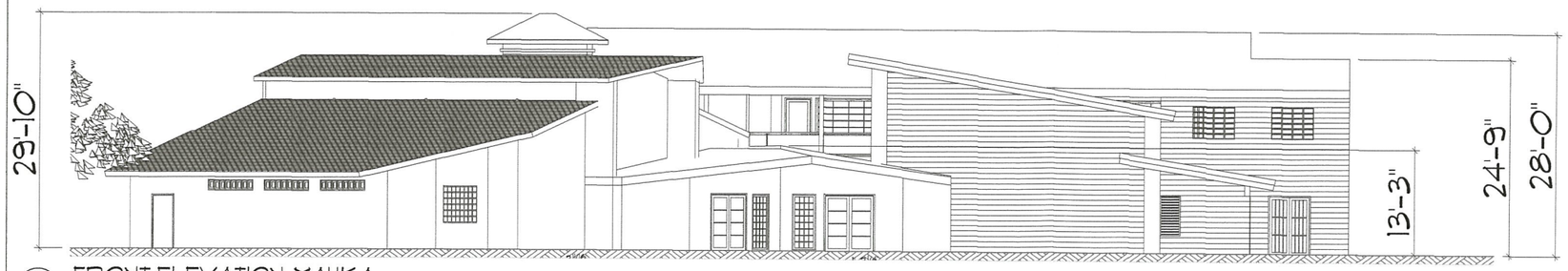
Sheet Content
SECOND FLOOR

Project Number Q85002-15

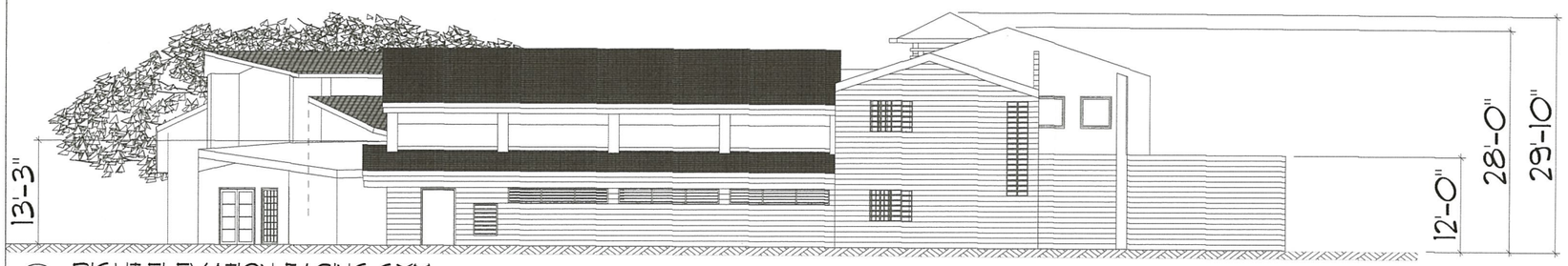
Sheet Number:
2

Date 11-4-16
Phase CONCEPTUAL DESIGN

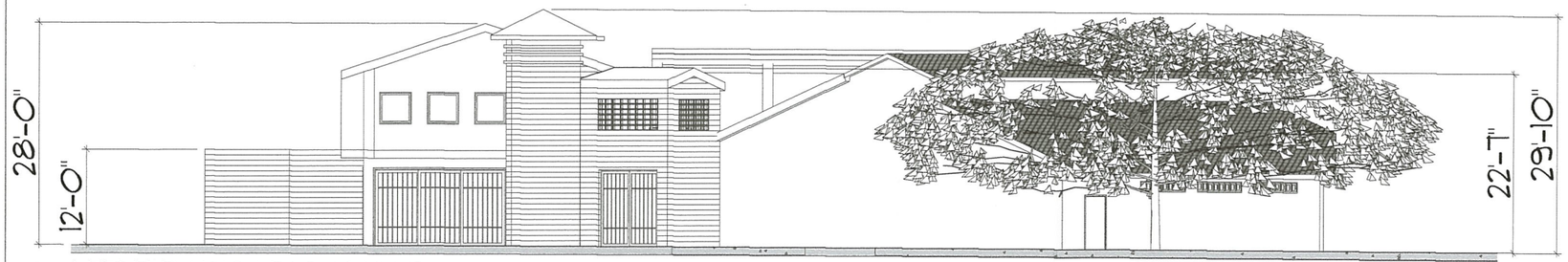
SECOND FLOOR Plotted on 11-4-16 at 10:05 AM by Ana. File Path \\ohana PKWA Shared Projects\2015-25 Punahou Allolomy Learning Commons 00 Arch\CAD and CAD 01 CURRENT\2015-15 WHS- AM - 2. JUST RIGHT - stairs 4 - front 2.pln



1 FRONT ELEVATION: MAUKA
Scale: 1/8" = 1'-0"



2 RIGHT ELEVATION: FACING GYM
Scale: 1/8" = 1'-0"



3 LEFT ELEVATION: FACING FIELD
Scale: 1/8" = 1'-0"

4 REAR ELEVATION: MAKAI
Scale: 1/8" = 1'-0"

WHITESPACE ARCHITECTS
2051 YOUNG STREET, SUITE 200
HONOLULU, HI 96826
TEL: 808-596-0260
www.whitespacearchitects.com

Project Name:
WAIANAE HIGH SCHOOL CONNECTION OF BUILDINGS SP AND T

T.M.K. Number:
8-5-002:018

Address:
85-251 FARRINGTON HWY
WAIANAE, HI 96792

Sheet Content
EXTERIOR ELEVATIONS

Project Number: Q85002-15

Sheet Number:

Date: 1/24/17
Phase: PRE-DESIGN

A201 EXTERIOR ELEVATIONS : Plotted on 1/24/17 at 3:58 PM by Ana. File Path: /Volumes/PKWA/Shared Projects/2016-16 Waianae HS/00 ArchiCAD and CAD/01 CURRENT/2015-15 WHS- JUST RIGHT .pln

1 SECTION PARALLEL TO (T) BLDG

Scale: 1/8" = 1'-0"

2 SECTION PARALLEL AT (NEW) BLDG

Scale: 1/8" = 1'-0"

WHITESPACE ARCHITECTS
2051 YOUNG STREET, SUITE 200
HONOLULU, HI 96826
TEL: 808-596-0280
www.whitespacearchitects.com

Project Name:

WAIANAE HIGH SCHOOL CONNECTION OF BUILDINGS SP AND T

T.M.K. Number:

8-5-002:018

Address:

85-251 FARRINGTON HWY
WAIANAE, HI 96792

Sheet Content

BUILDING SECTIONS

Project Number: Q85002-15

Sheet Number:

Date: 1/24/17
Phase: PRE-DESIGN

SECTION 2
DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. Existing Conditions

Waiʻanae High School, home of the Seariders, is located on the western edge of Waiʻanae Town on the Island of Oʻahu, Hawaiʻi. Waiʻanae Town is located between the Leeward Oahu communities of Makaha on the west and Māʻili on the east.

The School opened in 1957 at its present location with sparse but essential facilities for a new school. At that time the physical plant comprised 6 permanent classroom buildings, a serving kitchen, administration building, separate PE locker rooms for boys and girls, 3 portable classroom buildings, and an athletic/track field. Today, the campus features 24 permanent buildings, 24 portables, athletic facilities, and support facilities.

The School is part of the Nānākuli-Waiʻanae Complex Area consisting of elementary, middle, and high schools on the Leeward Coast. The Waiʻanae Complex comprises Leihoku Elementary, Māʻili Elementary, Makaha Elementary, Waiʻanae Elementary, Waiʻanae Intermediate, and Waiʻanae High Schools. Elementary schools "feed" students to the intermediate school which in turn "feed" students into high school.

In school year 2015-2016 Waʻianae High School enrolled 1,803 (DOE, 2016) students taught by 118 full time teachers. Administrative and clerical staff, cafeteria positions, maintenance, security, teacher's aides, counselors, and specialty positions add to the overall full and part-time staffing.

The proposed project (or building site) is on the northwestern side of the School in an open area behind the Gymnasium, Buildings SP and T, and the swimming pool. Three of the buildings are old with the Gymnasium constructed in 1961, the swimming pool in 1973, and Building T in 1976. Building SP is the "newest" having been built in 2005. Buildings SP and T are one story in height and the Gymnasium and the above ground swimming pool are taller. Site characteristics and structures are shown in the Site Photographs.

The open area does not appear to be currently used for school activities and probably has not been for some time. The space is devoid of landscape plantings, shade trees, and facilities conducive for student gatherings. Moreover, buildings adjoining the space effectively hide it from nearby areas. None of the structures have windows facing the open area and in conjunction with its isolation may contribute to non-use by students. Conversely the sense of "isolation" and the abandoned swimming pool provide a place for sketchy characters to hide and conduct illegal activities. Clearly this is not a desired activity and a security/safety concern for the School.

Although there are no improvements on the ground surface, a series of underground drainage chambers were built on the western half of the open area adjoining the swimming pool. The purpose of the chambers was to receive and contain overflow water from the swimming pool for percolation into the ground. The chambers are still *in situ* and will be repurposed for retaining runoff for percolation.

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Aerial: Google Maps 2017 Imagery
Photographs: Gerald Park

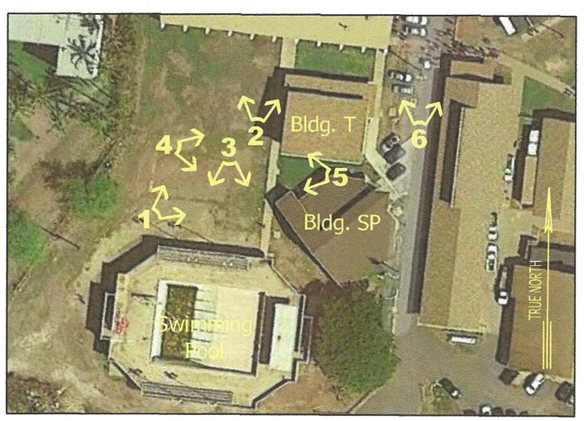


Photo Key Map

GRAPHIC SCALE IN FEET
50 25 0 50 100

Photograph 1. East View of Building Site. Buildings T in Background and SP on Right.
Photograph 2. *Mauka* View of Building Site. Gymnasium in the Background and Building T on the Right.
Photograph 3. *Makai* View of Building Site. Buildings T and SP Shown Partially on the Left. Swimming Pool in the Background.
Photograph 4. Site of Proposed Lanai in Foreground and Covered Courtyard in Background Between Buildings T on the Left and SP on the Right.
Photograph 5. Site of Covered Courtyard Area Between Buildings SP on the Left and T on the Right.
Photograph 6. Driveway to Farrington Highway. Gymnasium in Left Background.

Gerald Park
Urban Planner
January 2017

Site Photographs
Wai'anae High School
Connection of Buildings SP and T

B. Climate

The climate of Wai'anae can be characterized as hot and dry. Annual rainfall averages less than 25 inches along the coastline to 80-100 inches at the higher elevations of the Wai'anae Mountains. Daily temperatures range between 72 and 80 degrees Fahrenheit and can reach the low to mid-90s during the summer. Prevailing winds blow from a northeast direction at an average 10-13 mph.

C. Topography

The terrain is relatively flat having been modified during construction of adjoining buildings, the swimming pool, and the underground storage chambers. Ground surface averages elevation 9-feet at the building site with a west to east slope to elevation 7-feet (approximate) at the swimming pool.

The ground surface is about half covered with grass and groundcover and the other half exposed soil and crushed coral/sand.

D. Soils

Soil Conservation Soil Maps (1972) identify two soil types at the School: Coral Outcrop (Soil Legend: CR) and Mokuleia Silty Clay (Soil Legend: Mtb). Coral Outcrop, which consists of coral or cemented calcareous sand, underlies about 90% of the School. The coral outcrop formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of uplands. This soil is found at elevations ranging from sea level to approximately 100 feet above sea level.

E. Water Resources

1. Surface Water

There are no freshwater streams, rivers, ponds, or wetlands on-campus.

The State Department of Health Water Quality Standard Map for O'ahu (2014) classifies the ocean waters fronting Waianae High School as Marine Waters Class A. Hawaii Administrative Rules, Title 11, Chapter 54 states the following:

> It is the objective of Class A waters that their use for recreational purposes and aesthetic enjoyment be protected. Any other use shall be permitted as long as it is compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters. These waters shall not act as receiving waters for any discharge which has not received the best degree of treatment or control compatible with the criteria established for this class. No new sewage discharge will be permitted within embayments. No new industrial discharges shall be permitted within embayments, with the exception of: ....." [Note: Industrial discharge is not associated with the Project].

The building site is between 410 to 500 lineal feet from the rocky shoreline to the southwest. The meandering shoreline is the cause of the variation in distance.

2. Groundwater

According to groundwater maps prepared by Mink and Lau (1990), the School overlies the Wai'anae aquifer of the Wai'anae aquifer sector (See Table 2). The Wai'anae aquifer is characterized by an unconfined sedimentary aquifer above a confined dike aquifer. The sedimentary aquifer is comprised of moderately brackish water, is currently being used (but not for drinking water), and is highly vulnerable to contamination. The dike-confined aquifer also is not used for drinking water, is low in salinity, and has a low vulnerability to contamination.

Table 2. Aquifer Classification System

Aquifer Code	30303116	30303122
Island Code	3 - Oahu	3 - Oahu
Aquifer Sector	03 - Waianae	03 - Waianae
Aquifer system	03 - Waianae	03 - Waianae
Aquifer Type, hydrogeology	1 - Basal	1 - Basal
Aquifer Condition	1 - Unconfined	2 - Confined
Aquifer Type, geology	6 - Sedimentary	2 - Dike
Status Code	**13311**	**23223**
Developmental Stage	1 - Currently Used	2 - Potential Use
Utility	3 - Neither	3 - Neither
Salinity (in mg/L Cl^-)	3 - Moderate (1,000-5,000)	2 - Low (250-1,000)
Uniqueness	1 - Irreplaceable	2 - Replaceable
Vulnerability to Contamination	1 - High	3 - Low

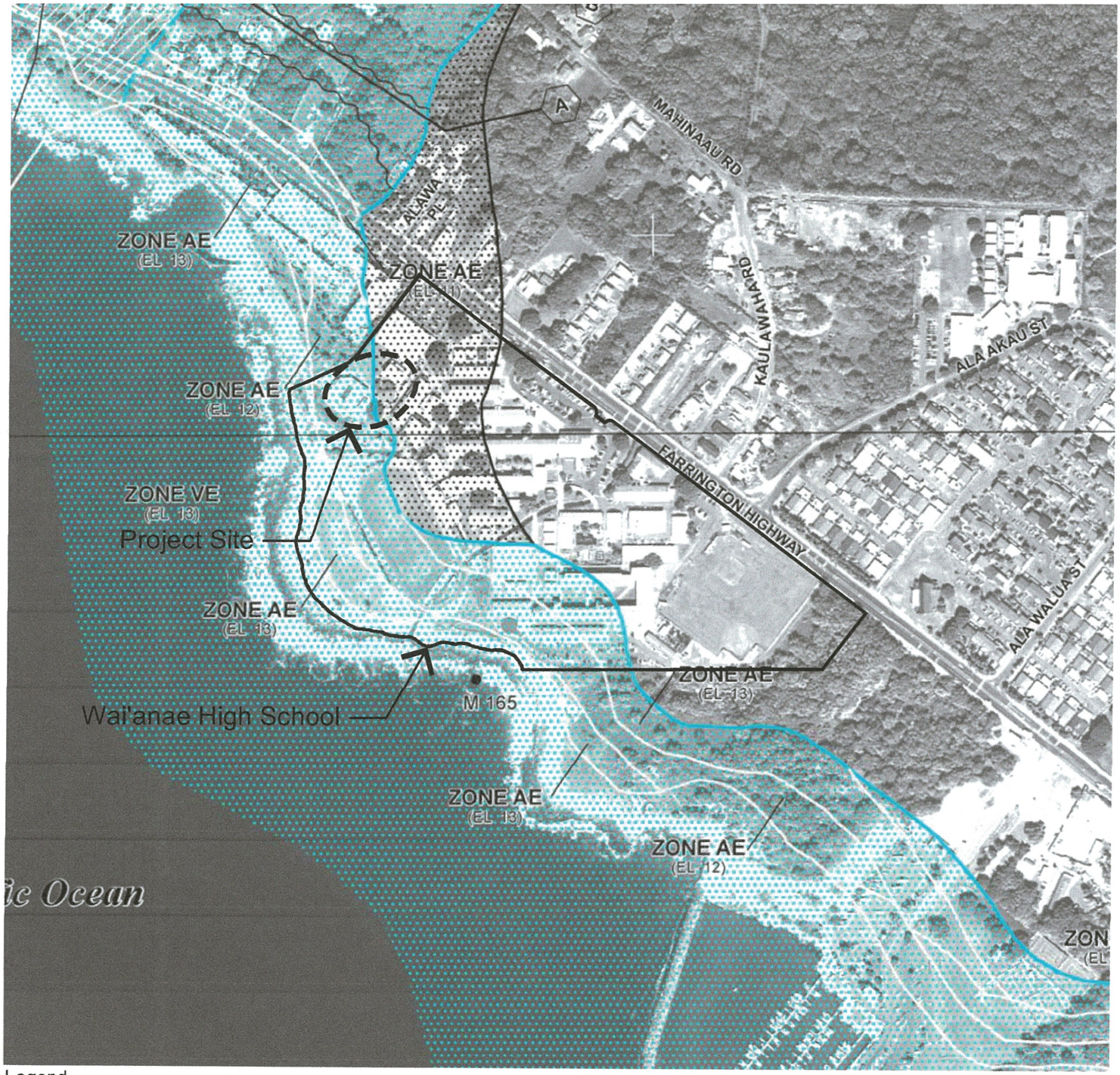
Source: Mink and Lau, 1990.

F. Flood Hazard and Drainage

Approximately 60% of the School lies in flood zones identified on the Flood Insurance Rate Map for the area (See Figure 3). The shoreline and areas between 400 to 500 feet inland of the ocean are designated 'Special Flood Hazard Areas Subject to Inundation by the 1% Annual Chance Flood'. The 1% annual chance flood is the 100-year flood.

Two flood zones within the Special Flood Hazard Area are identified: Zone VE which is a "coastal flood zone with velocity hazard (wave action) Base Flood Elevations determined". The base flood elevation is 13 feet above mean sea level (amsl). Zone VE applies to the rocky coastline south and west of the athletic field.

Zone AE crosses the campus generally from north to south to southeast. Along this gradient, the swimming pool and about half the open space behind Buildings SP and T lies in Zone AE. The base flood elevation is given as 12 feet above mean sea level. The other half including Buildings SP and T is designated Zone XS. Zone XS is defined as is "areas of 0.2% annual chance flood [Note: the 0.2% annual chance flood is the 500-year flood]; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; ...".



Legend

Special Flood Hazard Zone Subject to Inundation by the 1% Annual Chance Flood

Zone AE Base Flood Elevation Determined.

Zone VE Coastal Flood Zone with Velocity Hazard (Wave Action); Base Flood Elevations Determined.

Floodway Areas in Zone AE

The floodway is the channel of a stream plus adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood height.

Other Flood Areas

Zone X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

Other Areas

Zone X Areas determined to be outside the 0.2% annual Chance Floodplain.

Zone D Areas in which flood hazards are undetermined, but possible.

Source: Federal Emergency Management Agency
Flood Insurance Rate Map
Map Number 15003C0183H
Date: Nov. 5, 2014.

LINEAL SCALE (FEET)
250 125 0 125 250 500

NORTH

Gerald Park
Urban Planner
January 2017

Figure 3
FIRM Map
Wai'anae High School
Connection of Buildings SP and T

The proposed improvements are in two flood zones. Parking improvements where the swimming pool is located is within Zone AE with a base flood elevation of 12 feet amsl. Buildings SP and T are in Zone XS (X Shaded) which is subject to the 500-year flood or may be flooded by the 100-year flood to a depth of 1 foot.

Public Safety maps prepared for the Island of O'ahu (Department of Planning and Permitting, 2011) place the School "inside" a tsunami evacuation zone.

The area appears to be well drained because of the high infiltration rate of the underlying calcareous sand and low annual rainfall along the coast (25' annually). Aside from the slight *mauka* to *makai* grade, drainage improvements were not observed on the premises *per se*, however, a grass lined depression next to Building SP receives runoff from the driveway, adjoining buildings, and the swimming pool. From the depression runoff is piped and discharged into the ocean under NPDES Permit HI 5000003.

G. Biological Resources

Vegetation is sparse consisting primarily of grass and ruderal weeds. Kiawe and koa haole grow along the fence line boundary on the north and coconut arches over the fence from the Makaha Surfside. Several monkey pod and a native kou tree grow in planting areas along the driveway.

Birds and wildlife were not observed at the building site during this author's field inspection.

The U.S. Fish and Wildlife Service (iPaC mapping tool) identifies seven avian species that frequent the area of the school and its environs. The endemic 'apapane (*Himatione sanguinea sanguinea*) was identified although it is uncommon to O'ahu and establishes its habitat in wet forests above the 4,000 foot elevation. Bar-tailed Godwit, Bristle-thighed Curlew, Christmas Shearwater, Laysan Albatross, Tahiti Petrel, and Tristram's Storm Petrel are common migratory birds that winter, breed, or migrate through the area.

For a separate project at the School, the Service pointed out that the federally endangered Hawaiian waterbirds, including the Hawaiian stilt or aeo (Himantopus mexicanus knudseni), Hawaiian coot or alae keokeo (Fulica alai), Hawaiian gallinule or alae ula (Gallinula galeata sandvicensis), and Hawaiian duck or koloa maoli (Anas wyvilliana) may occur in the vicinity of your project (USFWS 2016).

There is no federally designated critical habitat within the immediate vicinity of the building site (Ibid).

H. Archaeological Resources

Cultural Surveys Hawaii (2017) conducted a Literature Review / Field Investigation (LR/FI) of the project area. A summary of findings is excerpted below. The entire report is found in Appendix A. The figure numbers cited in the excerpt refer to figure numbers in the LR/FI Report.

> "The seaward portion of Wai'anae Kai Ahupua'a was one of the most densely populated areas of O'ahu between Pearl Harbor and Waialua. This population (as reflected by mid-1800s *kuleana* data) was largely at two major foci of residence, one at Kamaile, within the project area, and the other on the opposite side of Kaupuni

Channel in Pāhoa, the central portion of Wai'anae Ahupua'a.. Although in the pre-contact period the shoreline probably had only scattered fishermen's homes, there was a large *heiau* on the Keaupuni Point, east of the project area, which would have been a focus for ritual activity.

No Māhele LCAs are located within the WHS campus or the current project area, although a portion of LCA 9489B is directly adjacent to the west side of the campus and near the project area (see Figure 10). LCA 9489B, with two *'āpana* (lots), was awarded to a man named Holi who claimed a *pahale* (houselot) *makai* of the main trail (aligned with the future Farrington Highway). The Māhele documents also mention other houselots near the shoreline to the east of LCA 9489B for native Hawaiians who did not make claims for their land during the Māhele. The exact location of these houselots is unknown. While there are no LCA awards in the WHS project area, there were mid-nineteenth century houselots to the east of LCA 9489B to Holi, and thus one or more of these houselots could have been located in the campus area.

A Jackson 1884 map (Figure 12) shows the OR&L railroad line traversing through the WHS school grounds and through the center of the project area, but no other developments or agricultural land at the location. The 1919 and 1936 US Army War Department Fire Control maps (see Figure 14 and Figure 15) show the OR&L Co. railway crossing the project area and the land as being west of the Waianae-Kai US Military Reservation. A 1943 US Army War Department map and 1954 US Army Map Service Topographic map depicts minimal development within the project area (see Figure 17 and Figure 18).

A number of burial finds have been reported in previous archaeological studies in the vicinity of the project area, especially to the northwest in Jaucas beach sands at Mauna Lahilhai Beach (see Figure 24). These Jaucas sands, however, do not extend east into the current project area. Surface sites and one burial have been documented within the Waianae Regional Park, southeast of the project area. The surface sites consisted of walls and enclosures comprised of stacked basalt; it is unknown, however, if these sites are modern creations. Based on archaeological findings, the coastline contained mostly temporary habitation and activity areas, while the denser and more permanent areas are located in the more inland portions of Kamaile and Pōka'i near freshwater springs and rivers.

..... No potential historic properties were identified during the LRFI. During the field inspection, the entire project area was inspected and photographed. Particular attention was paid to identifying any surface remnants of the OR&L, which operated in this area from the late 1800s into the 1940s, and indications of Jaucas sand deposits that are more likely to contain Native Hawaiian skeletal remains. No surface remains of the OR&L right of way were noted. The project area is located on top of an emerged coral karstic outcrop that has been filled with approximately 70 cm of fill consisting of crushed coral and terrigenous soil, and thus is unlikely to contain any deep Jaucas sand deposits, such as those at the adjacent Mauna Lahilahi Beach, where several burials have been previously recorded."

I. Land Use and Controls

State and County land use controls are cited below:

State Land Use Designation: Urban
General Plan Development Pattern: Rural
Sustainable Communities Plan (SCP): Wa'ianae
SCP Land Use Map: Rural Residential
Zoning: P-2 General Preservation

Public uses and structures are permitted in the P-2 General Preservation zoning district (Land Use Ordinance, Table 21-3). Public uses and structures "means uses conducted by or structures owned or managed by the federal government, the State of Hawaii or the city to fulfill a governmental function, activity or service for public benefit and in accordance with public policy" (Land Use Ordinance, Definitions, 1968). A public school is cited as a typical example of public uses and structures.

Wai'anae High School is located inside the the County delineated Special Management Area ("SMA") which begins at the shoreline and extends inland to the centerline of Farrington Highway. The proposed project is subject to permitting pursuant to Chapter 25, Special Management Area, Revised Ordinances of Honolulu. The Honolulu City Council approved a Special Management Area (SMA) Use Permit for the Waianae High School Media Center in August 2002. The Department of Education will apply for an SMA Use Permit for this project after the completion of the environmental assessment process.

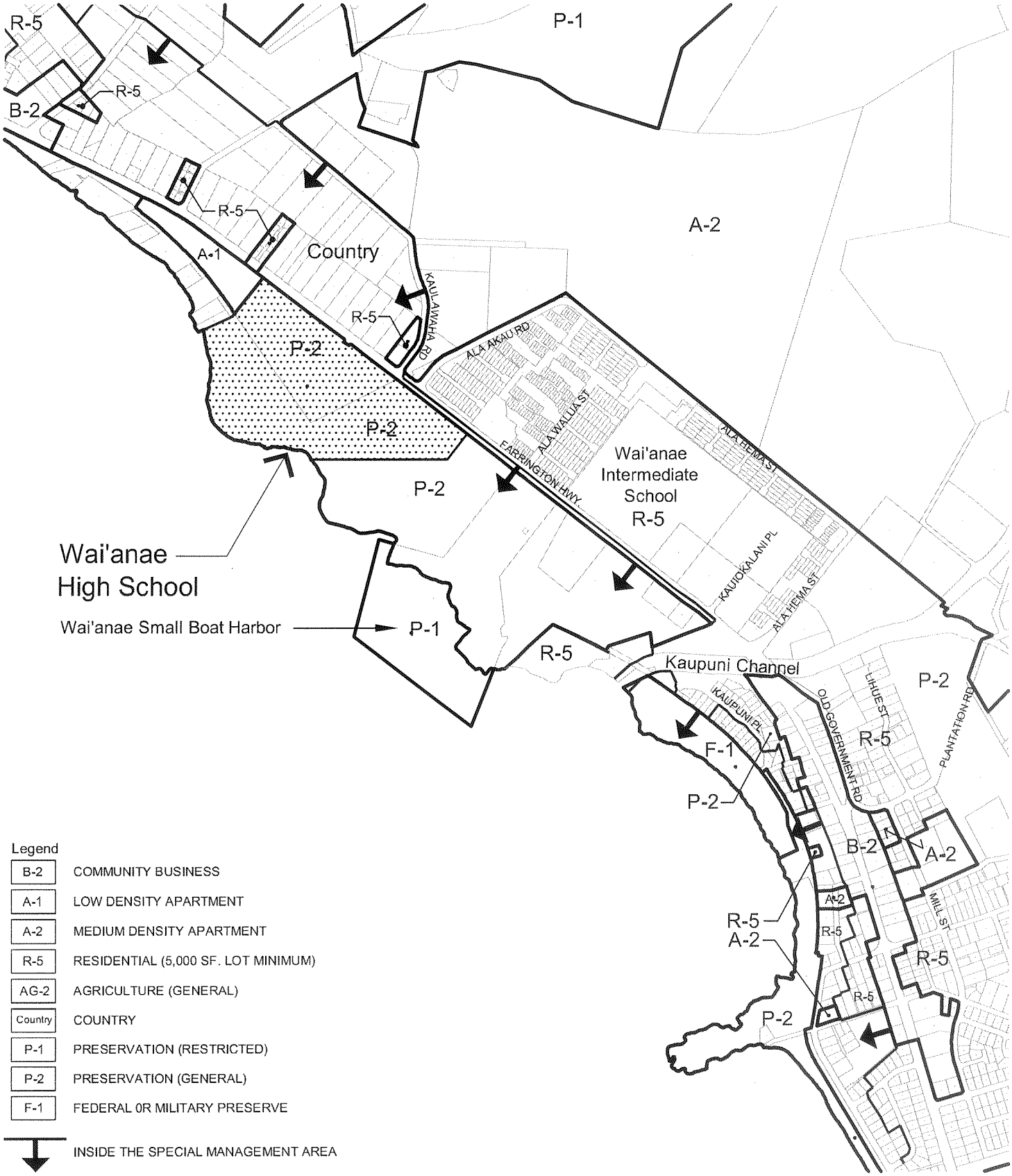
Zoning districts and the Special Management Area are shown as Figure 4.

The proposed improvements are outside the 40-foot shoreline setback and not subject to Chapter 23, Shoreline Setbacks, Revised Ordinances of Honolulu.

The new building will be constructed on parcel 018, however, part of the proposed elevator tower crosses the property line of parcels 001 and 018. Typically a Conditional Use Permit for Joint Development would be required when this situation occurs and the adjoining owners agree that joint development would be a more efficient use of their respective properties. The Department of Planning and Permitting is aware that many campus buildings straddle the property line and previously issued a nonconforming joint development for the School (Conditional Use Permit No. 2002-18). Thus, a Conditional Use Permit will not be required for the proposed project.

J. Public Facilities

Farrington Highway, a five-lane, two-way, all-weather surfaced **roadway** bounds the School on the northeast. The State-owned highway is fully improved with curbs, gutters, sidewalks, and bicycle lanes on both sides of the travel lanes. The speed limit is 25 mph fronting the School. Stacking lanes on Farrington Highway facilitate left turn movements into the campus at three of five intersections. Crosswalks are clearly striped and lane markings alert motorists of pedestrian crossings.



Legend

B-2	COMMUNITY BUSINESS
A-1	LOW DENSITY APARTMENT
A-2	MEDIUM DENSITY APARTMENT
R-5	RESIDENTIAL (5,000 SF. LOT MINIMUM)
AG-2	AGRICULTURE (GENERAL)
Country	COUNTRY
P-1	PRESERVATION (RESTRICTED)
P-2	PRESERVATION (GENERAL)
F-1	FEDERAL 0R MILITARY PRESERVE

INSIDE THE SPECIAL MANAGEMENT AREA

Source: City & County of Honolulu, Department of Planning & Permitting
Zoning Map 20, Ord. 86-121, Oct. 22,1986
Special Management Area, City & County of Honolulu Online GIS Database

LINEAL SCALE (FEET)
500 250 0 250 500 1000

NORTH

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Figure 4
Zoning & Special Management Area Map
Wai'anae High School
Connection of Buildings SP and T

A 15-foot wide, approximately 500-foot long paved driveway from Farrington Highway provides vehicle access to School buildings and facilities along its route. The gated entry is access controlled by security personnel. At its terminus, the driveway branches to parking lots at the swimming pool and west end of the athletic field.

Potable **water** is supplied by the Board of Water Supply, City and County of Honolulu. A 24-inch water main runs under the *makai* side of Farrington Highway and an 8-inch main under the *mauka* side. Water is taken from the 8-inch and supplied to the School through a 6" lateral. An on-site water system distributes domestic water throughout the School. Fire flow is delivered by two 8-inch fire lines also from the 8-inch main.

Wastewater is discharged into a 42-inch main in Farrington Highway and conveyed to the Wai'anae Wastewater Treatment Plant for treatment and disposal.

Protective services originate from Wai'anae Police Station located at the intersection of Farrington Highway at Wai'anae Valley Road the Substation in Wai'anae Town. The Wai'anae Fire Station (Engine 26 and Ladder 26) is located on Farrington Highway next to Wai'anae District Park. In terms of highway distance, the School is approximately 0.4 miles west of the fire station and 0.8 miles from the Police Substation.

A fire hydrant is located on the driveway shoulder fronting Building SP.

Wai'anae District Park, one of eight City beach **parks** in the Wai'anae District, is located about 0.25 miles to the east of the School. The Park consists of two separate but adjoining lots. Facilities on the park lot nearest the School include a parking area, comfort station / pavilion, lighted tennis courts, and grassed play fields. The comfort station is currently closed pending renovation.

Wai'anae Small Boat Harbor is located next to the District Park on the west. The boat harbor is owned by the State of Hawai'i and under jurisdiction of the Department of Land and Natural Resources, Division of Boating and Ocean Recreation.

Approximately 19.5 acres between the Wai'anae Small Boat Harbor Access Road and the School Is (or was) designated Wai'anae Regional Park by the City and County of Honolulu. The land was transferred to the City and County of Honolulu for park purposes as part of Governor's Executive Order 3177. The park was never built. In 2008, the land was withdrawn from Governor's Executive Order 3177 and reset aside to the Department of Land and Natural Resources, Division of Aquatic Resources for conservation and management purposes.

The site remains undeveloped. A local newspaper reported that the site is occupied by a population of 260 homeless single adults and families with children (Honolulu Star Advertiser, December 28, 2015). Several of the homeless have been living on the property for 10+ years.

K. Views

The Coastal View Study (Chu and Jones, 1987) surveyed coastal views and landforms for the island of O'ahu. The Study inventoried coastal areas by viewshed and rated them from Type 1 to Type 6 (Type 1 offering significant coastal views and Type 6 as coastal views linked to large development proposals such as West Beach, Ewa Marina, and Kuilima).

Waiʻanae High School is within Section B, Pōkaʻī Bay of the Waiʻanae Viewshed. The Waiʻanae Viewshed is classified a Type 3 Viewshed. Type 3 refers specifically to the Waiʻanae and Nānākuli Viewsheds where coastal views and the design of the coastal Highway frontage including buildings and landscaping are the key components to visual resource management of the area.

The Study does not identify coastal views, significant stationary views, or important open space / landscape associated with the School. The linear frontage of the School along Farrington Highway blocks views of the ocean from the Highway. Significant stationary views are identified at Pōkaʻī Bay Beach Park and near Mauna Lahilahi (Note: The Study identifies the latter view as "a [A] makai view from Farrington Highway is fronting Mauna Lahilahi Beach Park'.]

The Study points out the descending mountainous ridges *mauka* of Farrington Highway are vivid landmarks and the primary visual attributes of the viewshed. Puʻu Kamaileʻunu and Puʻu Pāheʻeheʻe *mauka* of the School, Mauna Lahilahi on the coast to the west, and Puʻu Māʻiliʻili to the south are identified as important coastal land forms within the Pokai Bay Viewshed.

The Waiʻanae Sustainable Communities Plan (2012) also talks about the importance of views and coastal lands that comprise the fabric of the Leeward Coast communities. Eighteen (18) miles of beach land make up the nearly 20 mile long Leeward coastline and the remaining two miles are rocky ledges and residential coastal development. The Plan also postulates that "[T]the coastal lands are important cultural, scenic, and open space resources that must be preserved and protected for the benefit of present and future generations".

SECTION 3
SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

A. Assessment Process

The scope of the project was discussed with the Project Manager for the Department of Education and the consulting architect. State and County agencies were contacted for information relative to their jurisdiction, expertise, and areas of concern. Time was spent in the field noting site conditions and conditions in the vicinity of the athletic field. From the discussions and field investigations, existing conditions and features that could be affected by or affect the project were identified. These influencing conditions are:

- Building T was constructed 1976 and Building SP in 2005;
- There are no archaeological features on or near the building site;
- There are no rare, threatened, or endangered flora and fauna on the building site;
- There are no surface water bodies on this end of the campus;
- The building site is located inside the Special Management Area but beyond the 40-foot shoreline setback;
- Existing public infrastructure and utilities are adequate;
- A 12-month construction schedule is projected; and
- Construction will temporarily displace activities in Buildings SP and T.

B. Short-term Impacts

1. Air Quality

Construction will temporarily affect air quality and the acoustical environment. Demolition, grubbing, grading, stockpiling, backfilling and other soil (or earth) moving activities will raise fugitive dust that can settle in adjoining areas. Windy conditions coupled with exposed soil can create severe dust problems. The general contractor will employ dust control measures to prevent the work site and construction equipment and activities from becoming significant dust generators. Control measures shall comply with Chapter 60.1, Air Pollution Control, Title 11, Department of Health, State of Hawaii (and revisions thereto). The site work contractor may implement alternative methods adaptable to the scope of the improvements and features of the site.

Most construction equipment and vehicles are diesel powered and emit exhaust emissions typically high in nitrogen dioxide and low in carbon monoxide. The Federal and State nitrogen dioxide standard ---100mg/m^3 per annum---which is an annual standard, is not likely to be exceeded during construction. Carbon dioxide emissions should be less than that generated by automobile traffic on adjoining streets. Aldehyde odors from diesel equipment may be detected but should be dispersed by the prevailing winds.

2. Noise

Construction noise, like fugitive dust, cannot be avoided. Exposure to noise will vary by construction phase, the duration of each phase, and the type of equipment used during the

different phases. Maximum sound levels in the range of 82-96 db(A) measured at 50 feet from the source will be generated by heavy machinery during site work. After site work and demolition are completed, reductions in sound levels, frequency, and duration can be expected as the foundation is formed, concrete footings and matting poured, and the building framed and erected.

Community Noise Control regulations establish maximum permissible sound levels for construction activities occurring within "acoustical" zoning districts. Based on the preservation zoning for the site, the site is considered to be located in the Class A zoning district for noise control purposes. The maximum permissible daytime sound level in the district attributable to stationary noise sources and equipment related to construction activities is 55 dBA during daytime (7:00 AM to 10:00 PM) and 45 dBA during nighttime (10:00 PM to 7:00 AM) (Chapter 46, Community Noise Control, 1996). As disclosed above, construction noise occasionally will exceed the 55 dBA threshold.

In general, construction activities cannot exceed the permissible noise levels for more than ten percent of the time within any twenty-minute period except by permit or variance. Any noise source that emits noise levels in excess of the maximum permissible sound levels cannot be operated without first obtaining a noise permit from the State Department of Health. Although the permit does not attenuate noise per se it regulates the hours during which excessive noise is allowed.

The general contractor will obtain and comply with conditions attached to the permit. Work will be scheduled between the hours of 7:00 AM to 3:30 PM Mondays through Fridays. The contractor will also ensure that construction equipment with motors is equipped with mufflers in proper operating condition.

Noise will be audible over the entire construction period. Demolition and site work is probably the time when noise is the most audible at and around the building site. Noise will diminish as construction proceeds to foundation work and erecting the building. Interior construction noise will be contained by the structure and

Noise should not interfere with classroom instruction given the location of the building site, the modest scale of construction, and distance from the nearest classroom buildings.

Noise will be audible at the Makaha Surfside development to the west primarily at the oceanside open lawn which is used for passive recreation and ocean activities. Units in the building nearest the building site are arranged perpendicular to the ocean and don't face the building site. This end of the building is finished by an exterior wall with window openings. The wall will help attenuate noise but noise still would be audible through open windows in the wall and lanai doorways facing the ocean.

All construction activities will comply with Chapter 46 Community Noise Control, Title 11, Administrative Rules, Department of Health, State of Hawai'i.

3. Erosion

Site work will create opportunities for erosion (fugitive dust and suspended sediment in runoff). Grubbing, grading, and stockpiling of excavated and imported material will be performed in accordance with the erosion control ordinance of the City and County of

Honolulu and grading plans approved by the Department of Planning and Permitting, City and County of Honolulu.

Best Management Practices (BMPS) for erosion and drainage control during construction will be incorporated into a detailed BMP plan. Silt curtains will be erected around work sites and gravel blankets placed at vehicle access points. Additional BMPS will be considered based on site conditions.

The construction area approximates one (1) acre thus a NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity may be required from the State Department of Health. The actual construction area and permitting requirements will be determined at a later date.

Department of Health Standard Comments will be incorporated into construction plans and notes (Department of Health Comment).

4. Biological Resources

A site inspection did not reveal the presence of rare, threatened, or endangered flora or candidates for protected status. Recorded vegetation is primarily grass and weedy specimens common to the Island of O'ahu and the State of Hawai'i.

Avifauna and wildlife were not observed during the field inspection. This is not a true measure of whether avifauna and wildlife frequent the site; only that they were not present during the field inspection.

5. Archaeological Resources

Effects on archaeological resources are not anticipated. The LR/FI prepared by Cultural Surveys Hawai'i (2017) posited the conclusion and recommendation below:

> "Due to the findings of the pedestrian inspection and background research, it is unlikely that significant historic properties will be affected by the proposed project. Coral karstic outcrops are known to contain pre- and post-Contact archaeological deposits and human burials; however, based on the minimal ground disturbance proposed for the construction project and the general thickness of the fill deposits overlying the coral outcrop, it is unlikely the coral outcrop, and any archaeological deposits therein, will be encountered or affected.
>
> Therefore, no further archaeological historic preservation work is recommended for the proposed project. However, if significant finds are encountered, including human burials, all work in the immediate vicinity will cease and the SHPD will be promptly notified."

6. Traffic

Construction vehicles hauling workers and material will contribute to traffic on Farrington Highway. Deliveries will be scheduled to minimize impacts to local and on-campus traffic circulation. Materials will be off-loaded at or near building site and/or stored in an on-site construction baseyard.

C. Long-term Impacts

The building site has been disturbed by prior construction of the Buildings SP and T, the Gymnasium, the swimming pool and accessory facilities such as the underground storage chambers, drainage structures, and improvements along and including the existing driveway dating back to 1961. In consideration of current conditions and past construction, environmental features have already been altered and the environment can be considered man-made.

The School has an NPDES MS-4 drainage discharge permit---HI 5000003. Runoff not otherwise directed to bio-filtration areas for infiltration will be conveyed via a drain way to the west campus ocean discharge point (DP-1) for ocean discharge. Discharge into Marine Class A Waters is allowed under the NPDES permit.

Faculty and students and the Searider Production program will benefit from the project. Additional classrooms and a makery shop will promote and enhance the overall program objectives and provide a place where students can develop and apply their creative talents and abilities. The covered space offers a place where students can gather unlike the current unappealing and unused open area. Safety and security should be improved by exterior lighting, gated entries, and demolition of the abandoned swimming pool.

The proposed action will not negatively affect shoreline ecology or the use of the shoreline as prescribed in the Wai'anae Sustainable Communities Plan (Section 3, Coastal Plans). The project will not adversely affect views of the shoreline from Farrington Highway as views to the ocean across the School are already obstructed by permanent buildings, associated structures and facilities, trees and landscaping, and parking areas.

At this end of the campus, the existing Gymnasium already precludes views to the ocean from Farrington Highway. Removal of the above ground swimming pool structure will open views to the ocean from some locations *makai* of the Gymnasium and south to east facing views from the Makaha Surfside development.

The project will not affect land use controls for the School. Schools and its associated facilities are a permitted use in the General Preservation zoning and the project does not call into question the zoning for area.

A portion of the proposed improvements crosses a common property line of two adjoining lots. Ordinarily when this occurs the lots must be jointly developed or consolidated. This applies to public and private uses because the Land Use Ordinance does not contain provisions allowing the Director of the Department of Planning and Permitting (DPP) to waive procedural requirements for public uses. In the case of Waianae High School the DPP recognizes and acknowledges that several existing buildings cross common property lines. Where this occurs at the School, the DPP considers the site a "non-conforming joint development" and a Conditional Use Permit for Joint Development or consolidation through the subdivision process is not required (DPP, 2002).

Waivers will be required (and sought) to exceed the 25-foot building height and lot coverage (5% of the zoning lot) established by the Land Use Ordinance.

SECTION 4
ALTERNATIVES TO THE PROPOSED ACTION

A. No Action / Delay the Action

A No Action / Delay the Action alternative will maintain the status quo of the physical environment and preclude the occurrence of all impacts, short and long term, beneficial and adverse disclosed in this Assessment. A No Action alternative will not achieve the stated objectives of the project. Delaying the Action only suspends the project until such time that it can be constructed.

B. Alternative Sites

Alternative Sites were not evaluated. Building SP is "home" to Searider Productions and another on-campus location would be unable to accommodate the existing use and facilities and proposed expansion of both classrooms and facilities. In addition, the cost of constructing new buildings and facilities would exceed the cost of adding to and enhancing the existing buildings.

SECTION 5
AGENCIES AND ORGANIZATIONS [~~TO BE~~] CONSULTED IN THE ENVIRONMENTAL ASSESSMENT PROCESS

The Draft Environmental Assessment for the Waianae High School Connection of Buildings SP and T was published in the Office of Environmental Quality Control Environmental Notice of March 8, 2017. Publication initiated a 30-day public review period ending on April 7, 2017. The Draft Environmental Assessment was distributed to the agencies and organizations listed below. An asterisk* identifies agencies and organizations that submitted written comments during the review period including comments received by e-mail. All comment letters and responses are found in Appendix B.

State of Hawaii

Department of Land and Natural Resources
Historic Preservation Division
Department of Health
****Environmental Planning Office***

City and County of Honolulu

Department of Planning and Permitting

Other

*Hawaiian Electric Company
Wai'anae Coast Neighborhood Board No. 24
The Honorable Maile Shimabukuro, 21st Senatorial District
The Honorable Cedric Gates, 44th Representative District
The Honorable Kymberly Marcos Pine, Honolulu City Council
Wai'anae Public Library (Placement)

SECTION 6
PERMITS AND APPROVALS

Permits and approvals required for the project and approving authorities are listed below. Additional permits and approvals may be required pending final construction plans.

State of Hawai'i

Department of Health

Variance from Pollution Control (Noise Permit)
National Pollution Discharge Elimination System (To Be Determined)

Department of Land and Natural Resources

Historic Site Review – Chapter 6E

Department of Transportation, Highways Division

Perform Work within a State Highway Right-of-Way

City and County of Honolulu

Honolulu City Council

Special Management Area Use Permit

Department of Planning and Permitting

Building Permit for Building, Electrical, Plumbing, Sidewalk/Driveway and Demolition Work
Certificate of Occupancy
Grubbing, Grading, and Stockpiling Permit
Waivers to Exceed Building Height and Lot Coverage

SECTION 7
DETERMINATION OF SIGNIFICANCE

Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the State Department of Health, establishes criteria for determining whether an action may have significant effects on the environment (§11-200-12). The relationship of the proposed project to these criteria is discussed below.

1) **Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;**

   A Literature Review/Field Inspection concluded that it is unlikely that significant historic properties will be affected by the proposed project.

   It is a standard construction practice that all who perform site work are informed of proper protocols if burials or historical features are unearthed. If burials or features are unearthed, work in the immediate area will cease and historic authorities notified for disposition of the finds per State law.

2) **Curtails the range of beneficial uses of the environment;**

   The project will improve the beneficial use of an unused and somewhat isolated section of the School campus. Existing buildings and structures, roads, and underground infrastructure already have disturbed the natural environment creating a man-made environment.

3) **Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawaii Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;**

   The project does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii.

4) **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;**

   The project will not substantially affect the economic welfare, social welfare, and cultural practices of the community and State.

   Cultural practices associated with the site have not been identified.

5) **Substantially affects public health;**

   Public health should not be adversely affected by the proposed project.

6) **Involves substantial secondary impacts, such as population changes or effects on public facilities;**

   The project will not initiate population changes or effects on public facilities.

7) **Involves a substantial degradation of environmental quality;**

The project is proposed in a setting where natural features have already been disturbed by school construction dating back to 1961.

8) **Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;**

The project is not the precursor for a larger action.

9) **Substantially affects a rare, threatened or endangered species, or its habitat;**

Rare, threatened or endangered flora or fauna were not observed on the premises. 'Apapane, an endemic bird which may frequent the area of the School is not listed as rare, threatened, or endangered.

The US Fish and Wildlife Service indicated that there is no federally designated critical habitat within the immediate vicinity of the project area. The Service, however, stated that endangered Hawaiian waterbirds---the Hawaiian stilt, Hawaiian coot, Hawaiian gallinule, and Hawaiian duck---may occur in the vicinity of the project (USFWS Comment Letter).

10) **Detrimentally affects air or water quality or ambient noise levels;**

Air and water quality and ambient noise levels will not be detrimentally affected. Air and water quality and noise impacts can and will be mitigated by measures stipulated in this assessment.

11) **Affects an environmentally sensitive area such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, fresh water, or coastal waters;**

The project is not proposed in an environmentally sensitive area.

Excess runoff will be discharged into ocean waters from a discharge point on the west end of the campus. The discharge is permitted by NPDES Permit MS-4.

12) **Substantially affects scenic vistas and view planes identified in county or state plans or studies; or**

Coastal views, significant stationary views, or important open space / landscape associated with the School are not identified in county or state plans or studies.

Public views of the ocean from Farrington Highway are already blocked by the existing Gymnasium. Demolishing the swimming pool will open views to the ocean from some locations on campus and from the adjoining Makaha Surfside development.

13) **Requires substantial energy consumption.**

The building is anticipated to increase energy consumption. The building, however, will be designed according to a high performance building rating program developed to

specifically facilitate the design, construction, and operation of high performance schools. The rating system is termed the Hawaii Collaborative for High Performance Schools or HI-CHPS. Rating system criteria will be incorporated into the building for designing and managing energy, water, wastewater, and building operation and maintenance.

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APPENDIX A

Archaeological Literature Review and Field Inspection
Report for the Waiʻanae High School
Connection of Buildings SP and T Project,
State of Hawaiʻi Department of Education Job No. Q85002-15
Waiʻanae Ahupuaʻa, Waiʻanae District, Oʻahu
TMKs: [1] 8-5-002: 018 (por.) and 8-5-015: 001 (por.)

Draft
Archaeological Literature Review and Field Inspection Report for the Wai‘anae High School Connection of Buildings SP and T Project, Wai‘anae Ahupua‘a, Wai‘anae District, O‘ahu TMKs: [1] 8-5-002:018 (por.) and 8-5-015:001 (por.)

Prepared for
Gerald Park Urban Planner

Prepared by
Si-Si Hensley, M.A.,
Constance R. O'Hare, B.A.,
and
Matt McDermott, M.A.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: WAIANAE 13

February 2017

O‘ahu Office
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950

www.culturalsurveys.com

Maui Office
1860 Main St.
Wailuku, Hawai‘i 96793
Ph.: (808) 242-9882
Fax: (808) 244-1994

Management Summary

Reference	Archaeological Literature Review and Field Inspection Report for the Wai‘anae High School Connection of Buildings SP and T Project, Wai‘anae Ahupua‘a, Wai‘anae District, O‘ahu, TMKs: [1] 8-5-002:018 (por.) and 8-5-015:001 (por.) (Hensley et al. 2017)
Date	February 2017
Project Number(s)	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: WAIANAE 13
Investigation Permit Number	The fieldwork for this study was completed under CSH’s annual archaeological fieldwork permit number 16-26, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-282.
Agencies	SHPD, State of Hawai‘i Department of Education (DOE)
Land Jurisdiction	City and County of Honolulu; State of Hawai‘i
Project Proponent	Gerald Park Urban Planner
Project Funding	DOE
Project Location	The project area is located southwest of Farrington Highway within the Wai‘anae High School (WHS) campus. The project area is depicted on a portion of the 1998 Waianae U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle.
Project Description	Plans include the demolition and filling of the existing above-ground swimming pool, the construction of a new parking area on the lower third portion of the former pool area, widening the fire line from 15 ft to 20 ft, the addition of a turnaround to the fire lane, and the construction of a new, two-story building, connecting the existing Building SP and Building T.
Project Acreage	The entire WHS campus area is approximately 37.86 acres (15.32 hectares). The project area is a 1.8 acre (0.73 hectares) subset of the WHS campus.
Area of Potential Effect (APE)	The APE is considered to be the entire 1.8 acres (0.73 hectare) project area.
Historic Preservation Regulatory Context and Document Purpose	This proposed project is subject to Hawai‘i State historic preservation review legislation, specifically Hawai‘i Revised Statutes (HRS) §6E-8 and HAR §13-275. This document serves to facilitate the proposed project’s planning and to support consultation with the SHPD regarding the project’s necessary historic preservation review steps pursuant to HAR §13-275, by assessing whether there are archaeological concerns within the project area, and to develop data on the general nature, density, and distribution of archaeological resources. It is intended to support SHPD’s determination on whether or not a project inventory survey is needed pursuant to HAR §13-275-5(b)(5).

Fieldwork Effort	Fieldwork was accomplished on 13 December 2016 by principal investigator Matt McDermott, M.A., requiring approximately 0.5 person-days to complete.
Results Summary	Background research indicated that the O‘ahu Railway and Land Company (OR&L) railroad extended through the project area from the late 1800s into the 1940s. Also, that prior archaeological investigations in the vicinity of the project area have documented coastal Native Hawaiian burial sites in Jaucas sand deposits—particularly immediately northwest of the current project area. During the field inspection, the entire project area was inspected and photographed. Particular attention was paid to identifying any surface remnants of the OR&L and indications of Jaucas sand deposits that are more likely to contain Native Hawaiian skeletal remains. No potential historic properties were identified during the field inspection. Where the OR&L once crossed the project area has been disturbed by subsequent construction, particularly a subsurface drainage/filtration system for the adjacent above ground swimming pool. The project area is located atop an emerged coral karstic outcrop that has been filled with approximately 70 cm of fill consisting of crushed coral and terrigenous soil. Based on surface observations, there are unlikely to be significant Jaucas sand deposits in the project area
Recommendations	Based on the results of the pedestrian inspection and background research, it is unlikely that significant historic properties will be affected by the proposed project. Coral karstic outcrops are known to contain pre- and post-Contact archaeological deposits and human burials; however, based on the minimal ground disturbance proposed and the general thickness of the fill deposits overlying the coral outcrop, it is unlikely the coral outcrop, and any archaeological deposits therein, will be encountered or affected. Therefore, no further archaeological historic preservation work is recommended for the proposed project. However, if significant finds are encountered, including human burials, all work in the immediate vicinity will cease and the SHPD will be promptly notified.

Table of Contents

Management Summary i

Section 1 Introduction 1

1.1 Project Background 1
1.2 Historic Preservation Regulatory Context and Document Purpose 1
1.3 Environmental Setting 8
1.3.1 Natural Environment 8
1.3.2 Built Environment 8

Section 2 Methods 10

2.1 Field Methods 10
2.2 Research Methods 10

Section 3 Background Research 11

3.1 Traditional Background 11
3.1.1 Mythological and Traditional Accounts 11
3.1.2 Place Names 12
3.1.3 Pre-Contact Period 14
3.2 Historical Background 17
3.2.1 Early Post-Contact Period 17
3.2.2 Early 1800s 17
3.2.3 The Māhele and Land Commission Awards 18
3.2.4 Mid- to Late 1800s 22
3.2.5 1900s to Present 23
3.2.6 Contemporary Land Use 35

Section 4 Previous Archaeological Research 36

4.1 Heiau of Wai‘anae 42
4.2 Previous Archaeological Studies in the Vicinity of the Project Area 43
4.2.1 Sinoto 1975 43
4.2.2 Kawachi 1991a; Douglas 1991a 43
4.2.3 Kawachi 1991b; Douglas 1991b 44
4.2.4 Denham et al. 1992 44
4.2.5 Kawachi 1992 44
4.2.6 Flood et al. 1994 45
4.2.7 Jourdane 1995 45
4.2.8 Borthwick and Hammattt 1997 45
4.2.9 Magnusson 2000 46
4.2.10 Elmore and Kennedy 2001 46
4.2.11 Cordy 2002b 46
4.2.12 Jones and Hammatt 2003 46
4.2.13 Kalihiwa and Cleghorn 2003 47
4.2.14 Clark et al. 2004 47
4.2.15 Perzinski and Hammatt 2004 47
4.2.16 Tulchin and Hammatt 2004 48
4.2.17 Hammatt and Shideler 2006; Hazlett et al. 2008 48
4.2.18 Shefcheck and Spear 2007; Shefcheck and Spear 2009 48

4.2.19 Tulchin and Hammatt 2007 48
4.2.20 Desilets 2008 49
4.2.21 McElroy 2008 49
4.2.22 Shefcheck and Spear 2008 49
4.2.23 Hammatt 2009 49
4.2.24 Jones and Hammatt 2009 49
4.2.25 Liebhardt and Kennedy 2010 50
4.2.26 Mooney et al. 2013 50
4.2.27 Yucha et al. 2014 50
4.2.28 Yucha et al. 2015 50
4.2.29 Belluomini and Hammatt 2016 50

Section 5 Results of Fieldwork 51

Section 6 Summary and Recommendations 60

Section 7 References Cited 62

Appendix A: Māhele Documents 70

LCA 9489B to Holi – Claim and Testimony 70
LCA 9489B to Holi – Award 71

List of Figures

Figure 1. Portion of the 1998 Waianae USGS 7.5-minute topographic quadrangle showing the location of the project area within the WHS campus 2
Figure 2. Tax Map Key [1] 8-5-002, showing the project area (Hawai‘i TMK 2014).....3
Figure 3. Tax Map Key [1] 8-5-015, showing the project area (Hawai‘i TMK 2014).....4
Figure 4. Aerial photograph showing the location of the project area (Google Earth 2013) 5
Figure 5. Campus map of Waianae High School with building names and locations (from Waianae High School website), the project area is to the right in the vicinity of the buildings labeled Pool and Gym; note that Building labeled SD is now called Building T6

Figure 6. Plan view on a current aerial photograph (for reference the above ground pool is on the left and the *makai* edge of the gym is on the right) and perspective elevations of the proposed project (from Just Right) 7

Figure 7. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001) 9
Figure 8. Place Names of Wai‘anae (base map U.S. Army War Department 1919 Fire Control map, Waianae Quadrangle); ‘Ili names all upper case; the project area is in the *‘ili* of Kamaile (southwest corner of Wai‘anae Ahuua‘a)....13
Figure 9. Portion of the Paul Rockwood map of traditional trails of Leeward O‘ahu as described by John Papa ‘Ī‘ī, indicating the project area (‘Ī‘ī 1959:96)....16
Figure 10. Portion of 1878 Monsarrat map of Wai‘anae showing LCA lots in the Kamaile area, and location of OR&L railroad track through the project area (Monsarrat 1878; Reg. Map No. 2108) 20
Figure 11. 2013 aerial photograph showing the locations of LCAs near the coastline and near the project area (Google Earth)....21
Figure 12. Portion of 1884 Jackson map (Reg. Map No. 1328) of Waianae and adjacent coast, showing the OR&L Railway extending through the WHS Campus....24
Figure 13. Portion of 1906 Donn (Reg. Map No. 2374) Hawaii Territory Survey map of O‘ahu showing the various land uses in the vicinity of the project area and the railway extending through the WHS campus 25
Figure 14. Portion of 1919 U.S. Army War Department Fire Control map, Waianae Quadrangle showing the location of the project area 26
Figure 15. Portion of the 1936 U.S. Army War Department Terrain map, Waianae and Kaena Quadrangles, showing the location of the project area 27
Figure 16. 1928 UH SOEST Waianae Coast aerial photograph showing the lack of development within the project area....28
Figure 17. Portion of 1943 U.S. Army War Department Terrain map, Waianae Quadrangle, showing the location of the project area 29
Figure 18. Portion of the 1954 Waianae USGS topographic quadrangle showing the location of the project area....30
Figure 19. 1960 UH SOEST Waianae Coast aerial photograph showing the development of Waianae High School within the project area....31
Figure 20. Portion of the 1963 Waianae USGS topographic quadrangle showing the location of the project area....32
Figure 21. 1971 UH SOEST Waianae Coast aerial photograph showing the project area within the WHS athletic field....33
Figure 22. 1977 UH SOEST Waianae Coast aerial photograph showing the project area within 34
Figure 23. Portion of 1998 Waianae USGS 7.5-minute topographic quadrangle showing the locations of previously conducted archaeological studies within the vicinity of the project area....40
Figure 24. Portion of 1998 Waianae USGS 7.5-minute topographic quadrangle showing the locations of previously documented historic properties within the vicinity of the project area....41
Figure 25. Wai‘anae High School, Buildings SP and T, view to the east 52
Figure 26. Gymnasium on left, Building T right, view east; this modern soil berm does not match the location of the old OR&L right-of-way, which would have been located *makai* (to the right) of this berm, closer to the swimming pool....52

Figure 27. Wai‘anae High School Gymnasium, sewer/drainage slab associated with above-ground swimming pool, view to the north; the old OR&L right-of-way would have crossed diagonally over this slab 53
Figure 28. Gymnasium in back, Building T to right, view north.....54
Figure 29. View toward the coast, swimming pool to the left, view to the southwest 54
Figure 30. Makaha Surfside Housing Development to right (white building), view to the northwest from campus.....55
Figure 31. Makaha Surfside Housing Development from the beach, view to the northwest 55
Figure 32. Building T to left, above-ground pool in back, view to the south.....56
Figure 33. View of Access Road from beach to campus, above-ground pool in center, view to the north 56
Figure 34. Exposed coral outcrops at coast, Makaha Surfside Housing in back, view northwest 57
Figure 35. Exposed eroded coastal bank, showing coral/soil fill layers, view northeast 57
Figure 36. 1928 aerial photograph with overlay of the location of a visible surface soil berm (see (see Figure 26) noted during the field inspection and the location of a below-ground swimming pool drainage structure in relation to the OR& L ROW; note that the above-ground slab with metal manholes for the pool drainage structure is located on the west side of the sructure (see Figure 27).....58
Figure 37. 2013 aerial photograph with overlay of location of modern soil berm noted during the field inspection and location of pool drainage structure and Building SP in relation to the OR&L ROW 59

List of Tables

Table 1. LCAs Located near the Coast or in the Immediate Vicinity of the Project Area 19
Table 2. Previous Archaeological Studies in the Vicinity of the Project Area.....36

Section 1 Introduction

1.1 Project Background

At the request of Gerald Park Urban Planner, Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this literature review and field inspection report (LRFI) for Wai‘anae High School (WHS) Connection of Buildings SP and T Project, Wai‘anae Ahupua‘a, Wai‘anae District, O‘ahu, TMKs: [1] 8-5-002:018 and 015:001. The campus is bound on the north, *mauka* (inland) side by Farrington Highway, on the east by undeveloped land, on the south, *makai* (seaward) side by the Pacific Ocean, and to the west by the Makaha Surfside housing development. The entire WHS campus area is approximately 37.86 acres (15.32 hectares), while the current project area measures approximately 1.8 acres (0.73 hectare). The project area is depicted on a portion of the 1998 Waianae U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2 and Figure 3), and a 2013 aerial photograph (Figure 4). The Department of Education, State of Hawai‘i, proposes to construct building improvements at Wai‘anae High School. The project area is within two TMK parcels. The larger 23.8 acre lot (TMK 8-5-002:081) is owned by the State of Hawai‘i, and the smaller 14.06 acre lot (TMK 8-5-015:001) is owned by the City and County of Honolulu. The proposed project area is on the west side of the campus, bound by the Gym to the north, the swimming pool to the south, Buildings SP and T on the west, and the Makaha Surfside development on the west (Figure 5). The building project will provide additional classrooms and shop space for the school’s art curriculum.

Plans include the demolition and of the existing above-ground swimming pool, the construction of a new parking area on the lower third portion of the former pool area, widening the fire line that connects to Farringdon Highway from 15 ft to 20 ft, the addition of a turnaround to the fire lane, and the construction of a new, two-story building, connecting the existing Building SP and Building T (Figure 5 and Figure 6). The new building will be approximately 28 ft in height with a ground-level floor space of 4,075 sq ft. A triangular-shaped open courtyard will be created by the joining of Buildings SP, T, and the new building (refer to Figure 6).

1.2 Historic Preservation Regulatory Context and Document Purpose

As a project funded by the State of Hawai‘i Department of Education (DOE), on lands falling under the jurisdiction of the DOE, this proposed project is subject to Hawai‘i State historic preservation review legislation, specifically Hawai‘i Revised Statutes (HRS) §6E-8 and Hawai‘i Administrative Rules (HAR) §13-275.

This LRFI serves to facilitate the proposed project’s planning and to support consultation with the State Historic Preservation Division (SHPD) regarding the project’s necessary historic preservation review steps pursuant to HAR §13-275, by assessing whether there are archaeological concerns within the project area, and to develop data on the general nature, density, and distribution of archaeological resources. It is intended to support SHPD’s determination on whether or not a project inventory survey is needed pursuant to HAR §13-275-5(b)(5).

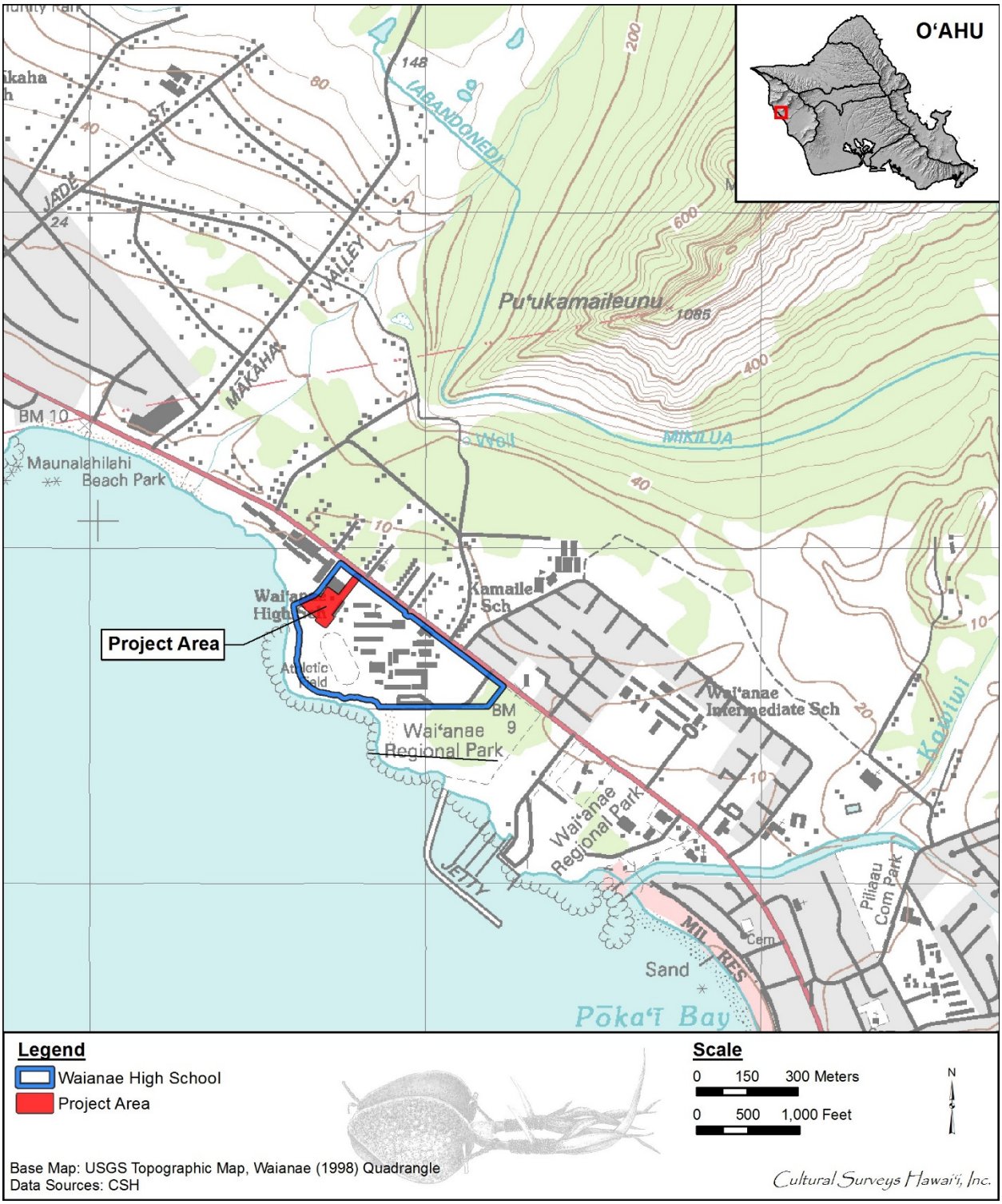

Figure 1. Portion of the 1998 Waianae USGS 7.5-minute topographic quadrangle showing the location of the project area within the WHS campus

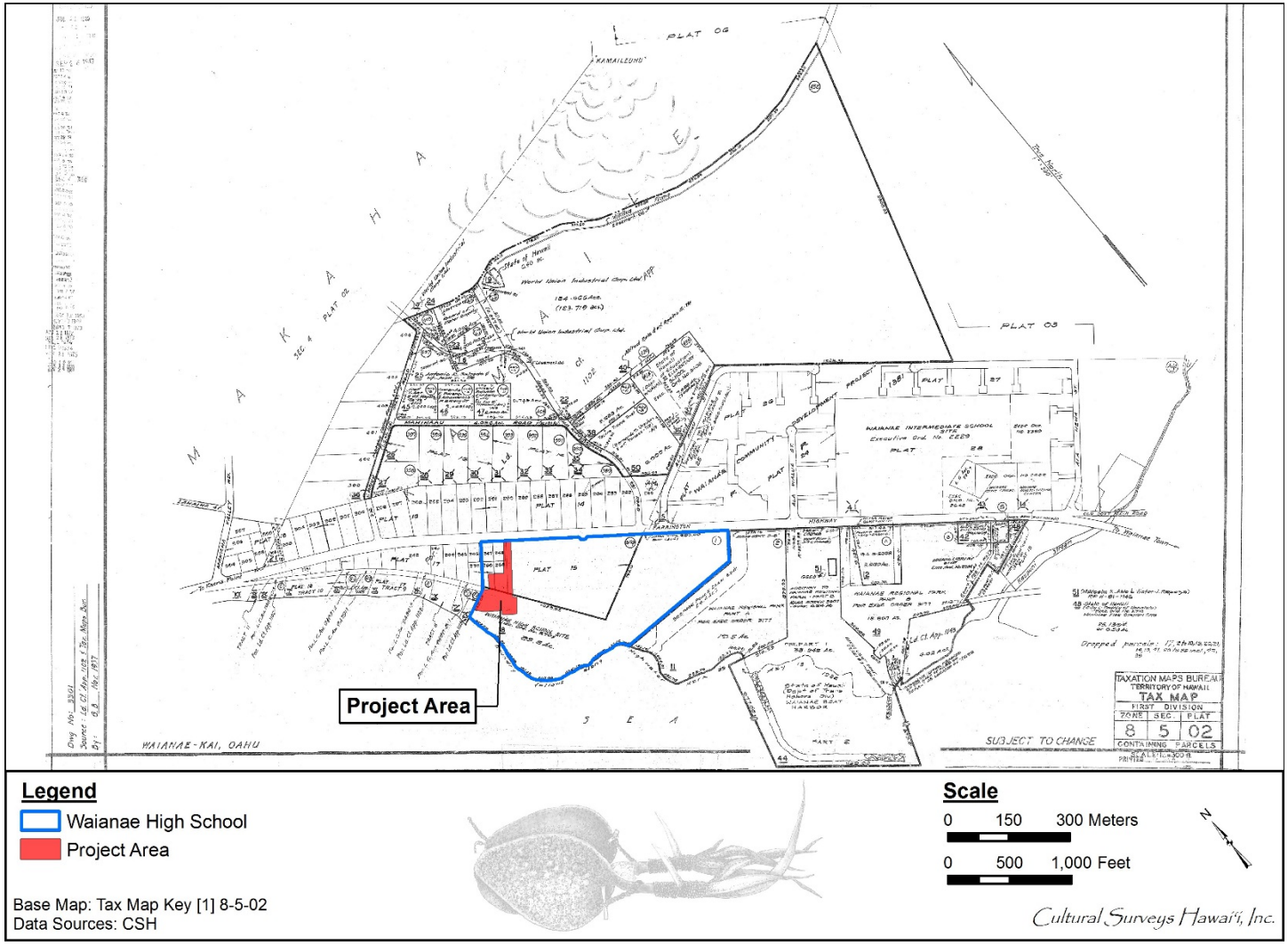

Figure 2. Tax Map Key [1] 8-5-002, showing the project area (Hawai‘i TMK 2014)

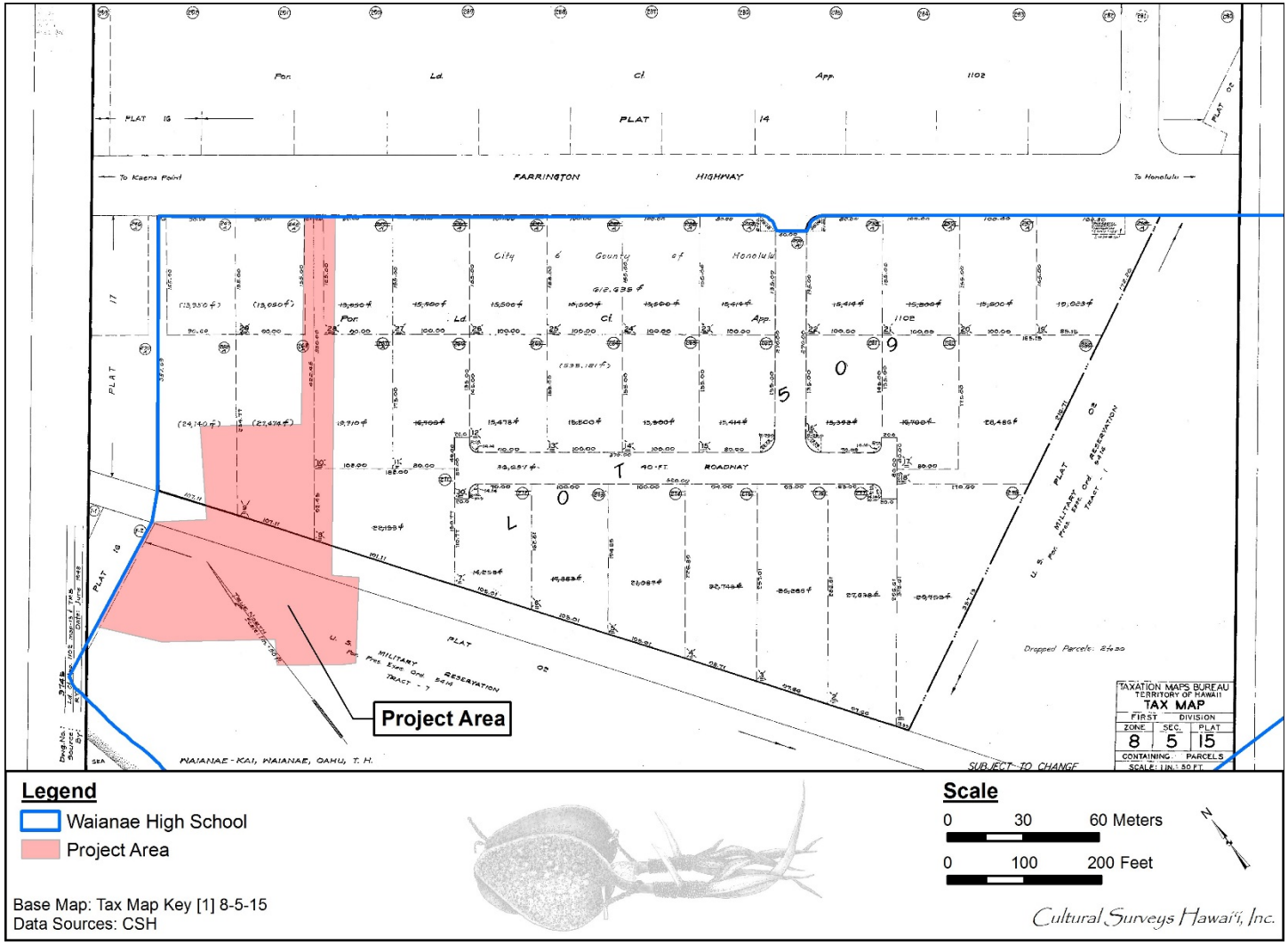

Figure 3. Tax Map Key [1] 8-5-015, showing the project area (Hawai‘i TMK 2014)

Figure 4. Aerial photograph showing the location of the project area (Google Earth 2013)

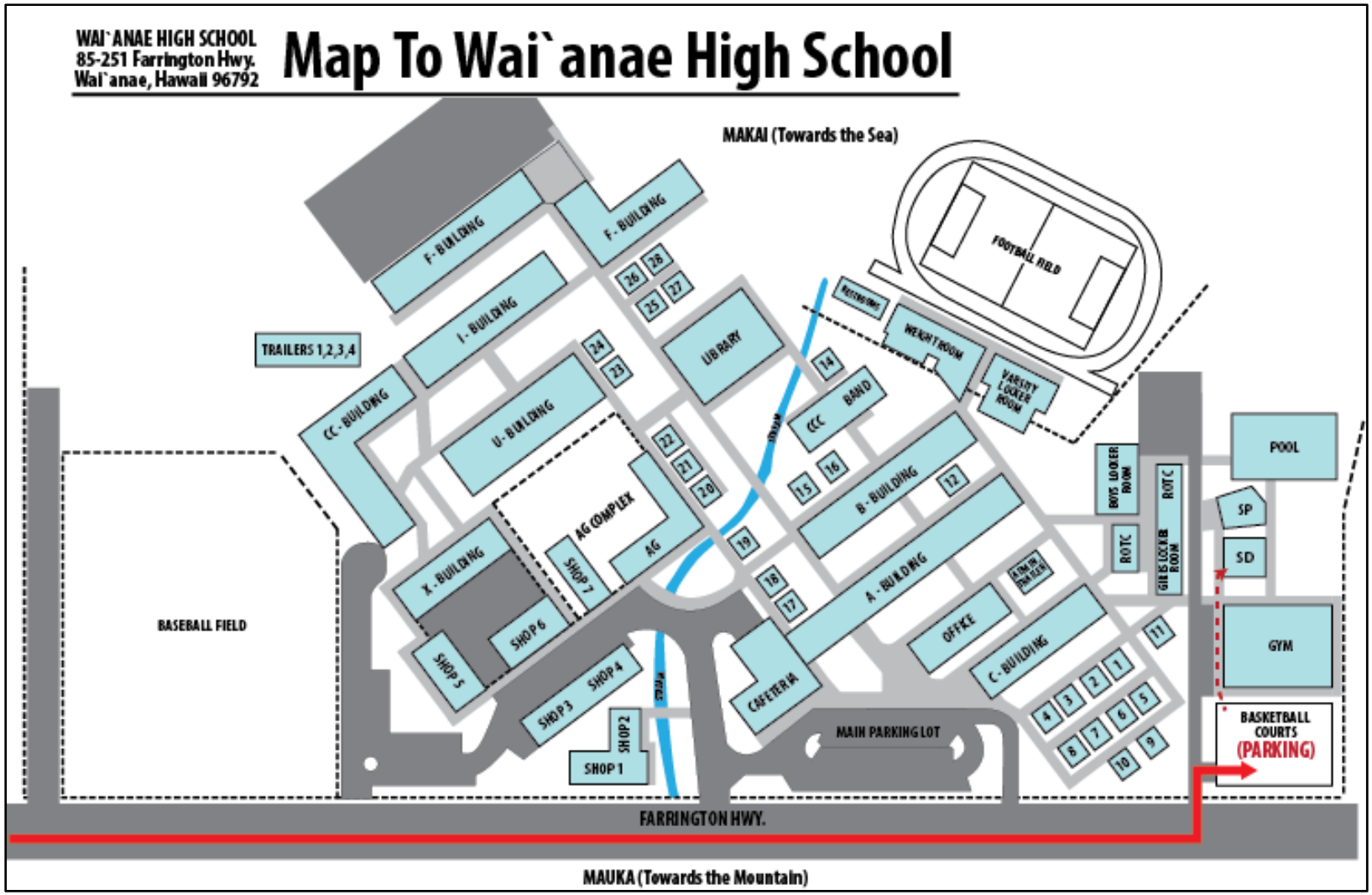

Figure 5. Campus map of Waianae High School with building names and locations (from Waianae High School website), the project area is to the right in the vicinity of the buildings labeled Pool and Gym; note that Building labeled SD is now called Building T

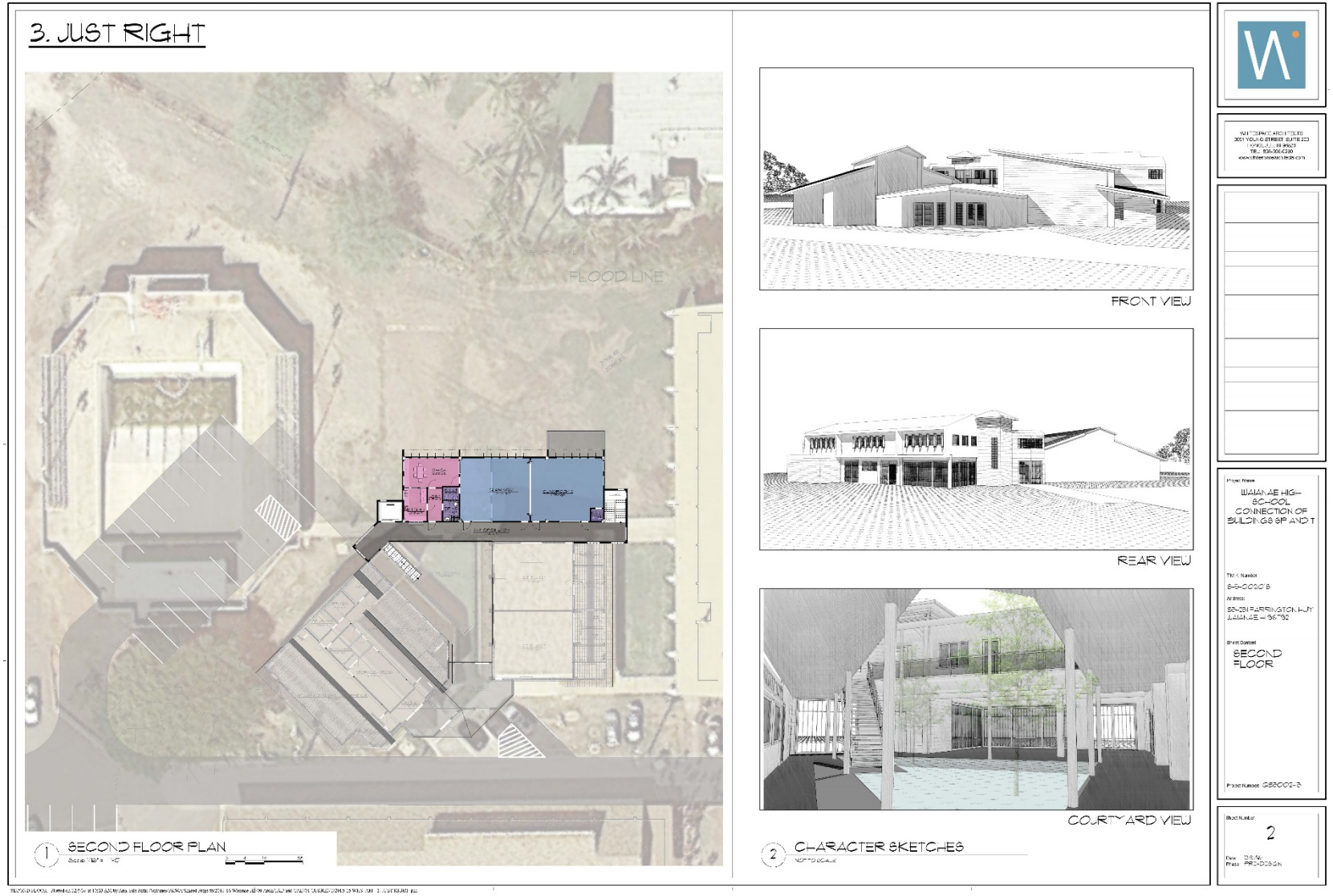

Figure 6. Plan view on a current aerial photograph (for reference the above ground pool is on the left and the *makai* edge of the gym is on the right) and perspective elevations of the proposed project (from Just Right)

1.3 Environmental Setting

1.3.1 Natural Environment

The project area is located within the traditional Hawaiian land division (*ahupua‘a*) of Wai‘anae (Wai‘anae Kai) in the district (*moku*) of Wai‘anae on the leeward coast of O‘ahu. The project area lies in central coastal Wai‘anae Town on the karstic flats of an emerged limestone reef (Stearns 1940:36). The emerged reef formation is relatively flat with frequent sinkholes, depressions and cobble concentrations. The project area is between 40 and 160 m inland of the coast and the project area is relatively flat and approximately 1 m above mean sea level. Rainfall in the project area ranges between 550 and 560 millimeters (21.7-22 inches) annually (Giambelluca et al. 2013). No streams are located in the project area, however, a man-made drainage canal extends through the WHS campus southeast of the project area. ‘Eku Stream is located approximately 500 m to the northwest of the project area and Kawiwi Stream is located 1,000 m to the southeast.

According to the U.S. Department of Agriculture (USDA) soil survey for O‘ahu, the project area is located within the coral outcrop (CR) and Mokuleia clay (Mtb) soil types (Foote et al. 1972) (Figure 7). Coral Outcrop (CR) is described as:

> …coral or cemented calcareous sand on the island of Oahu. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. Small areas of coral outcrop are exposed on the ocean shore, on the coastal plains, and at the foot of the uplands. Elevations range from sea level to approximately 100 feet. The annual rainfall amounts to 18 to 40 inches. Coral outcrop is geographically associated with Jaucas, Keaau, and Mokuleia soils.
>
> Coral outcrop makes up about 80 to 90 percent of the acreage. The remaining 10 to 20 percent consists of a thin layer of friable, red soil material in cracks, crevices, and depressions within the coral outcrop. This soil material is simiilar to that of the Mamala series. This land type is used for military installations quarries, and urban development. Vegetation is sparse. It consists of kiawe, *koa haole*, and fingergrass. [Foote et al. 1972:29]

Mokuleia clay (Mtb) is described as: “well drained soils that formed in recent alluvium deposited over coral sand [or coral outcrop]. Mokuleia soils are on coastal plains and have slopes of 0 to 2 percent. The mean annual rainfall is about 40 inches and the mean annual temperature is about 74 degrees F” (Foot et al. 1972).

The project area is bound by the Pacific Ocean on the south side. This coastal area is not beach sand, but is a “low sea cliff of sharp coral rocks with a six-to ten-foot drop into the ocean” (Clark 1977:89).

1.3.2 Built Environment

The project area is located on the west side of the WHS campus, between an existing above-ground swimming pool to the north and the gymnasium to the south. Just outside the project area, there are a number of school and athletic buildings that are adjacent to the road and adjacent to the other buildings within the project area.

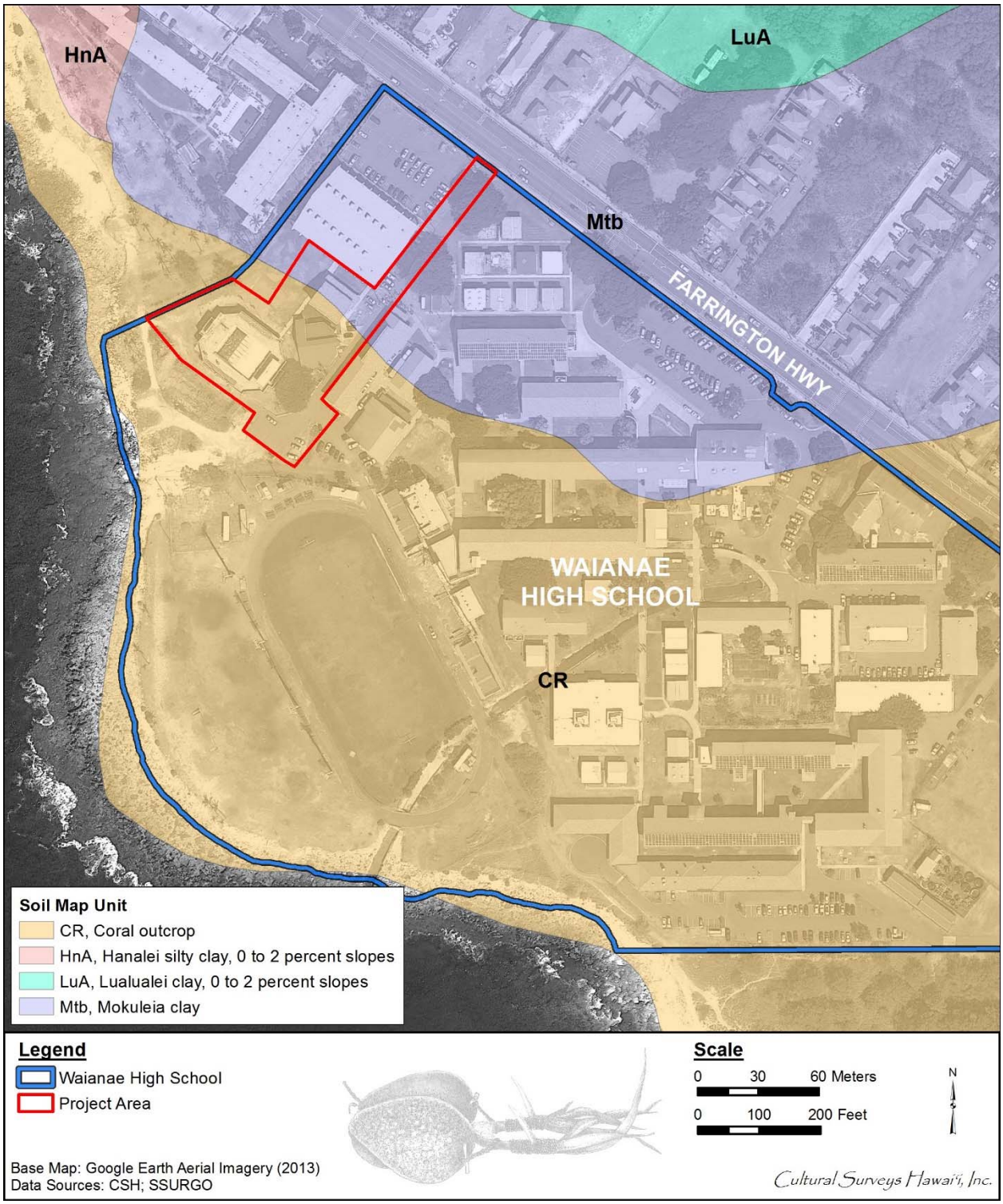

Figure 7. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture Soils Survey Geographic Database [SSURGO] 2001)

Section 2 Methods

2.1 Field Methods

CSH completed the fieldwork component of this study under archaeological permit number 16-26, issued by the SHPD pursuant to HAR §13-13-282. Fieldwork was conducted on 13 December 2016 by Matt McDermott, M.A. This work required approximately 0.5 person-days to complete.

In general, fieldwork included 100% pedestrian inspection of the project area and photographing current conditions. Additionally, the wave-cut soil bank along the shoreline just *makai* of the project area was inspected to evaluate the likely thickness of fill deposits within the project area.

2.2 Research Methods

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library at the University of Hawai‘i at Mānoa, the Hawai‘i State Archives, the Hawaiian Mission Children’s Society Library, the Hawai‘i Public Library, and the archives of the Bishop Museum; study of historic photographs at the Hawai‘i State Archives and the archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina (2017) and the AvaKonohiki (2017) online databases.

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 Background

Wai‘anae Kai Ahupua‘a occupies the central portion of Wai‘anae District on the leeward coast of O‘ahu. The district originally owed its fame to its multitude of fish, especially the opportunities for deep-sea fishing from the calm lee side of Ka‘ena Point, where the ocean currents meet. The term Wai‘anae refers to “mullet water” and the meaning implies an abundance of fish with the word “‘*anae*” referring to full-grown mullet (Pukui et al. 1974:220). Handy and Handy (1972:468) attribute the naming of Wai‘anae to a large freshwater pond for mullet called Pueha [*sic*] (Puehu) located just inland of Pōka‘ī Bay. Today, Wai‘anae maintains its reputation as one of the best fishing locales on O‘ahu.

Another age-old characteristic of the Wai‘anae District has been the independent lifestyle and attitudes of many of the residents. There were many political struggles in the pre-Contact and early historic period, with the district varying from battlefield to refuge for dissident and/or contentious factions. This independent spirit owes its origins to generations of inhabitants conditioned to cope with a marginal physical environment. Human survival depended on consistent availability of water for cultivation and consumption along with offshore marine resources.

In January 1778, Captain James Cook sighted Wai‘anae from a distance but chose to continue his journey, landing instead first near Waimea on Kaua‘i. Fifteen years later, Captain George Vancouver approached the coast of Wai‘anae from Pu‘uloa and wrote in his log:

> The few inhabitants who visited us [in canoes] from the village earnestly entreated our anchoring . . . And [they] told us that, if we would stay until morning, their chief would be on board with a number of hogs and a great quantity of vegetables; but that he would not visit us then because the day was taboo poory [a *kapu* day]. The face of the country did not however, promise an abundant supply [of water]; the situation was exposed. [Vancouver 1798:218]

Unimpressed with his limited view of the Wai‘anae coastline, Vancouver described it as “one barren, rocky, waste nearly destitute of verdure, cultivation or inhabitants” (Vancouver 1798:217). Despite the dismal forecast presented by the arid coast, the ocean hosted an abundant supply of fish, the lowlands produced *‘uala* (sweet potato; *Ipomoea batatas*) and *niu* (coconut; *Cocos nucifera*), and the inland valley boasted *kalo* (taro; *Colocasia esculenta*) and *wauke* (paper mulberry; *Broussonetia papyrifera*). The upland forest regions sustained various trees whose wood could be worked into weapons and canoes.

3.1.1 Mythological and Traditional Accounts

The district is a focus in the mythological cycles of the demigod Māui, the pig demigod Kamapua‘a, and the shark god and older brother of Pele, Kamohoali‘i.

The demigod Māui and his brothers were said to have been born in Wai‘anae, and it was here that Māui learned the secret of making fire for mankind. Samuel Kamakau (in Sterling and Summers 1978:65–66) enumerates, among the famous locales in Wai‘anae, the cave in which Hina, the moon goddess and mother of Māui, made her *tapa,* the fishhook Manaia Kalani (with

which Māui attempted to unite the Hawaiian Islands), the snare for catching the sun (which Māui used to his advantage on Haleakalā), and the place where Māui's adze was made.

The pig demigod, Kamapua‘a, battled with the giant man-dog Kū-‘īlio-loa (after whom the *heiau* in Wai‘anae is named) and razed the taro patches of Wai‘anae Valley. The people caught him, tied him up, and were preparing to sacrifice him when his many supernatural bodies swept over the plains, devouring the men of Wai‘anae and sending them fleeing in terror (Pooloa 1930:4, translated in Sterling and Summers 1978:72).

The older and favorite brother of Pele, Kamohoali‘i the shark god, became enamored with a maiden of the Wai‘anae coast and begot a half-man/half-shark child who devoured many people before being captured and killed (Stearns 1939 in Sterling and Summers 1978:83).

3.1.2 Place Names

Wai‘anae extends from the seashore on the *makai* (seaward) side to the top of the Ko‘olau mountain range on the *mauka* (inland) side (Figure 8). The mountain range separates Wai‘anae on the leeward side of O‘ahu from the Waialua District on the north shore of O‘ahu and Wai‘anae Uka District in central O‘ahu. The center of the coastal promontory called Mauna Lahilahi ("thin mountain") is the coastal boundary point dividing Wai‘anae and Makaha Ahupua‘a. This boundary continues upward along Kamaile‘unu ("the striped *maile* vine") Ridge to central O‘ahu. At the *makai* base of this ridge was a spring called Keke‘o (Chamberlain 1826 in McAllister 1933:114), or Ka‘aipueo, and a coconut grove; in historic times this was called the village of Kamaile ("the *maile* vine").

Along the ridge separating Wai‘anae and Makaha are several named *pu‘u*, or peaks: Pu‘u Kepauala; a peak at 3,220 feet (ft), which may be a boundary point called Pu‘u Kūmaipō ("Kū from the night") mentioned in Boundary Commission Testimony (see Soehren 2009); and Pu‘u Kawiwi. The northern point of Wai‘anae is at Ka‘ala (possibly "laughter" or "the path") at 4,020 ft amsl, the highest mountain on O‘ahu. The northeastern boundary of Wai‘anae is separated from the Wai‘anae Uka District by the Wai‘anae mountain range, with the peaks Pu‘u Kalena ("the lazy one") and Pu‘u Kūmakali‘i. For the division between Wai‘anae and Lualualei Ahupua‘a to the south, the boundary line follows a ridge called Pāhe‘ehe‘e ("slippery"). On this ridge are the peaks Kaua‘ōpu‘u (possibly "swelling battle," Thrum 1922:646), Mauna Kūwale ("mountain standing alone") and Pu‘u Pāhe‘ehe‘e ("slippery hill") at the *makai* end of the ridge of the same name. The ridge may have been named this for an ancient *hōlua* slide that once extended from the *makai* end of the ridge toward the shore. The eastern edge of the coastal promontory called Kāne‘īlio (dog Kāne) is the coastal point on the boundary of Wai‘anae / Lualualei.

In the *mauka* interior Wai‘anae section, there is a peak called Pu‘u Kōleali‘ili‘i, which means "small plover." The Pacific golden plover (*Pluvialis dominica*) is a migratory bird that nests in inland areas of the island; the Hawaiians were fond of the meat of this bird and travelled into the uplands to catch the nesting birds. The name of this hill may indicate this is an area where plovers were trapped. Below this hill was a *pali* (cliff, called Ka‘oniapuhi ["the writhing eel"]), with wavy scars that reminded the Hawaiians of the movement of a *puhi*, or eel. Near the coast was a hill on the plain called Pu‘u Kāhea ("calling hill"); three *heiau* (pre-Christian place of worship) were built on top or at the base of this hill

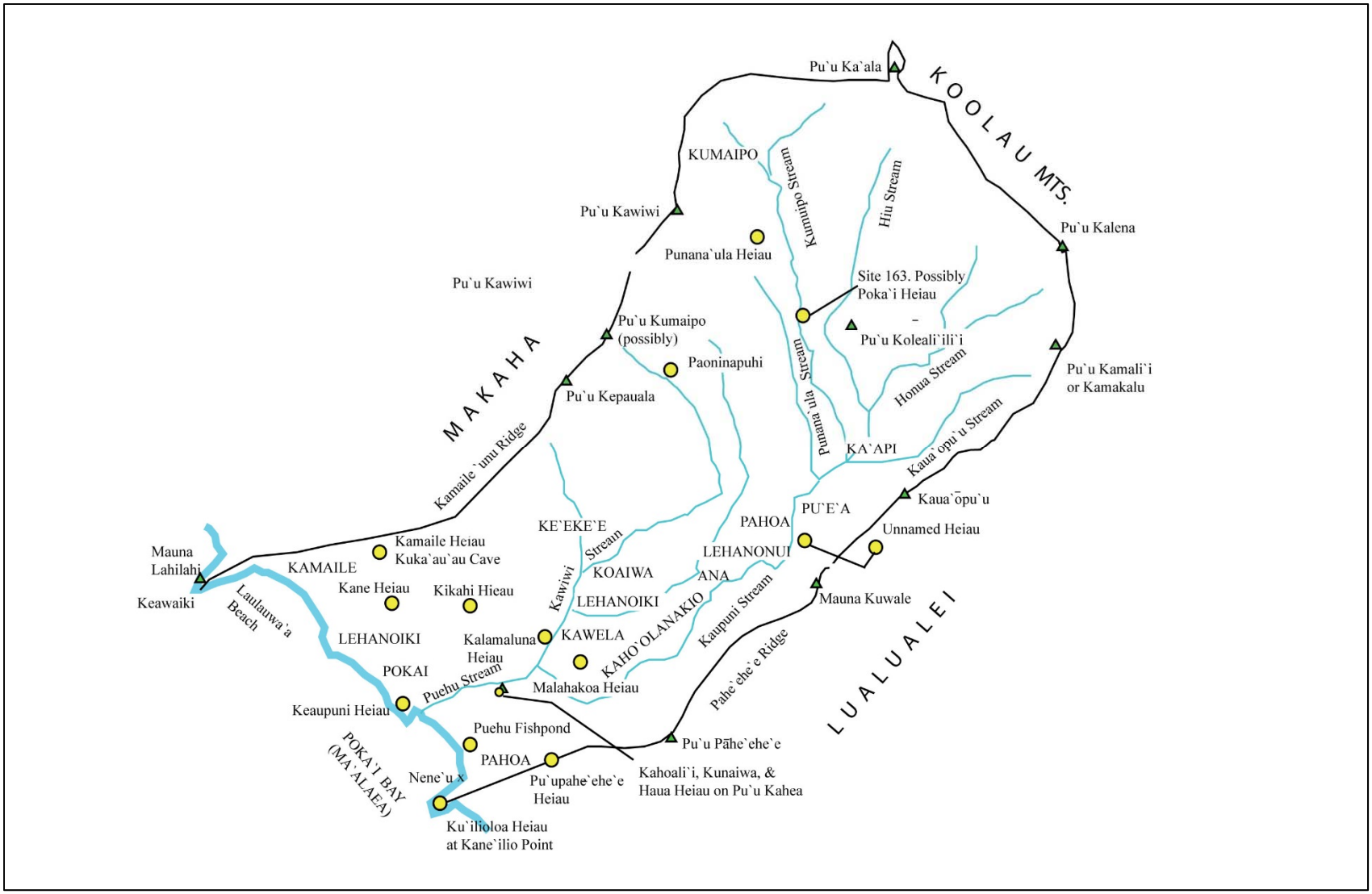

Figure 8. Place Names of Wai‘anae (base map U.S. Army War Department 1919 Fire Control map, Waianae Quadrangle); ‘Ili names all upper case; the project area is in the *‘ili* of Kamaile (southwest corner of Wai‘anae Ahuua‘a)

The boundary line between Wai‘anae and Makaha runs along a center line that splits Mauna Lahilahi promontory from a coastal point called Keawaiki (“the small bay”). On the south side of the promontory was a shoreline area called Laulauwa‘a (“the canoe paddle blade,” Clark 1977:89). At the eastern end of the *ahupua‘a* is a bay, traditionally called Mā‘alaea. Stretching along the shoreline of the bay was a large coconut (*niu*) grove called Ka Ulu Niu of Pōka‘ī. In historic times, the name Pōka‘ī (“night [of] the supreme one”) began to be used for the bay itself, and the original name, Mā‘alaea, was abandoned. The bay ends at Kāne‘īlio Point; at the *mauka* end of the point was an ancient fishing village called Nene‘u, a shortened version of the word, *nenelu*, meaning “marshy, swampy” (Pukui and Elbert 1986:265). In historic times, this expanded and grew into the modern town of Wai‘anae.

The *ahupua‘a* is watered by one large drainage system, now called the Wai‘anae River. In ancient times, each section and tributary was given its own name, only a few of which can be found on historic and modern maps. Two tributary streams in the northeastern sections are called Kānewai (“water of Kāne) and Kūkahi (“standing along” possibly, Thrum 1922:653); these merge to form the Honua Stream. In the northeastern uplands, the streams called Pūnana‘ula, Kūmuipō (“Kū from the night”), Hiu (“throw violently”), Honua (“land”), and Kaua‘ōpu‘u (possibly “swelling battle,” Thrum 1922:646), all flow and join to form the Kaupuni Stream (“place around”) at a point west of the peak Kaua‘ōpu‘u. Kawiwi Stream drains the western section of the *ahupua‘a* and joins with Kaupuni Stream near the coast. Traditionally the stream section near the coast was called Puehu (“scattered”), which emptied into the sea at an inlet also called Puehu. Other names for this stream were Keaupuni (“the government or nation”; Pukui and Elbert 1986) and Kānepūniu (Clark 1977:87). There was once one small watercourse, usually dry, at the eastern end of Laulauwa‘a, now called Mauna Lahilahi Beach Park, called ‘Eku, which means “to root, as does a pig” (Clark 1977:90).

3.1.3 Pre-Contact Period

The earliest permanent habitation of the district most likely was in Wai‘anae Kai Ahupua‘a along Kaupuni Stream. In an archaeological study of Mākaha, the *ahupua‘a* immediately north of Wai‘anae, Green (1980) proposed the following scenario:

> The first settlement of the district was probably, as tradition tends to suggest, on the coast around the stream at the mouth of the Wai‘anae-kai Valley where the foreign chief from Kahiki planted the first coconut of the famous grove. That area, with its well-watered valley behind, would have been the most favored locality in the district . . . [Green 1980:72]

Archaeological investigations at Pōka‘ī Bay have processed dates for occupation of the area well within the prehistoric period. During monitoring of 943 m of sewer and water line trenching at the Wai‘anae Army Recreation Center (WARC), five articulated human burials were recovered and a charcoal sample from the prehistoric cultural layer (Layer V) yielded a radiocarbon age of AD 1376 +/-50 (C13 adjusted) (Riford 1984). Further study at the Wai‘anae Army Recreation Center (Hammatt et al. 1985) encountered additional burials. Testing of a sample from a pit feature yielded a radiocarbon date of AD 1340 +/- 70. Hammatt et al. (1985) noted the following:

> The archaeological assemblage points to the heavy use of the site as a communal area for fishing preparation, canoe landing and return. The site was the focus of

> beach access for the inhabitants of Wai‘anae-Kai as well as occasional informal sand burial from at least 1300 A.D. onwards. [Hammatt et al. 1985:i]

Inland of Pōka‘ī Bay, three trenches were excavated in a complex of possible taro *lo‘i* (agricultural field pond) that dated to AD 1170-1430, 1270-1480, and 1299-1510 (Shapiro and Rosendahl 1988:32). This suggests permanent habitation of Wai‘anae Ahupua‘a by the late 1100s.

Evidence of elaborate and expanded settlement throughout the *ahupua‘a* during the pre-Contact period has also presented itself in the number and variety of sites recorded during the first investigation of Wai‘anae during the 1930s. McAllister (1933:112–114) noted 16 sites within the *ahupua‘a,* including ten *heiau* (sacred temples) (seven of which had been destroyed), the Puehu fishpond, the Kawiwi place of refuge, and several house sites (see Figure 8). The sites extend well inland adjacent to streams at the head of Wai‘anae Valley.

The number of *heiau* recorded within Wai‘anae (Kai) Ahupua‘a alludes to its political centrality within the district and its association with the *ali‘i* (royalty) during the pre-Contact period. Samuel Kamakau, the pioneering nineteenth-century Hawaiian historian, recorded oral traditions that associated some of the Wai‘anae *heiau* with prominent *ali‘i* as in the following two accounts:

> At Wai‘anae [Kahahana, late eighteenth-century O‘ahu ruling chief] restored the heiau of Ka-moho-ali‘i . . . [Kamakau 1992:134]

> Take the story of Ka-welo when he sailed for Kaua‘i to make war. He set a tabu over the heiau at Puehu at Wai‘anae, and at the end of the sacrifice ordered that the wood of the paehumu, both the fence and the images themselves, be used for firewood for the expedition to Kaua‘i. [Kamakau 1992:203]

There was a coastal pre-Contact/early historic trail that connected the leeward coast with Waialua and Honolulu (Figure 9). The nineteenth-century Hawaiian historian John Papa ‘Ī‘ī (1959:97) describes

> . . . three trails to Waianae, one by way of Puu O Kapolei, another by way of Pohakea, and the third by way of Kolekole.
>
> From Kunia the trail went to the plain of Keahumoa, on to Maunauna, and along Paupauwela, which met with the trails from Wahiawa and Waialua. The trail continued to the west of Mahu, to Malamanui, and up to Kolekole, from where one can look down to Pokai and Waianaeuka. There was a long cliff trail called Elou from Kalena and Haleauau on the east side of Kaala coming down to Waianae. There was also a trail called Kumaipo which went up and then down Makahauka.
>
> Below Kumaipo trail in the olden days was a stronghold named Kawiwi. At the time of a battle, a boy was posted there as a guard every night. He was often hungry, for the lord of the stronghold did not supply him with food. This caused him to change his allegiance and give the place over to the rebels. This he did by calling out ‘Hake. Come up the ladder. Let two come, let the second stay back, let one come along. Hake, hake. Come up the ladder. Let three come up, leave the third, and let two continue up.’ The boy kept up the cry until the stronghold was filled with men, and its lords were taken captive by the rebels. O friends, if it is true that

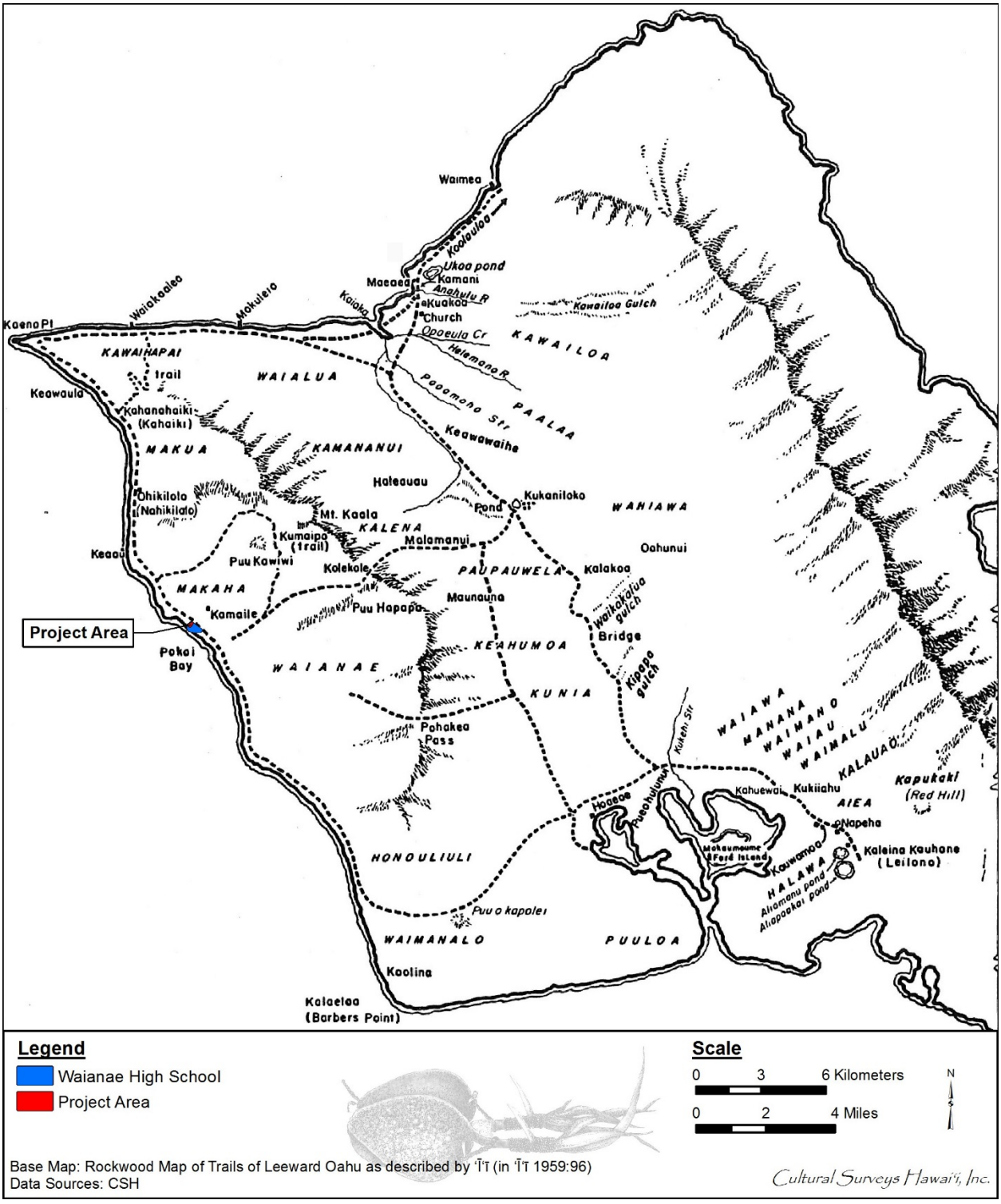

Figure 9. Portion of the Paul Rockwood map of traditional trails of Leeward O‘ahu as described by John Papa ‘Ī‘ī, indicating the project area (‘Ī‘ī 1959:96)

> the boy did this, it proves what the Holy Scriptures have pointed out (Luke 10:7) that ‘the laborer is worthy of his hire (E pono ke uku ‘ia mai ka pa‘ahana).’
>
> The stronghold of Kawiwi was part of a mountain ridge lying between Waianae and Makaha and overlooking Kamaile. The trail, Kumaipo, went down to the farms of Makaha and the homes of that land. A branch trail which led up Mount Kaala and looked down on Waialua and Mokuleia could be used to go down to those level lands. It was customary to have dwelling places along the mountain trails that led downward from here into Kamaile, as well as along the beach trail of Makaha. There were many houses at Makaha, where a fine circle of sand provided a landingplace for fleets of fishing canoes. The trail which passed by this sandy bar was the one from Puu O Kapolei, which had joined the beach trail from Puuloa and from Waimanalo. It then went along the shore all around this island. [‘Ī‘ī 1959:97]

3.2 Historical Background

3.2.1 Early Post-Contact Period

The latter eighteenth century also saw the involvement of Wai‘anae Ahupua‘a and its population in the political changes impelled by the struggle of *ali‘i* from other islands for political control and conquest of O‘ahu. The Maui Island king Kahekili invaded O‘ahu ca. 1783, vanquishing the O‘ahu chiefs in a series of battles that culminated in Wai‘anae:

> Pupuka [an O‘ahu chief] rallied the retainers of the chiefs of Kona, ‘Ewa, Wai‘anae, Waialua, and Ko‘olau at Kawiwi, a stronghold between Wai‘anae and Mākaha, where many died of starvation or were flung over the precipice because of famine, and many perished. [Kamakau 1992:139–140]

In 1794, Ka‘eokūlani recruited the “warriors of Waialua and Wai‘anae” to make war on his nephew Kalanikūpule, then ruler of O‘ahu (Kamakau 1992:168). By December 1794, Ka‘eo had been killed and his forces were defeated. Kalanikūpule was himself deposed the following year when the invading Hawai‘i Island forces of Kamehameha prevailed at the Battle of Nu‘uanu in April 1795 (Cordy 2002a:44). Wai‘anae itself did not host any major conflicts associated with the conquest of O‘ahu by Kamehameha, but traditional records designated it as a refuge for large numbers of O‘ahu residents who resettled after fleeing from the Hawai‘i Island invaders (McGrath et al. 1973:14).

In 1796, Kamehameha went to Wai‘anae where his fleet of 80 double canoes stopped on their way to invade Kaua‘i. “The fleet went on to Wai‘anae and the war god [Kū-ka‘ili-moku] was carried ashore that evening” (Kamakau 1992:173). Kamakau records that the fleet departed Wai‘anae before midnight but Wai‘anae tradition maintains that Kamehameha remained on the coast long enough to rededicate two *heiau* to his war god and that his presumption so angered the Wai‘anae gods that they sent the storm which caused the disastrous end of his Kaua‘i expedition.

3.2.2 Early 1800s

The Hawaiian Kingdom began exporting sandalwood to Asia shortly after 1800 and the commerce flourished until the supply dwindled in the mid-1830s. Trade in sandalwood was the strict monopoly of the *ali‘i*, beginning with the first Hawaiian monarch, Kamehameha I. At the

height of the sandalwood boom, Kamehameha was buying foreign ships, including six vessels between 1816 and 1818, to transport his own wood to Asia (Kuykendall 1938:87).

After Kamehameha's death in 1819, Liholiho (Kamehameha II) allowed his chiefs to share in the sandalwood trade, which resulted in an unrestrained demand on the stocks of the wood and upon the commoners who did the harvesting. By the middle of 1828, the stands of sandalwood above the Wai‘anae coast may have already been been depleted. This happened significantly, perhaps, when Boki Kamauleule, the chief of Wai‘anae appointed by Kamehameha to also serve as governor of O‘ahu, supervised "collecting Sandalwood to pay [his] debts" (Kuykendall 1938:234).

In October 1819, two whale ships anchored in the Hawaiian Islands. In the following decades, the number of whale ships increased greatly and the Islands became a victualing center and layover base in the mid-Pacific. Supplies of both fresh and salted beef were in high demand and a trade in hide and tallow developed. Following the collapse of the sandalwood trade, the Hawaiian economy depended primarily on supplying whale ships during their long layovers in the Islands. The trade sustained the Islands until the collapse of the whaling industry in the mid-1860s (Kuykendall 1938:70, 310).

During the same decades that commercial ventures were forcing changes upon the Hawaiian landscape, western missionary interests were establishing their foothold in the Islands. The first company of Christian missionaries came to the Hawaiian Islands in 1820 and, within a year, had established close ties with the *ali‘i* (McGrath et al. 1973:20).

Beginning in 1831, Protestant missionaries throughout the Hawaiian Islands took a census of the native population, thus providing the first documentation of its size after the first decades of Western Contact. In 1831–1832, the first census of *ahupua‘a* within the Wai‘anae District totaled 1,868 people comprised of 757 adult males, 695 adult females, and 416 children (Schmitt 1973:19). Four years later, in the 1835–1836 census, the total district population had dropped to 1,654 (Schmitt 1973:9).

3.2.3 The Māhele and Land Commission Awards

The Organic Acts of 1845 and 1846 initiated the process of the Māhele, the division of Hawaiian lands, which introduced the concept of private property to Hawaiian society. In 1848, the crown and the *ali‘i* (royalty) received their land titles. *Kuleana* Land Commission Awards (LCAs) for individual parcels within *ahupua‘a* subsequently were granted beginning in 1850. These awards were presented to tenants, i.e., Native Hawaiians, naturalized foreigners, non-Hawaiians born in the Islands, or long-term resident foreigners who could prove occupancy on the parcels prior to 1845 (Chinen 1958:8).

The *ali‘i* Mataio Kekūanao‘a was awarded the *ahupua‘a* of Wai‘anae in the Māhele, but he returned it to pay the commutation fee for the lands he retained. Wai‘anae then became one of the Crown Lands, lands set aside for the use of the Hawaiian monarchy (Soehren 2017). As such, the land was under the control of the king, and much of it was leased to high chiefs and foreigners for use in ranching (McGrath et al. 1973:32). Traditional life was greatly altered as there were many instances where commoners were denied access to the land and upland agriculture ended.

Wai‘anae Kai was divided into three areas, Kamaile on the northwest, Pōka‘i in the central section, and Pāhoa on the southeast. The distribution of LCA *‘āpana* (lots) in Wai‘anae Kai

Ahupua‘a indicate two major foci of residence, one at Kamaile, and the other on the opposite side of Kaupuni Stream in Pāhoa (Green 1980:10–11). Numerous LCAs are located north (*mauka*) of the project area, in the *‘ili* (small land division) known as Kamaile. LCA parcels near the coastline or within the immediate vicinity of the project area are listed in Table 1 and shown on Figure 10 and Figure 11.

Table 1. LCAs Located near the Coast or in the Immediate Vicinity of the Project Area

Land Claim #	**Claimant**	***Ahupua‘a***	***‘Ili***
8189-D	Nakoalele	Kamaile	Kamaile 1
9479	Kahinu	Wai‘anae	Kamaile
9480	Ohule	Kamaile	Kuaimoa
9481	Kaluoku	Wai‘anae	Kamaile
9482	Kawaamole	Wai‘anae	Kamaile
9483	Kahue	Wai‘anae	Kamaile
9484	Hema	Wai‘anae	Kamaile, Kaulupuuawa
9485	Lae	Wai‘anae	Kamaile
9486	Kaipu	Wai‘anae	Kamaile
9486-C	Kuheleloa 2	Wai‘anae	Kamaile
9489-B	Holi	Wai‘anae	Kamaile 1
9490	Kamuno	Wai‘anae	Kamaile 1
9491	Kaneele	Wai‘anae	Kamaile
9492	Paaluhi	Wai‘anae	Kamaile
9493	Kuheleloa	Wai‘anae	Kamaile 2
10356	Nuhi, wahine	Kamaile 2	Kaulupunawai

No LCAs are located within the WHS campus or the current project area, although a portion of LCA 9489B is directly adjacent to the west side of the campus and near the project area. LCA 9489B, with two ‘*āpana* (lots), was awarded to a man named Holi who claimed a *pahale* (houselot) in one lot (Āpana 1) on the coast *makai* of the main trail (later Farrington Highway) and taro land (‘Āpana 2) located *mauka* of the trail. The project area is near the *pahale* award, which was in the *mo‘o* (garden or strip of land) of Pōhakulapalapa. The taro land, located further inland, was in the *mo‘o* of Kumuma‘oma‘o. Pōhakulapalapa probably translates to “many-ridged stone” (Soehren 2017). Kumuma‘oma‘o is possibly named after a calm (*mao*) easterly wind associated with Kamaile, It is mentioned as the name of the wind of Kamaile within the Hawaiian story of the Wind Gourd of La‘amaomao (Nakuina 1990:51). The word *kumuma‘oma‘o* (“the source for green”) is also used to describe any kind of green stone, especially those stones used for the *maika* (bowling) game (Pukui and Elbert 1986:182).

It is important to note that while only five award lots are shown on historic maps (see Figure 10) along this section of the coast, the testimony for these awards also mention other houselots for native Hawaiians who did not make claims for their land during the Māhele. In LCA 9489B, Holi

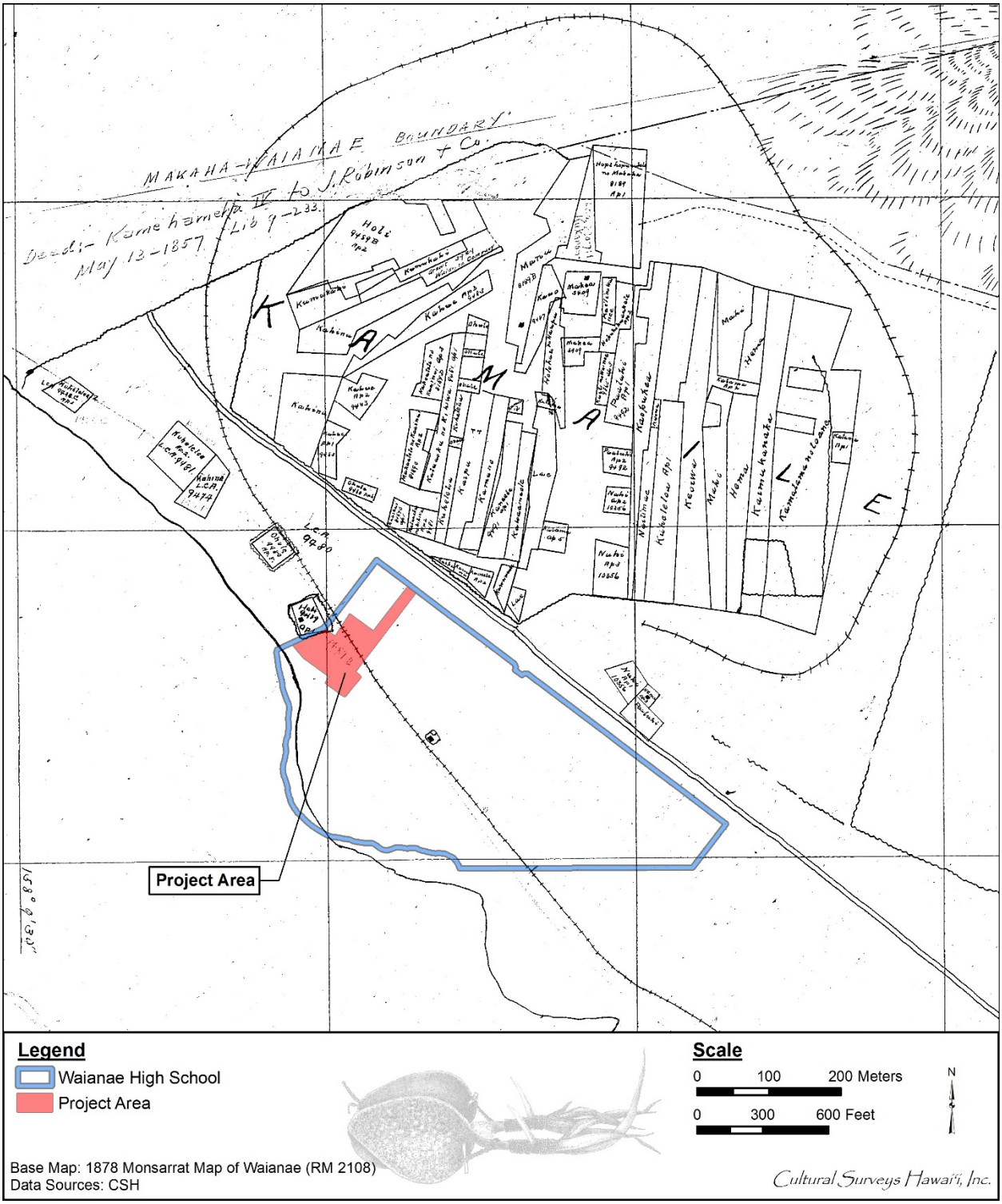

Figure 10. Portion of 1878 Monsarrat map of Wai‘anae showing LCA lots in the Kamaile area, and location of OR&L railroad track through the project area (Monsarrat 1878; Reg. Map No. 2108)

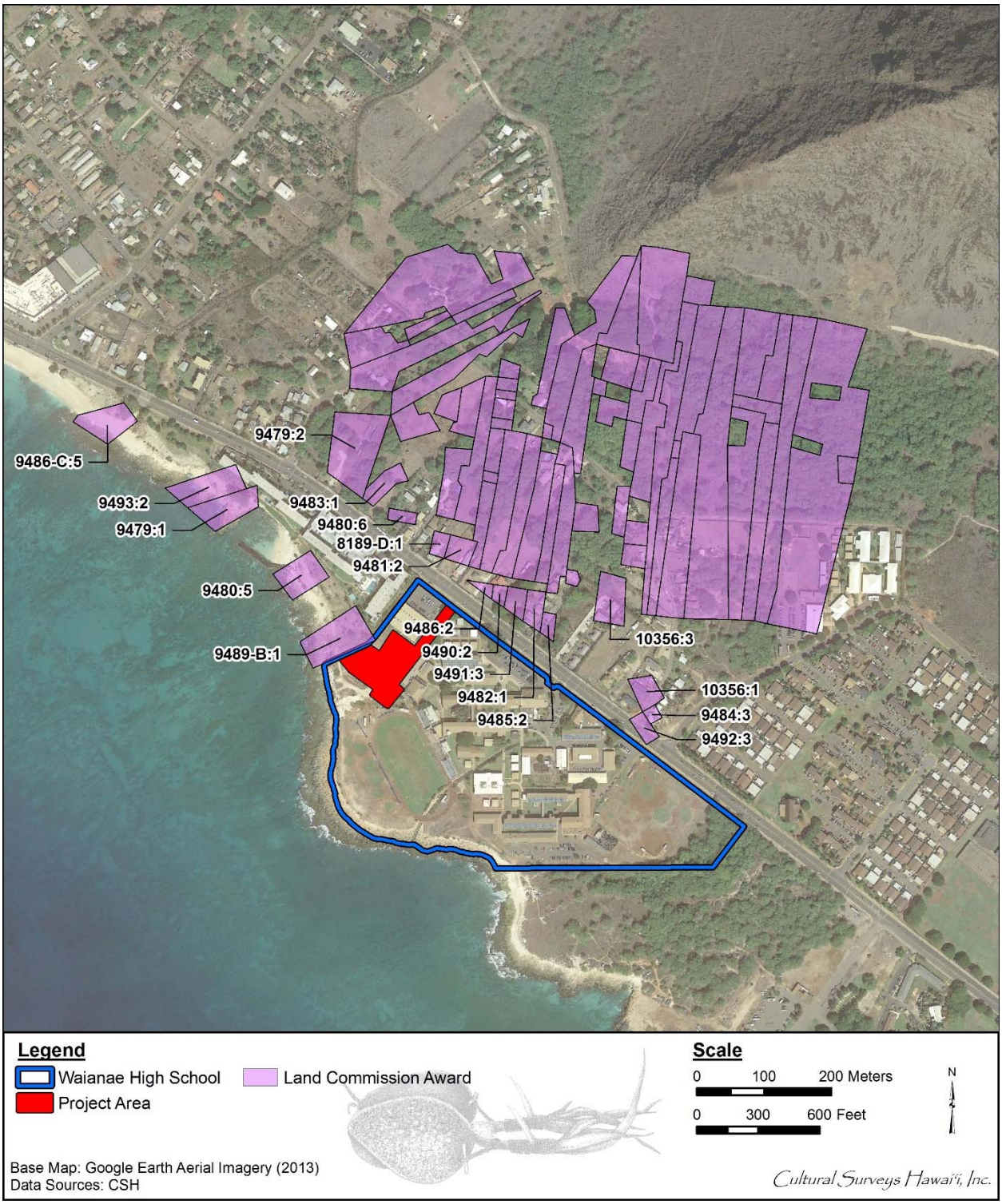

Figure 11. 2013 aerial photograph showing the locations of LCAs near the coastline and near the project area (Google Earth)

claims that his houselot is west of three neighbors, the houselots of Piiapoo, Holokau, and Keohokapu (Cordy 2001:Figure 11). The exact location of these houselots is unknown. While there are no LCA awards in the WHS project area, there were mid-nineteenth century houselots to the east of LCA 9489B to Holi, and thus one or more of these houselots could have been located in the campus area. The Land Commission claim, testimony, and award for LCA 9489B are presented in full in Appendix A

3.2.4 Mid- to Late 1800s

In 1851, Paul F. Manini, son of Don Francisco de Paula Marin, leased 17,000 acres in Lualualei Valley for grazing livestock. By 1863, a missionary reported that “most of the land in the Wai‘anae District was devoted to grazing and had already been divided ‘into six or seven divisions; and secured to as many parties or individuals on long lease or fee simple titles’” (McGrath et al. 1973:31). The experience of the *maka‘āinana* (commoners) in Wai‘anae likely mirrored that of the remaining Hawaiians in Waialua:

> . . . the depredations of the foreigners’ cattle had virtually reduced agriculture to the cultivation of wetland taro. For destruction of sweet potato fields and gardens of melons, bananas, maize, and other crops was causing the people to take these out of cultivation, and in some cases to take themselves out of Waialua. [Kirch and Sahlins 1992:149]

A missionary account in 1863 reported only 100 acres were in taro in Wai‘anae Valley and that the only items for sale were fish and fungus. Censuses taken during the second half of the nineteenth century recorded a diminishing population for the Wai‘anae District. In 1853 a combined total of 2,451 persons were recorded in the ‘Ewa and Wai‘anae districts; 19 years later, in 1872, the population total had dropped to 1,671. By 1890, when the districts were recorded separately, the population of Wai‘anae was recorded at 903 individuals (Schmitt 1977:12–13). A large part of the population in 1890 would have been workers at the Waianae Sugar Company Plantation.

The first large-scale industry for Wai‘anae was ranching. James Isaac Dowsett began a ranch in Waianae Uka around 1870 and by the 1880s a relative leased 17,200 acres of Crown Lands in the Wai‘anae Valley for a cattle ranch (McGrath et al. 1973:32). When the Oahu Land and Railway Company (OR&L) railroad was extended to Wai‘anae in 1895, the district became much more accessible. Sometime before 1895, Dowsett built a small hotel on Keaupuni Point in an area later sold as Land Grant 4200, located at present-day Wai‘anae District Park. In 1907, Dowsett sold the remaining 1,231 acres of land in Wai‘anae Kai to the Waianae Sugar Company (Hawaii Office of the Commissioner of Public Lands 1916, Hawaii Office of the Government Survey 1907).

The livestock industry in the Islands reached its peak in the 1870s. At Wai‘anae, a new venture arose to supplant ranching. In 1878, Hermann A. Widemann, a retired Hawaii Supreme Court justice, started the Waianae Sugar Company on land formerly owned by James Dowsett in the *ahupua‘a* of Mākaha, Wai‘anae, and Lualualei (Dorrance and Morgan 2000:43). Widemann leased most of Wai‘anae Kai for 25 years, beginning in 1879:

> Between 1878 and 1884 the economy and community of Wai‘anae underwent a major change, in which the former Hawaiian landscape virtually disappeared. The reason was the production of sugar. The results were the conversion beginning in

> 1878 of coastal and central valley garden plots and irrigation systems to large fields of sugarcane, the construction in 1880 of a plantation railway to haul the cane to the mill, and the building, in the former Hawaiian village, not only of the mill itself, but the creation of a whole town to support the processing of cane. [Green 1980:12]

Widemann hired 20 Hawaiians and brought in 15 technicians and almost 60 Chinese laborers. He built 24 new houses in Wai‘anae Valley and a plantation manager’s mansion on the site of Haua Heiau. He built a water reservoir and installed a flume system to bring water from the reservoir to the mill. A tramway was built from the mill site to the coast where a jetty was constructed. Seven miles of track were laid to haul harvested cane to the mill. In 1880, a Chinese firm planted 122 acres of cane in Wai‘anae and employed about 30 men (McGrath et al. 1973:38-41).

By 1884 Waianae Sugar Company had 475 acres under cultivation, 9 miles of railroad, and 175 men employed. Although no sugarcane was planted directly on the coast, the Waianae Sugar Company did acquire several coastal lots, probably for offices or warehouses. In 1890, Waianae Sugar Company had 600 acres in cultivation (McGrath et al. 1972:42, 48). On 4 July 1895, a rail line of the OR&L extended from Ewa Mill and reached the Waianae Sugar Company track (McGrath et al. 1973:62). The 1884 Jackson map shows the OR&L track traversing near the northwest portion of the project area. (Figure 12). In 1898, the OR&L railway was extended around Ka‘ena Point, linking Wai‘anae with Waialua on O‘ahu’s north shore (McGrath et al. 1973:72). The plantation was purchased by Amfac, Inc. in 1947, and then closed down (Dorrance and Morgan 2000:44).

3.2.5 1900s to Present

Several maps, and aerial photographs show the land use and general development in the vicinity of the project area (Figure 13 through Figure 22). According to Schilz (1994:23), a business directory of 1900 identified 23 taro planters in the Wai‘anae District, but by the 1924 edition of the directory, only one taro planter was listed. Other Hawaiian traditions remained in practice in Wai‘anae into the first decades of the twentieth century; a *kama‘āina* (local inhabitant) reported: “. . . between 1910 and 1912 there lived in the Wai‘anae area about 25 *kahunas* known [only] to the Hawaiians” (McGrath et al. 1973:84). However, the sugar plantation continued to dominate the landscape. A 1906 Donn map shows the area northwest of the project area planted in sugar and the railway still extant through the high school campus (see Figure 13).

U.S. Army War Department Fire Control maps from 1919 and 1936 show a line of the OR&L railway extending through the high school campus and within the current project area (see Figure 14 and Figure 15). A 1928 aerial photograph shows the project area divided by the OR&L railway, with the area *mauka* of the railway under commercial agriculture (most likely sugarcane) and the area *makai* of the railway undeveloped and relatively undisturbed (see Figure 16).

On 2 July 1918, the U.S. Army established the Waianae Kai Military Reservation by presidential executive order 2900 (Flood et al. 1994:42). During World War II, Wai‘anae became the site of massive amphibious training operations with more than 200,000 men training at the Waianae Kai Reservation and surrounding lands. A 1943 U.S. Army War Department map shows the structures and roadways near the project area, which is northwest of the Military Reservation (see Figure 17).

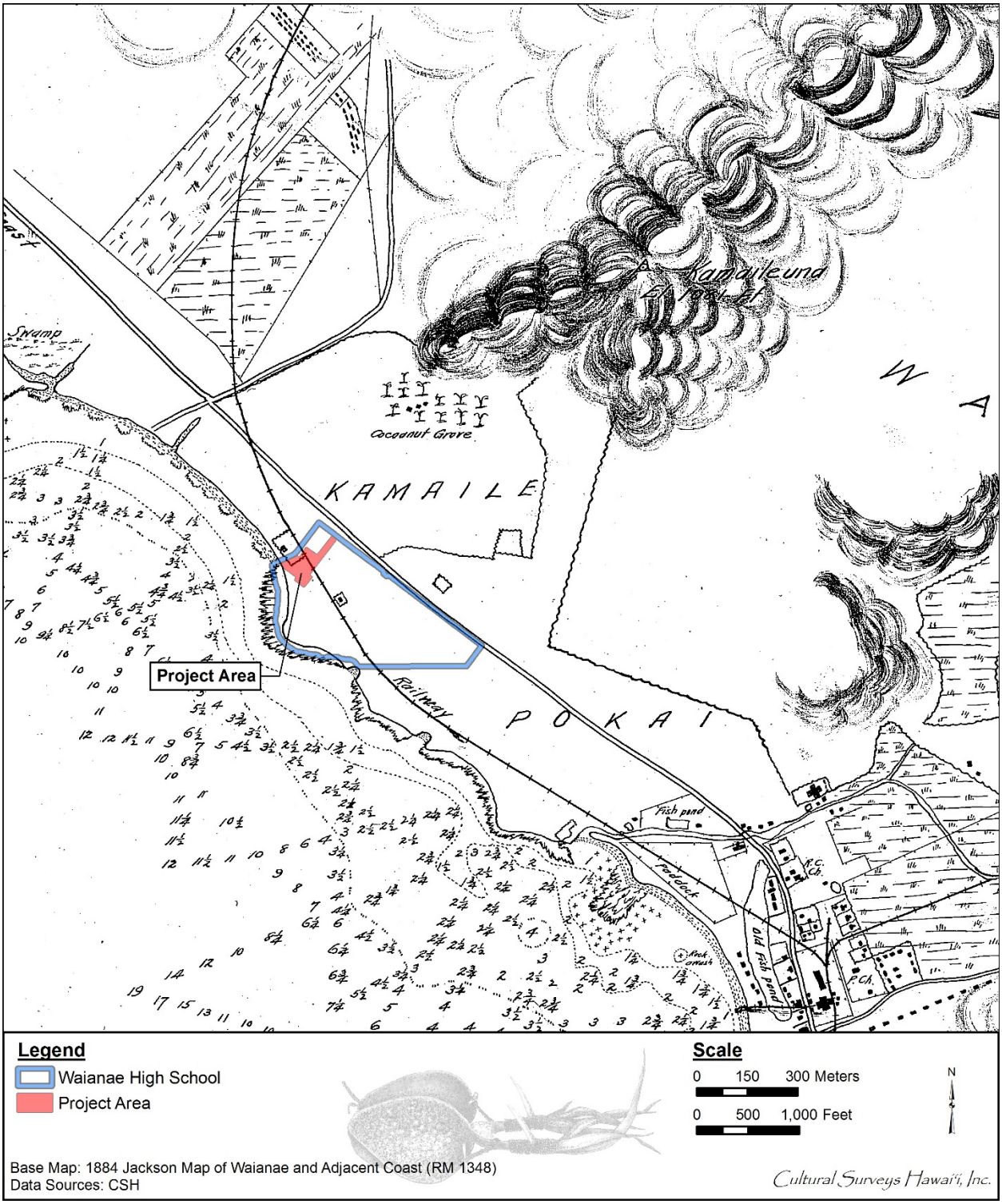

Figure 12. Portion of 1884 Jackson map (Reg. Map No. 1328) of Waianae and adjacent coast, showing the OR&L Railway extending through the WHS Campus

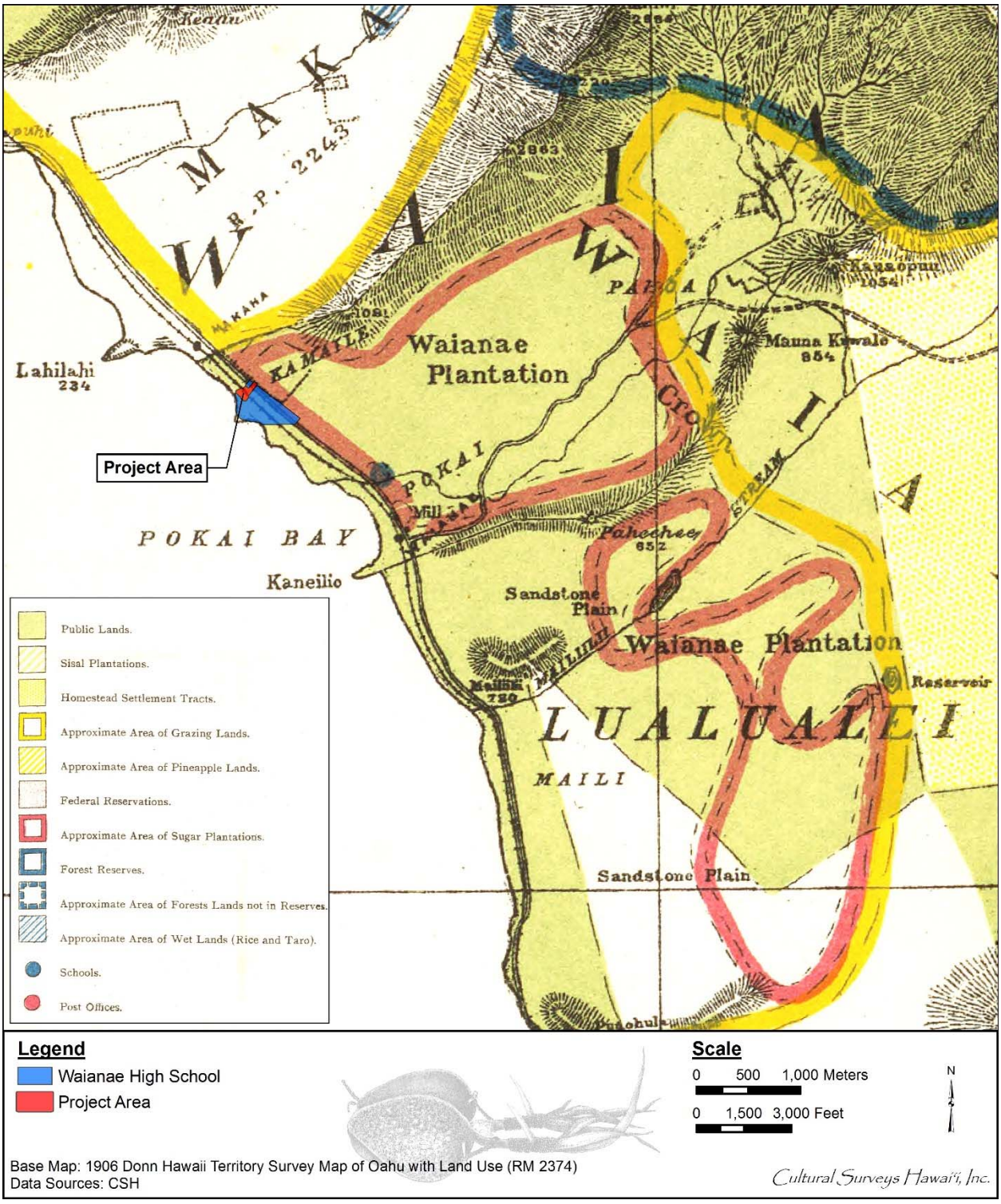

Figure 13. Portion of 1906 Donn (Reg. Map No. 2374) Hawaii Territory Survey map of O‘ahu showing the various land uses in the vicinity of the project area and the railway extending through the WHS campus

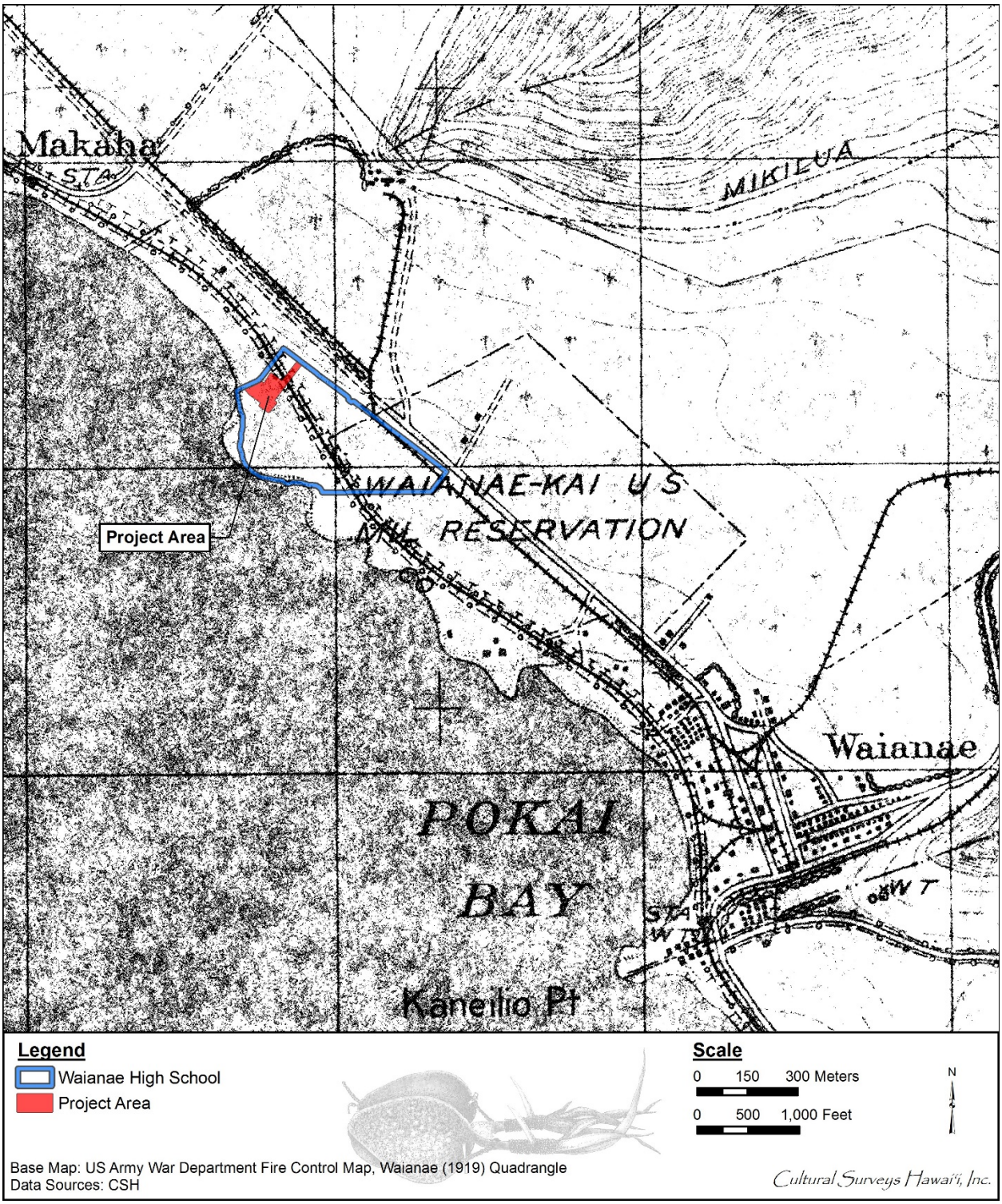

Figure 14. Portion of 1919 U.S. Army War Department Fire Control map, Waianae Quadrangle showing the location of the project area

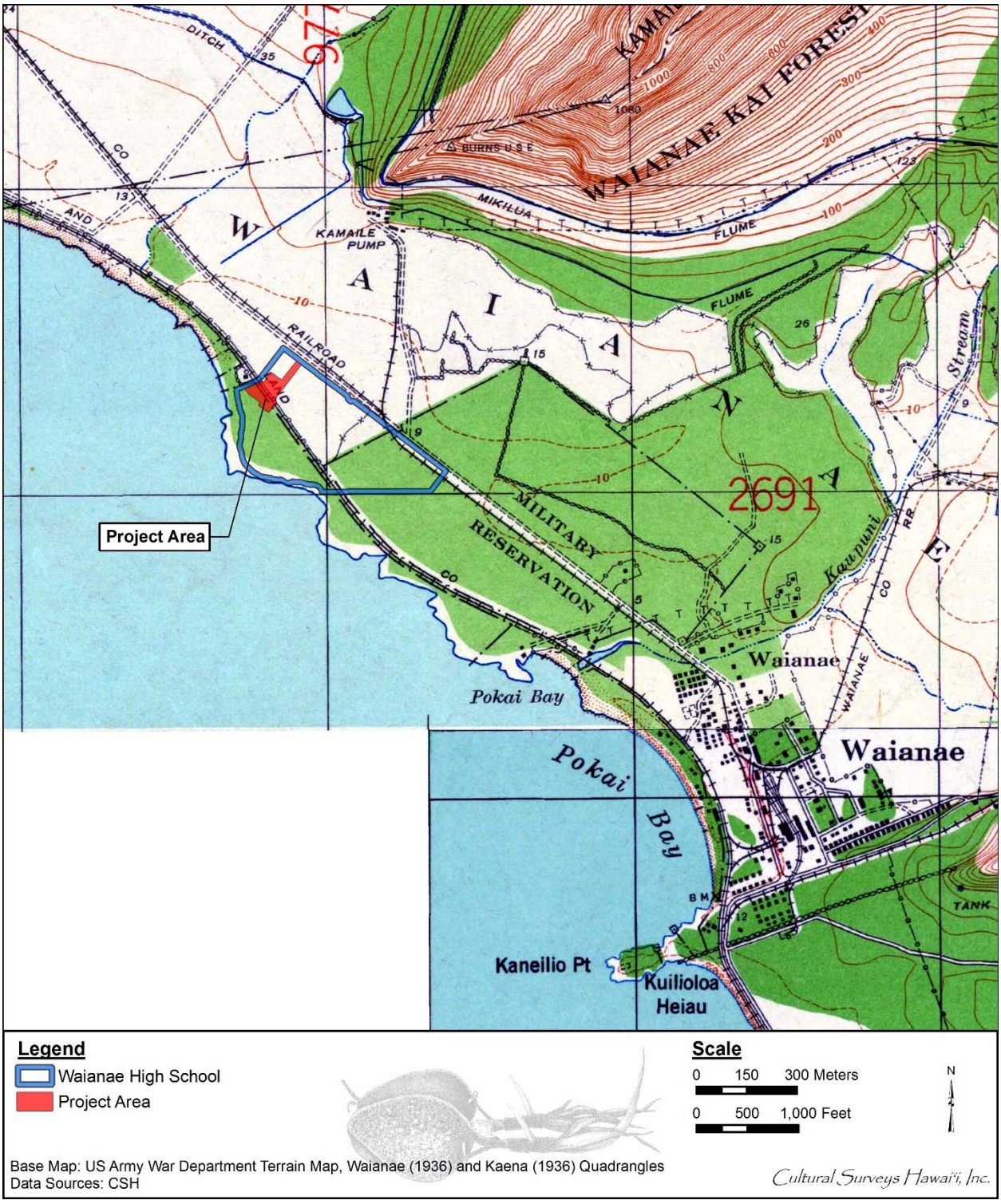

Figure 15. Portion of the 1936 U.S. Army War Department Terrain map, Waianae and Kaena Quadrangles, showing the location of the project area

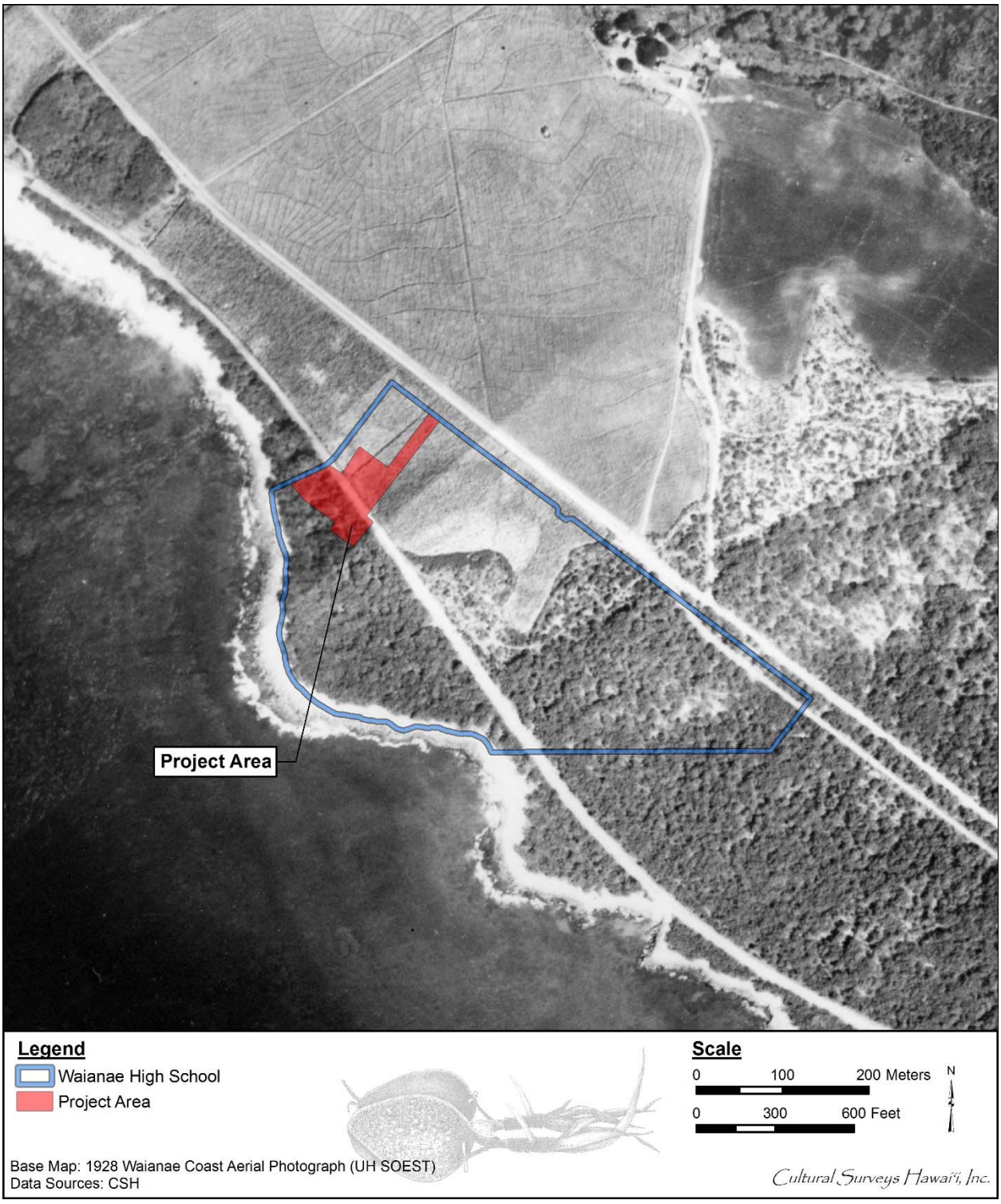

Figure 16. 1928 UH SOEST Waianae Coast aerial photograph showing the lack of development within the project area

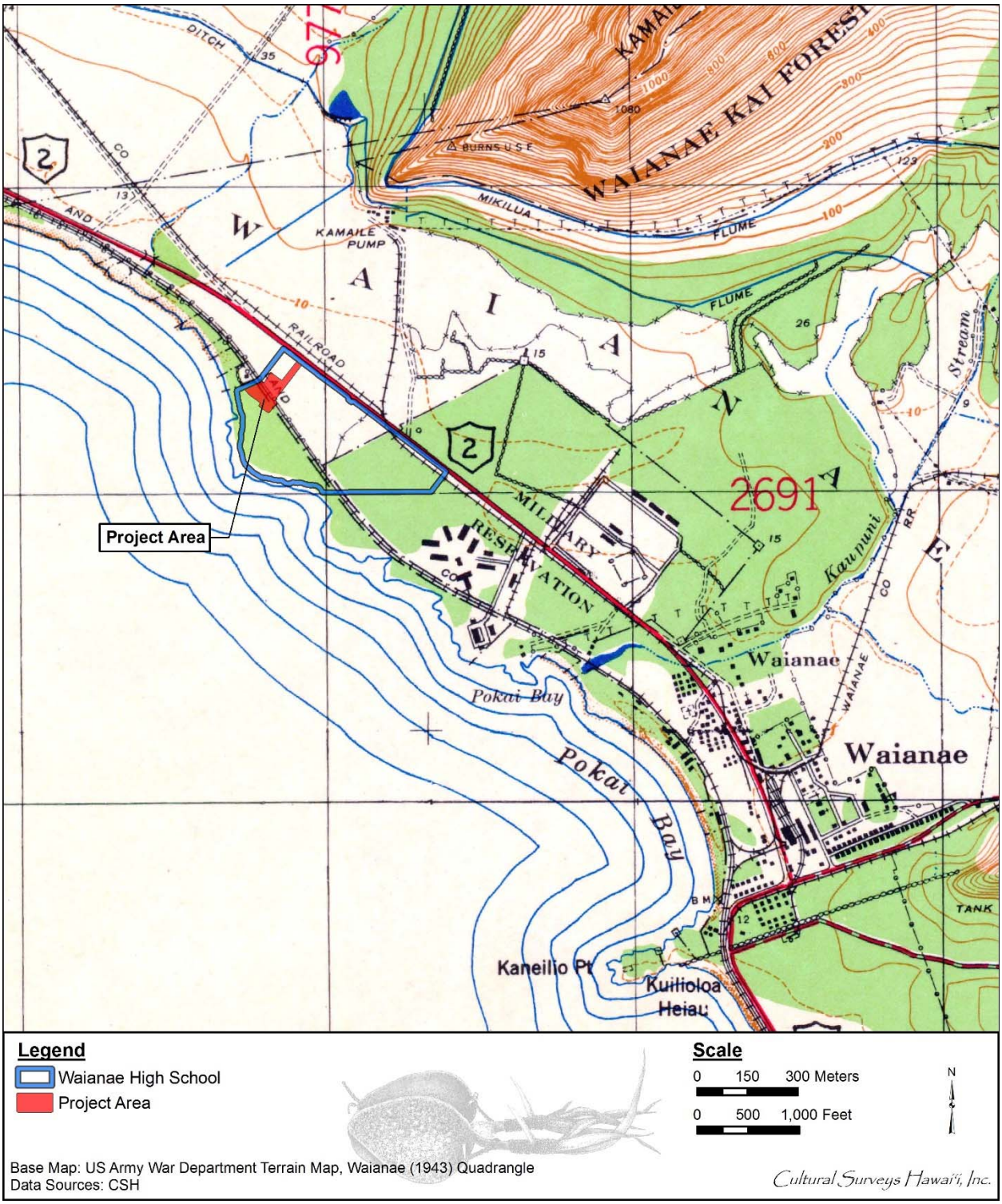

Figure 17. Portion of 1943 U.S. Army War Department Terrain map, Waianae Quadrangle, showing the location of the project area

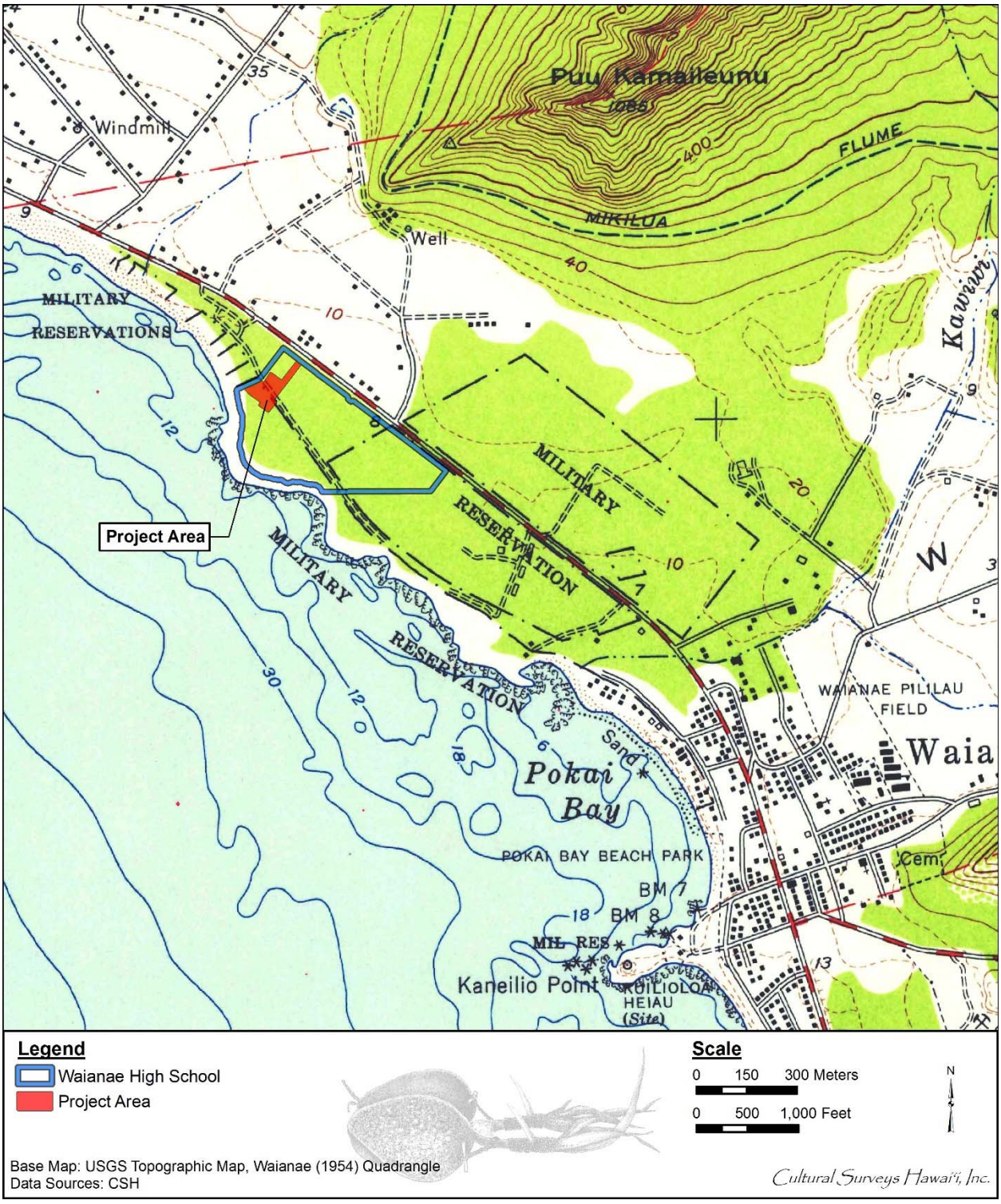

Figure 18. Portion of the 1954 Waianae USGS topographic quadrangle showing the location of the project area

Figure 19. 1960 UH SOEST Waianae Coast aerial photograph showing the development of Waianae High School within the project area

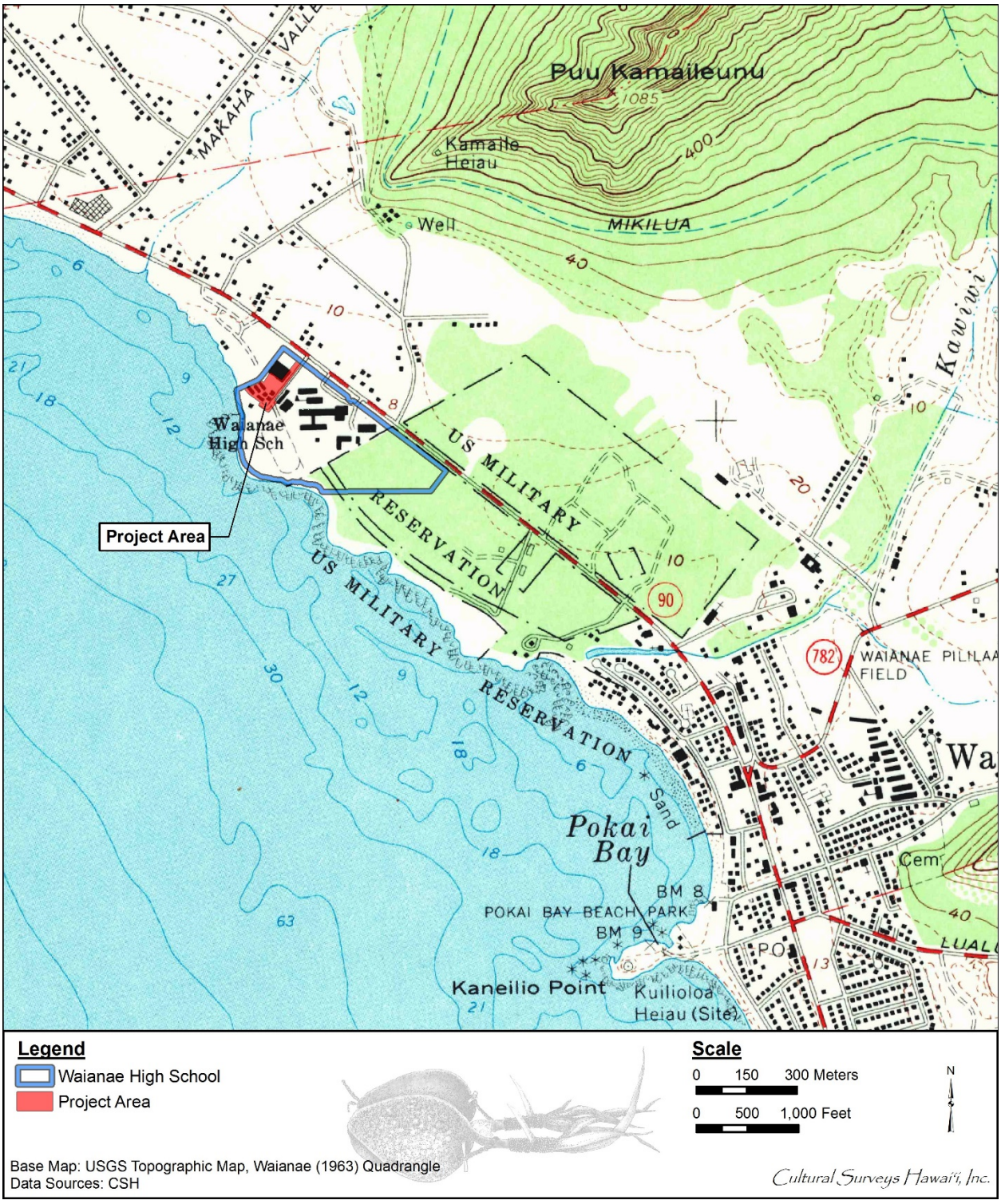

Figure 20. Portion of the 1963 Waianae USGS topographic quadrangle showing the location of the project area

Figure 21. 1971 UH SOEST Waianae Coast aerial photograph showing the project area within the WHS athletic field

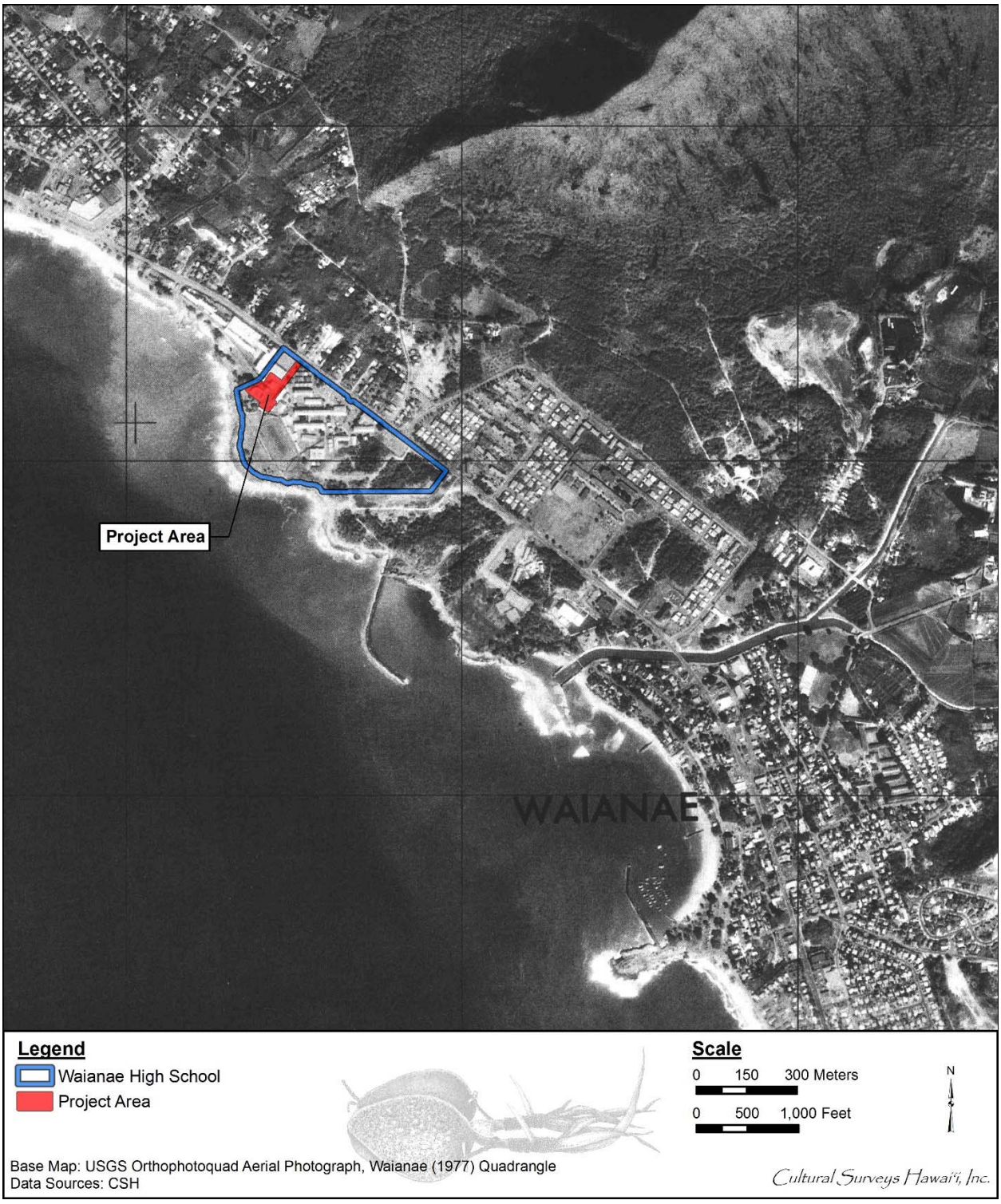

Figure 22. 1977 UH SOEST Waianae Coast aerial photograph showing the project area within the WHS athletic field

The sugar plantation never recovered after the war. American Factors Ltd. had bought the plantation in 1931. On 17 October 1946, the stockholders voted to liquidate the plantation eliminating the economic mainstay of the Wai‘anae Coast. Chinn Ho, head of Capital Investment Company, bought the nearly 10,000-acre plantation parcel for $1.25 million in 1947. During the late 1940s, Chinn Ho promoted the establishment of new ventures in Wai‘anae:

> By 1949, [Chinn Ho] was trying to interest dairy operators in farm lots. The manager of a large dairy company in San Francisco turned down an offer of about 450,000 acres of prime sugar land in Wai‘anae Valley because ‘land in Hawaii is going to be much cheaper in the future.’ The wife of a local dairy operator was concerned about the schools in Wai‘anae, but her husband bought the farm anyway. [McGrath et al. 1973:151]

A 1954 U.S. Army Map Service topographic map depicts the project area near military reservations and the railway appears to have been converted to a roadway (see Figure 18). UH SOEST aerial orthophotos from 1960, 1971 and 1977 and a 1963 USGS map show increased development of Wai‘anae, including the creation of WHS (see Figure 19 through Figure 22), shown first on the 1960 map, with only a few buildings *makai* of the highway. The gymnasium is first shown on the 1963 USGS maps, and the pool is first shown on the 1977 aerial photograph.

3.2.6 Contemporary Land Use

Today, Wai‘anae Kai Ahupua‘a is covered by homes, farms, and gardens. Wai‘anae Valley and its people are engaged in many new projects that perpetuate Hawaiian traditions and culture. These projects range from archaeological field trips to restoring ancient *lo‘i* terraces near Mount Ka‘ala. Ka‘ala Farm was developed in 1996 as a learning center for children and the community with a *hale* (a house), working *lo‘i*, and access to numerous archaeological sites including *heiau*, terrace systems, and house sites (Cordy 2013). Construction of Wai‘anae High School began in 1956 (*Honolulu Star Bulletin* 11 March, 1956) with continued construction of new buildings to the present.

Section 4 Previous Archaeological Research

No previous archaeological studies have been conducted within the project area, and only one known study (Belluomini and Hammatt 2016) within the larger WHS campus. However, numerous studies have been conducted within the vicinity of the project area. These studies and their results are summarized in Table 2 and discussed chronologically in the following paragraphs. The locations of previously conducted archaeological studies and previously documented historic properties within the vicinity of the project area are depicted on Figure 23 and Figure 24.

Table 2. Previous Archaeological Studies in the Vicinity of the Project Area

Reference	Type of Study	Location	Results (SIHP # 50-80-07-****)
McAllister 1933	Reconnaissance survey	Island-wide	Described Site 154 (Puehu Fishpond), Site 155 (Keaupuni Heiau), Site 156 (Kahoalii Heiau), Site 159 (Kalamaluna Heiau), Site 160 (Kane Heiau) and Site 161 (Kamaile Heiau) within the vicinity of the project area
Sinoto 1975	Reconnaissance survey	Wai‘anae Light-Draft Harbor, Wai‘anae Regional Park	Documented five historic properties: SIHP #s -4822 (enclosure), -4823 (enclosure/L-shaped wall), -4824 (wall), -4825 (enclosure), and -4826 (L-shaped wall)
Douglas 1991a	Burial report	Makaha Surfside Apartments, Wai‘anae	Recovered and documented sub-adult burial eroding out of Mauna Lahilahi Beach Park (SIHP # -4064)
Douglas 1991b	Burial report	Makaha Surfside Apartments, Wai‘anae	Artifact memorandum and skeletal analysis from two individuals recovered by SHPD in 1979 (SIHP # -4064)
Kawachi 1991a	Burial report	Makaha Surfside Apartments, Wai‘anae	Recovered and documented sub-adult burial eroding out of Mauna Lahilahi Beach Park (SIHP # -4064)
Kawachi 1991b	Burial report	Makaha Surfside Apartments, Wai‘anae	Artifact memorandum and skeletal analysis from two individuals recovered by SHPD in 1979 (SIHP # -4064)
Denham et al. 1992	Archaeological inventory survey	Wai‘anae Regional Park	No historic properties identified
Kawachi 1992	Burial study	Wai‘anae Regional Park	Human remains of one individual identified and designated as part of SIHP # -3967 (Wai‘anae Regional Park)

Reference	Type of Study	Location	Results (SIHP # 50-80-07-****)
Flood et al. 1994	Archaeological inventory survey	Wai‘anae Intermediate School	SIHP # -2474 (pre- and post-Contact complex) identified; 24 features, including 18 sinkholes documented along with lure point artifact made of human long bone
Jourdane 1995	Burial report	Mauna Lahilahi Beach Park	Reported discovery of two burials eroding out of Mauna Lahilahi Beach Park (SIHP # -4064)
Borthwick and Hammatt 1997	Inadvertent discovery of human skeletal remains report	Church of Jesus Christ of Latter Day Saints, Wai‘anae	Documented six burials exposed after area graded ; located in a cluster at southwestern edge of property (no SIHP # assigned)
Magnuson 2000	Archaeological reconnaissance survey	Southern base of Pu‘u Kamaile‘unu in Wai‘anae	No historic properties identified
Elmore and Kennedy 2001	Archaeological inventory survey	Wai‘anae coast emergency access road	Documented SIHP # -5949 (traditional Hawaiian habitation site and burial) and SIHP # -5950 (sugar plantation camp and pumping station remnants)
Cordy 2002b	Archaeological investigation	Makaha Surfside Apartments, Mauna Lahilahi Beach Park	Documented 15 features: two burial pits, four fire pits, five indeterminate pits, two paving stone foundations, and two twentieth century trash pits along coastal habitation site (SIHP # -4064)
Jones and Hammatt 2003	Archaeological monitoring	Mauna Lahilahi Beach Park	No historic properties identified
Kailihiwa and Cleghorn 2003	Archaeological monitoring	Board of Water Supply water improvement project; on ten streets including Valley and Ma‘i‘u‘u roads, and Lahaina, Hanalei, Jade, Orange, Fricke, Moua, Lahilahi, Widemann, and Upena streets	Documented three historic properties: SIHP #s -3325 (portion of a concrete flume), -6521 (pit feature), and -6522 (two fire pits); a possible trench and charcoal deposit also identified but no SIHP # assigned; SIHP #s -6521 and -6522 not located in the vicinity of the project area

Reference	Type of Study	Location	Results (SIHP # 50-80-07-****)
Clark et al. 2004	Archaeological inventory survey	Wai‘anae Regional Park	Located sites documented by Sinoto (1975) and redesignated the three extant historic properties (SIHP #s -4822, -4825, and 4826) as Features 2 through 4 of SIHP # -3967, respectively; also redesignated the burial identified by Kawachi (1992) as Feature 1 of SIHP # -3967 and documented four newly identified features (Features 5 through 8) consisting of four sinkholes
Perzinski and Hammatt 2004	Archaeological inventory survey	Mauna Lahilahi Beach Park	Documented two new historic properties: SIHP #s -6634 (intact cultural layer) and -6635 (historic basalt alignment); also documented components of previously documented historic properties: SIHP # -4064, human burials, and SIHP # 50-80-12-9714 (OR&L Railroad Right of Way)
Tulchin and Hammatt 2004	Archaeological monitoring	Farrington Hwy from Jade St to Kaulawaha Rd	No historic properties identified
Hammatt and Shideler 2006	Archaeological inventory survey	Wai‘anae Civic Center	Identified a single human burial (SIHP # -6860)
Shefcheck and Spear 2007	Archaeological assessment	2.5-acre property north of Wai‘anae Intermediate School	No historic properties identified
Tulchin and Hammatt 2007	Archaeological inventory survey	Spotkaeff House project, east of Mai‘u‘u Rd and Mahina‘au Rd	Documented SIHP # -6858 (remnant historic L-shaped basalt and mortar foundation); related to former sugar cane plantation in area
Desilets 2008	Archaeological assessment	Hawai‘i Department of Transportation Wai‘anae baseyard	No historic properties identified
Hazlett et al. 2008	Archaeological monitoring	Wai‘anae Civic Center	No historic properties identified
McElroy 2008	Archaeological monitoring	Farrington Hwy, in Lualualei, Mākaha, and Wai‘anae Ahupua‘a	No historic properties identified

Reference	Type of Study	Location	Results (SIHP # 50-80-07-****)
Shefcheck and Spear 2008	Archaeological assessment	Wai‘anae Regional Park	No historic properties identified
Hammatt 2009	Memorandum	Seawind Apartment project	Located and conducted GPS data collection for a portion of the site complex SIHP # -2474, previously documented by Flood et al. (1994)
Jones and Hammatt 2009	Archaeological monitoring	Mauna Lahilahi Beach Park	Identified two human burials, SIHP #s -6704 (intact historic coffin burial) and -6705 (previously disturbed human remains)
Shefcheck and Spear 2009	Archaeological monitoring	2.5-acre property north of Wai‘anae Intermediate School	No historic properties identified
Liebhardt and Kennedy 2010	Archaeological inventory survey	Mākaha Valley Road and Farrington Hwy	No historic properties identified
Mooney et al. 2013	Archaeological assessment	Proposed Wai‘anae Solar Power Farm	Identified 16 potential historic properties designated T-001 through T-016; no SIHP #s assigned
Yucha et al. 2014	Archaeological inventory survey	Kamaile Plantation Wells and Production Wells site	Documented five historic properties: SIHP #s -1185 (Kuka‘au‘au Complex), -1190 (C-shaped enclosure), -1191 (Wai‘anae “Kamaile” Complex), -5949 (traditional Hawaiian habitation site and burial) and -5950 (sugar plantation camp and pumping station remnants)
Yucha et al. 2015	Archaeological monitoring	Wai‘anae Regional Park	No historic properties identified
Belluomini and Hammatt 2016	Literature review and field inspection	WHS Athletic Field	No historic properties identified and no further archaeological historic preservation work recommended
Hawai‘i Register	N/A	Former Waianae Plantation	Waianae Plantation, designated SIHP # -9993, listed on the Hawai‘i Register of Historic Places

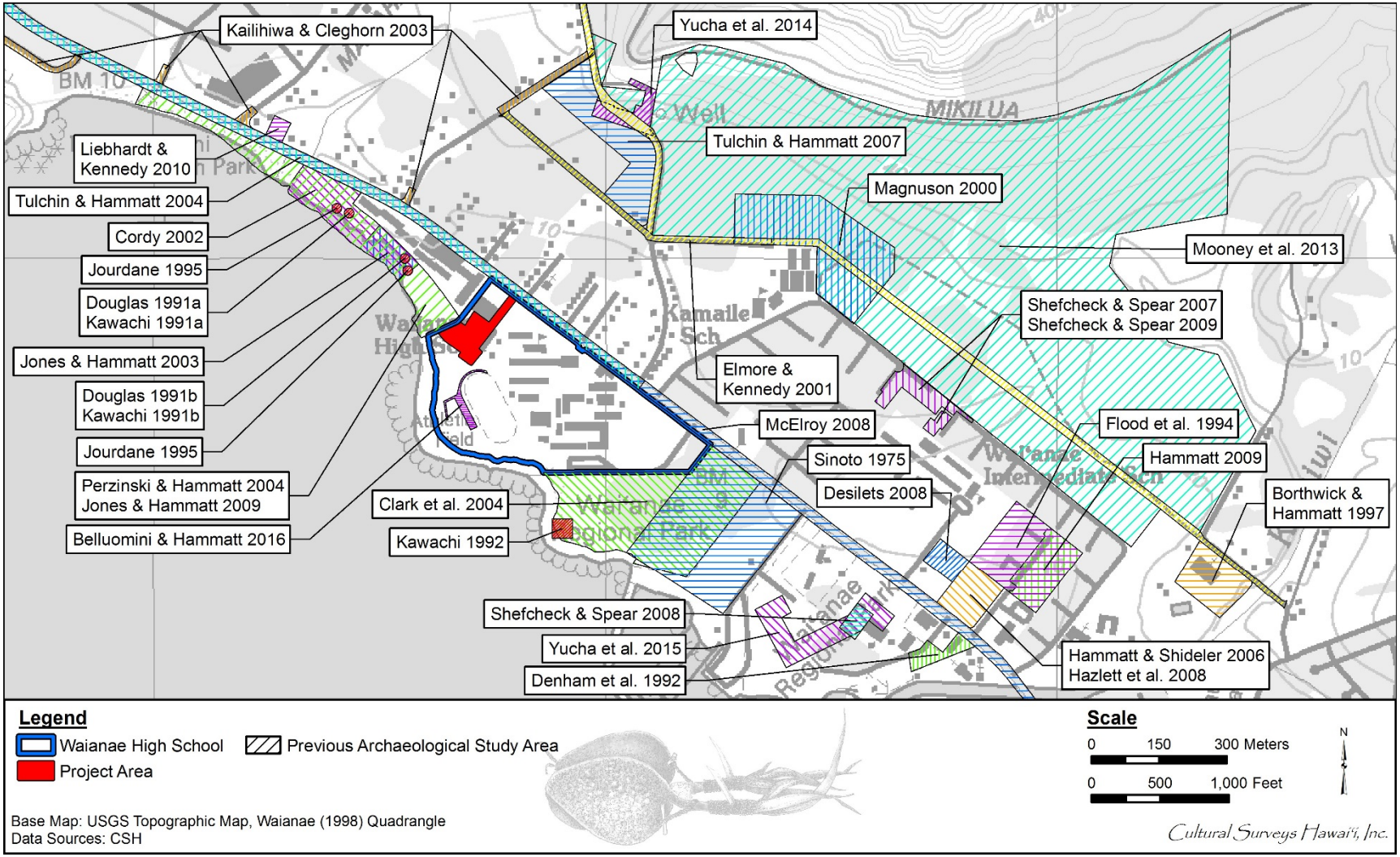

Figure 23. Portion of 1998 Waianae USGS 7.5-minute topographic quadrangle showing the locations of previously conducted archaeological studies within the vicinity of the project area

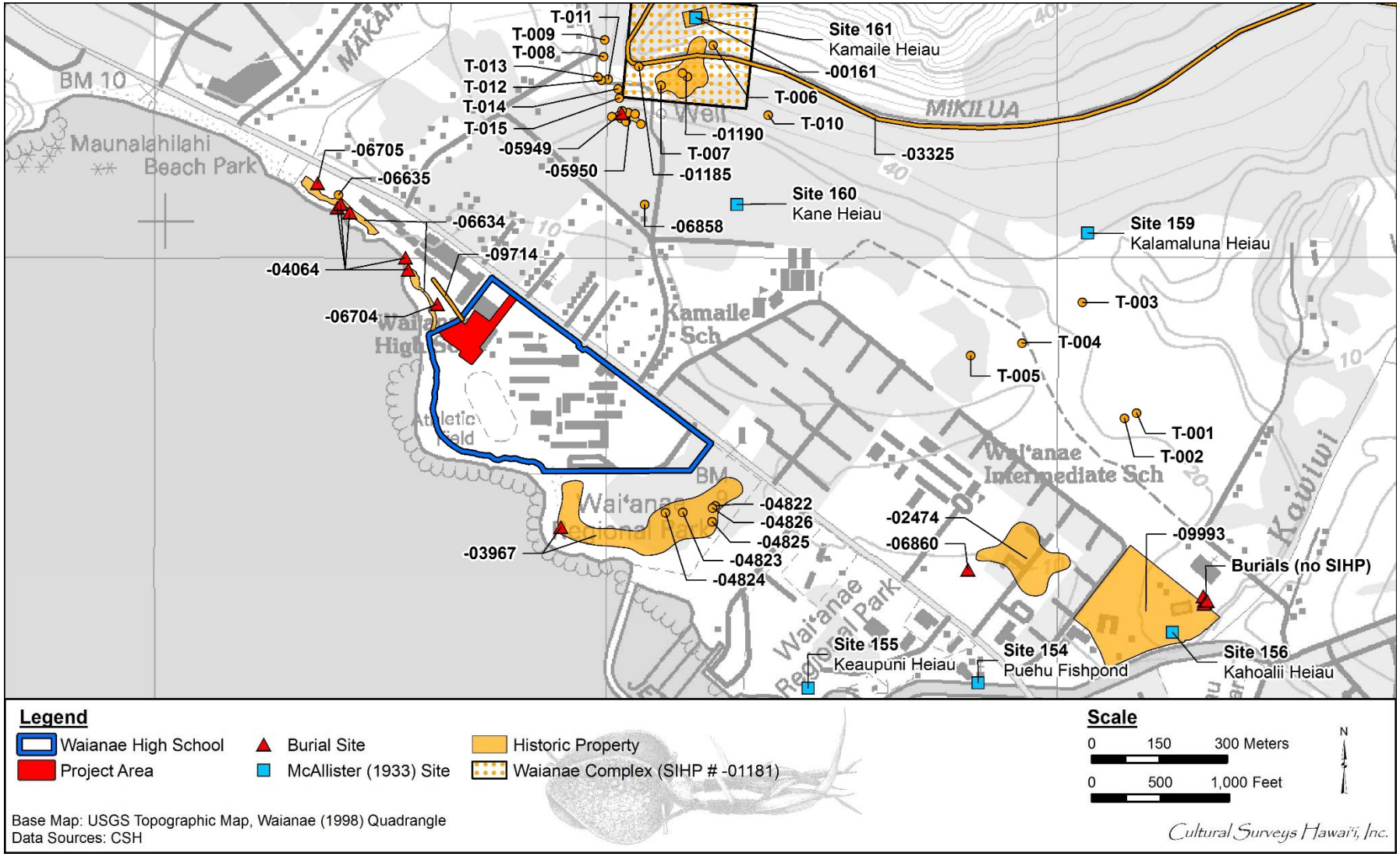

Figure 24. Portion of 1998 Waianae USGS 7.5-minute topographic quadrangle showing the locations of previously documented historic properties within the vicinity of the project area

4.1 Heiau of Wai‘anae

In 1930, McAllister (1933) conducted an island-wide survey of sites on O‘ahu. These sites were designated with site numbers and described. Six sites were documented in the vicinity of the project area (see Figure 24):

> **Site 154**. Puehu Fishpond, Waianae.
>
> Located on the west side of the foot of the Waianae stream, Puehu pond is said to have once been of great importance. Due to neglect it is greatly overgrown and its extent not clearly defined. Its original area was probably 300 by 75 feet, and it seems to have been dug out of the earth 25 feet from the stream. . This pond is about 500 feet from the beach and is not affected by the tides, though the end toward the sea may at one time have been connected with ·the stream. The water now standing in the pond is from 1 to 2 feet deep. [McAllister 1933:113]
>
> **Site 155**. Keaupuni, said to be the name of a heiau which was once located on the small point on the Makaha side of Pokai Bay where the J.M. Dowsett home is now located. Nothing remains of the old temple. [McAllister 1933:114]
>
> **Site 156**. Kahoalii heiau, on Puu Kahea. The present site of Mr. Brecht's barn was pointed out by Harry Poe and William Smithers as the old heiau site. Nothing now remains except an elevation of land and the knowledge among the natives. Thrum [1907] has the following information:
>
> Size 120 by 80 feet; entirely destroyed even to its foundations. Stones taken in 1870 for fence building. This is said to have been the place of Kahahana's residence, and the scene of some of Kamapuaa's escapades. . . . This heiau destroyed by J.L. Richardson, and its stones used to enclose the manager's premises. [McAllister 1933:114]
>
> **Site 159**. Kalamaluna heiau at Kuaiwa, the approximate site of which was pointed out in the cane field, but of which nothing else is known or remembered. [McAllister 1933:114]
>
> **Site 160**. Kane heiau, Kamaile.
>
> The approximate location in the cane field was pointed out, but all the stones have been moved. The full name is said to be Kane-i-ka-pua-Iena. This is the heiau at which Kawelo is said to have stopped and offered sacrifices when on his way to Kauai to wage war on Aikanaka (85, p. 183). Some legends say that Kawelo stopped at the Makaha heiau known as Kaneaki (Site 170). [McAllister 1933:114]
>
> **Site 161**. Kamaile heiau, on Kamaile ridge between Waianae and Makaha valleys, an elevation about 400 feet, just above pumping station…
>
> The heiau is a single terrace, built of large, sharp lava rocks. The facings of the terrace are surprisingly even and were carefully fitted. The heiau was formerly paved with small bits of coral, giving it the appearance of fine, white gravel. The amount of such coral is surprising . . . Thrum [1907] offers the following information: ‘A medium sized heiau of platform character and pookanaka class,

still in fair condition, to be seen from the road on the bluff above the pipe line of the electric pumping station.’

Beneath the heiau, but still above the pump, is a shallow cave shelter known as Kukaauau. The entrance, which faces due south, is concealed by a large kiawe (algaroba), some Cactus, and haole koa. The cave is approximately 40 feet deep and 25 feet wide and 10 feet high at the entrance. It might prove interesting if excavated because it is on the ridge back of what was once a large Hawaiian settlement. The famous Kaimaile spring, known as Kekoo, which watered many acres of taro land (73 just before it was taken over by the plantation) between the ridge and Mauna Lahilahi, was near the base of the shelter. The cave has the appearance of being artificially filled in, for the dust of the floor does not appear to have dropped from the roof. On the floor are many bits of matting, broken gourds, straw, and a few pages from a book printed in Hawaiian which appears to be a portion of a catechism. About one-third of the way in, on the right-hand side facing into the cave, a small hole 6 inches deep was made with a stick and a torn part of ‘Ka Hae Hawaii,’ dated Mei 14, 1856, was found. These cut pieces are in surprisingly excellent condition; the paper is not even yellow or fragile. The paper has been cut with a scissors or knife. A number of tapa (kapa) fragments were found; one a brick-red color. The floor is covered with grasses, ti leaves, banana stalks, coral, sea shells, a bunch of awa strainers, kukui nuts, coconut shells, charcoal, and a few broken bottles. Near the back of the cave was a hole 2 feet in diameter and about 1 foot deep. Though there is a small plantation camp at the base, the shelter is probably not often frequented now. [McAllister 1993:114–115]

4.2 Previous Archaeological Studies in the Vicinity of the Project Area

4.2.1 Sinoto 1975

In 1975, the Department of Anthropology at the Bernice Pauahi Bishop Museum conducted a reconnaissance survey for the Wai‘anae Light-Draft Harbor project near the western boundary of the Wai‘anae Regional Park (Sinoto 1975). The project area is located adjacent to the boundary of the Wai‘anae Regional Park and was previously disturbed, most likely due to military activities and more modern bulldozing. During the survey, five archaeological sites were identified, although all had been destroyed beyond the point required for any research of interpretative potential. The sites include two enclosures (SIHP #s -4822 and -4825), an enclosure with adjoining L-shaped wall (SIHP # -4823), and two walls, one L-shaped (SIHP # -4826) and one linear (SIHP # -4824). Due to the stark contrast in the environment between this area and the inland areas of nearby Wai‘anae and Mākaha valleys, these sites were thought to be part of fringe settlement, where activities were limited to those related to the sea. Dr. Sinoto concludes that due to the crude construction of these structures, the sites were most likely temporary in nature (Sinoto 1975).

4.2.2 Kawachi 1991a; Douglas 1991a

A memorandum by Kawachi (1991a) from SHPD documents the discovery and disinterment of human skeletal remains from 27 February 1991. The burial was reported as eroding out of the beach at the Ka‘ena corner of the Makaha Surfside Apartments, on City land over 24 m southwest from the property line. A 30-cm-thick cultural layer exhibited dark staining, charcoal, and midden

at 54 cm below surface (cmbs) and was designated SIHP # -4064. A shell fishhook preform also was found in this cultural layer. The burial pit was completely within the cultural layer and the burial was determined to be in a supine flexed position with the head facing toward the ocean and some displacement of elements likely due to wave action (and police investigations during the previous day). Douglas (1991a) conducted an osteological analysis and concluded the partial remains of two individuals were present. One individual was a 7 to 9-year-old child. The second individual was represented by several cranial bones and determined to possibly be a middle-aged male individual. These remains were reinterred with other finds at the designated Lucio Badayos family reinterment site within Mauna Lahilahi Beach Park.

4.2.3 Kawachi 1991b; Douglas 1991b

A memorandum by Kawachi (1991b) and Douglas (1991b) from SHPD includes an artifact and skeletal analysis summary to supplement the disinterment of human skeletal remains from October 1979, designated SIHP # -4064. A burial containing two individuals was found in front of the Makaha Surfside Apartments which border the Mauna Lahilahi Beach Park in Wai‘anae. The artifacts were found during the skeletal analysis and included a rusted nail, wood fragments, a non-human bone fragment, a *kukui* nut shell, and five buttons. The skeletal remains indicated a middle-aged male around 5ft 10 inches tall, and a probable female adult. The ancestry of the individuals was indeterminate due to the incompleteness of the remains, and the time period (pre-Contact versus post-Contact) also was indeterminate. The artifacts were historic but the exact association of the artifacts to the remains is unknown as they may have originated from the surrounding fill material. As part of the skeletal analysis, it was stated that the “place of burial infers that these two were not people of rank” (Kawachi 1991b:6).

4.2.4 Denham et al. 1992

In May 1992, Archaeological Consultants of Hawaii, Inc. conducted an archaeological inventory survey (AIS) on a 2-acre parcel for the proposed extension of Wai‘anae Regional [District] Park (Denham et al. 1992), located directly east of the current project area. The study included ten test excavations in the parcel and six auger holes drilled specifically along the southern boundary to test for the presence of sediment from the former Puehu Fishpond. The lack of carbon in the samples indicated a highly unlikely presence of fishpond sediment in the area (Denham et al. 1992). Artifacts included mostly modern and historic items, as well as a pre-Contact volcanic glass flake and a possible basalt abrader. No significant cultural deposits were observed. The stratigraphy in the area was representative of a marine transgression and emergent reef environment from the lowering of the sea level (Denham et al. 1992:54).

4.2.5 Kawachi 1992

In September 1992, Carol Kawachi from SHPD responded to a find of skeletal remains likely exposed by Hurricane ‘Iniki on the beach fronting Wai‘anae Regional Park, approximately 25 m from the water. Kawachi (1992) identified the remains as a flexed burial likely of an adult female. The burial was left in situ and unmarked. Kawachi (1992) notes that in 1988, Wai‘anae Regional Park was designated SIHP # -3967 because of sites observed by the SHPD. Informants indicated the area was part of a known burial ground of the Kamaile complex and families would bury members in the sinkholes.

4.2.6 Flood et al. 1994

In 1993, Bishop Museum conducted an AIS of a 7-acre parcel near the Wai‘anae Intermediate School approximately 250 m northeast of the current project area. A total of 24 archaeological features were identified and designated as components of SIHP # -2474 (Flood et al. 1994). These features included a core-filled wall, a scatter of historic artifacts, a rubbish mound, an L-shaped boulder slab alignment, a low platform, a small terrace, four modified sinkholes yielding pre-Contact cultural material, and 14 unmodified sinkholes. Excavations conducted on ten of the features yielded pre-Contact cultural material such as lithics, a bone fishhook fragment, midden, an assemblage of extinct avifauna remains and other faunal material, and an assortment of historic artifacts. A probable “human long bone fragment which was apparently part of a finished lure point” (Flood et al. 1994:151) was the only human bone recovered. The extinct avifauna included a true goose (*Branta* sp.), a goose-like *moa-nalo* of the family Anatidae (*Thambetochen xanion*), a small flightless rail (*Porzana ziegleri*), a large crow (*Corvus* sp.), and a Hawaiian petrel (*Pterodroma phaeopygia*) that was extinct on O‘ahu prior to Contact (Flood et al. 1994:147). The study concluded the site (SIHP # -2474) “appears to have been somewhat peripheral to the impact of many of the broader historical events . . . probably due to the relatively impermeable limestone reef deposits which precluded any profitable use of the area except for the hardiest attempts at dry land agriculture . . . ” (Flood et al. 1994:150). They interpreted five basic land use patterns, refuse disposal, agriculture, ranching, habitation, and military. They suggest the site area may also have been utilized as a sugar or railroad camp (Flood et al. 1994:x). The soils in the project area were noted as relatively thin and unlikely to contain burials (Flood et al. 1994:162).

4.2.7 Jourdane 1995

A memorandum by Jourdane (1995) from SHPD describes the discovery of two burials (designated SIHP # -4064) found eroding out of the shoreline fronting the Makaha Surfside Apartments on 21 June 1995. The find was reported by Mr. Alika Silva after walking the beach checking for exposed burials following a period of large surf. Burial 1 was found approximately 40 m west of the apartment complex on the western edge of a small cove. A burial pit was evident on the surface and the face of the encompassing dark sandy layer was about 50 cm thick. Burial 2 was found at the edge of the lawn fronting the second building from the Nānākuli end of the complex. A faint burial pit was visible in the profile and the remains appeared to be those of a juvenile. At the time, both burials were covered with limestone rocks by Mr. Silva in order to protect them from further erosion. SHPD later recommended relocation, and the remains were disinterred in October 1995 in consultation with the Lucio Badayos family. The remains were reinterred in the Badayos reinterment site within the park on 2 January 1996.

4.2.8 Borthwick and Hammattt 1997

In 1997, CSH responded to an inadvertently discovered burial found during grading activities in a parking lot at the Church of Jesus Christ of Latter Day Saints, east of Wai‘anae Intermediate School near Plantation Road and Kaupuni Channel (Borthwick and Hammatt 1997), over 700 m east of the project area. After monitoring further construction activity, five additional human burials were reported. All of the burials were relatively close to the ground surface, which used to be much higher according to historic data, and none of the burials were completely intact. No SIHP # was assigned to the burials.

4.2.9 Magnusson 2000

In May 2000, International Archaeological Research Institute, Inc. (IARII) conducted a reconnaissance survey for the Kamaile Elementary School Expansion project (Magnuson 2000). The survey included a pedestrian field inspection over the parcel. No traditional Hawaiian or historic properties were identified. The ground was composed of remnants from an exposed raised limestone reef. It was noted that the area had been previously bulldozed which may be partly responsible for the lack of archaeological surface sites.

4.2.10 Elmore and Kennedy 2001

From June to July 2001, Archaeological Consultants of the Pacific, Inc. (ACP) conducted an AIS for the Wai‘anae Coast Emergency Access Road (Elmore and Kennedy 2001). The project area consisted of five corridors within the *ahupua‘a* of Mākaha, Wai‘anae Kai, Lualualei, and Nānākuli: 1) Kaulawaha Road Corridor, 2) Maiu‘u/Mahina‘au Road Alternate Corridor, 3) Pakeke Street/Hakimo Road Connector Corridor, 4) Pa‘akea Road Corridor, and 5) Nānākuli Improvements Corridor. Two sites were identified within the Kaulawaha Road Corridor, SIHP # -5949, a traditional Hawaiian subsurface deposit identified within a backhoe trench (Trench 35); and SIHP # -5950, four historic mortar and basalt foundations and a well, identified during the surface survey.

4.2.11 Cordy 2002b

From 1999 to 2001, Dr. Ross Cordy of the SHPD investigated the shoreline exposures of a coastal habitation site (SIHP # -4064) fronting the Makaha Surfside Apartments within Mauna Lahilahi Beach Park in Wai‘anae during yearly visits with advanced archaeology students (Cordy 2002b). The site was determined to extend over 425 m along the shore and about 60 to 70 m inland, based on past burial finds and the exposed deposits. Several representative profiles were documented each year. Overall, the stratigraphy consisted of two layers of modern fill above clear plastic, overlying a cultural layer that was mixed in some areas, then up to three additional layers of non-cultural sand over a brownish basal soil layer (Cordy 2002b:3). A total of 15 features were documented over the three years.

Several features associated with SIHP # -4064 were recorded by Cordy (2002b) in the central north cove area in 1999. Two burial pits (Feature 1 and Feature 3) with partial human remains were exposed in Layer III. Feature 1 had eroded by 2000 and Feature 3 was still exposed in 2001. Feature 4 was identified as a twentieth century trash pit originating from the same layer and containing metal and bottles. Feature 2 and Feature 7 were fire pits found in Layer V. Paving stones (Feature 5 and Feature 6) from a possible house foundation were found in Layer III north of the northern cove, and in the center of the south part of the park. In the south end of the north cove, there were three pit features encountered in Layer III, two were of indeterminate function (Feature 11 and Feature 15) and one was a twentieth century trash pit (Feature 12). In Layer V in this area, there were three additional pit features containing charcoal (Features 8 through 10) and two fire pits (Features 13 and 14).

4.2.12 Jones and Hammatt 2003

In 2003, CSH conducted archaeological monitoring for the Mauna Lahilahi Beach Park Shoreline Protection project. Areas believed to be possibly culturally sensitive were protected with fencing during construction. No historic properties were identified (Jones and Hammatt 2003).

4.2.13 Kalihiwa and Cleghorn 2003

Between September 2001 and October 2002, Pacific Legacy, Inc. conducted archaeological monitoring for a water systems improvements project in Mākaha and Wai‘anae (Kailihiwa and Cleghorn 2003). Monitoring locations for the project involved areas on Lahaina Street, Hanalei Street, Jade Street, Orange Street, Fricke Street, Moua Street, Lahilahi Street, Widemann Street, Upena Street, Mai‘u‘u Road, and Mākaha Valley Road. Three historic properties comprised of five features were identified during the project: SIHP #s -6521, a pit feature not located in the vicinity of the current project area; -3325, a portion of a concrete flume; and -6522, two fire features not located in the vicinity of the current project area, and a charcoal deposit.

No significant finds were encountered at the monitoring location at Mākaha Valley Road. Results of monitoring indicated a fill of rubble used to grade the *makai* section of the road like that of Farrington Highway. A very dark gray likely relating to the previous land use of *lo‘i kalo* (taro paddies) was identified near the intersection of Mai‘u‘u Road and Mahina‘au Street. A concrete flume (SIHP # -3325) was identified along the northwest side of Mai‘u‘u Road and is believed to be associated with the Mikilua Flume, under the same site designation. Kalihiwa and Cleghorn (2003) determined SIHP # -3325 is no longer assessed as being significant.

4.2.14 Clark et al. 2004

Between 2002 and 2003, Pacific Consulting Services, Inc. conducted an AIS at Wai‘anae Regional Park, SIHP # -3967 (Clark et al. 2004). Three of the five sites previously identified by Sinoto (1975) were reevaluated and subsumed under SIHP # -3967 while the other two previously identified sites had been destroyed, and four undocumented sites were recorded. These sites were designated as Features 1 through 8 by Clark et al. (2004:19) and included the burial documented by Kawachi (1992), three sinkholes, one modified sinkhole, two enclosures, and an L-shaped structure.

4.2.15 Perzinski and Hammatt 2004

In August 2003, CSH conducted an AIS consisting of a surface survey, 32 test excavations, four wave-cut bank profiles, and six backhoe trenches for proposed improvements at the Mauna Lahilahi Beach Park (Perzinski and Hammatt 2004). The stratigraphy in the southern half of the project area generally consisted of one to four layers of imported fill or mixed/disturbed sediment (Stratum I), overlying one to three cultural layers (Stratum II), and a culturally sterile layer (Stratum III).

A total of two new sites and two previously documented sites were documented by Perzinski and Hammatt (2004). The new sites consist of SIHP # -6634, an intact cultural layer and SIHP # -6635, an historic basalt alignment. SIHP # -6634, the intact cultural layer, was radiocarbon dated to AD 1430. This date, along with the stratigraphy and artifactual information, indicated continued use and settlement of the shoreline, including a pre-Contact component and an early post-Contact cultural deposit. SIHP # -6635 is a rectangular basalt alignment without a cultural layer and of indeterminate function. The two previously identified sites within the study area are SIHP # -4064, which designates a concentration of human burials, and SIHP # -9714, a portion of the former OR&L railroad berm formerly used to transport sugarcane from Waianae Sugar Company land to the Ewa mill and was still visible within the southeastern area. Findings related to SIHP # -4064 included a human burial eroding out of a wave-cut bank. It was determined this burial was likely

the same as the designated SIHP # -6592:2 burial reported by Ross Cordy (Perzinski and Hammatt 2004;18). It was left in place pending a decision for final disposition. In addition, a probable burial crypt in Test Unit 27 was identified by basalt capstones and a basalt-lined pit. No human remains were encountered within the feature; however, it was identified based on the proximity to the newly identified human burial and a previously identified human burial believed to have eroded out before September 2001 (Perzinski and Hammatt 2004:132).

4.2.16 Tulchin and Hammatt 2004

From April through November 2002, CSH conducted archaeological monitoring of a Board of Water Supply water main project along Farrington Highway from Jade Street to Kaulawaha Road in Wai‘anae (Tulchin and Hammatt 2004). Representative profiles indicated sand deposits only in the western end of the study area, between Jade Street and Lahilahi Street. Charcoal flecking from a sand deposit near Orange Street provided a 2-sigma calibrated date range of AD 1719–1820 (late prehistoric to early historic era). No historic properties were identified.

4.2.17 Hammatt and Shideler 2006; Hazlett et al. 2008

In August 2006, CSH conducted an AIS on 2.817 acres for a Leeward Coast Emergency Homeless Shelter project at the “Wai‘anae Civic Center Location” (Hammatt and Shideler 2006), which has become the current site of the Pai‘olu Kaiaulu Shelter. The parcel is located on the northern corner of Farrington Highway and Kau‘iokalani Place. Testing included the subsurface excavation of 22 trenches, each approximately 8-10 m long. One test excavation in the northern corner of the parcel exposed a small portion of a human burial designated as SIHP # -6860. The burial was estimated to be in a flexed position due to the small size of the depression in the surrounding limestone bedrock. No additional finds were encountered. CSH conducted archaeological monitoring of construction activities from October through November 2006 and no other sites or significant cultural materials were identified, and no historic properties were affected (Hazlett et al. 2008).

4.2.18 Shefcheck and Spear 2007; Shefcheck and Spear 2009

In 2007, Scientific Consultant Services, Inc. conducted an archaeological assessment of approximately 2.5 acres for the development of a housing facility *mauka* (north) of Wai‘anae Intermediate School with no significant findings (Shefcheck and Spear 2007). Archaeological monitoring for the development was conducted from June 2007 to January 2008. The only find consisted of a large grinding stone mortar artifact; no cultural deposits were encountered (Shefcheck and Spear 2009).

4.2.19 Tulchin and Hammatt 2007

In July 2006, CSH (Tulchin and Hammatt 2007) conducted an AIS on an approximately 6.7-acre parcel for the proposed development of a single-story home by the Spotkaeff family. The project area was located directly south of the current project area and east of the intersection of Maiu‘u and Mahinaau roads. Fieldwork consisted of surface inspections and six backhoe test trenches (Tulchin and Hammatt 2007). In general, the stratigraphy observed within the backhoe test trenches consisted of alluvial clay layers, which was expected based on the presence of Keko‘o Spring within the vicinity. The survey identified SIHP # -6858, a remnant historic L-shaped basalt and mortar foundation related to the sugarcane plantation in the area. Due to the deteriorated

condition of the feature, it did not fulfill any of the criteria for recommended eligibility for the Hawai‘i Register of Historic Places.

4.2.20 Desilets 2008

In 2007, Garcia and Associates conducted a subsurface archaeological investigation of a 60 m by 60 m area at the Hawai‘i Department of Transportation Wai‘anae Baseyard, located *mauka* of the current project area on the opposing side of Farrington Highway. The stratigraphy was variable over the area and often consisted of modern fill over limestone substrate with a paleosol in the majority of the excavations (Desilets 2008). No significant cultural material was encountered.

4.2.21 McElroy 2008

In 2007, Garcia and Associates conducted archaeological monitoring for the installation of a fiber optic cable along Farrington Highway (McElroy 2008). Trenching boring pits connected via horizontal drilling was conducted. Stratigraphy included the current road surface and associated base course, and various layers of fill overlying either natural sand or the coral shelf. No historic properties were identified.

4.2.22 Shefcheck and Spear 2008

Shefcheck and Spear (2008) report that Scientific Consultant Services, Inc. conducted an AIS consisting of six test excavations for planned parking lot improvements in the Wai‘anae Regional [District] Park between the Public Library and basketball court, near the recreational complex (no project dates are provided by the authors). The testing revealed shallow soil deposits, primarily of dark reddish brown clay or silty clay, over limestone bedrock. No significant cultural deposits were encountered.

4.2.23 Hammatt 2009

In July 2009, CSH submitted a memorandum concerning archaeological services for the Proposed Seawind Apartment project (Hammatt 2009). The memorandum addressed the documentation of 12 features associated with SIHP # -2474 previously documented by Flood et al. (1994). Nine of the 12 features were reevaluated and located. No new historic properties were identified.

4.2.24 Jones and Hammatt 2009

From November 2003 to June 2004, CSH conducted archaeological monitoring for proposed improvements to beautify Mauna Lahilahi Beach Park (Jones and Hammatt 2009). Project-related ground disturbance included planting 100 coconut trees, installing water lines and fence posts, and grading. Two human burial sites were identified during monitoring. SIHP # -6704 designates an intact historic coffin burial encountered in the southeast portion of the project area within a layer of clay sediment, with no cultural sand layer present. SIHP # -6705 designates human remains that appeared to have been previously disturbed. This burial was located in a layer of sandy clay sediment in the northwestern portion of the project area. The remains were determined to be pre-Contact due to the lack of historic artifacts and proximity to a cultural layer. Both burials were preserved in situ with small boulders/cobbles placed over and around the burials, and a waterworn rock placed on the top for cultural identification prior to backfilling.

4.2.25 Liebhardt and Kennedy 2010

On 6 April 2010, ACP conducted an AIS of a parcel located on the *mauka* side of Farrington Highway near the Mākaha Valley Road intersection. Testing included a pedestrian survey and five backhoe test excavations (2 by 1 m and up to 105 cmbs). Overall, it was found the project area had been greatly impacted by modern activities, and there were no significant archaeological finds (Liebhardt and Kennedy 2010).

4.2.26 Mooney et al. 2013

In 2013, Pacific Legacy conducted an assessment for the proposed Wai‘anae Solar Power Farm (Mooney et al. 2013). Several potential sites were observed (T-001 through T-015). These potential sites were not designated historic properties and primarily consisted of plantation era infrastructure.

4.2.27 Yucha et al. 2014

In November 2013, CSH conducted an AIS for the Kamaile Plantation Wells Sites in Wai‘anae Ahupua‘a (Yucha et al. 2014). Three historic properties were identified. SIHP # -1181, the Wai‘anae (Kamaile) Complex, which includes McAllister Site 161, Kamaile Heiau; SIHP # -1185, the Kuka‘au‘au Cave Shelter; SIHP # -190, a C-shaped enclosure and numerous platforms; and SIHP # -5949, a subsurface platform and previously disturbed burial, were identified as well as SIHP # -5949, a pre-Contact to early post-Contact habitation site, and SIHP # -5950, a plantation-era site complex.

4.2.28 Yucha et al. 2015

In 2014, CSH conducted archaeological monitoring for the Wai‘anae District Park Reconstruction of Wastewater System project (Yucha et al. 2015). The documented stratigraphy consists of various fill layers overlying the coral shelf. No historic properties were identified.

4.2.29 Belluomini and Hammatt 2016

More recently, in 2015 CSH conducted a literature review and field inspection for the replacement of bleachers at the WHS athletic field (Belluomini and Hammatt 2016), to date the only known archaeological study conducted on the WHS campus. The project area consisted of approximately 0.49 acres (0.2 hectares) of the *makai* portion of the WHS campus, east and adjacent to the current project area. Belluomini and Hammatt noted that the project area was located on an emerged coral karstic outcrop, above approximately 70 cm of crushed coral and terrigenous fill. The proposed ground disturbance, consisting of primarily of grading and shallow excavation, was considered minimal. Following a 100% pedestrian inspection and background research, the study concluded that;

> . . . no surface historic properties will be potentially affected by the proposed project. Coral karstic outcrops are known to contain pre- and post-Contact archaeological deposits and human burials; however, based on the minimal ground disturbance proposed and the general thickness of the fill deposits overlying the coral outcrop, it is unlikely the coral outcrop, and any archaeological deposits therein, will be encountered or affected. [Belluomini and Hammatt 2016:57]

Section 5 Results of Fieldwork

CSH completed the fieldwork component of this study under archaeological fieldwork permit number 16-23, issued by the SHPD pursuant to HAR §13-282. Fieldwork was accomplished on 13 December 2016 by principal investigator Matt McDermott, M.A. This work required approximately 0.5 person-days to complete. Photographs taken during the field visit are shown as Figure 25 to Figure 35.

The entire project area was inspected and surveyed. Additionally, the high-surf cut soil bank along the coast immediately *makai* of the project area was inspected to evaluate the likelihood of fill deposits and/or Jaucaus sand deposits in the project area. The project area includes the paved access road from Farrington Highway to the pool, the pool and its surrounding enclosure at the west end (seaward) of the road, the two buildings to the east of the pool, and the grass field that framed by the pool (west) and the two buildings (south). The construction along the access road requires minimal ground disturbing activity which includes repaving of the road, demolition of the pool to pave a new parking lot, and the demolition of the two buildings to rebuild a new structure. The project area also includes various sidewalks that provide access to the buildings and pool area, as well as existing storm drains that would likely be removed and resituated during the construction of the new buildings. In the middle of the field is a column of concrete-covered holes associated with a sewer/drainage line for the above-ground pool.

During the field inspection, the entire project area was inspected and photographed. Particular attention was paid to identifying any surface remnants of the OR&L, which operated in this area from the late 1800s into the 1940s. No surface remains of the OR&L right of way (ROW) were noted. The field archaeologist did note a soil berm approximately seven meters *makai* and parallel to the south edge of the gymnasium (see Figure 26). However, according to historic maps, the OR&L right-of-way would have been *makai* of this soil berm, nearer to the swimming pool, and aligned with the north edge of the athletic field. The relationship of this soil berm to the former OR&L ROW is shown on a 1928 aerial photograph and a modern (2013) aerial photograph (Figure 36 and Figure 37).

The field archaeologist also noted a concrete slab oriented perpendicular to the gymnasium, between the gymnasium and the pool, with eight metal manhole lids. This is the above ground portion of a sewage/drainage system for the swimming pool, which was built in the 1970s. The below-ground portion of the drainage structure is larger, as shown on overlays of the structure on the 1928 and 2013 aerial photographs. This drainage structure and a portion of Building SP are in the former location of the OR&L ROW (see Figure 36 and Figure 37)

The project area is located on an emerged coral karstic outcrop, still visible along the coastline west and south of the current project area documented during a previous study of the WHS athletic fields (Belluomini and Hammatt 2016) (see Figure 34). The project area is within the vicinity of an area previously filled with crushed coral and covered with terrigenous fill (see Figure 35). This fill was documented at the outer flanks of the WHS property as being approximately 70 cm deep. No potential areas of deep undisturbed Jaucas sand were observed during the field inspection.

Figure 25. Wai‘anae High School, Buildings SP and T, view to the east

Figure 26. Gymnasium on left, Building T right, view east; this modern soil berm does not match the location of the old OR&L right-of-way, which would have been located *makai* (to the right) of this berm, closer to the swimming pool

Figure 27. Wai‘anae High School Gymnasium, sewer/drainage slab associated with above-ground swimming pool, view to the north; the old OR&L right-of-way would have crossed diagonally over this slab

Figure 28. Gymnasium in back, Building T to right, view north

Figure 29. View toward the coast, swimming pool to the left, view to the southwest

Figure 30. Makaha Surfside Housing Development to right (white building), view to the northwest from campus

Figure 31. Makaha Surfside Housing Development from the beach, view to the northwest

Figure 32. Building T to left, above-ground pool in back, view to the south

Figure 33. View of Access Road from beach to campus, above-ground pool in center, view to the north

Figure 34. Exposed coral outcrops at coast, Makaha Surfside Housing in back, view northwest

Figure 35. Exposed eroded coastal bank, showing coral/soil fill layers, view northeast

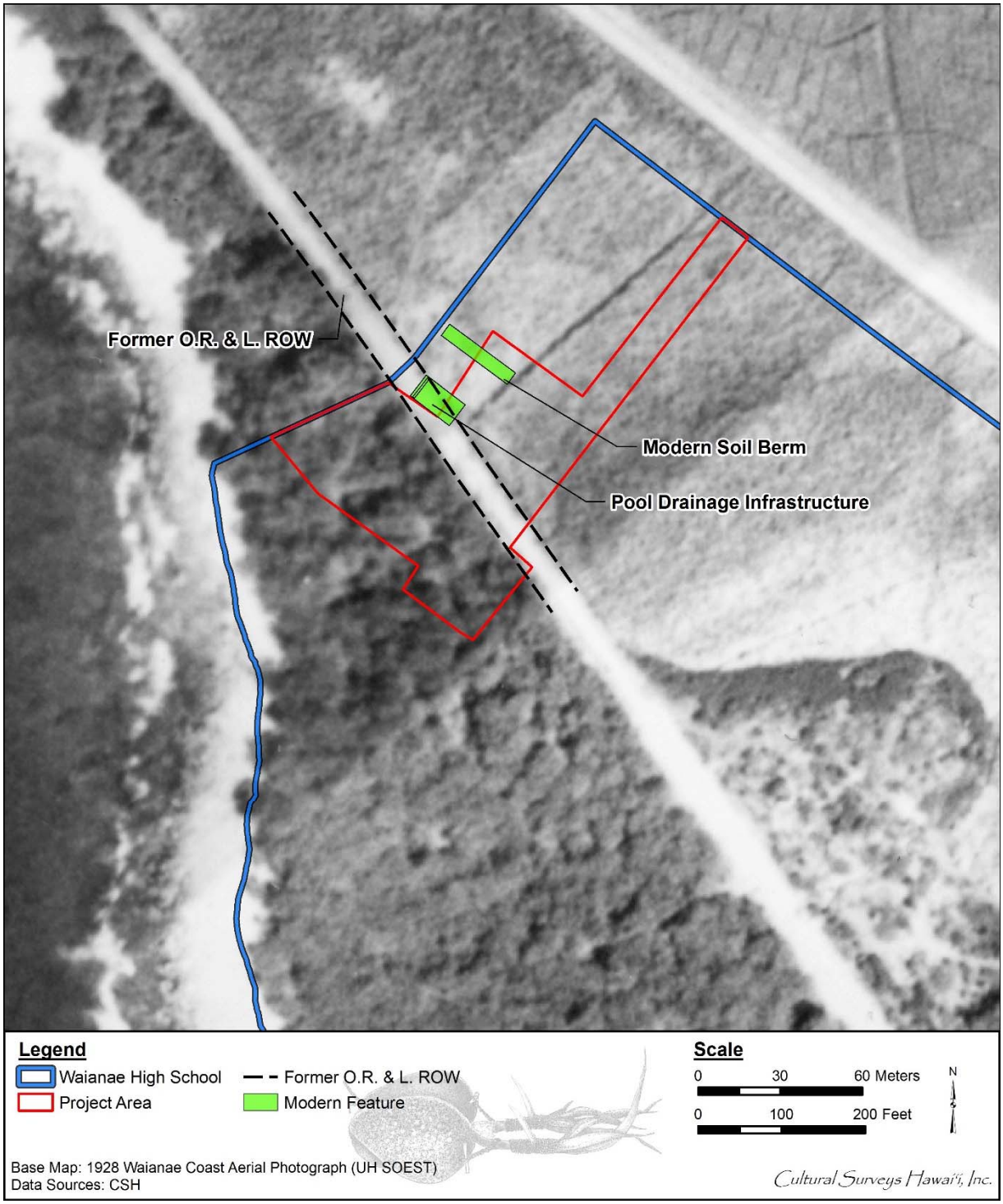

Figure 36. 1928 aerial photograph with overlay of the location of a visible surface soil berm (see (see Figure 26) noted during the field inspection and the location of a below-ground swimming pool drainage structure in relation to the OR& L ROW; note that the above-ground slab with metal manholes for the pool drainage structure is located on the west side of the sructure (see Figure 27)

Figure 37. 2013 aerial photograph with overlay of location of modern soil berm noted during the field inspection and location of pool drainage structure and Building SP in relation to the OR&L ROW

Section 6 Summary and Recommendations

At the request of Gerald Park Urban Planner, CSH has prepared this LRFI for the WHS Connection of Buildings SP and T Project, Wai‘anae Ahupua‘a, Wai‘anae District, O‘ahu, TMKs: [1] 8-5-002:018 and 015:001. The project area is located southwest of Farrington Highway within the WHS campus. Possible ground disturbance is considered to be minimal and consists primarily of filling and grading.

This LRFI study was completed for use as a planning document. The proposed project is subject to Hawai‘i State historic preservation review legislation (HRS §6E-8/HAR §13-275). This investigation serves as a document to facilitate the proposed project's planning and supports historic preservation review compliance by assessing if there are major archaeological concerns within the project area and developing data on the general nature, density, and distribution of archaeological resources.

The seaward portion of Wai‘anae Kai Ahupua‘a was one of the most densely populated areas of O‘ahu between Pearl Harbor and Waialua. This population (as reflected by mid-1800s *kuleana* data) was largely at two major foci of residence, one at Kamaile, within the project area, and the other on the opposite side of Kaupuni Channel in Pāhoa, the central portion of Wai‘anae Ahupua‘a.. Although in the pre-contact period the shoreline probably had only scattered fishermen's homes, there was a large *heiau* on the Keaupuni Point, east of the project area, which would have been a focus for ritual activity.

No Māhele LCAs are located within the WHS campus or the current project area, although a portion of LCA 9489B is directly adjacent to the west side of the campus and near the project area (see Figure 10). LCA 9489B, with two *‘āpana* (lots), was awarded to a man named Holi who claimed a *pahale* (houselot) *makai* of the main trail (aligned with the future Farrington Highway). The Māhele documents also mention other houselots near the shoreline to the east of LCA 9489B for native Hawaiians who did not make claims for their land during the Māhele. The exact location of these houselots is unknown. While there are no LCA awards in the WHS project area, there were mid-nineteenth century houselots to the east of LCA 9489B to Holi, and thus one or more of these houselots could have been located in the campus area.

A Jackson 1884 map (Figure 12) shows the OR&L railroad line traversing through the WHS school grounds and through the center of the project area, but no other developments or agricultural land at the location. The 1919 and 1936 US Army War Department Fire Control maps (see Figure 14 and Figure 15) show the OR&L Co. railway crossing the project area and the land as being west of the Waianae-Kai US Military Reservation. A 1943 US Army War Department map and 1954 US Army Map Service Topographic map depicts minimal development within the project area (see Figure 17 and Figure 18).

A number of burial finds have been reported in previous archaeological studies in the vicinity of the project area, especially to the northwest in Jaucas beach sands at Mauna Lahilhai Beach (see Figure 24). These Jaucas sands, however, do not extend east into the current project area. Surface sites and one burial have been documented within the Waianae Regional Park, southeast of the project area. The surface sites consisted of walls and enclosures comprised of stacked basalt; it is unknown, however, if these sites are modern creations. Based on archaeological findings, the coastline contained mostly temporary habitation and activity areas, while the denser and more

permanent areas are located in the more inland portions of Kamaile and Pōka‘i near freshwater springs and rivers.

Fieldwork associated with the study consisted of a 100% pedestrian inspection of the project area. Fieldwork was accomplished on 13 December 2016 by principal investigator Matt McDermott, M.A. No potential historic properties were identified during the LRFI. During the field inspection, the entire project area was inspected and photographed. Particular attention was paid to identifying any surface remnants of the OR&L, which operated in this area from the late 1800s into the 1940s, and indications of Jaucas sand deposits that are more likely to contain Native Hawaiian skeletal remains. No surface remains of the OR&L right of way were noted. The project area is located on top of an emerged coral karstic outcrop that has been filled with approximately 70 cm of fill consisting of crushed coral and terrigenous soil, and thus is unlikely to contain any deep Jaucas sand deposits, such as those at the adjacent Mauna Lahilahi Beach, where several burials have been previously recorded.

Due to the findings of the pedestrian inspection and background research, it is unlikely that significant historic properties will be affected by the proposed project. Coral karstic outcrops are known to contain pre- and post-Contact archaeological deposits and human burials; however, based on the minimal ground disturbance proposed for the construction project and the general thickness of the fill deposits overlying the coral outcrop, it is unlikely the coral outcrop, and any archaeological deposits therein, will be encountered or affected.

Therefore, no further archaeological historic preservation work is recommended for the proposed project. However, if significant finds are encountered, including human burials, all work in the immediate vicinity will cease and the SHPD will be promptly notified.

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Appendix A: Māhele Documents

N.R. = Native Register; F.T. – Foreign Testimony; N.T = Native Testimony. Information from Waihona ‘Aina (2017)

LCA 9489B to Holi – Claim and Testimony

[No. 9489B], Holi, Kamaile, Waianae, January 19, 1848

N.R. 470v4

To the Honorable Land Commissioners of the Hawaiian Islands, Greetings: I hereby state my claim for land in Kamaile, Waianae, Island of Oahu. It is bounded on the north by the land of Kaana, on the east by the land of Kahinu, on the south by the land of Kuheleloa and the land of Kalua. on the west by the land of Mahukona.

HOLI

F.T. 298v9

Ohule, sworn says, the land of claimant is a moo aina called Kumumaomao in the ili of Kamaile 1, Waianae, Oahu. It contains 18 lois & a kula in one piece, & is bounded:

Mauka by the koele Kumumaomao
Ewa by the moo aina Hawaiiloa
Makai by the sea shore
Waialua by the kula Kumanomano.

Claimant received his land from Manu in the time of Kekauluohi & has held it in quiet until now.

Kahae, sworn says, his testimony accords with that above & is true.

N.T. 416-417v9

Ohule, sworn, he has seen his land Kumumaomao, a moo land in the ili of Kamaile 1 in Waianae, Oahu - 18 patches and a pasture in 1 section.

Mauka, Kumumaomao koele
Ewa, Hawaiiloa, a moo land
Makai, Beach
Waianae, Kumanomano, a pasture.

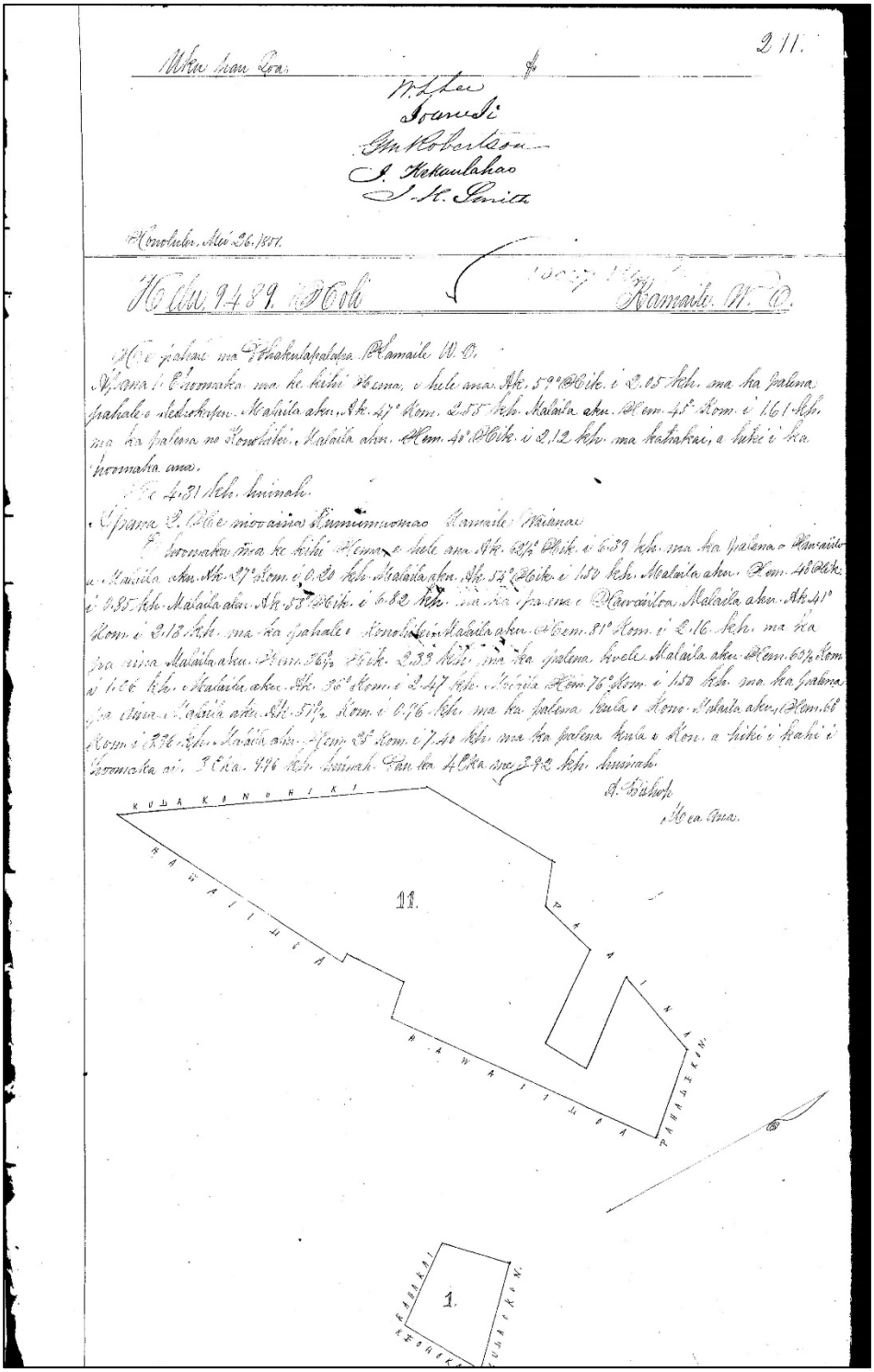
Land from Manu at the time of Kekauluohi, no objections.

Kahue, sworn, he has known in the same way as Ohule.

[Award 9489B; R.P. 1047; Pohakulapalapa Kamaile Waianae; 2 ap.; 4.42 Acs; claim index lists award as 9489B; R.P. index lists award as 9489]

LCA 9489B to Holi – Award

Land Commission, Awards Book. Information from AvaKonohiki.com (2017)



APPENIX B

ENVIRONMENTAL ASSESSMENT COMMENTS AND RESPONSES

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 17-061

March 17, 2017

Received
3.20.2017 (E)
3.22.2017 (USPS)

Mr. Gerald Park
Gerald Park Urban Planner
95-595 Kanamee Street, #324
Mililani, Hawaii 96789
Email: gpark@gpup.biz

Dear Mr. Park:

SUBJECT: Draft Environmental Assessment (DEA) for Waianae High School Connection of Buildings SP and T, Waianae, Oahu
TMK: 8-5-002: 018, 8-5-015: 001

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2017-03-08-OA-5B-DEA-Waianae-High-Building-Connection.pdf

We understand from the OEQC publication form project summary that *"A two-story building will be erected connecting Building SP (Searider Productions) and Building T a two-classroom building. Both buildings are located on the western (or northwest) side of the campus between the existing Gymnasium and swimming pool. A two-story structure, elevator tower, open courtyard, and lanai comprise the major design elements. Measured from grade to top of the roof the new building is approximately 28-feet in height and the elevator tower approximately 30-feet.*

The above ground swimming pool will be demolished and approximately one-third of the pool site repurposed for at-grade parking for 28 vehicles.

An existing two-way driveway will be widened to 20 feet (from 15 feet) and the driveway apron at Farrington Highway widened to accommodate a fire apparatus. Improvements associated with the widening include removing guardrails at specified locations, removing and relocating a drainage headwall, and installing concrete aprons over sections of existing drain lines along the driveway shoulders."

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments and available strategies to support sustainable and healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page is continually updated so please visit it regularly at: http://health.hawaii.gov/epo/egis.

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at:
Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules (HAR), Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) (Hawaii Revised Statutes, Chapter 343) documents have been prepared.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We request that you utilize all this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design. Thank you for the opportunity to comment.

Mahalo nui loa,

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

LM:nn

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis
Attachment 2: Clean Water Branch: Water Quality Standards Map
Attachment 3: OEQC viewer (of past EA's, EIS's in area)
Attachment 4: U.S. EPA EJSCREEN Report for Project Area

c: Robert W. Purdie, Jr., DOE, (via email: robert_purdie@notes.k12.hi.us)
DOH: CWB, IRHB (via email only)

GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Studies

95-595 Kanamee St
#324
Mililani, Hawaii
96789

Telephone:
(808) 625-9626
e-mail:
gpark@gpup.biz

April 19, 2017

Laura Leialoha Phillips McIntyre AICP
Program Manager, Environmental Planning Office
PO Box 3378
Honolulu, Hawai'i 96801-3378

Dear Ms. McIntyre,

Subject: Waianae High School Connection of Buildings SP and T
TMK: 8-5-002: 018, 8-5-015: 001
EPO 17-061

Thank you reviewing the Draft Environmental Assessment prepared for the subject project. We offer the following responses in the order your comments were presented.

State and Federal Environmental Health Land Use Guidance

As disclosed in the Draft Environmental Assessment, during construction the general contractor will comply with Department of Health standard comments and public health regulations applicable to the project.

EPO GIS Website Page

Thank you for the information about the eGIS website.

Hawaii Environmental Health Portal

The Health Portal and its environmental data sources is a useful reference.

Clean Water Branch

A Grading and Drainage Plan will be prepared when the project transitions to the design phase. At that time the area to be disturbed will be delineated and a NPDES permit sought if the disturbed area exceeds one acre. The consulting civil engineer or the general contractor will apply for the permit.

Community Noise Control

The general contractor will apply for a noise permit prior to construction.

OEQC Viewer

The OEQC viewer is accessed when performing our due diligence. The OEQC Library is also a useful tool for viewing and downloading environmental documents.

EPA EJSCREEN

The EPA EJSCREEN is indeed a useful tool for assembling demographic and environmental indicators for communities or environs within a certain radius of a project.

Your letter has been passed on to the consulting architects for reference in their design processes.

The participation of the Environmental Planning Office in the environmental assessment review process is appreciated.

Regards,

GERALD PARK URBAN PLANNER

Gerald Park, Principal

c: B. Purdie, OSFSS
L. Ayers, WhiteSpace Architects

Gerald Park

From: Kuwaye, Kristen <kristen.kuwaye@hawaiianelectric.com>
Sent: Wednesday, March 29, 2017 2:32 PM
To: 'gpark@gpup.biz'
Cc: Liu, Rouen
Subject: Waianae High School Connection of Buildings SP and T

Kristen Kuwaye on behalf of Rouen Liu

Dear Mr. Gerald Park,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.
We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Waianae High School Connection of Buildings SP and T Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.
If you have any questions, please call me at 543-7245.

Sincerely,
Rouen Q. W. Liu
Permits Engineer
Tel: (808) 543-7245
Email: Rouen.liu@hawaiianelectric.com

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GERALD PARK
Urban Planner

Planning
Land Use
Research
Environmental
Studies

95-595 Kanamee St.
#324
Mililani, Hawaii
96789

Telephone:
(808) 625-9626
e-mail:
gpark@gpup.biz

April 19, 2017

Rouen Q.W. Liu, Permits Engineer
Engineering Department
Hawaiian Electric Company, Inc.
P. O. Box 2750
Honolulu, HI 96840-0001

Dear Mr. Liu:

Subject: Wai'anae High School Connection of Buildings SP and T
Tax Map Key 8-5-002: 018 and 8-5-015: 001
Wai'anae-Kai, District of Wai'anae, O'ahu, Hawai'i
Department of Education Job No. Q85002-15

Thank you reviewing the Draft Environmental Assessment for the subject project. Your statement that Hawaiian Electric Company has no objections to the project is acknowledged. There are electrical facilities in the project area and access will be continued for maintaining your facilities.

Design plans will be submitted to Hawaiian Electric for review and comment.

The participation of Hawaiian Electric Company in the environmental assessment review process is appreciated.

Regards,

GERALD PARK URBAN PLANNER

Gerald Park, Principal

c: B. Purdie, OSFSS
L. Ayers, WhiteSpace Architects