



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

RECEIVED

14 SEP 23 A9:35

OFC. OF ENVIRONMENTAL  
QUALITY CONTROL

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

September 3, 2014

FILE COPY

OCT 08 2014

Ms. Jessica Wooley, Interim Director  
Office of Environmental Quality Control  
State Office Tower  
235 South Beretania Street, Room 702  
Honolulu, Hawaii 96813

Dear Ms. Wooley:

Subject: **Finding of No Significant Impact (FONSI)**  
**He'eia Elementary School Covered Play Court**  
**Tax Map Key 4-6-031: 020**  
**He'eia, District of Ko'olau Poko, O'ahu, Hawaii**

The Department of Education, State of Hawaii, 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 edition of the Environmental Notice.

One printed copy of the Final Environmental Assessment and one CD with the document in .pdf format are attached. The Environmental Notice publication form will be emailed to OEQC.

Please call Mr. Dean Mizumura of the Department of Education, Project Management Section at 586-0467 if you have any questions.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael H. Shigetani".

Michael H. Shigetani  
Public Works Manager

MHS:lm

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

c: Dean Mizumura, Project Management Section

**AGENCY ACTIONS  
SECTION 343-5(B), HRS  
PUBLICATION FORM (FEBRUARY 2013 REVISION)**

**Project Name** He'eia Elementary School Covered Play Court  
**Island:** O'ahu  
**District:** Ko'olau Poko  
**TMK:** 4-6-031: 020  
**Permits:** Variance from Pollution Controls (Noise Permit)  
Grubbing, Grading, and Stockpiling  
Building Permit  
Certificate of Occupancy  
Waiver (Building Height)

**Proposing/Determination Agency:** Department of Education  
Facilities Development Branch  
1151 Punchbowl Street, Room 501  
Honolulu, Hawaii 96813

Dean Mizumura, Project Management  
586- 0457

**Consultant:** Gerald Park  
Gerald Park Urban Planner  
95-595 Kanamee Street No. 324  
Mililani, Hawaii 96789

**T: 625-9626**

*Address, Contact Person, Telephone)*

**Status (check one only):**

☒ FEA-FONSI

Submit the proposing agency notice of determination/transmittal on agency letterhead, a hard copy of the FEA, an OEQC publication form, along with an electronic word processing summary and a PDF copy (send both summary and PDF to [oeqchawaii@doh.hawaii.gov](mailto:oeqchawaii@doh.hawaii.gov)); no comment period ensues upon publication in the periodic bulletin.

**RECEIVED**

**14 SEP 24 AM 10:08**

**OFC. OF ENVIRONMENTAL  
QUALITY CONTROL**

**FILE COPY**

**OCT 08 2014**

**Summary** (Provide proposed action and purpose/need in less than 200 words. Please keep the summary brief and on this one page):

**The Department of Education proposes to construct a covered play court at He'eia Elementary School. The project will provide a covered facility where students can engage in outdoor play with minimal exposure to potential accidents caused by inclement weather. The structure also will serve as a covered, multi-purpose center for school activities and functions protected from frequent rain events.**

**The single-story structure will be located in an open area on the south side of the school grounds adjacent to an existing uncovered play court. The approximately 8,125 square foot structure will provide one regulation basketball court, one regulation volleyball court, four half-court basketball courts, and two side volleyball courts.**

**The cost of the project is estimated at \$2.0 million. Construction is projected to commence in Spring 2015 and completed by Spring 2016.**

FINAL ENVIRONMENTAL ASSESSMENT

---

**HE'EIA ELEMENTARY SCHOOL  
COVERED PLAY COURT**

*He'eia, Ko'olau Poko, O'ahu, Hawai'i*

DOE Job No. Q91001-13

---



Prepared for

**Department of Education**

State of Hawaii

Project Management Section

1151 Punchbowl Street, Room 431

Honolulu, Hawai'i 96813

**August 2014**



# FINAL ENVIRONMENTAL ASSESSMENT

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## ***HE'EIA ELEMENTARY SCHOOL COVERED PLAY COURT***

*He'eia, Ko'olau Poko, O'ahu, Hawai'i*

DOE Job No. Q91001-13

---

Prepared in Partial Fulfillment of the Requirements of Chapter 343, Hawaii Revised Statutes and  
Hawaii Administrative Rules Title 11, Chapter 200, Environmental Impact Statement Rules

Prepared for

**Department of Education**

State of Hawaii

Project Management Section

1151 Punchbowl Street, Room 431

Honolulu, Hawai'i 96813

By

**Gerald Park Urban Planner**

95-595 Kaname'e Street

Mililani, Hawai'i 96789

**YFH Architects, Inc.**

1100 Ward Avenue, Suite 760

Honolulu, Hawai'i 96814

**August 2014**

## PROJECT PROFILE

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Proposed Action:	He'eia Elementary School Covered Play Court DOE Job No. Q91001-13
Location:	He'eia, District of Ko'olau Poko, O'ahu, Hawai'i
Street Address:	46-202 Ha'ikū Road Kāne'ohe Hawai'i 96744
Proposing/Determining Agency:	Department of Education Facilities Development Branch 1151 Punchbowl Street, Room 501 Honolulu, Hawai'i 96813
Tax Map Key:	4-6-031: 020
Land Area:	517,055 square feet (11.87 acres)
Landowner:	City and County of Honolulu
Existing Use:	Public Elementary School
State Land Use Designation:	Urban
O'ahu General Plan:	Urban Fringe
<i>Sustainable Communities Plan:</i>	Ko'olau Poko
SCP Land Use Map:	Institutional
Zoning:	R-10
Special Management Area:	Outside Special Management Area
Need for Assessment:	Chapter 343, Hawai'i Revised Statutes §343-5 (a) (1) Propose the use of state or county lands or the use of state or county funds.
Determination:	<del>Anticipated</del> Finding of No Significant Impact
Contact Person:	Dean Mizumura, Project Coordinator Department of Education Project Management Section 1151 Punchbowl Street, Room 431 Honolulu, Hawai'i 96813  Telephone: 586-0467

**Note:** Substantive revisions to the text of the Draft Environmental Assessment are in ***bold italic*** type. Deleted text is in brackets with a ~~strikethrough~~.

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The Department of Education, State of Hawai'i, proposes to construct a multi-purpose covered play court at He'eia Elementary School located in the town of Kāne'ohe, District of Ko'olau Poko, City and County of Honolulu, O'ahu, Hawai'i. He'eia Elementary School ("He'eia Elementary") is bounded by Ha'ikū Road to the north, industrial and residential uses to the southeast and southwest, He'eia Neighborhood Park to the west, and a large paved parking lot to the east (Figure 1).

The property is identified as Tax Map Key 4-6-031: 020 encompassing an area of 517,055 square feet or 11.869 acres. A Tax Map is shown on Figure 2.

#### **A. Purpose and Need for the Project**

Located on the windward side of the Island of O'ahu, Kāne'ohe (to include He'eia Elementary) receives approximately 53 inches of rain annually. Rainfall is almost a daily occurrence during the school year (September through May) reducing the number days and times for outdoor recess and recreation. There is no other on-campus facility that can accommodate recess indoors thus children spend their recreation / play time in the classroom or under covered walkway areas.

A purpose of the project is to provide a covered facility where students can engage in outdoor play with minimal exposure to inclement weather conditions and potential accidents due to inclement weather. Secondly, the covered structure will serve as a covered, multi-purpose center for school activities and functions.

#### **B. Technical Characteristics**

##### **1. Covered Play Court**

A single-story structure with a building footprint of approximately 8,125 square feet (132'-0" X 70'-0") will be erected on the south side of the school grounds (See Figure 3). The new structure will be sited near an existing outdoor play court with a proposed 10-foot separation. One regulation basketball court, four half-court basketball courts, one regulation volleyball court and two side volleyball courts will be provided (See Figure 4). The court surface will be an all weather court surface per Department of Education standards. Finish floor elevation is set at 140.50 feet.

A presentation area will be located at the south end of the structure. It will be flush with the court surface and will not encroach into the court area.

The structure will be erected on a poured in place concrete foundation and floor, framed with steel posts and trusses, and topped with a pitched standing seam metal roof. Both ends of the structure where the performance area, storage room, electrical room, and bathrooms will be placed will be framed with cement masonry unit walls. Chain link fencing on the east and west sides of the structure will allow for ventilation and visual security.



Roof eaves on the east and west sides of the structure will extend over the walkways providing cover and helping to prevent rain from entering the play court (primarily from the windward direction).

Translucent siding spaced around the sides will allow natural light into the interior.

The height of the structure is approximately 30-feet measured from grade to top of roof. The structure exceeds the building height for the residential zoning district by approximately 5+ feet. Exterior elevations and building sections are shown on Figures 5 and 6, respectively. The Department of Education will seek a building height Waiver from the Department of Planning and Permitting City and County of Honolulu to allow the encroachment.

The structure is setback approximately 19 feet from the nearest property line on the west.

An Americans with Disability Act ("ADA") accessible walkway will connect the play court with nearby walkways. The new 6-foot wide walkway will be covered. Perimeter gates on two sides will provide access to the interior of the structure.

## 2. Circulation and Off-Street Parking

Changes to on-campus vehicle circulation and parking configurations are not proposed. Short-term modifications may be required to accommodate the movement of construction equipment and traffic to and from the building site.

A fire apparatus access driveway will be constructed from the southwest end of the existing parking area next to the cafeteria to the existing play court. The 20-foot wide driveway is approximately 60 feet in length (See Figure 7). ***The Honolulu Fire Department commented that a fire department access road and required fire flow from an approved water supply should be provided (Comment Letter, 2014).***

## 3. Infrastructure

Domestic water will be supplied from the existing on-campus water system. A new 2" line will tie into an existing 3" service line near Building "D".

Accessible boy's and girl's restrooms will be provided. A new 6" waste line will convey wastewater to an existing 6" lateral near Building "D".

Electrical power will be routed in underground conduits from the existing on-campus electrical system to an electrical room.

## 4. Demolition and Grading

The construction project limits is approximately 30,000 square feet which includes 9,250 square feet for the building site. For this assessment, the term building site is equivalent to the "footprint" of the covered play court structure and located within the demarcated project limits (See Figure 7).

The grass covered building site is free of above ground structures thus demolition *per se* will not be required. The level building site does not require extensive excavation and embankment work. Earth work quantities are estimated at removing approximately 350

cubic yards of material and importing 500 cubic yards of fill for topping off the ground surface. Areas disturbed by construction will be restored to pre-construction condition or better. A Grading Plan is shown on Figure 7.

#### 5. Landscaping

Aside from re-grassing areas adjoining the play court structure, landscaping is not proposed.

### **C. Economic Characteristics**

Construction costs are estimated at \$2.0 million and will be funded by the State of Hawai'i. A one phase construction timetable is proposed with construction projected to commence in Spring 2015 with completion by Spring 2016.

The 11.87 acre parcel (TMK 4-6-031: 020) is owned by the City and County of Honolulu.

### **D. Social Characteristics**

The outdoor play court will remain open for use during most of the construction period but will be closed during certain construction phases. Temporary use of the play courts at He'eia Neighborhood Park during school hours will be arranged with the Department of Parks and Recreation, City and County of Honolulu.

The covered structure will have an occupant capacity of 1,060 persons.

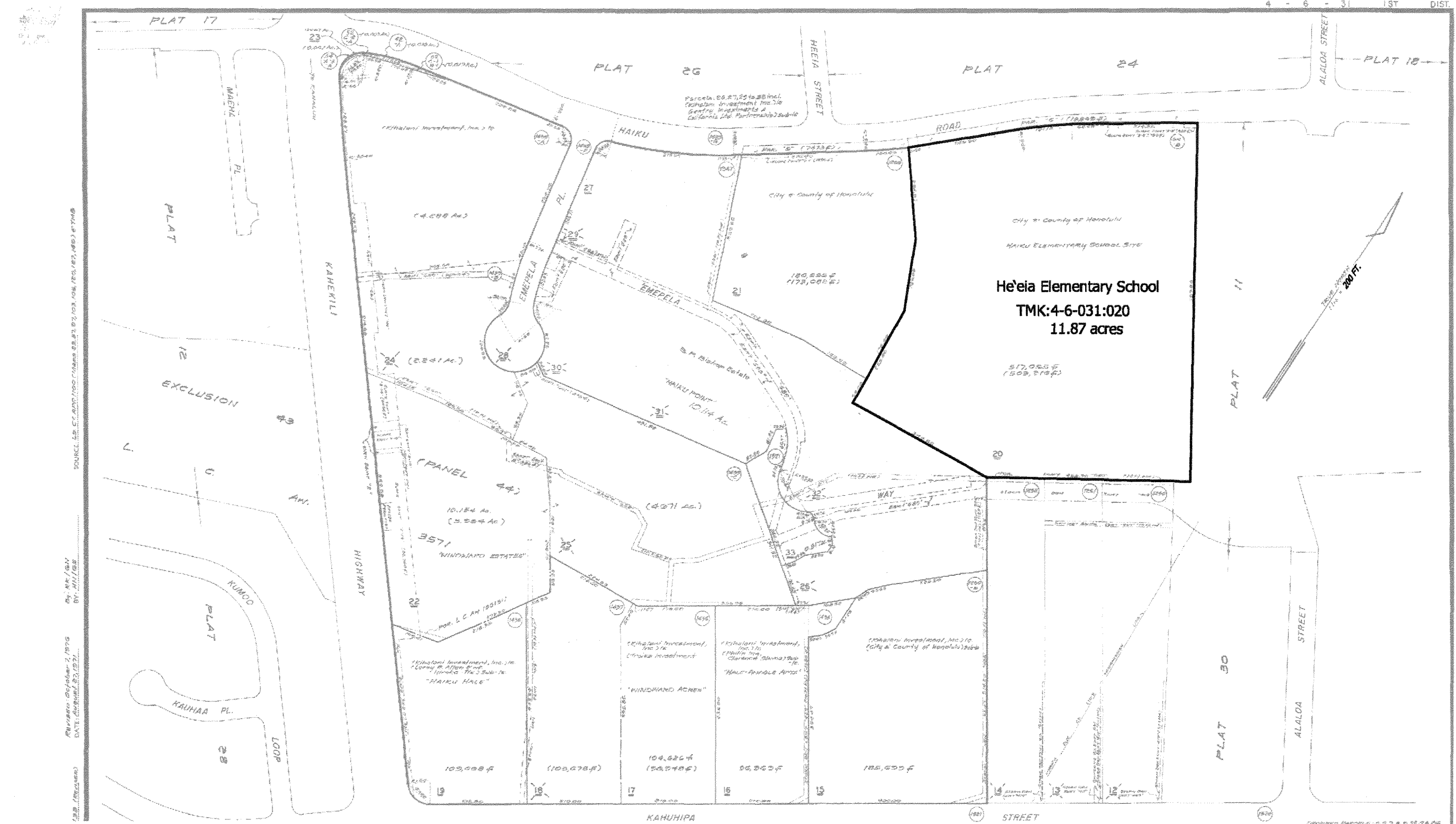
Additional staffing is not required. Use of the play court by grade level, day, and time will be scheduled by teachers and school administrators. Custodial staff will maintain the structure and open and secure the facility daily.





Figure 1  
Location Map  
He'eia Elementary School Covered Play Court





Source: City & County of Honolulu, <http://gisftp.hicentral.com/Taxmaps/>

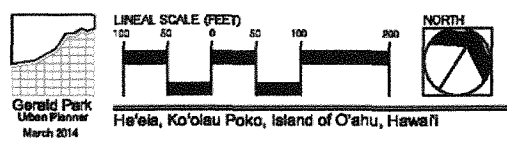


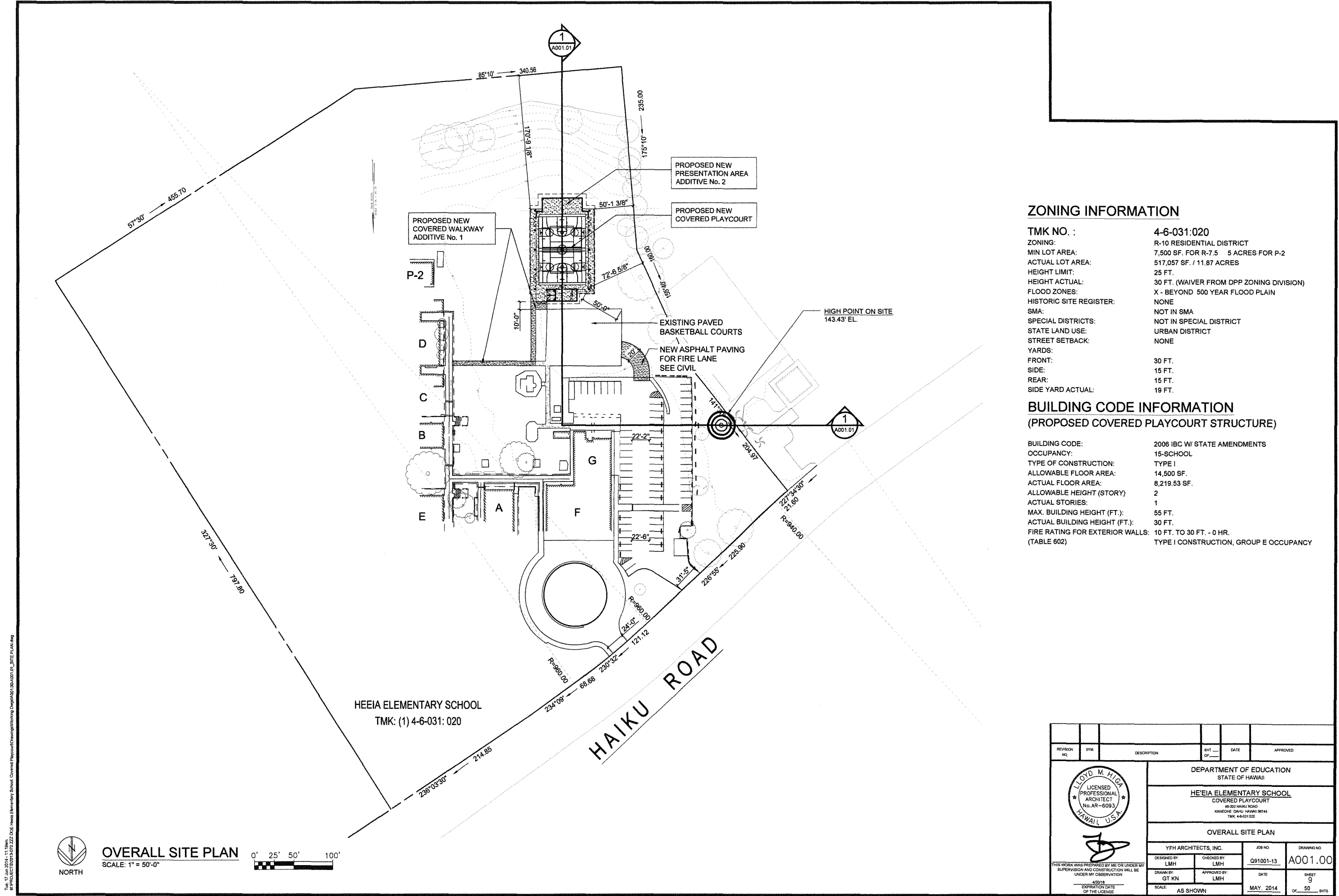
Figure 2  
Tax Map  
He'eia Elementary School Covered Play Court  
Department of Education, State of Hawaii

NOTE: All lots owned by A. P. Bishop unless otherwise noted.

DEPARTMENT OF TAXATION PROPERTY TECHNICAL OFFICE TAX MAPS BRANCH STATE OF HAWAII TAX MAP		
FIRST TAXATION DISTRICT		
ZONE	SEC.	PLAT
4	6	31

FOR PROPERTY ASSESSMENT PURPOSES  
SUBJECT TO CHANGE

SCALE: 1 IN. = 200 FT.



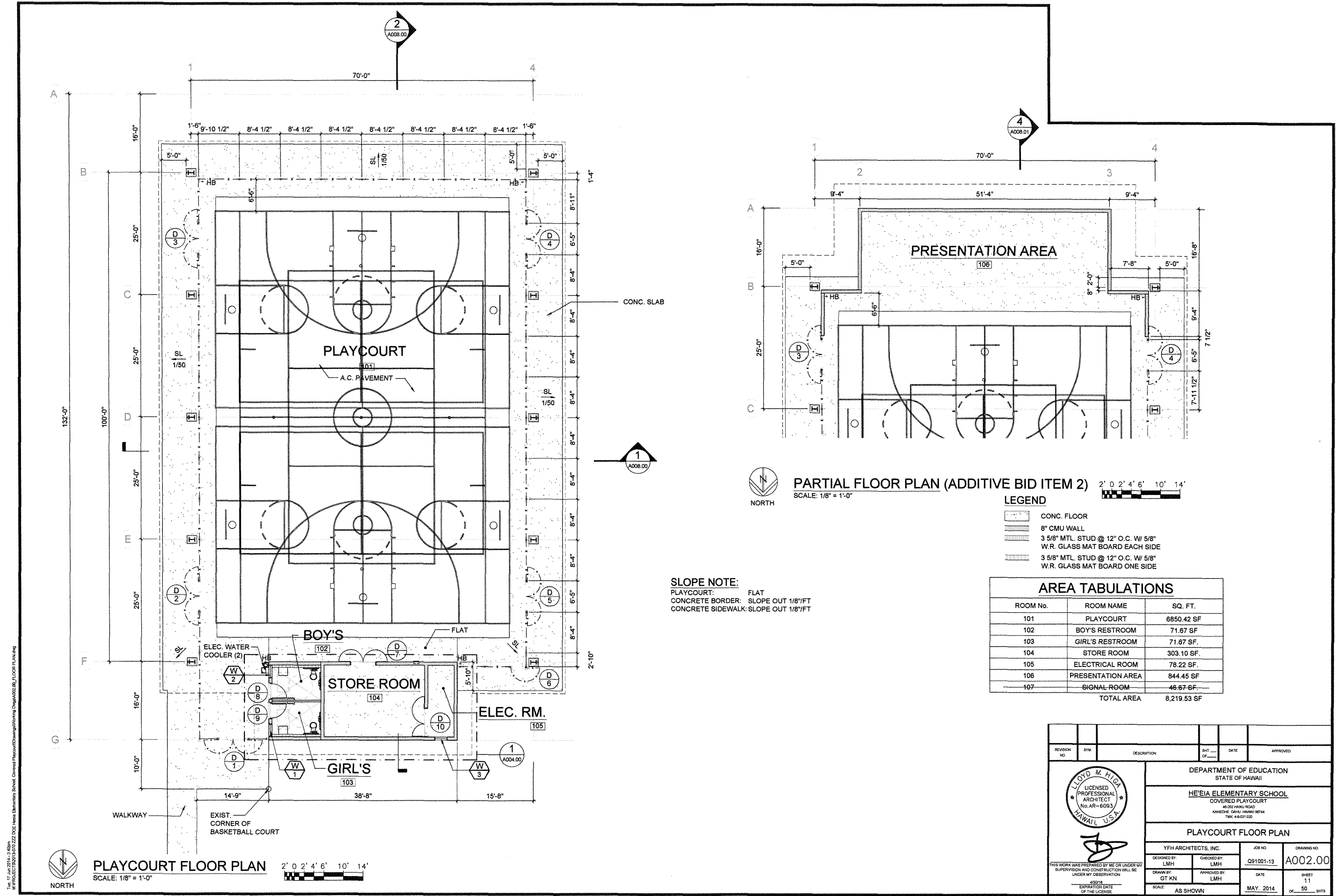
### ZONING INFORMATION

TMK NO. :	4-6-031:020
ZONING:	R-10 RESIDENTIAL DISTRICT
MIN LOT AREA:	7,500 SF. FOR R-7.5 5 ACRES FOR P-2
ACTUAL LOT AREA:	517,057 SF. / 11.87 ACRES
HEIGHT LIMIT:	25 FT.
HEIGHT ACTUAL:	30 FT. (WAIVER FROM DPP ZONING DIVISION)
FLOOD ZONES:	X - BEYOND 500 YEAR FLOOD PLAIN
HISTORIC SITE REGISTER:	NONE
SMA:	NOT IN SMA
SPECIAL DISTRICTS:	NOT IN SPECIAL DISTRICT
STATE LAND USE:	URBAN DISTRICT
STREET SETBACK:	NONE
YARDS:	
FRONT:	30 FT.
SIDE:	15 FT.
REAR:	15 FT.
SIDE YARD ACTUAL:	19 FT.

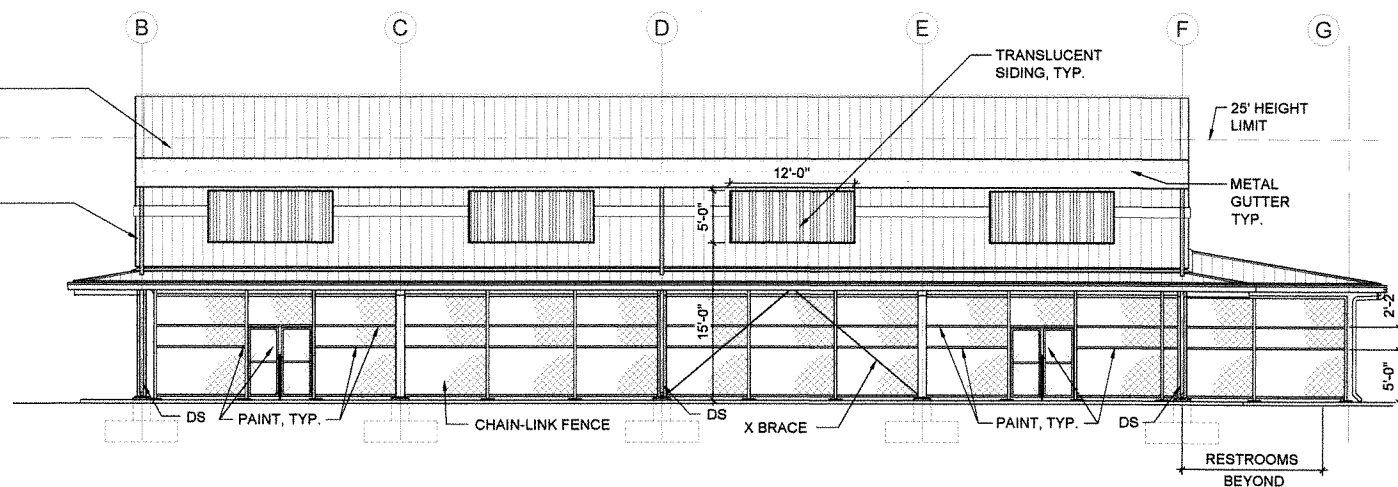
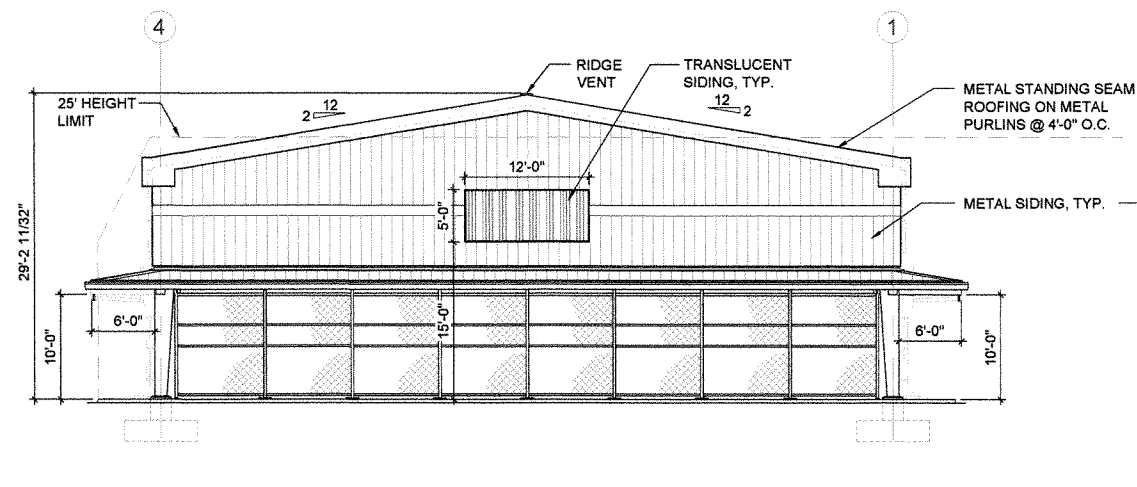
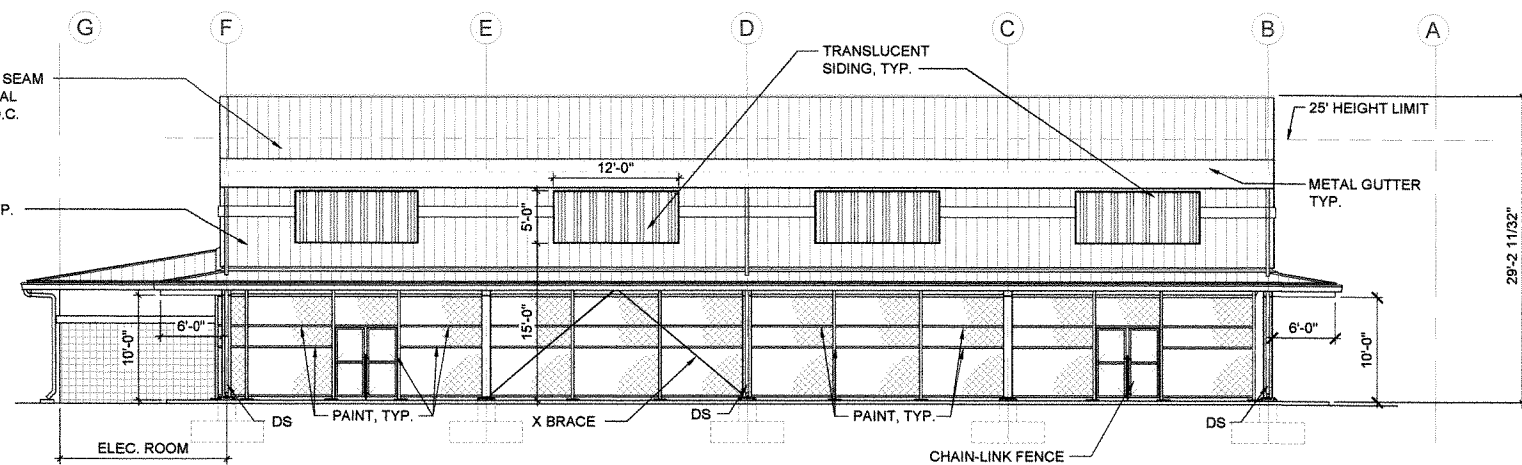
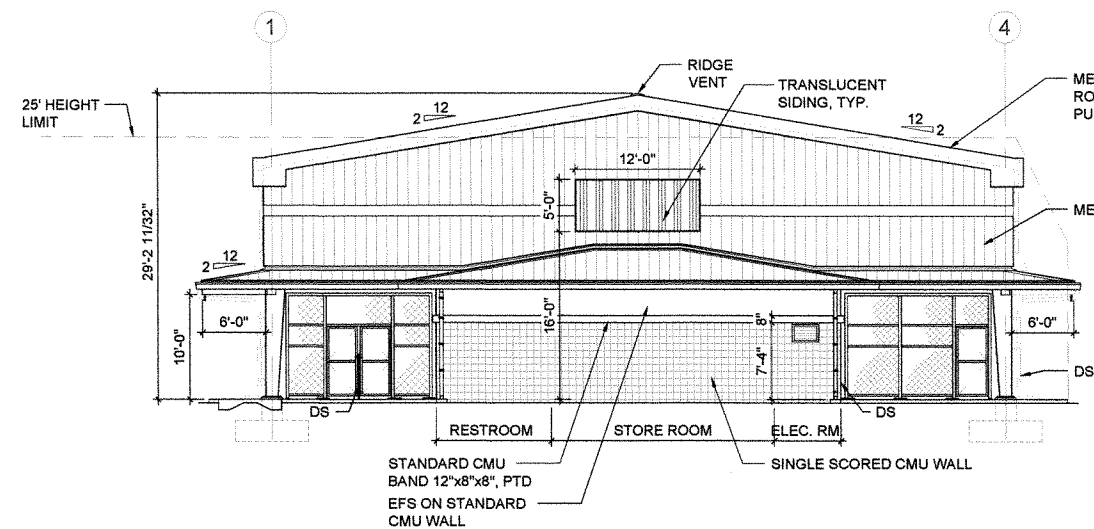
### BUILDING CODE INFORMATION (PROPOSED COVERED PLAYCOURT STRUCTURE)

BUILDING CODE:	2006 IBC W/ STATE AMENDMENTS
OCCUPANCY:	15-SCHOOL
TYPE OF CONSTRUCTION:	TYPE I
ALLOWABLE FLOOR AREA:	14,500 SF.
ACTUAL FLOOR AREA:	8,219.53 SF.
ALLOWABLE HEIGHT (STORY):	2
ACTUAL STORIES:	1
MAX. BUILDING HEIGHT (FT.):	55 FT.
ACTUAL BUILDING HEIGHT (FT.):	30 FT.
FIRE RATING FOR EXTERIOR WALLS:	10 FT. TO 30 FT. - 0 HR.
(TABLE 602)	TYPE I CONSTRUCTION, GROUP E OCCUPANCY

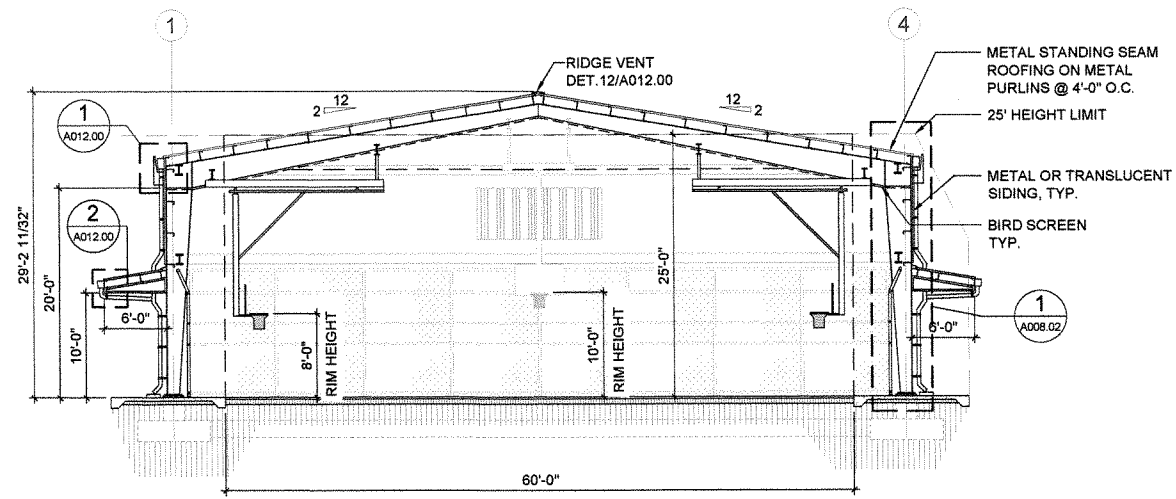
Figure 3



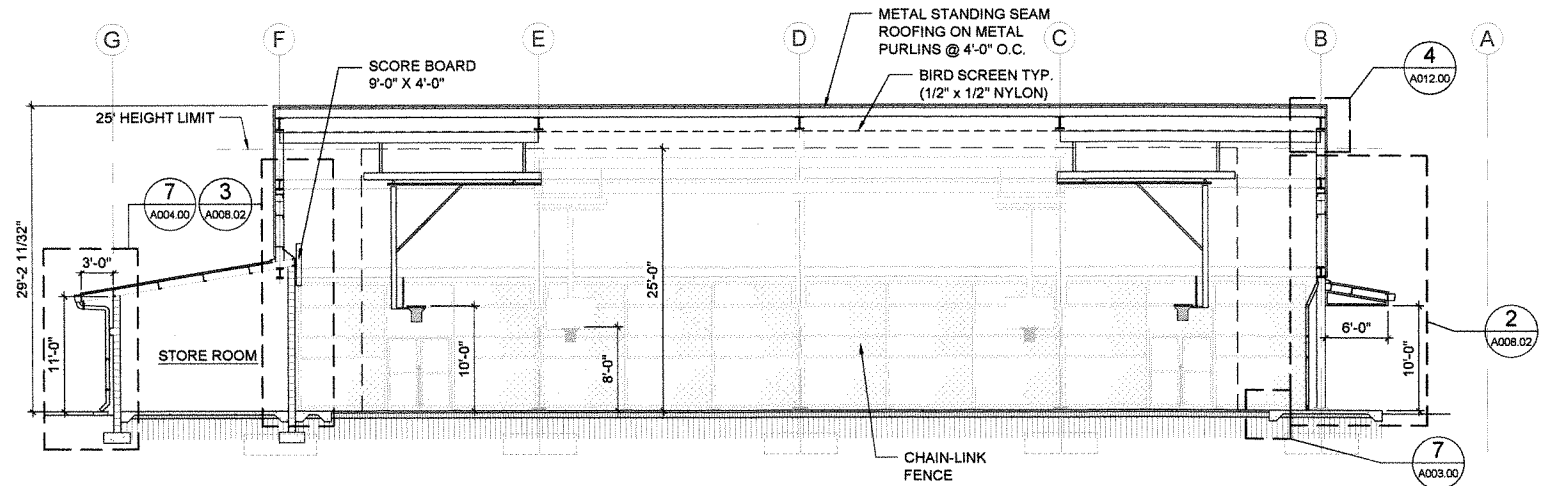




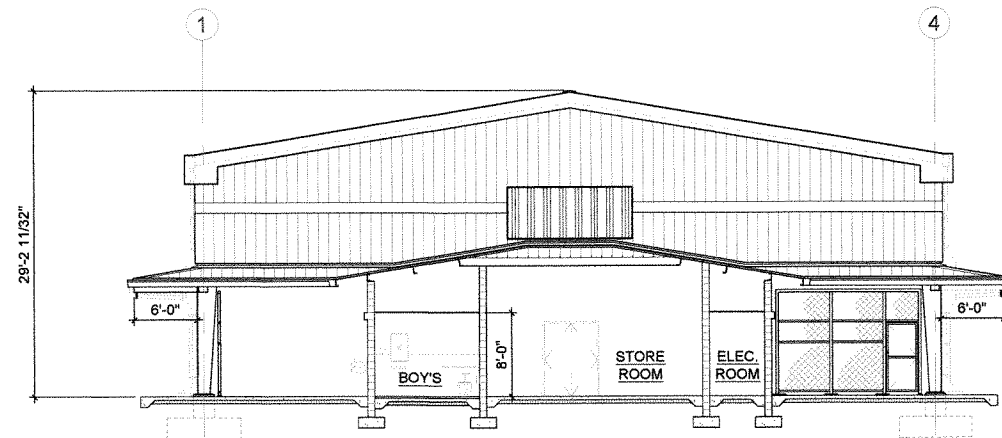
REVISION NO.	BY	DESCRIPTION	SHT. OF	DATE	APPROVED
<div style="display: flex; justify-content: space-between;"> <div> <p><b>LLOYD M. HIGA</b> LICENSED PROFESSIONAL ARCHITECT No. AR-6093 HAWAII, U.S.A.</p> </div> <div> <p>DEPARTMENT OF EDUCATION STATE OF HAWAII</p> <p><b>HE'IA ELEMENTARY SCHOOL</b> COVERED PLAYCOURT 46-323 HAKU ROAD KANEOHE OAHU HAWAII 96744 TRK 4-6-031.025</p> </div> </div>					
<p>EXTERIOR ELEVATIONS</p>					
<p>YFH ARCHITECTS, INC.</p>			<p>JOB NO. Q91001-13</p>		<p>DRAWING NO. A007.00</p>
<p>DESIGNED BY: LMH</p>		<p>CHECKED BY: LMH</p>		<p>DATE: MAY 2014</p>	
<p>DRAWN BY: GT KN</p>		<p>APPROVED BY: LMH</p>		<p>SHEET 16 OF 50 SHTS</p>	
<p>SCALE: AS SHOWN</p>					



**1 SECTION**  
A008.00 SCALE: 1/8" = 1'-0"



**2 SECTION**  
A008.00 SCALE: 1/8" = 1'-0"



**3 SECTION**  
A008.00 SCALE: 1/8" = 1'-0"

REVISION NO.	SYM.	DESCRIPTION	SHT. OF	DATE	APPROVED
<div style="display: flex; justify-content: space-between;"> <div> <p><b>LLOYD M. HIGA</b> LICENSED PROFESSIONAL ARCHITECT No. AR-6093 HAWAII, U.S.A.</p> <p><i>[Signature]</i></p> <p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION WILL BE UNDER MY OBSERVATION</p> <p>EXPIRATION DATE OF THE LICENSE</p> </div> <div> <p>DEPARTMENT OF EDUCATION STATE OF HAWAII</p> <p><b>H'E'IA ELEMENTARY SCHOOL</b> COVERED PLAYCOURT 46-000 HAKU ROAD KANEHUE, OAHU, HAWAII 96744 TMK: 4-6-011-020</p> <p>BUILDING SECTIONS</p> <p>YFH ARCHITECTS, INC.</p> <p>DESIGNED BY: LMH CHECKED BY: LMH DRAWN BY: GT KN APPROVED BY: LMH SCALE: AS SHOWN</p> <p>JOB NO. Q91001-13 DATE MAY, 2014</p> <p>DRAWING NO. A008.00 SHEET 17 OF 50 SHEETS</p> </div> </div>					

Figure 6

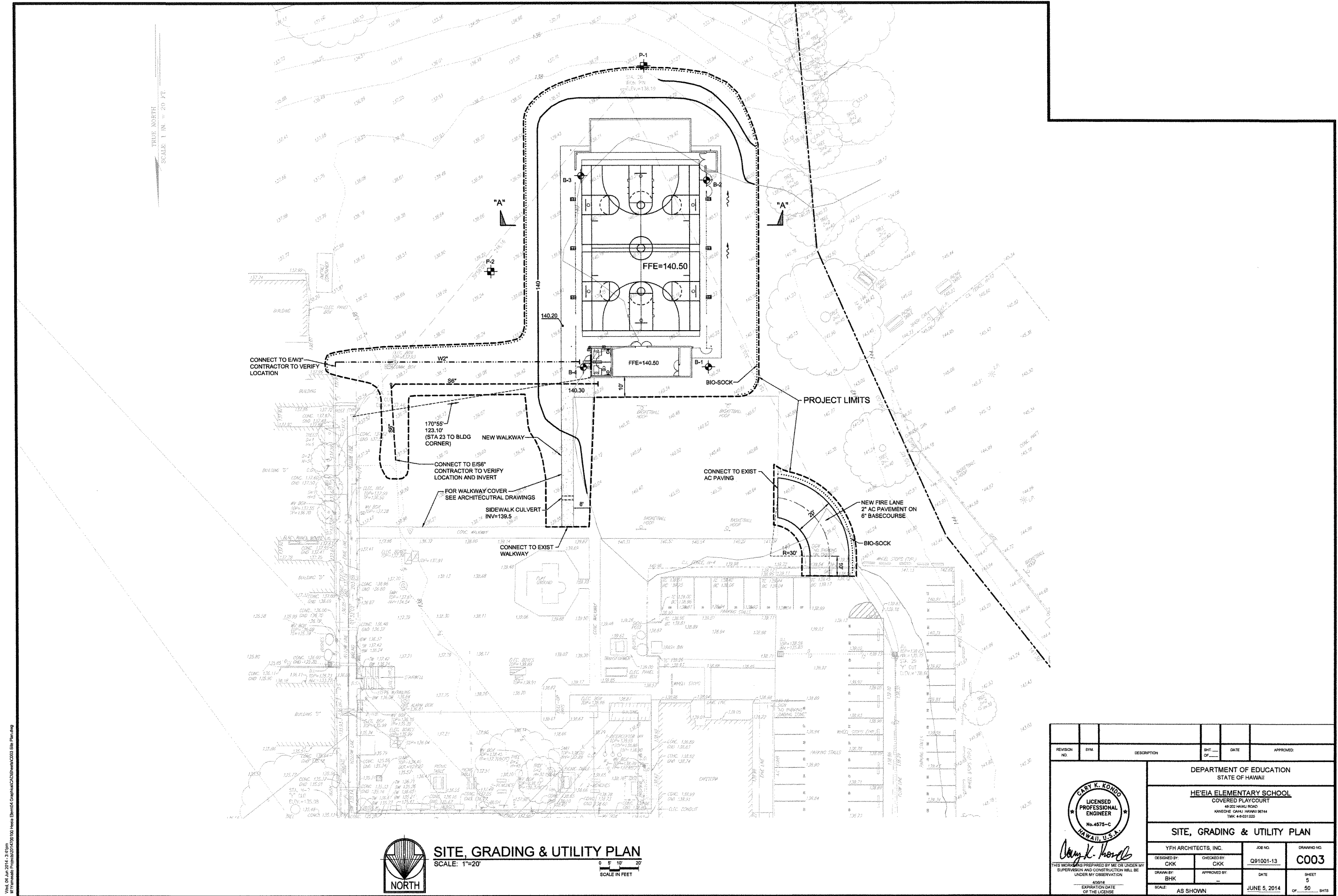


Figure 7

## 2

## DESCRIPTION OF THE AFFECTED ENVIRONMENT

### A. Background Information

He'eia Elementary School opened for instruction in 1960 with the construction of three permanent buildings (a cafeteria and two classroom buildings) serving grades K to 6. Four other permanent buildings later were constructed between 1961 and 1971. No permanent structure has been erected since 1971. Single portable classrooms were placed on the campus in 1994, 1996, and 1999. Existing structures and uses are listed in Table 1.

Table 1. Structures at He'eia Elementary School

Building	Function	Levels	No. Classrooms	Year Built
A	Library	1	None	1961
B	Classroom	2	12	1960
C	Classroom	2	12	1961
D	Classroom	2	8	1971
E	Administration	1	4	1960
F	Dining Room	1	None	1971
G	Cafeteria	1	None	1960
P1- P3	Portable Classroom	1	3	'94, '96, '99

Source: Department of Education Facilities Inventory System Report, 2006.

Three buildings --- the Administration Building, Library, and Multi-purpose Dining Room --- are arrayed at the front of the school. Three classroom buildings (Buildings "B", "C", and "D") are aligned north to south behind the Administration Building. The Cafeteria is attached to the back of the Multi-purpose Dining Room. Three portable classrooms adjoin Building "D" on the south.

An outdoor, uncovered basketball court with two courts is located at the back of the school. The 3,870 square foot court is bordered by a grassed, open field on the east used by students for physical education classes and free play. A play apparatus for younger children is located about 40 feet to the northeast and a service path for maintenance vehicles passes to the west.

Parking stalls for 80 vehicles are located at the front of the dining room and west side of the Cafeteria. Four accessible stalls are located fronting the dining room. One loading zone is at the rear of the Cafeteria.

The school is part of the Department of Education's Windward District Castle-Kahuku Complex Area. He'eia Elementary is part of the Castle Complex which includes 'Āhuimanu, Kāhala'u, Kāne'ohe, Kapunahala, Parker, Pū'ōhala, and Waiāhole Elementary Schools. King Intermediate and Castle High School are upper level schools in the complex. In general, elementary schools "feed" students into the King Intermediate which "feed" students into Castle High School.

He'eia Elementary operates as a traditional school. The school year runs from early August to the end of May. Approximately 75 persons staff the school including the Principal and



support staff, grade level faculty and special education teachers, before and after school programs staff, and pre-K instructors and aides.

The school reports a current enrollment of 487 students in grades K-6 including regular (416 students), special education (52 students), and pre-K (19 students). The design enrollment is 800 students (DOE, 2006).

A Before School Morning Care (6:00 am to 7:45 am) and After School A+ (2:05 pm to 5:30 pm) programs operate on school days.

School buses drop off students at approximately 7:15 AM and return for pick-ups at about 2:05 PM. An area for school buses is located next to the school on the Kailua side of Ha'ikū Road.

## **B. Environmental Characteristics**

### **1. General**

Located on the south side of the school grounds, the building site is bounded by existing outdoor basketball/volleyball courts on the north, structures comprising a multi-family residential development on the south, a grassed open lawn on the east, and He'eia Neighborhood Park on the west. The building site is part of an expansive grass lawn used for open play by students. There are no structures on the building site (See Photograph 1).



Photograph 1. Approximate Location of Covered Play Court Looking West. Existing Outdoor Court on the Right. He'eia Neighborhood Park in the Background.

Monkey pod and silky oak trees growing on the school property and the adjoining multi-residential development on the south and city park on the west form a dense stand of tree growth. The stand measures between 50 to 100 feet wide.

## 2. Climate

He'eia's climate can be characterized as semi-tropical with warm summer and winter months. The warmest months are from June to November where daytime temperatures are near 81° F. The coolest months are from December to April where nighttime temperatures average 68° F.

Average annual rainfall is about 75 inches indicating that He'eia is fairly wet. High rainfall is in the windward districts of Ko'olau Poko and Ko'olauloa is attributable in part to orographic conditions created by moisture laden northeasterly trade winds ascending the Koo'loau Range.

## 3. Topography

The entire site has been modified by construction of buildings, walkways, impervious pavements, and grassed lawns. Ground elevation ranges from a high of 144 feet above mean sea level in the northwest corner next to Ha'ikū Road a low of 128 feet near the south property line. In general, the property slopes from northwest to south.

The building site has been graded, grassed and is currently maintained as a mowed lawn. Ground elevation averages elevation 140 feet across the building site. At the rear of the proposed structure, ground elevation drops 12 feet to elevation 128 feet.

## 4. Soils

The Soil Conservation Service (1972) soil map for the area identifies two soil types occurring across the property --- Lolekaa silty clay, 25 to 40 percent slopes (Code: LoE) and Hanalei silty clay, 2 to 6 percent slopes (Code: HnB). Lolekaa Clay is mapped over an estimated 90% of the site with Hanalei clay comprising the remaining 10%. The latter soil is found only along the southern edge of the property.

Site improvements probably have blurred the distinctions between the soil types. More than likely the existing surface and part of the subsurface soil is a mixture of soil types, imported engineered fill, and imported topsoil.

## 5. Hydrology

### a. Surface Water

There are no surface water features on the premises. Kea'ahala Stream flows west to east (or *mauka* to *makai*) about 150 feet south of the school.

### b. Ground Water

Kāne'ohe overlies what Mink and Lau (1990) classify the Koolaupoko aquifer. They further characterize the aquifer as a high level, unconfined, dike aquifer, low in salinity and providing fresh drinking water. It is considered to be irreplaceable as a source of fresh water and highly vulnerable to contamination (See Table 2).



**Table 2. Aquifer Classification**

<b>Aquifer Code</b>	<b>30603212</b>
Island Code	3 - Oahu
Aquifer Sector	06 - Windward
Aquifer System	03 - Koolaupoko
Aquifer Type, hydrogeology	2 – High Level
Aquifer Condition	1 - Unconfined
Aquifer Type, geology	2 - Dike
<b>Status Code</b>	<b>11111</b>
Development Stage	1 – Currently Used
Utility	1 - Drinking
Salinity	1 – Fresh (<250)
Uniqueness	1 - Irreplaceable
Vulnerability to Contamination	1 - High

Source: Mink and Lau, 1990.

## 6. Flood Hazard

The Flood Insurance Rate Map (“FIRM”) panel for this section of Kāne’ohe places the school site in a flood zone area designated “Other Areas, Zone X”. This designation is defined as “areas determined to be outside the 0.2% annual chance floodplain (Federal Emergency Management Agency, 2011).” The 0.2% annual chance floodplain is the 500 year floodplain. The FIRM panel is shown on Figure 8.

## 7. Biological Resources

The building site is a grass covered lawn. No other maintained landscape plantings are associated with the building site.

Monkey pod trees generally follow the property line between the school and city park on the west. On the south, silky oak trees intermixed with landscape plantings and trees at the adjoining multi-family residential development form a dense stand of trees. Ipomea grows on chain link fencing marking the property boundaries on the west and south.

Terrestrial fauna was not observed at the time of the field investigation for this assessment. A leashed dog was observed at the city park and domestic dogs and cats are probably kept in residential areas adjoining the school. Mongoose probably inhabits the stand of trees and vegetation growth to the southwest and south.

Common birds including mynah, barred dove, sparrow, pigeon, cattle egret, and Brazilian cardinal were observed. Pacific golden plover have been observed frequenting the grassy lawn at the back of the school (Comment from the He’eia Elementary School Principal and Vice-Principal).

## 8. Archaeological Resources

Cultural Surveys Hawaii (2014) conducted a Literature Review and Field Inspection of the site of the proposed play court. Their report is appended to this environmental







assessment as Appendix A. Excerpts from their investigation are presented below. The figure numbers cited in the excerpt refer to the Literature Review and Field Inspection and not those in the environmental assessment.

“Historic records indicate that coastal He’eia was particularly densely inhabited which is reflected for example in the density of LCAs in the vicinity of He’eia Elementary School (see Figure 8). Research indicates however that there were no *maka’āinana kuleana* LCAs at the location of the present school campus. This may be because the school campus lies on a low ridge between areas of better watered, more fertile bottom lands.

The project area is well back from the coast and is not immediately adjacent to any fresh water. Houses are indicated at the present He’eia Elementary School campus by 1919 (see Figure 11) but there do not appear to have ever been houses at the present project location per se.

Field inspection indicates the project area is presently a mowed lawn (see Figure 19 through Figure 22) with no indication of any subsurface historic properties likely to be present in the silty clay soils.

Because the school is more than 50 years old, early consultation with the SHPD architecture branch is recommended to ensure there are no concerns for adverse impacts to the school itself as a possible architectural historic property.”

## 9. Cultural Resources

Excerpts from a cultural impact evaluation conducted as part of the Literature Review and Field Inspection Report is presented below.

### a. Contemporary Landscape Description for the Project Area

The project area is adjacent to paved basketball courts used by the He’eia Elementary School children and is presently a mowed field used by the school children for general recreation. The project area is in short grass lawn with bare patches of silty clay at 3 to 8% slopes visible. There are no constructions within the project area per se. The project area was almost certainly graded at the time the school was established (1960).

### b. Traditional Cultural Landscape Description of the Project Area

The project area lies within the traditional area of Kikiwelawela ‘Ili of He’eia Ahupua’a approximately 1.1 km. inland (southwest) from the coast of Kāne’ohe Bay. While He’eia was known as an *‘Āina momona* or “land of abundance” for its well watered taro fields, fishponds, and extensive reefs, the specific area of the future He’eia Elementary School campus was not a part of any *maka’āinana kuleana* Land Commission Award claims. Possibly this is because the school campus location lies on something of ridge separating it from well watered agricultural lands to the northwest and northeast. The LCA claims located nearest to the project area indicate the land at the time of the Kuleana Act (1852) was used primarily for *lo’i* cultivation and house lots. It is not clear that there was ever a structure in the project area per se or any specific land use prior to the establishment of the school.

#### c. *Wahi Pana* (Storied Places)

Storied places or *wahi pana* of He'eia include Mōkapu peninsula and Moku o Lo'e island, the extensive coral reefs and fishponds (particularly He'eia Fishpond), and the inland *pali* and caves of 'Ioleka'a. None of these *wahi pana* is believed to be within a kilometer of the He'eia Elementary School campus. Perhaps the closest *wahi pana* would have been Kaulaukī Heiau (SIHP # 50-80-10-328, approximately 1.1 km northwest of the project area), a *heiau* "of good size" (McAllister 1933:173). This modest school playcourt project would have no effect on the *wahi pana* of He'eia.

#### d. Trails

The map of He'eia by Baldwin and Alexander in 1913 (see Figure 10) shows an alignment approximating present day Ha'ikū Road that bounds the He'eia Elementary School campus on the northwest side, descending down to a coastal road approximating contemporary Kamehameha Highway. These may well have been the major *mauka/makai* and cross-*ahupua'a* trails of He'eia Ahupua'a and remain major public thoroughfares to this day. The playcourt project would have no effect on these probable early trail alignments.

#### e. Burials

Few burials have been reported from the general vicinity of the project area. Human remains were documented near the mouth of He'eia Stream (Ota and Kam 1982) and eroding from a shoreline bank at He'eia State Park (Kawachi and Yent 1990) both more than a kilometer and a half to the north. Perhaps the major burial ground at Mōkapu peninsula was indeed the preferred resting place for the departed of He'eia.

#### f. Archaeological Sites

No traditional Hawaiian archaeological sites have been reported from the vicinity of the present project area in the archaeological literature. The nearest archaeological sites are former taro and rice terraces (Hammatt and Borthwick 1990).

#### g. Traditional Gathering Practices

It is likely that if *pili* (*Heteropogon contortus*) grass grew in the vicinity (none grows there now) that it would have been gathered but few other resources appropriate for gathering seem likely. A field inspection of the project area indicated only a mowed lawn of exotic grasses.

### C. Land Use Controls

The State Land Use Commission under the authority of Chapter 205, Hawai'i Revised Statutes classifies all land in the State of Hawai'i as Agricultural, Conservation, Rural, and Urban. Uses in the Agricultural District are regulated by the Land Use Commission; uses in the Conservation District by the Board of Land and Natural Resources, uses in the Rural District by the Land Use Commission, and uses in the Urban District by the respective county government. The zoning powers of the respective counties also govern uses in other than the Conservation District.

- Developed areas around He'eia Elementary School are classified Urban by the State Land Use Commission.

The use of Urban designated land is under the authority of the City and County of Honolulu and its applicable plans, ordinances, and regulations. City land use policies and controls for O'ahu are vertically aligned or tiered for managing growth and land uses beginning with the General Plan for the City and County of Honolulu ("General Plan"), community development plans and sustainable community plans, and zoning. Special districts and special management area rules provide supplementary controls for defined areas where man-made features and natural resources should be protected and managed.

The General Plan for the City and County of Honolulu ("General Plan") is the first tier. It sets forth broad objectives and policies in eleven functional areas such as Economic Activity, Natural Environment, Energy, Physical Development and Urban Design, and Public Safety. The Population component and its objectives and policies are keys to managing growth. The component establishes a population distribution pattern for eight geographic regions comprising the county. Each region has an upper and lower limit (percentage) of the islandwide population for a targeted year (currently 2025).

The General Plan also includes a General Plan Development Pattern Map depicting the eight districts and the desired development pattern for and within the respective district.

- Kāne'ohe Town is in the Windward O'ahu region of the island and the development pattern is to maintain developed areas within the region as "Urban-Fringe".

Development Plans or Sustainable Communities Plans prepared for the eight geographic regions in the County comprise the second tier. Although encompassing eight regions where each area's values, vision, and policies for accommodating growth are different, the plans collectively support the General Plan. The Ko'olaupoko *Sustainable Communities Plan* (2000) 1) describes the role of Ko'olaupoko in Oahu's development pattern, 2) articulates a vision for the district to the year 2025, 3) prescribes land use development and infrastructure policies, and 4) describes means for implementing the plan (DPP, 2000).

The Ko'olaupoko SCP reaffirms the directed growth policies of the General Plan. The Plan acknowledges that growth will take place and establishes a Community Growth Boundary encircling the entire district. The boundary identifies areas where growth and infill can occur (inside the boundary) and areas where agriculture, open space, and natural resources should be maintained and preserved (areas outside the boundary).

- Kāne'ohe Town including He'eia Elementary School is inside the Community Growth Boundary.

The Urban Land Use map component of the Ko'olaupoko SCP designates the site of He'eia Elementary School Institutional.

The Plan also posits policies and planning principles for school facilities in the region. As written, the policies do not apply to the proposed project. A section of the Plan, however, talks about institutional campuses which includes He'eia Elementary as a secondary campus. Policies and guidelines (paraphrased) that may apply to the project are:

- **Existing Campuses.** Existing institutions may expand facilities and programs within the campuses they presently occupy (Section 3.8.1 Overview).
- Vary the architectural character, depending on theme and purpose of the use. Portions of buildings that are adjacent to or readily visible from residential areas should reflect a more residential character; or be screened from view from such areas by landscaping (Section 3.8.3 Guidelines).
- Building heights should not exceed two to three stories or 40 feet, including the roof form. Height setback transitions should be provided from street frontages, the shoreline, and adjacent residential areas (Section 3.8.3 Guidelines).

Zoning comprises the third tier of the City's land use management system. As shown on zoning maps, land in the county is zoned for certain uses and density (for example R-5 Residential with a minimum lot size of 5,000 square feet). The Land Use Ordinance (which incorporates the zoning maps) prescribes the types of uses permitted in zoning districts and associated development standards. The LUO also establishes requirements for parking, specific use standards, signs, development in flood districts and special districts, and administration and enforcement procedures.

- The school property is zoned R-10 Residential (See Figure 9). Public uses and structures are permitted in the zoning district pursuant to Article 3, Table 21.3 Master Use Table of the Land Use Ordinance, City and County of Honolulu.

#### **D. Public Facilities and Services**

Ha'ikū Road, a paved four-lane, two-way, undivided, County road passes to the north of the school connecting Kamehameha Highway on the east and Kahekili Highway on the west. Within its 50-foot right-of-way, the road is fully improved with curbs, gutters, and sidewalks on both sides. On-street parking is permitted on both sides of the street. The posted speed limit is 25 mph fronting the school and Ha'ikū Neighborhood Park.

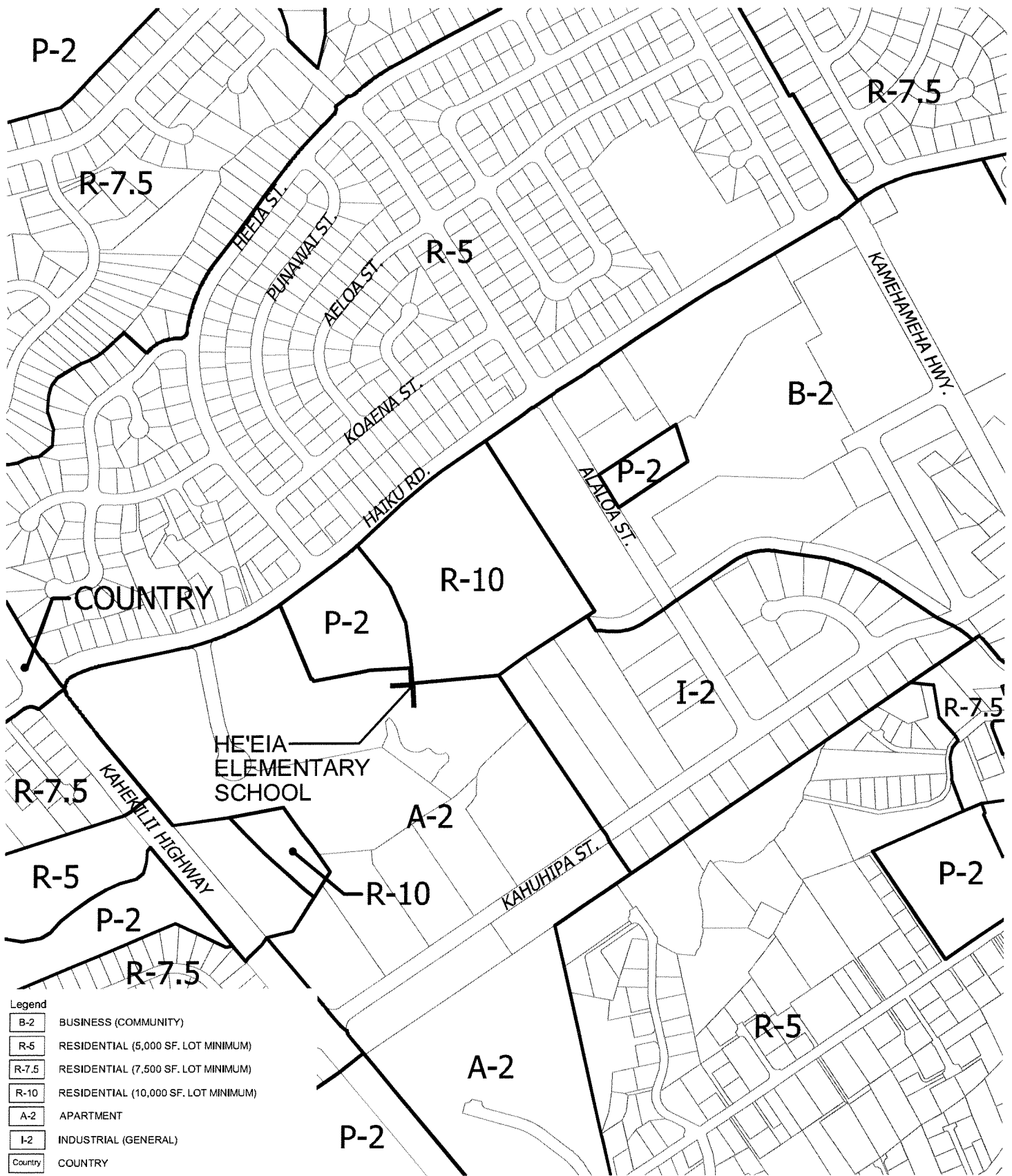
Vehicle access to the school is provided by two driveways. One two-way driveway leads to a large employee parking lot on the west side of the cafeteria and a second one-way driveway accesses a circular turnaround at the front of the school for dropping off / picking up students.

A school bus drop off/pick-up is located on the Kailua side of Ha'ikū Road *makai* of the turnaround. Bus movement is one-way in and one-way out. A covered shelter and shade trees provide relief from inclement weather and the hot sun for bus riders.

Bikeway or bike lanes on either side of Ha'ikū Road are not provided but Bike Route signs are posted on both sides of the road. "SCHOOL XING" is painted on the *mauka* bound lane between the two driveways into the school.

Domestic water is provided by an 8" Board of Water Supply main in Ha'ikū Road. From the water main, a 4" lateral connects to a 2" water meter from which water is distributed to the entire school. ***The Board of Water Supply commented that the existing water system is adequate to accommodate the proposed school facility (Comment Letter, 2014).***





Source: City & County of Honolulu, Department of Planning & Permitting  
Zoning Map 20, Ord. 86-121, Oct. 22, 1986

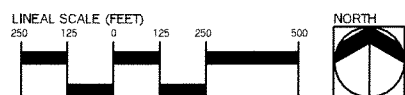


Figure 9  
Zoning Map  
He'eia Elementary School Covered Play Court

The school is served by the municipal wastewater system. Wastewater discharges into one or two sewer manholes along the south property line. The manholes are connected by a 12" VC main.

The building site and adjoining open lawn area are graded to slope towards the southwest corner of the school grounds. Drainage structures were not observed on the building site. The entire outdoor play court is raised slightly above grade and sloped to drain onto the grass lawn. Sections of the city park nearest the school are sloped to drain in the direction of the school and the parking lot. A gated service entrance located at the south end of the parking lot is sloped to drain towards the parking lot. A shallow concrete swale conveys surface water into a drain inlet about 50 feet north of the service entrance..

Electrical, communication, and street lights are provided from distribution systems on the north side of Ha'ikū Road. Electrical distribution lines from the road into the school grounds are placed underground.

Police protection originates from the Kāne'ohe Police Station located on Kamehameha Highway and fire protection from the Kāne'ohe Fire Station also on Kamehameha Highway. The police and fire stations are located across the street from each other about 1.0 miles from the school via Ha'ikū Road and Kamehameha Highway.

He'eia Neighborhood Park, a city park, adjoins the school on the west. Improvements at the 3.97 acre park include a comfort station, two outdoor basketball courts, one volleyball court, softball field, children's play apparatus, picnic facilities, and limited off-street parking. The basketball and volleyball courts are lighted for night use but the softball field is not. The park is under the jurisdiction of the Department of Parks and Recreation, City and County of Honolulu.

### 3

## SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

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The scope of the project was discussed with the consulting architect and design team, staff of the Facilities Development Branch, Department of Education, and the Principal and Vice-Principal of He'eia Elementary School. State and County agencies were contacted for information relative to their areas of expertise. Time was spent in the field noting conditions at the building site, the school grounds, and in the vicinity of the school. The sum total of the consultations and field investigations helped to identify existing conditions and features that could affect or be affected by the project. These conditions include:

- The building site for the covered play court is a maintained grass lawn;
- There are no structures on the building site;
- Rare, threatened, or endangered flora or fauna were not observed on or near the building site;
- There are no archaeological resources associated with He'eia Elementary School;
- There are no on-going cultural practices associated with He'eia Elementary School;
- He'eia Elementary School is not located in a flood hazard area; and
- There are no streams, ponds, or wetlands on the school property.

### **A. Short-term Impacts**

Construction will temporarily affect ambient air quality. Site work activities will raise fugitive dust that can settle in adjoining areas. Site work will be limited to the building site and the limited area to be disturbed should aid in mitigating dust generation and erosion. The general contractor will employ dust control measures to prevent 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, State Department of Health (and revisions thereto).

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<sup>3</sup> 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. Fumes from diesel equipment may be detected but should be dispersed by the prevailing winds.

Like fugitive dust, construction noise 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 would be generated by heavy machinery during site work. After site work is completed, reductions in sound levels, frequency, and duration can be expected.

Residential uses and schools are considered noise sensitive areas. Building "D", a two-level classroom building and Portable Classroom P-1 are located approximately 100 feet from the building site. Building "D" is constructed of cement masonry unit walls which can effectively aid in noise mitigation. The west side of the building faces the building site and

classrooms are oriented north-south facing away from the building site. Thus construction noise should not adversely interfere with activities in the Building "D" classrooms.

In general, wood is not effective in attenuating noise and loud construction-related sounds will be audible inside the three wooden portables. This impact could be mitigated if the start of site work can be scheduled when school is not in session. Major site work activities can then take place during the summer when school is not in session.

Construction will overlap into the school year and a time / work schedule will be developed in consultation with school administrators. A Spring 2015 start up is projected but if it could be held off for a month or two to the summer, the slight delay should preclude site work activities, dust, and construction related noise from interfering with classroom instruction.

Community Noise Control regulations (State Department of Health, Title 11, Chapter 46 Noise Control for Oahu) establish maximum permissible sound levels for construction activities occurring within "acoustical" zoning districts. Based on the residential zoning for the property, the project is classified as a Class A zoning district for noise control purposes. The maximum permissible daytime (7 a.m. to 10 p.m.) sound level in the district is 55 dBA during daytime and 45 dBA during nighttime for stationary noise sources and equipment related to construction (§11-46-4). 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 contractor will be responsible for obtaining and complying with conditions attached to the permit.

Although limited in area, site work will expose soil thus creating opportunities for erosion (fugitive dust and suspended sediment in construction related runoff). Within the project limits the area to be grubbed and graded is estimated at 9,250 square feet. Earthwork quantities are estimated at approximately 350 cubic yards of removal and importing approximately 500 cubic yards of fill. Trenching and stockpiling excavated or imported material will be performed in accordance with Chapter 14, Article 14 of the Revised Ordinances of Honolulu, 1990, as amended. Furthermore, work will be done in accordance with the Rules Relating to Soil Erosion Standards and Guidelines.

Best Management Practices (BMPS) for erosion and drainage control during construction will be incorporated into grading plans. BMPS will include erecting silt fences around the project limits, grassing all exposed areas after grading work is completed, placing absorbent socks around drain inlets to minimize sediment from entering the drainage system, and constructing stabilized construction access pads at the entrances to the building site to help protect the driveway and parking areas from mud, dirt, and rocks. The contractor may implement other BMPS based on field conditions and their experience in working with similar work sites.

BMPS also will be implemented pursuant to City and County of Honolulu Rules Relating to Storm Drainage Standards, Section II, Storm Water Quality.

Site work will not exceed one acre thus a NPDES General Permit Authorizing Discharges of Storm Water Associated with Construction Activity will not be required from the State Department of Health.

Areas within the project limits disturbed by construction will be restored and grassed to pre-construction conditions or better.

Vehicles carrying workers and material will contribute to traffic on Ha'ikū Road and Kamehameha Highway and Kahekili Highway the major thoroughfares connecting Ha'ikū Road. Material deliveries will be scheduled during non-peak traffic hours to minimize impact on local and school-related traffic.

A field office and base yard will be set up near the building site at a location to be determined. Material will be unloaded near the building site and/or stockpiled in the base yard. Construction equipment will be stored in the base yard and the yard secured after working hours.

According to Cultural Surveys Hawai'i (2014), "[T] the project area is evaluated as having no surface historic properties and as having a very low probability of subsurface historic properties. No further archaeological work is recommended.

In the unlikely event that any human remains or other significant subsurface deposits are encountered during the course of development activities, all work in the immediate area will stop and the SHPD promptly notified.

The cultural impact evaluation attempted a good-faith summary of the likely traditional Hawaiian landscape of this small (approximately 0.22 acre) project area considering such potential issues as *wahi pana*, trails, burials, archaeological sites, and gathering practices. The project area is a graded, mowed lawn of exotic grasses. On the basis of this evaluation the prospect for any traditional or on-going Native Hawaiian cultural practices in this project area appears very low.

Safeguards will be taken to allow use of the outdoor courts during construction. When the courts have to be closed temporarily, school administrators will consult with the Department of Parks and Recreation to allow use of courts at He'eia Neighborhood Park during school hours.

## **B. Long-term Impacts**

The principal impact of the project is to provide a covered, all-weather structure for year 'round recreational use and school activities. The covered structure will protect students from rain during inclement weather and the sun and heat on "hot" days thus providing for their health and safety.

Noise associated with use of the play court should not be significantly different or "louder" than noise now emanating from children playing on the open lawn, play apparatus, and outdoor courts. Noise will not be constant during the school day but occur when the play court is used for recess, P.E. classes, and school functions.

Roof runoff will be discharged onto the grass areas adjoining the structure and allowed to percolate into the ground. Sidewalks around the play court will be sloped to drain out towards the grass areas. Adverse long term impacts are not anticipated since the proposed method of drainage control is no different from how the outdoor courts are currently drained.

Increases in energy costs can be mitigated by incorporating natural lighting and energy efficient light fixtures/luminaries into the design of the structure and its electrical system.

The play court will present a new object to be seen on campus and will be about the same height as several existing two-level classroom buildings. In general, the structure will not be visible from locations east of the school. Views from this direction are already blocked by existing school buildings and trees along the perimeter of the lot. Existing structures at the front of the campus will block views from residences on Ha'ikū Road except perhaps for the roof of the structure.

The new play court structure is sited on the west side of the campus and the prevailing views will be from areas to the south and west. The front and west sides of the structure and roof will be visible from He'eia Neighborhood Park, Ha'ikū Road, and residences across the school. When school is in session, parked vehicles will obstruct the lower half of the structure but the upper half will be visible.

On the south, existing school buildings are buffered from the adjoining Haiku Point multi-family residential area by ample setbacks, trees, and ground topography on this side of the campus. The residential development is approximately 18 to 20 lower in elevation than the building site and the view of the school grounds is that of a sloping lawn.

The structure will be set back approximately 150 feet from the south or rear property line. With this setback and the difference in ground elevation the north facing view will be the backside of the structure and primarily the edge of roof protruding above the crest of the sloping lawn as seen from second level units. The bottom half will not be visible to ground level units owing to the sloping terrain and the upward facing line of sight. The mix of trees and shrubs in this area will help screen the structure.

The east elevation of the structure may be clearly seen from industrial warehousing areas to the southeast and adjoining the Hakiu Point development.

Over time, the play court will architecturally blend with the school buildings and facilities becoming part of the built-up campus setting.

The play court will replace a grass lawn and reduce open space. The play field has functioned as a recreation space for students and gathering place for school activities for many years. And for many years, inclement weather has curtailed outdoor activities and events.

The proposed use or addition will not affect existing City and County of Honolulu land use controls for the property and school. County zoning regulations allow public uses and structures as permitted uses in the residential zoning district.

The height limit for residential zoning districts is 25-feet. The proposed play court has an approximate height of 30-feet and exceeds the building height for the zoning district. The Department of Education will seek a Waiver to allow a 5+ feet encroachment above the required height limit. The Waiver will neither call into question the use and development standards of the residential zoning nor significantly alter the existing use and character of the school.

The exterior and covered walkways to the structure will be lighted. The sensor activated fixtures will provide down lighting and will not cast light into adjoining areas.

The proposed fire apparatus road will provide ready access for fire fighters and their equipment in the event of fire.

***The Honolulu Police Department commented that the project should have no significant impact on the services or operations of the Honolulu Police Department (Comment Letter, 2014).***

***The Department of Parks and Recreation offered no comments but indicated “[A] as the proposed project will have no impact on any program or facility of the department, you may remove us as a consulted party to the balance of the EIS process” (Comment Letter, 2014).***

**A. No Action**

A no action alternative would maintain the status quo of the site thus precluding the occurrence of all environmental impacts, short and long-term, beneficial and adverse disclosed in this Assessment. Resources committed to planning and design of the facility will be foregone and the purpose of the project not achieved.

**B. Alternative Location**

An alternative location for the play court was not considered. The selected site was chosen because of its proximity to the existing outdoor courts and availability of space to accommodate the proposed structure.



Permits required for the project and responsible authorities are identified below. Additional permits and approvals may be required depending on final construction plans.

**State of Hawai‘i**

Department of Health

Variance from Pollution Controls (Noise Permit)

Department of Land and Natural Resources, Historic Sites Division

Historic Site Review

**City and County of Honolulu**

Board of Water Supply

Cross Connection Control and Backflow Prevention

Department of Planning and Permitting

Waiver (Building Height)

Grubbing, Grading, and Stockpiling Permit

Building Permit for Building, Electrical, Plumbing Sidewalk/Driveway and Demolition Work

Certificate of Occupancy

***The Draft Environmental Assessment for the He'eia Elementary School Covered Play Court was published in the Office of Environmental Quality Control Environmental Notice of July 23, 2014. Publication initiated a 30-day public review period ending on August 22, 2014. The Draft Environmental Assessment was distributed to the agencies and organizations identified below requesting comments on the proposed action. An asterisk \* identifies agencies and organizations that submitted written comments during the review period. All comment letters and responses are found in Appendix B.***

State of Hawai'i

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

City and County of Honolulu

\*Board of Water Supply  
 Department of Environmental Services  
 \*Department of Parks and Recreation  
 \*Department of Planning and Permitting (**Late**)  
 \*Police Department  
 \*Fire Department

Others

Haiku Point Association of Apartment Owners  
 Hawaiian Electric Company  
 The Honorable George Okuda, Representative, 48<sup>th</sup> Representative District  
 The Honorable Clayton Hee, Senator, 23<sup>rd</sup> Senatorial District  
 The Honorable Jill Tokuda, Senator, 24<sup>rd</sup> Senatorial District  
 The Honorable Ikaika Anderson, Honolulu City Council  
 Kaneohe Neighborhood Board No. 30  
 Kaneohe Public Library (Placement)

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;**

Cultural Surveys Hawaii (2014) indicated the project area “as having no surface historic properties and as having a very low probability of subsurface historic properties.”

They also concluded that” the prospect for any traditional or on-going Native Hawaiian cultural practices in this project area appears very low.”

In the event subsurface deposits are encountered during the course of development activities all work in the immediate area will stop and the State Historic Preservation Division notified of the finds.

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

The project does not curtail the beneficial uses of the 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 or social welfare of the community or State;**

The project will not substantially affect the economic or social welfare of the State.

**5) Substantially affects public health;**

Public health will not be affected. Short-term environmental impacts in the form of fugitive dust, construction noise, and minor erosion can be expected during construction. These impacts can and will be mitigated by measures described in this Assessment and measures, such as BMPs for erosion control, to be submitted with construction plans and documents.

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

Substantial secondary impacts on public facilities are not anticipated.

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

Original environmental conditions of the lot were previously modified by construction of the school in the late 1950s and subsequent addition of buildings and associated improvements. Thus the quality of the environment is that of an operating school and physical and environmental conditions described in this assessment.

The covered play court will not substantially degrade environmental quality. It is anticipated that the facility will provide recreational and educational opportunities for students and a place for school assemblies and activities.

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

The project does not involve a commitment for larger actions

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

Rare, threatened, or endangered flora and fauna were not observed on the building site.

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

Ambient air quality will be affected by fugitive dust and combustion emissions during construction but can be controlled by measures stipulated in this Assessment. Construction noise will be pronounced during site preparation work but should diminish once the structural improvements are completed. All construction activities will comply with air quality and noise regulations of the State Department of Health.

Construction is projected to start in Spring 2015 when school is in session. Site work is the first major activity and grubbing, grading, and excavation will generate noise that will be audible in nearby classrooms. Dust control measures should help prevent fugitive dust from escaping the project limits. The movement of workers and vehicles within the project limits also will contribute general noise. Noise and dust impacts cannot be avoided and the contractor will develop a time / work schedule in consultation with school administrators to minimize interference while classes are in session.

Site work impacts can be avoided if construction can be put off until the end of the school year.

**11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.**

He'eia Elementary School is not located in an environmentally sensitive area.

There are no surface water sources on the premises and the school is not located in a flood prone or flood hazard area.

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

County and state plans do not identify significant scenic vistas and/ or panoramic views specifically for He'eia Elementary School. The Ko'olaupoko *Sustainable* Communities Plan Open Space map identifies a *mauka* facing Continuous View from Kāne'ohe Bay in the direction of Kāne'ohe and a *makai* facing Continuous View in the direction of Kāne'ohe Bay from the base of the Ko'olau Mountain range above Kāne'ohe. The proposed covered play court will not significantly affect both panoramic view planes.

**13) Requires substantial energy consumption.**

Substantial energy consumption is not anticipated.



## REFERENCES

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## APPENDIX A

**Literature Review and Field Inspection Including Cultural History  
for the He'eia Elementary School Playcourt Project  
DOE JOB NO. Q91001-13,  
He'eia Ahupua'a, Ko'olaupoko District, O'ahu  
TMK: [1] 4-6-031: 020**

NOTE: APPENDIX A IS REPRODUCED ON THE ATTACHED CD.

## **APPENDIX B**

### ***DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS AND RESPONSES***

**BOARD OF WATER SUPPLY**

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843



July 30, 2014

Mr. Gerald Park  
Gerald Park Urban Planner  
95-595 Kānāne'e Street #324  
Mililani, Hawaii 96789

Dear Mr. Park:

Subject: Your Letter Dated July 14, 2014 on the Draft Environmental Assessment for the  
He'eia Elementary School Covered Play Court – Tax Map Key: 4-6-031: 020

Thank you for the opportunity to comment on the proposed covered play court.

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

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

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

The proposed project is subject to BWS Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.

If you have any questions, please contact Robert Chun, Project Review Branch of our Water Resources Division at 748-5443.

Very truly yours,

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

KIRK CALDWELL, MAYOR  
DUANE R. MIYASHIRO, Chair  
ADAM C. WONG, Vice Chair  
JAMES K. WILSON  
THERESA C. MCMURDO  
DAVID C. HULIHEE

ROSS S. SASAMURA, Ex-Officio  
FORD N. FUCHIGAMI, Ex-Officio  
ERNEST Y. W. LAU, P.E.  
Manager and Chief Engineer  
ELLEN E. KITAMURA, P.E.  
Deputy Manager and Chief Engineer



GERALD PARK  
Urban Planner

■

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Environmental

Studies

■

95-595 Kānāne'e St.

#324

Mililani, Hawaii

96789

■

Telephone:

(808) 625-9676

e-mail:

geraldp@hawaii.gov

September 2, 2014

Ernest Y.W. Lau, P.E., Manager  
Board of Water Supply  
630 South Beretania Street  
Honolulu, Hawai'i 96843

Dear Mr. Lau:

Subject: He'eia Elementary School Covered Play Court  
Tax Map Key 4-6-031: 020  
He'eia, District of Koolau Poko, O'ahu, Hawai'i

Thank you reviewing and commenting on the Draft Environmental Assessment prepared for the subject project.

Information that the existing water system is adequate to accommodate the proposed project will be included in the Final Environmental Assessment. It is understood that the final decision on water availability will be confirmed when the building permit application is submitted for BWS review and approval.

The Department of Education is aware that Water System Facilities Charges will be assessed.

The participation of the Board of Water Supply in the environmental assessment review process is appreciated.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park, Principal

c: D. Mizumura, DOE-PMS  
L. Higa, YFH

POLICE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**  
801 SOUTH BERETANIA STREET - HONOLULU, HAWAII 96813  
TELEPHONE: (808) 579-3111 • INTERNET: [www.honolulu.gov](http://www.honolulu.gov)



PETER B. CARLISLE  
MAYOR

LOUIS W. KEALOHA  
CHIEF

DAVE M. KAJIHIRO  
MARIE A. MCCAULEY  
DEPUTY CHIEFS

OUR REFERENCE **EO-WS**

July 31, 2014

received  
8.5.14

Mr. Gerald Park  
Gerald Park Urban Planner  
95-595 Kanamee Street, Suite 324  
Mililani, Hawaii 96789

Dear Mr. Park:

This is in response to your letter dated July 14, 2014, requesting comments on the Draft Environmental Assessment for the proposed He'eia Elementary School Covered Play Court project.

This project should have no significant impact on the services or operations of the Honolulu Police Department.

If there are any questions, please contact Major Ryan Borges of District 4 (Kaneohe, Kailua, Kahuku) at 723-8639 or via e-mail at [rborges@honolulu.gov](mailto:rborges@honolulu.gov).

Sincerely,

LOUIS M. KEALOHA  
Chief of Police

By *R. K. Macadangdang*

RANDAL K. MACADANGDANG  
Assistant Chief  
Support Services Bureau

DEPARTMENT OF PARKS & RECREATION  
**CITY AND COUNTY OF HONOLULU**  
1000 Ulukoua Street, Suite 309, Kapiolani, Hawaii 96707  
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KIRK CALDWELL  
MAYOR

MICHELE K. NEKOTA  
DIRECTOR  
JEANNE C. ISHIKAWA  
DEPUTY DIRECTOR

August 21, 2014

received  
8.22.14

Mr. Gerald Park  
Gerald Park Urban Planner  
95-595 Kanamee St. #324  
Mililani, Hawaii 96789

Dear Mr. Park:

SUBJECT: Draft Environmental Assessment  
He'eia Elementary School Covered Play Court  
Tax Map Key: 4-8-031.020  
He'eia District of Koolau Piko, Oahu, Hawaii

Thank you for the opportunity to review and comment on the subject Draft Environmental Assessment of the proposed He'eia Elementary School Covered Play Court.

The Department of Parks and Recreation has no comment. As the proposed project will have no impact on any program or facility of the department, you may remove us as a consulted party to the balance of the EIS process.

Should you have any questions, please contact Mr. John Reid, Planner, at 768-3017.

Sincerely,

*Michele K. Nekota*

Michele K. Nekota  
Director

MKN:jir  
(571428)



HONOLULU FIRE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

636 South Street  
Honolulu, Hawaii 96813-5007  
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd



MANUEL D. NEVES  
FIRE CHIEF  
LIONEL CAMARA JR.  
DEPUTY FIRE CHIEF



August 4, 2014

Mr. Gerald Park  
Gerald Park Urban Planner  
95-595 Kanamee Street, #324  
Mililani, Hawaii 96789

Dear Mr. Park:

Subject: Heeia Elementary School Covered Play Court  
Tax Map Key: 4-8-031: 020  
Heeia, District of Koolau Poko, Oahu, Hawaii

In response to your letter of July 14, 2014, regarding the above-mentioned subject, the Honolulu Fire Department (HFD) requires that the following be complied with:

1. Fire department access roads shall be provided such that any portion of the facility or any portion of an exterior wall of the first story of the building is located not more than 150 feet from fire department access roads as measured by an approved route around the exterior of the building or facility. (National Fire Protection Association [NFPA] 1, Uniform Fire Code [UFC]<sup>TM</sup>, 2006 Edition, Section 18.2.3.2.2.)

A fire department access road shall extend to within 50 ft of at least one exterior door that can be opened from the outside and that provides access to the interior of the building. (NFPA 1, UFC<sup>TM</sup>, 2006 Edition, Section 18.2.3.2.1.)

2. A water supply approved by the county, capable of supplying the required fire flow for fire protection, shall be provided to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed, or moved into or within the county. When any portion of the facility or building is in excess of 150 feet from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains capable of supplying the required fire flow shall be provided when

Mr. Gerald Park  
Page 2  
August 4, 2014

required by the AHJ [Authority Having Jurisdiction]. (NFPA 1, UFC<sup>TM</sup>, 2006 Edition, Section 18.3.1, as amended.)

3. The unobstructed width and unobstructed vertical clearance of a fire apparatus access road shall meet county requirements. (NFPA 1, UFC<sup>TM</sup>, 2006 Edition, Section 18.2.3.4.1.1, as amended.)

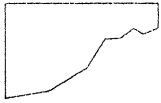
4. Submit civil drawings to the HFD for review and approval.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

SOCRATES BRATAKOS  
Assistant Chief

SB/SY:bh



GERALD PARK  
Urban Planner



Planning

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Research

Environmental  
Studies



95-595 Kanamee St  
#324  
Mililani, Hawaii  
96789



Telephone:  
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September 2, 2014

Manual P. Neves, Fire Chief  
Fire Department  
City and County of Honolulu  
636 South Street  
Honolulu, Hawai'i 96813-5007

Dear Chief Neves:

Subject: He'eia Elementary School Covered Play Court  
Tax Map Key: 4-6-031: 020  
He'eia, District of Koolau Poko, O'ahu, Hawai'i

Thank you reviewing and commenting on the Draft Environmental Assessment prepared for the subject project. In response to your comment, the following is offered.

A fire apparatus access driveway will be constructed from the southwest end of the existing parking area next to the cafeteria to the existing play court. The 20-foot wide driveway is approximately 60 feet in length. The access road was described and shown on the Site, Grading & Utility Plan in the Draft Environmental Assessment. The Plan is enclosed for your files.

The participation of the Honolulu Fire Department in the environmental assessment review process is appreciated.

Sincerely,

GERALD PARK URBAN PLANNER

Gerald Park, Principal

Enclosure: Sheet C003 Site, Grading & Utility Plan (8½ X 11)

c: D. Mizumura, DOE PMS  
L. Higa, YFH

[illegible]

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**  
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KIRK CALDWELL  
MAYOR

GEORGE I. ATTA, FAICP  
DIRECTOR  
ARTHUR D. CHALLACOMBE  
DEPUTY DIRECTOR

2014/ELOG-1294 (NI)

September 2, 2014

Mr. Gerald Park  
95-595 Kame'e Street, Number 324  
Mililani, Hawaii 96789

Dear Mr. Park:

SUBJECT: Environmental Assessment Review  
46-202 Ha'iku Road – Kaneohe  
Tax Map Key 4-6-31: 20

This is in response to your letter, received July 15, 2014, regarding a Draft Environmental Assessment (DEA) for the proposed covered play court. We offer the following comments:

1. The above mentioned property is zoned R-10 Residential District and has a height limitation of 25 feet. Because the proposed structure exceeds the 25 foot height limitation the Applicant may seek a waiver from the height limitation in the R-10 Residential District.
2. The proposed project triggers an assessment required by the Hawaii Revised Statutes Chapter 343-5(1) which includes:  
  
"Propose the use of state or county lands or the use of state or county funds, other than funds to be used for feasibility or planning studies for possible future programs or projects that the agency has not approved, adopted, or funded, or funds to be used for the acquisition of unimproved real property; provided that the agency shall consider environmental factors and available alternatives in its feasibility or planning studies; provided further that an environmental assessment for proposed uses under section [205-2(d)(10)] or [205-4.5(a)(13)] shall only be required pursuant to section 205-5(b)."

Mr. Gerald Ford  
September 2, 2014  
Page 2

Records available to us do not indicate the presence of any significant historical or cultural resources related to the site. We recommend that you contact the State of Hawaii Department of Land and Natural Resources, Historic Preservation Division, for information concerning the presence of any potential impacts to historical and/or cultural resources.

Should you have any further questions, please contact Nicholas Ing of our staff at (808) 768-8052.

Very truly yours,

*George I. Atta*  
George I. Atta, FAICP  
Director

Comment received after the end of the 30-day  
review period. A reply is not required



---

**Draft**

**Archaeological Literature Review and Field Inspection**  
**Including Cultural History for the**  
**He'eia Elementary School Play Court Project**  
**DOE JOB NO. Q91001-13**  
**He'eia Ahupua'a, Ko'olaupoko District, O'ahu**  
**TMK: [1] 4-6-031:020**

**Prepared for**  
**Gerald Park Urban Planner**

**Prepared by**  
**Hallett H. Hammatt, Ph.D.**  
**and**  
**David W. Shideler, M.A.**

**Cultural Surveys Hawai'i, Inc.**  
**Kailua, Hawai'i**  
**(Job Code: HEEIA 22)**

**May 2014**

---

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---

## Management Summary

<b>Reference</b>	Archaeological Literature Review and Field Inspection including Cultural History for the He'eia Elementary School Play Court Project, DOE JOB NO. Q91001-13, He'eia Ahupua'a, Ko'olaupoko District, O'ahu TMK: [1] 4-6-031:020 (Hammatt and Shideler 2014)
<b>Date</b>	May 2014
<b>Project Number(s)</b>	DOE JOB NO. Q91001-13 Cultural Surveys Hawai'i, Inc. (CSH) Job Code: HEEIA 22
<b>Investigation Permit Number</b>	CSH completed the fieldwork under Hawai'i State Historic Preservation Division/Department of Land and Natural Resources (SHPD) permit No. 14-04, issued per Hawai'i Administrative Rules (HAR) §13-13-282.
<b>Agencies</b>	This document may be used to facilitate consultation with the SHPD for the purpose of obtaining a determination letter under HAR §13-275-3.
<b>Land Jurisdiction</b>	The He'eia Elementary School campus is owned by the City and County of Honolulu.
<b>Project Proponent</b>	This study was prepared at the request of Mr. Gerald Park, Urban Planner. The He'eia Elementary School Play Court project is a Department of Education (DOE) project.
<b>Project Funding</b>	DOE
<b>Project Location</b>	He'eia Elementary School (opened in 1960) is located at 46-202 Haiku Road in central He'eia, just north of Kāne'ohe Town in He'eia Ahupua'a, Ko'olaupoko District in central Windward O'ahu. The project area is depicted on a portion of the 1998 U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1).
<b>Project Description</b>	The primary construction is for a cover playcourt approximately 40.2 m (132 ft) long north/south by 21.3 m (70 ft) wide east/west. At the south end (adjacent to existing paved basketball courts) would be a store room, boys' and girls' bathrooms and an electrical room. At the south end would be a presentation area and a small signal room. A short covered walkway would extend north connecting the northwest corner of the new building with the rest of the campus.
<b>Project Acreage</b>	The project area is approximately 0.09 hectares (0.22 acres or 9,400 sq ft)
<b>Area of Potential Effect (APE)</b>	For the purposes of this study the APE for the He'eia Elementary School Play Court project is equal to the project area. No visual, auditory, and/or other environmental impacts beyond the actual footprint of the proposed project are anticipated. He'eia Elementary School opened in 1960. To the knowledge of CSH, the school has not been designated as a historic property. No historic properties are present in the immediate vicinity.

<b>Document Purpose</b>	This archaeological literature review and field inspection study was completed for use as a planning document. The proposed project is subject to Hawai'i State environmental and historic preservation review legislation (Hawai'i Revised Statutes [HRS] §6E-8 and HAR §13-275. While this investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR §13-276), it serves as a document to facilitate the proposed project's planning and supports historic preservation review compliance by assessing whether there are major archaeological concerns within the project area and developing data on the general nature, density, and distribution of archaeological resources.
<b>Fieldwork Effort</b>	Fieldwork was accomplished on 31 March 2014 by David W. Shideler M.A., under the general supervision of Hallett H. Hammatt, Ph.D. This work required approximately 3 hours to complete.
<b>Consultation</b>	No consultation was undertaken for this project.
<b>Summary and Recommendations</b>	No historic properties were identified in the APE. No further archaeological work is recommended. Because the school is more than 50 years old, early consultation with the SHPD architecture branch is recommended to ensure there are no concerns for adverse impacts to the school itself as a possible architectural historic property.

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## Section 1 Introduction

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### 1.1 Project Background

At the request of Mr. Gerald Park, Urban Planner, Cultural Surveys Hawai'i, Inc. (CSH) has prepared this archaeological literature review and field inspection report for a He'eia Elementary School Play Court Project, He'eia Ahupua'a, Ko'olaupoko District, O'ahu TMK: [1] 4-6-031: 020. He'eia Elementary School (opened in 1960) is located at 46-202 Haiku Road in central He'eia, just north of Kāne'ohe Town in central Windward O'ahu. The project area is depicted on a portion of the 1998 U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle (Figure 1), a tax map plat (Figure 2), and a 2013 aerial photograph (Figure 3).

The project area is located in the southwest corner of the He'eia Elementary School campus (Overall Site Plan; Figure 4). The primary construction is for a covered playcourt approximately 40.2 m (132 ft) long north/south by 21.3 m (70 ft) wide east west (Figure 5 and Figure 6). At the south end (adjacent to existing paved basketball courts) would be a store room, boys' and girls' bathrooms, and an electrical room. At the south end would be a presentation area and a small signal room (see floor plan [Figure 5] and an external elevations depiction [Figure 6] for details.) A short covered walkway would extend north connecting the northwest corner of the new building with the rest of the campus.

### 1.2 Document Purpose

This archaeological literature review and field inspection study was completed for use as a planning document. The proposed project is subject to Hawai'i State environmental and historic preservation review legislation (Hawai'i Revised Statutes [HRS] §6E-8 and Hawai'i Administrative Rules [HAR] §13-13-275). While this investigation does not fulfill the requirements of an archaeological inventory survey investigation (per HAR §13-276), it serves as a document to facilitate the proposed project's planning and supports historic preservation review compliance by assessing whether there are major archaeological concerns within the project area and developing data on the general nature, density, and distribution of archaeological resources.

### 1.3 Environmental Setting

#### 1.3.1 Natural Environment

According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Foote et al. (1972), the He'eia Elementary School project area's soils consist of Lolekaa Silty Clay 3 to 8% slopes (LoB), and Hanalei Silty Clay 0 to 2% slopes (HnB) (Figure 7). The Lolekaa Silty Clay soil series:

consists of well-drained soils on fans and terraces on the windward side of the island of Oahu.

These soils developed in old, gravelly colluvium and alluvium. They are gently sloping to very steep. Elevations range from nearly sea level to 500 feet. The annual rainfall amounts to 70 to 90 inches and is well distributed throughout the year. The mean annual soil temperature is 71° F. Lolekaa soils are geographically associated with Alaeloa and Waikane soils.

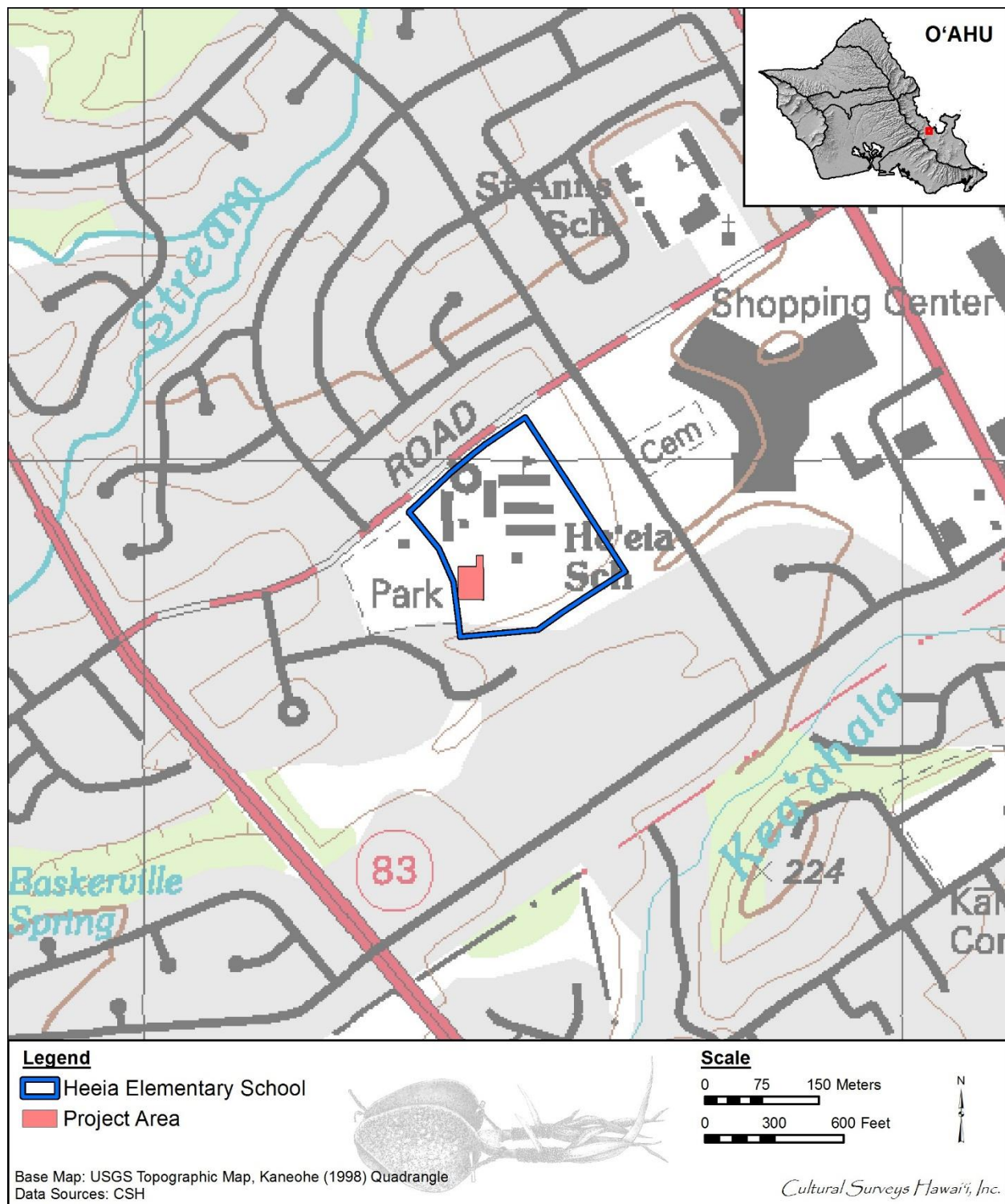


Figure 1. Portion of the 1998 Kaneohe USGS 7.5-minute topographic quadrangle showing the location of He'eia Elementary School and the play court project area

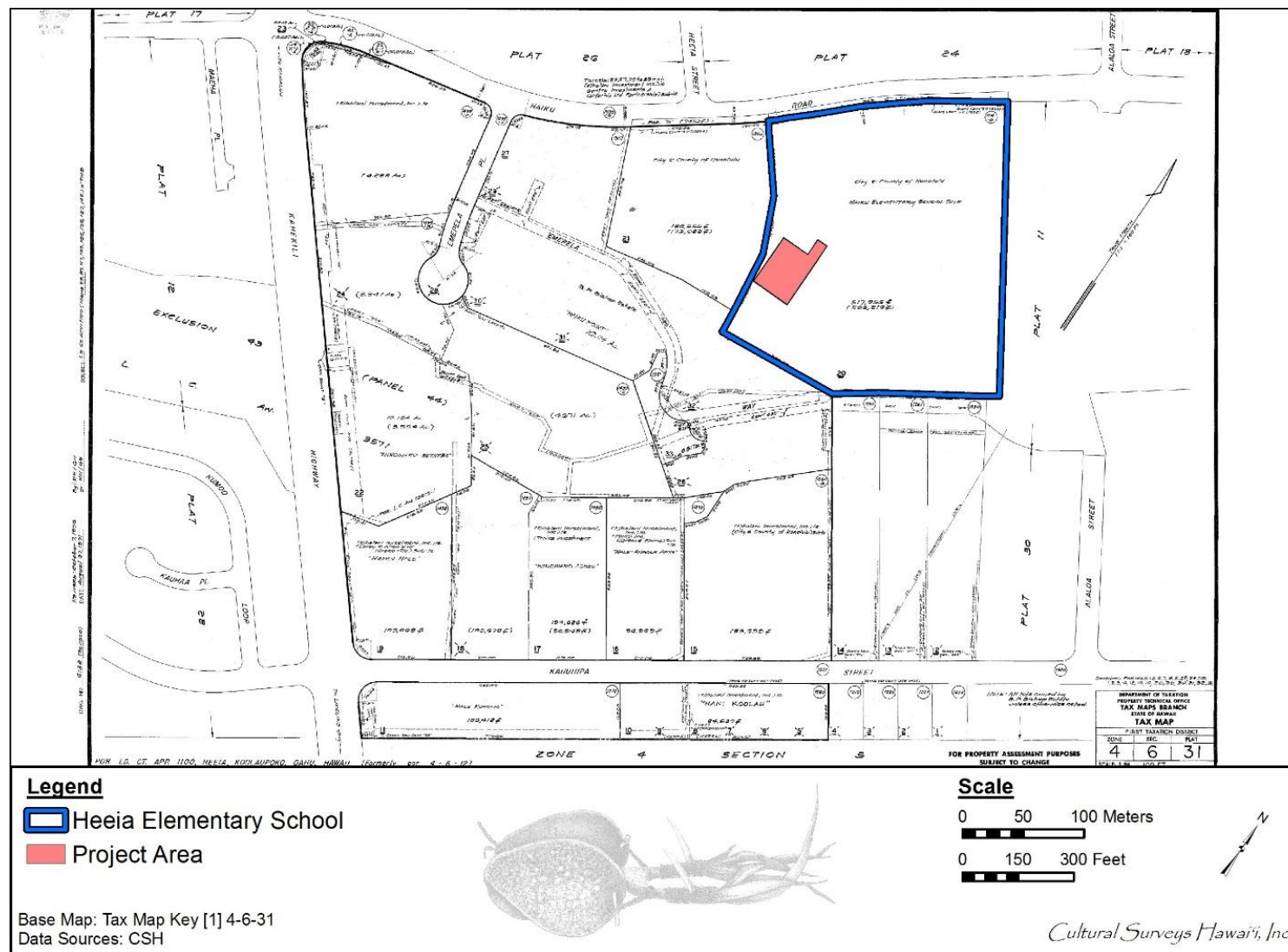


Figure 2. Tax Map Key (TMK) [1] 4-6-031 showing the location of He'eia Elementary School and the play court project area (Hawai'i TMK Service)



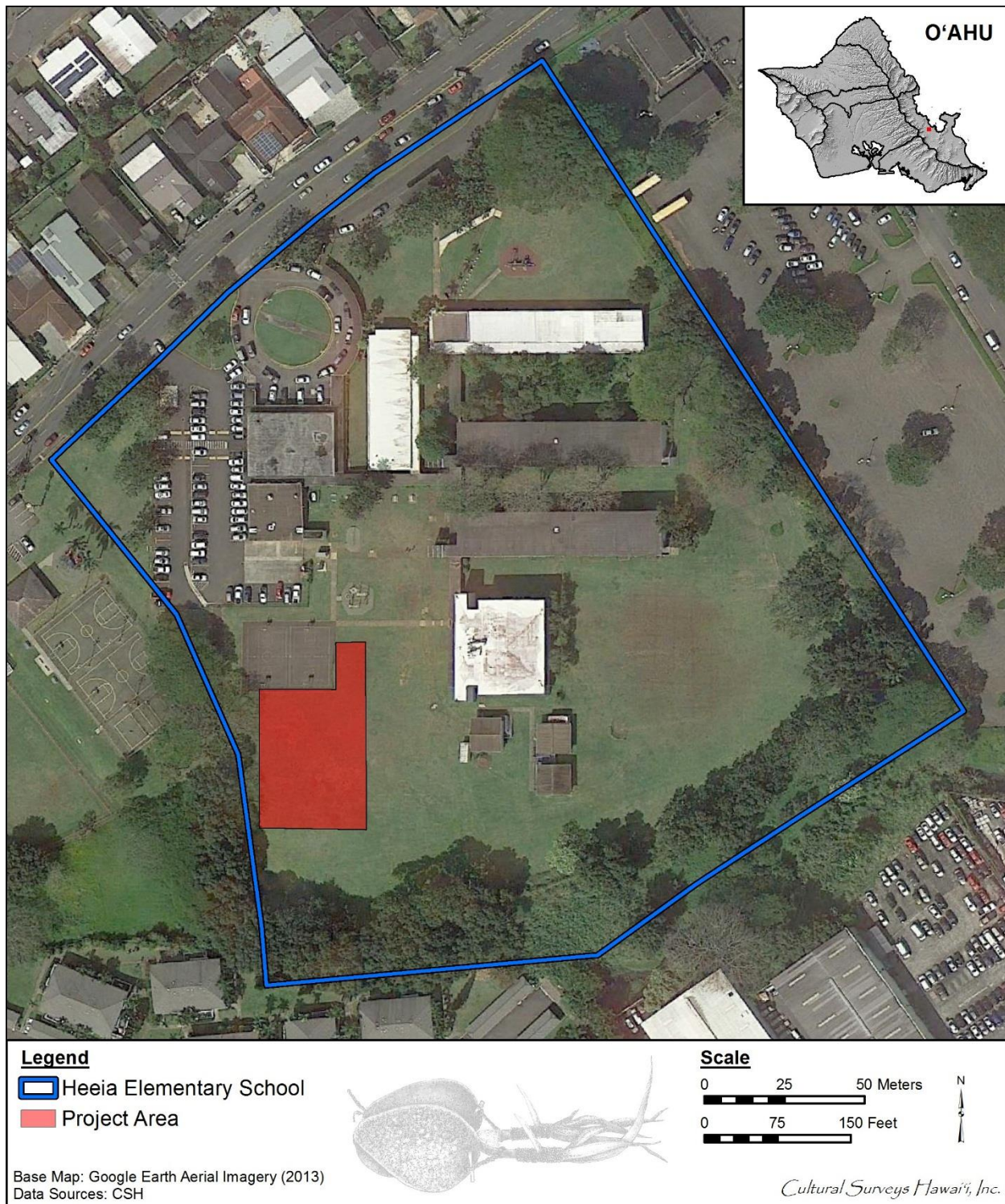


Figure 3. Aerial photograph showing the location of He'eia Elementary School and the play court project area (Google Earth 2013)

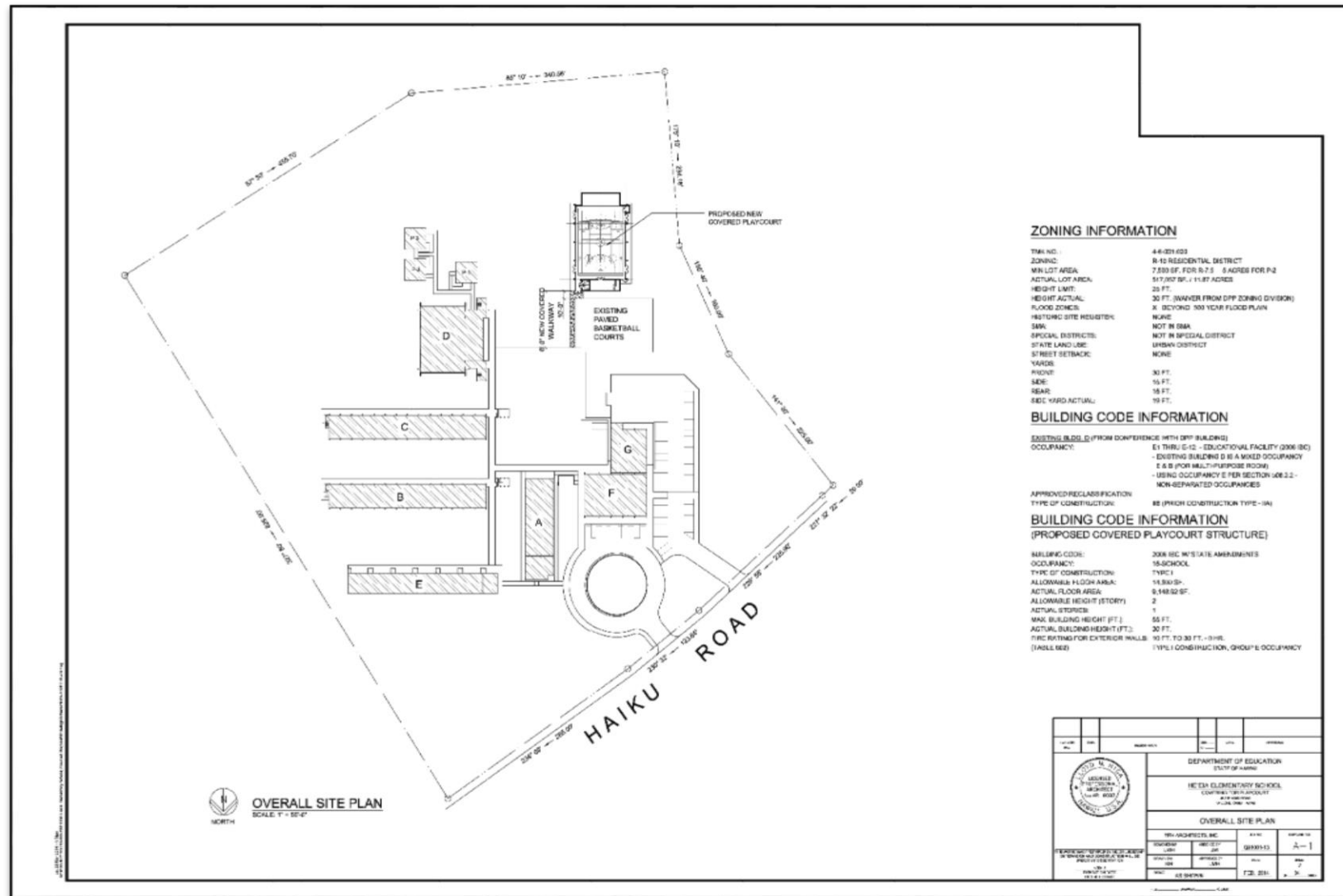


Figure 4. Overall site plan for the He'eia Elementary School Play Court project

LRFI for the He'eia Elementary School Play Court Project, He'eia, Ko'olaupoko, O'ahu

TMK: [1] 4-6-031:020

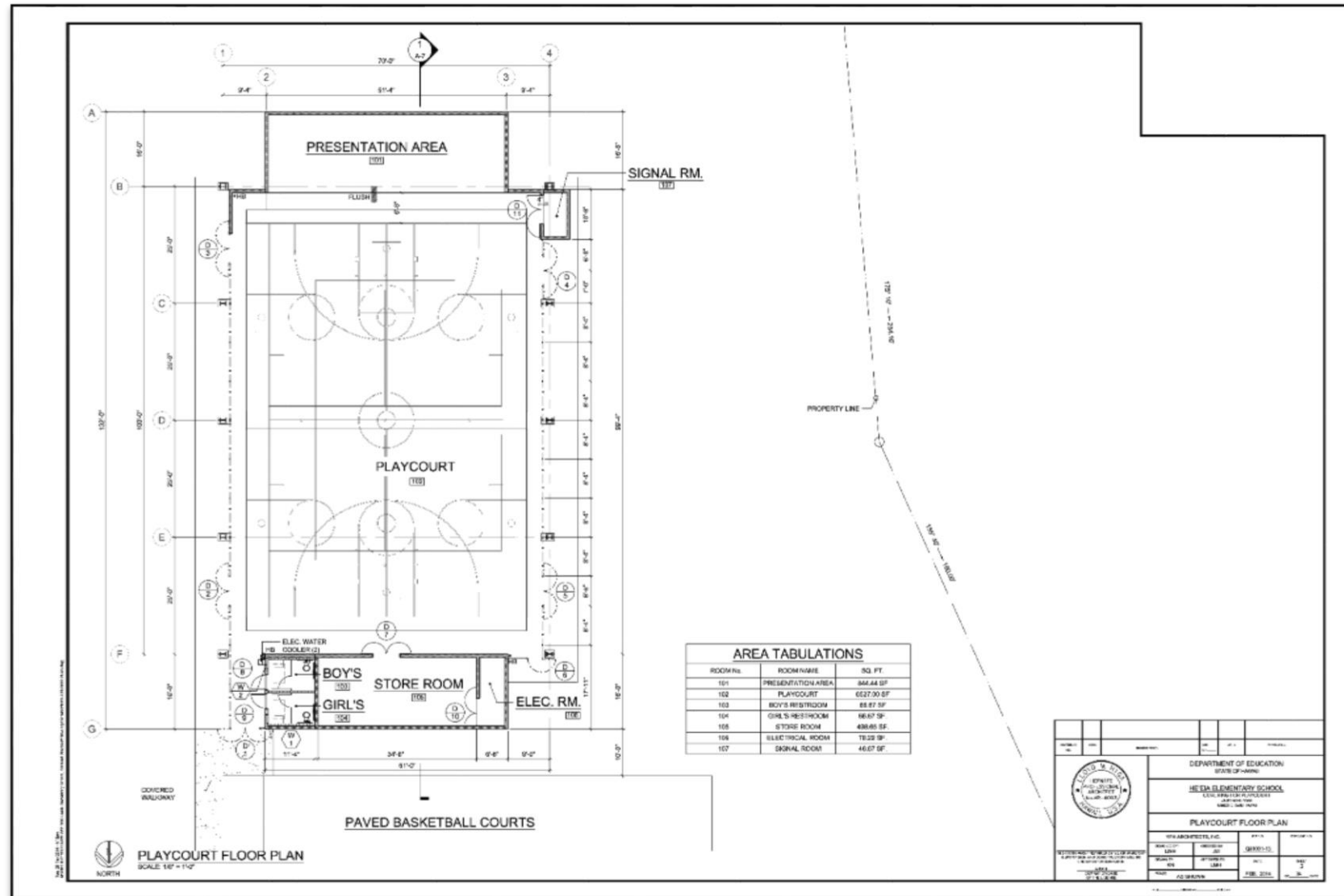
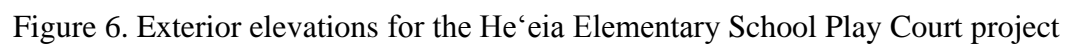


Figure 5. Playcourt floor plan for the He'eia Elementary School Play Court project

LRFI for the He'eia Elementary School Play Court Project, He'eia, Ko'olaupoko, O'ahu





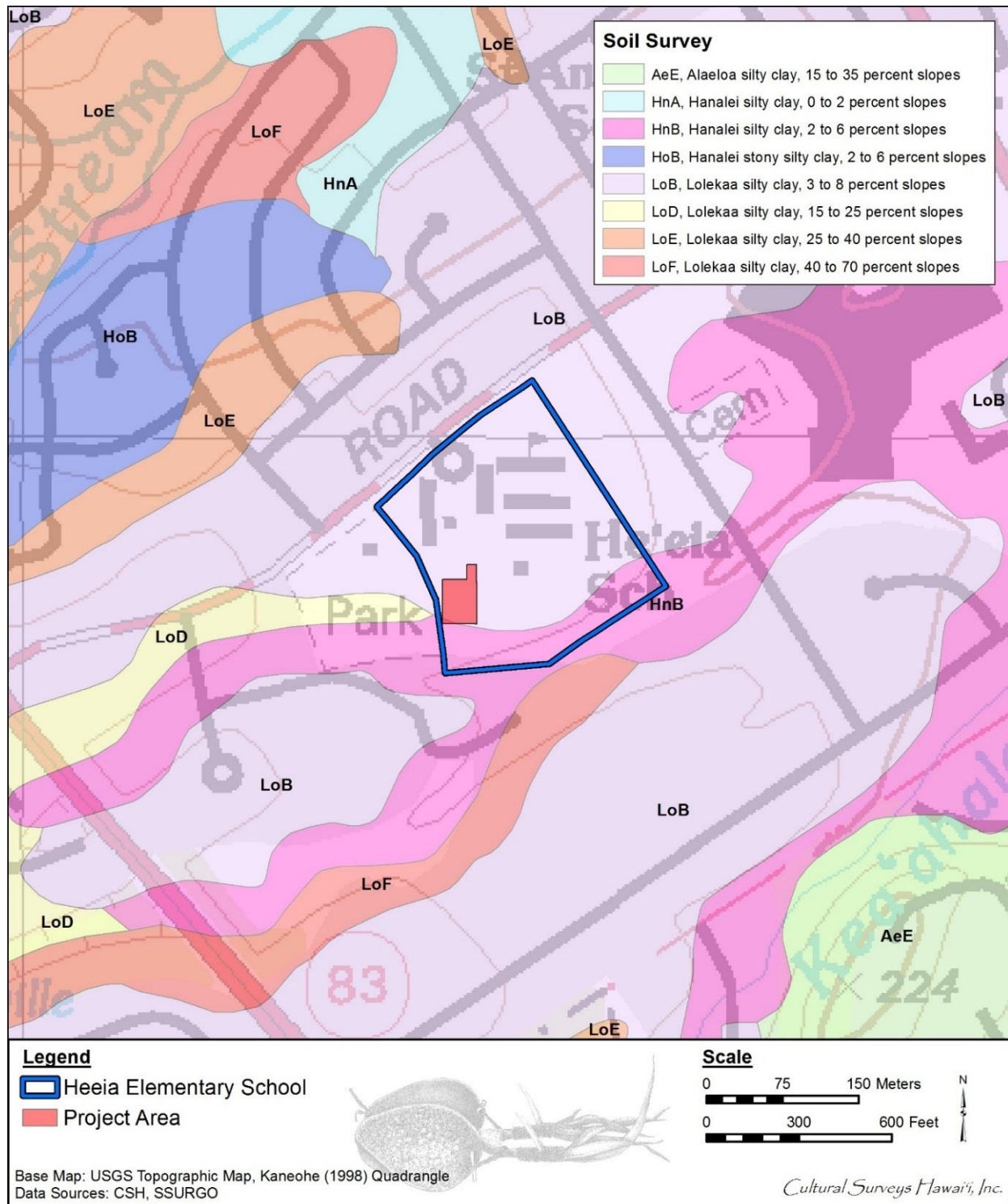


Figure 7. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating sediment types within and surrounding the He'eia Elementary School and the play court project area (source: USDA Soils Survey Geographic Database [SSURGO] 2001)

These soils are used for pasture, homesites, orchards, and truck crops. The natural vegetation consists of guava, Christmas berry, californiagrass, hilograss, and ricegrass. [Foote et al. 1972:83]

These specific soils are described as follows:

This soil is on terraces and fans. . . .

In a representative profile the surface layer is darkbrown silty clay about 10 inches thick. The subsoil is 46 to more than 70 inches thick. The upper part is dark brown silty clay that has subangular blocky structure, and the lower part is dark yellowish-brown loam that has subangular blocky structure. The substratum is strongly weathered gravel. The soil is strongly acid in the surface layer and strongly acid to extremely acid in the subsoil.

Permeability is moderately rapid. Runoff is slow, and the erosion hazard is slight. The available water capacity is about 1.3 inches per foot of soil. Soft, weathered gravel is common in the subsoil but does not affect use and management of the soil for farming. In places roots penetrate to a depth of 5 feet or more. [Foote et al. 1972:83]

The Hanalei Silty Clay series:

consists of somewhat poorly-drained to poorly drained soils on bottom lands on the islands of Kauai and Oahu. These soils developed in alluvium derived from basic igneous rock. They are level to gently sloping. Elevations range from nearly sea level to 300 feet. The annual rainfall amounts to 20 to 120 inches. The mean annual soil temperature is 74° F. . . . These soils are used for taro, pasture, sugarcane, and vegetables. The natural vegetation consists of paragrass sensitiveplant, honohono, Java plum, and guava. [Foote et al. 1972:38]

These specific soils are described as follows:

This soil is on stream bottoms and flood plains. . . . Included in the areas mapped on Oahu were small areas of very deep, well-drained alluvial soils, and: small areas of very poorly drained to poorly drained clay soils that are strongly mottled and are underlain by peat, muck, or massive marine clay.

In a representative profile the surface layer, about 10 inches thick, is dark-gray and very dark, gray silty clay that has dark-brown and reddish mottles. The subsurface layer is very dark gray and dark-gray silty clay about 3 inches thick. The subsoil, about 13 inches thick, is mottled, dark-gray and dark grayish-brown silty clay loam that has angular blocky structure. The substratum is stratified alluvium. The soil is strongly acid to very strongly acid in the surface layer and neutral in the subsoil.

Permeability is moderate. Runoff is very slow, and the erosion hazard is no more than slight. The available moisture capacity is about 2.1 inches per foot of soil. Roots penetrate to the water table. Flooding is a hazard. [Foote et al. 1972:38]

This area receives approximately 2,000 mm or rainfall per year (Giambelluca et al. 1986:73).

### 1.3.2 Built Environment

The school campus is surrounded by the subdivisions of suburban He'eia, Kāne'ohe.

The school website notes the surroundings as:

. . . on the fringes of Kane'ohe's growing business community, the campus is set between the magnificent Ko'olau Mountains and beautiful Kaneohe Bay. Single family dwellings, apartment and condominium complexes, a community district park, and the island's third largest shopping mall surround the school. [He'eia Elementary School 2014]

## Section 2 Background Research

### 2.1 Traditional and Historical Background

#### 2.1.1 Mythological and Traditional Accounts

He'eia is best known for its large, approximately 88-acre, He'eia Fishpond (approximately 500 m north of the project area) with an enclosing wall measuring almost 5,000 ft long (McAllister 1933:173). There are a number of legendary references regarding the fishpond and the naming of the entire *ahupua'a* that indicate the relative antiquity and importance of He'eia.

The history of He'eia Fishpond goes far back into the depths of Hawaiian legendary times as do many of the sites of Ko'olau, O'ahu. The *ahupua'a* itself was named for He'eia, who was said to have been the foster son of the goddess Haumea, and the grandson of the demigod 'Olopana, an uncle of Kamapua'a. [Pukui et al. 1974:44]

The goddess Haumea, in battle with Kumuhonua, a Kona O'ahu chiefess, is caught in a tidal wave and washed out to sea. She is then washed back to shore and is victorious, naming her foster son He'eia after this event (*he'e 'ia*—washed out to sea and back; Pukui et al. 1974:44). He'eia also figures into at least one of the numerous accounts concerning the goddess Pele. The handsome He'eia fell in love with Ka'ohelo, a younger sister of Pele and Hi'iaka. They met in Ko'olau on O'ahu. When Ka'ohelo died, parts of her body were distributed among the volcano areas of the islands and became the *'ohelo* plant, the fruit of which is sacred to Pele (Kahele 1916-17 in Kelly 1975:2).

The fishpond at He'eia was said to have been “guarded” by a traditional water spirit (*akua mo'o*). The *akua mo'o* “were guardians (*kia'i*) of walled fishponds, and the people nearby depended on them to assure an abundance of fish” (Kelly 1975:2). Meheanu was the *mo'o* of He'eia Fishpond and she lived at “Luamo'o, a small land adjacent to the pond” (Kelly 1975:2). This corresponds to McAllister's Site 326.

Another guardian of the fishpond, the super stingray (*Lupe-kia'i-nui*) is described by Lehman “Bud” Henry (1993):

The *konohiki* (overseer) of He'eia Fishpond knew that he needed to solicit the help of a squadron of sting rays (*hīhīmanu*) that lived at Kekepa Island, near Mōkapu, to watch over his pond. He paddled his canoe out to the island and prayed to the god of the *hīhīmanu*, ‘Oh, *hīhīmanu akua*, I need your guardian services. I need you to help save my crop of *'ama'ama*. The *kākū* (barracuda) and *'aihue loko* (pond robbers) are stealing me blind! I will do anything to get your help.’ [Henry 1993:38]

Since He'eia Fishpond was one of the largest ponds along the shore, the god of the *hīhīmanu* assigned a special stingray—*Lupe-kia'i-nui*, the super stingray—to protect it, but only after the overseer of the fishpond made a promise that the fishpond would forever remain a fishpond. According to Henry (1993:39), “to this day, the word of the *konohiki* has been kept to the *hīhīmanu akua*. He'eia Fishpond is still a fishpond.”

Portions of He‘eia are also associated with traditional Hawaiian death and burial practices. Kealohi Point, which separates He‘eia Kea and He‘eia (He‘eia Uli) to the south, was a Soul’s Leap or *leina ‘uhane*, a “place where the souls of the dead leap into the sea” (Raphaelson 1929:22). On the peninsula of Mōkapu, east of the project area, within the sand dunes near Pyramid Rock, hundreds of Hawaiian burials have been removed since 1912. This is just a portion of the extensive Mōkapu sand dune burial site, one of the largest known Hawaiian burial sites.

Traditional accounts and former *heiau* indicate the *ahupua‘a* of He‘eia was a favored and important place in traditional times. Accounts concerning the name of He‘eia relating to demi-gods and goddesses suggest relative antiquity. Marion Kelly states, “He‘eia Fishpond is probably a very old pond, as it has the ancient and traditional *akua mo‘o* (water spirit), Meheanu, the pond’s caretaker (*kia‘i loko*), as part of its lore, and because the name of its builder has been lost in time” (Kelly 1975:47).

The fact that He‘eia was a traditional place of *leina ‘uhane* or Soul’s Leap and a portion of He‘eia on Mōkapu was used extensively for sand dune burials both attest to its importance.

### 2.1.2 ‘Ōlelo No‘eau (Proverbs, Traditional Sayings)

This section on ‘*ōlelo no‘eau* (proverbs, traditional sayings) of He‘eia presents a compilation of known traditional expressions that reference He‘eia or place names of the area (Table 1). Expanding from Pukui’s definitive work (1983), the research included other compilations (Judd 1930; Paki 1972), and various Native Hawaiian writings (Kamakau n.d.), as well a contemporary cultural exhibit at Windward Mall.

Table 1. ‘*Ōlelo No‘eau* of He‘eia

‘ <i>Ōlelo No‘eau</i>	Translation	Source
<i>‘Āina momona</i>	Fat land	Kamakau n.d., in <i>Ka Ho‘olina/The Legacy</i> 1(2):304–335; Kamakau 1869; Kamakau 1976:47; Ke Au ‘Oko‘a 1866
<i>Ka ua kani ko‘o o He‘eia</i>	The rain of He‘eia that sounds like the tapping of walking canes	Pukui 1983:168, No. 1561
<i>Ke ko‘a mokumoku a‘o He‘eia</i>	The broken up reefs of He‘eia	<i>Ka Hoku o Ka Pakipika</i> 20 February 1862
<i>Na pali hāuliuli o ke Ko‘olau</i>	The dark hills of Ko‘olau	Pukui 1983:249, No. 2285
<i>‘Ō‘ili e, lele Mōkapu ho‘ohuelo e, welo i ke kai</i>	Mōkapu appears to leap, fluttering like a tail upon the sea	Judd 1930:52, No. 640

#### 2.1.2.1 ‘Āina momona

Land of abundance (Kamakau n.d., in *Ka Ho‘olina/The Legacy* 1(2):304–335 in reference to Moloka‘i; ‘*ōlelo no‘eau* used in cultural exhibit located at Windward Mall in reference to He‘eia).

Kamakau also wrote the following description of ‘*āina momona* in *Ke Au ‘Oko‘a* on 2 December 1869, translated by Mary Kawena Pukui (Kamakau 1976:47): “Fishponds, *loko i‘a*,

were things that beautified the land, and a land with many fishponds was called a ‘fat’ land (‘*āina momona*).”

#### 2.1.2.2 Ka ua kani ko‘o o He‘eia

The rain of He‘eia that sounds like the tapping of walking canes.

Also said of the rain of Hilo. [Pukui 1983:168, No. 1561]

#### 2.1.2.3 Ke ko‘a mokumoku a‘o He‘eia

The broken up reefs of He‘eia (*Ka Hoku o Ka Pakipika* 20 February 1862; used as ‘*ōlelo no ‘eau* in cultural exhibit located at Windward Mall).

#### 2.1.2.4 Na pali hāuliuli o ke Ko‘olau

The dark hills of Ko‘olau.

The hills and cliffs of the windward side of O‘ahu are always dark and beautiful with trees and shrubs. [Pukui 1983:249, No. 2285]

#### 2.1.2.5 ‘Ō‘ili e, lele Mōkapu ho‘ohuelo e, welo i ke kai

Mōkapu appears to leap, fluttering like a tail upon the sea. [Judd 1930:52, No. 640]

### 2.1.3 Mele (Songs) and Oli (Chants)

This section on *mele* (songs and chants) of He‘eia compiles various songs and chants with reference to He‘eia and some of its place names (Table 2). The *oli* (chants that were not danced to) are contained in the *mo‘olelo* (story, tradition) of Hi‘iaka (Ho‘oulumāhiechie 2006) and two *mele* were captured by Pilahi Paki (1972) and composed by Lehman L. Henry (1993).

Table 2. *Mele* of He‘eia

<b>Mele</b>	<b>Description</b>	<b>Source</b>
<i>He‘eia-uli</i> and <i>He‘eia Kea</i>	Recorded by Pilahi Paki in 1972	Paki 1972:31
<i>Ka Mo‘olelo o Hi‘iakaikapoliopole</i>	In the <i>mo‘olelo</i> of Hi‘iakaikapoliopole, as told by Ho‘oulumāhiechie for weekly installments in several Hawaiian newspapers (primarily <i>Ka Na‘i Aupuni</i> ) in the early 1900s and recently translated by M. Puakea Nogelmeier, Hi‘iakaikapoliopole, traverses the Hawaiian Islands on a quest to retrieve Pele’s husband, encountering several places throughout the Ko‘olaupoko region, including He‘eia Ahupua‘a; four <i>mele</i> refer to He‘eia	Ho‘oulumāhiechie 2006:138, Chant 110, from <i>Ka Na‘i Aupuni</i> 1906, 15 January; 147–148; Chant 122, from <i>Ka Na‘i Aupuni</i> 1906, 23 January; 148; Chant 123, from <i>Ka Na‘i Aupuni</i> 1906, 23 January; 407; Chant 361, from <i>Ka Na‘i Aupuni</i> 1906, 21 November
<i>Loko I‘a O He‘eia</i> (A Modern Chant)	Composed by Lehman “Lanakila” Henry in 1976	Henry 1993:42

### 2.1.3.1 He'eia-uli and He'eia Kea

The following *mele* of He'eia Kea and He'eia-uli was recorded by Pilahi Paki in 1972:

There were, and are  
Two place-names, He'eia.

One is He'eia-uli, The Dark He'eia;  
The other, He'eia Kea, Fair He'eia

There is all the difference  
Between these two,  
He'eia-uli and He'eia Kea,  
As is the difference Of Night and Day.

Men died in Old Hawaii . . .  
They entered places  
Where dead Men dwell.  
But the difference here,  
At He'eia,  
The dead men entered  
The Depths of the Seas

Their lives were judged,  
Their Fate decreed,  
With some judged white  
And some called black.

The black souls leaped  
From the left-hand shore;  
The white souls jumped  
From the right-hand shore.  
He'eia, here, the Dividing Line.

Now, if you will,  
Look into the sea  
Where sand-strip islands  
Are close to shore.  
Watch, for this is a mystery,  
Now they appear;  
Now they are gone.

You may judge it a trick  
Of the Tide and the Sea,  
But in reality,  
It is the Shadows  
Falling strangely  
Upon the Sun-lit waves.

Neither the light,



Nor tide to be blamed,  
For the Force that controls  
Is the Will of the Gods,  
A Decree that was made,  
In the time of Antiquity.

How it happened,  
So the story tells,  
There were, and are,  
On He'eia's shores,  
Various fishing grounds,  
Each with its own,  
It's protective Gods.

Gods, like men,  
Often disagreed,  
Thus, two of the Gods  
Who controlled these grounds,  
Quarreled on a matter of  
Right and Wrong.  
As who should be fishing He'eia's Shores!

The Man-god of He'eia Kea  
Was fishing in Koolau Bay,  
The Man-god of He'eia-uli  
Became justly enraged.

He sent a challenge  
To the poaching god,  
Proposing a battle  
For control of the shores.

They met and fought  
'Till the righteous god won.  
However, he proved himself to be  
A god of kindly heart,  
He made a pact with He'eia Kea,  
White god of Koolau,  
And, speaking gently, said,  
From this time forth,  
And forever more,  
You White Gods of He'eia  
Fish from Kualoa Shore;  
And Dark Gods of He'eia-uli  
Fish Kāne'ohe shores;  
He'eia is the Dividing line.  
So it was settled and agreed,

The flat, sandy-strips  
 Be Deciding line.  
 Now, here is a warning  
 To men of today,  
 When the Sandstrip appears  
 Beneath the waves  
 It is time to turn  
 Your boats around. [Paki 1972:31]

### 2.1.3.2 Ka Mo'olelo o Hi'iakaikapoliopole

In the *mo'olelo* of Hi'iakaikapoliopole (Hi'iaka-from-the-bosom-of-Pele), as told by Ho'oulumāhiehie for weekly installments in several Hawaiian newspapers (primarily *Ka Na'i Aupuni*) in the early 1900s and recently translated by M. Puakea Nogelmeier (Ho'oulumāhiehie 2006), the youngest, most beautiful, and favorite sister of Pele, Hi'iakaikapoliopole, traverses the Hawaiian Islands on a quest to retrieve Pele's husband, Lohi'au. Throughout this grand journey, Hi'iakaikapoliopole (who is also referred to as Hi'iaka) encounters several places throughout the Ko'olaupoko region, including He'eia Ahupua'a.

As Hi'iaka journeyed northward through Ko'olaupoko, she met a beautiful woman named 'Āpuakeanui, and from her came the name of the famous rain of Kailua called 'Āpuakea. The following song of 'Āpuakea mentions He'eia Uli:

- Nu'uau is garlanded with the hala, the kāmakahala  
 Adorning its breast is the Malailua wind  
 The 'Āpuakea rain moves proudly along  
 Slipping off into the sea of Maluaka, ah, there
5. Words are spoken by the rain on the hala [Pandanus]  
 The uppermost hala of 'Āhulimanu ['Āhuimanu]  
 Respite for thighs that are wearied and drenched  
 A protective boot to wear in the Hōli'o rain  
 Like ink for the brush of long stroke
  10. Is the darkness of He'eia Uli's shoals  
 Like a beaver hat from the sea of 'Ōpua, ah, there  
 It emerges, a trespassing spirit  
 And I dwell with the attendant, sharing food at Kaula  
 Majestic in the heavens stands Konahuanui . . .

[Ho'oulumāhiehie 2006:138, Chant 110, from *Ka Na'i Aupuni* 15 January 1906]

Hi'iaka later saw the coral islets of He'eia as the rain poured down across Mā'eli'eli, and she called out the following chant when she, Wahine'ōma'o (her *aikāne*, or intimate friend), and Pā'ūopala'ā (their attendant) were sitting atop the peak of Mahinui in Kailua:

- Stormy is Ko'olau, oh! Stormy Ko'olau!!  
 How wearying, the rains of Ko'olau  
 It rains there at Mā'eli'eli  
 Clattering down there at He'eia
5. The rain scoops the craters in the sea

The showers dance delightedly at ‘Āhulimanu [‘Āhuimanu]  
 The encircling Pō‘aihale rain inland of Kahalu‘u  
 Burdened down, oh  
 This burden is for me to bear

10. I am weighed down by our love  
 Bringing a deluge of tears

[Ho‘oulumāhiehie 2006:147–148, Chant 122, from *Ka Na ‘i Aupuni* 23 January 21906]

When Hi‘iaka repeats a version of this chant much later while searching for Lohi‘au, she mentions the seas of He‘eia Kea:

Stormy is Ko‘olau, oh! Story Ko‘olau!!  
 I grow weary of the rains of Ko‘olau  
 It rains at Mā‘eli‘eli  
 Creeping along at Pu‘uniki  
 5. Carving away the earth at He‘eia  
 The rain chops away at the sea of He‘eia Kea  
 Dancing along inland of ‘Āhulimanu [‘Āhuimanu]  
 I shall search  
 I will seek for my beloved one . . .

[Ho‘oulumāhiehie 2006:407, Chant 361, from *Ka Na ‘i Aupuni* 21 November 1906]

In He‘eia, Hi‘iaka saw women hiking inland of ‘Āhuimanu and her affection for Ka‘anahu welled up inside her, and she chanted the following *kau* (a sacred chant, as Hi‘iaka’s chants of affectionate greetings to persons, hills, and landmarks):

The procession of women climbs yonder  
 To cut hala keys for lei [garland] above ‘Āhulimanu [‘Āhuimanu]  
 I am bluntly cut by your ill will  
 Patience is drained by the expanse of ‘Auli‘ili‘i  
 The shifting Kālepa rains move about  
 Rains that break up the coral beds of He‘eia Kea

[Ho‘oulumāhiehie 2006:148, Chant 123, from *Ka Na ‘i Aupuni* 23 January 1906]

### 2.1.3.3 Loko I‘a O He‘eia

In 1976, Lehman “Lanakila” Henry composed the following mele, titled “*Loko I‘a O He‘eia* (A Modern Chant)”:

I.	
<i>Kapapa ka piko o Kāne‘ohe</i>	Kapapa lies in the center of Kāne‘ohe Bay;
<i>Kaiku‘one ne‘ine‘i nani Ko‘olau</i>	The bay that sits beneath the beautiful Ko‘olau
<i>Pu‘u Keahiakahoe iluna</i>	With its high peaks of Keahiakahoe and
<i>A ho‘ou‘ou lani a ka pu‘u Eleao</i>	Eleao jutting skyward.

## II.

*Mano wai Ha 'ikū a 'Ioleka 'a*Fresh water from Ha'ikū and Ioleka'a  
Valleys*Hui kaha wai He'eia papalalo*Flow as He'eia Stream to where the land  
And sea meet by Ke 'Alohi Point under a  
fine*Pili ma kai Lae O Ke 'Alohi**Wahi ho 'okili hu'e ānuenue*

Light rain that produces a rainbow

## III.

*Na pua kukuna-o-ka-lā*The flowers of the mangrove are like  
Twinkling stars*Kohu hoku 'imo 'imo**Pāpōhaku ho 'opuni iakūlana*The stone wall that surrounds this place  
Where fish that are raised in ponds live and  
grow.*Loko hea ola a kapu i'a*

## IV.

*He'eia pu 'uone loko i'a*He'eia (fishpond) of beautiful Kāne'ohe  
(Bay)*Nani Kāne'ohe kaiku'one*

The fishpond near the shore;

*Ho'ohenno no ho'i 'ia oe*

Cherish it in thought

*Kia ho'omano na wā hala*

As a monument to recall the past.

## V.

*Haina 'ia mai kapuana:*

This is the end of my song-story.

*Ho'olaulima kū nā kupuna*

Let us work it in the manner of our ancestors;

*Mālama no ka loko i'a*

Let us preserve the fishpond

*Ho'omau neia waiwai ho'oilina.*

To continue this part of our heritage.

[Henry 1993:42]

**2.1.4 Mo'olelo**

This section compiles *mo'olelo* of He'eia through summaries and, when possible, quotations of the original stories (Table 3). Archival research included previous compilations of *mo'olelo* (Fornander 1919; McAllister 1933; Pukui et al. 1974; Sterling and Summers 1978; Westervelt 1915) and the writings of Native Hawaiians, especially Kamakau's writings in Hawaiian newspapers during the late nineteenth century (Kamakau 1991) as well as more recent writings (Paki 1972).

Table 3. *Mo'olelo* of He'eia

<i>Mo'olelo</i>	Description	Sources
Creation of Kāne-huli-honua and Ke-aka-huli-lani	<p>The gods Kāne, Kū, and Lono created Kāne-huli-honua, the first man and the progenitor of the Hawaiian people, on the eastern side of Mololani (Ulupa'u Crater) on Mōkapu peninsula, within Kāne'ohe just south of the <i>ahupua'a</i> border with He'eia</p> <p>Kulu-wai-maka related that the first man, Kumu-honua, was made of brown sand on the shores of Kaha-kaha-ke-ea, and that the gods Kū and Lono formed the body, and that Kāne descended from a cave to breathe life into the earth image</p>	<p>Kamakau 1991:130–132; Lyons and Alexander 1893 (dictated by Kamakau in 1868)</p> <p>Paki 1972:27</p>
He'eia	<p>The <i>ahupua'a</i> of He'eia may derive from a tidal wave that washed (<i>he'e 'ia</i>) the warriors from Leeward O'ahu during a battle</p> <p>The name may also derive from He'eia, the foster son of the goddess Haumea and the grandson of the demigod 'Olopana</p> <p>Another <i>mo'olelo</i> describes the formation of the coral of He'eia from the hanging of Malulani out of grief for her sister Kaohelo who was betrayed by her husband, He'eia</p>	<p>Pukui et al. 1974:44</p> <p><i>Hoku o Hawaii</i> 12 March 1928, cited in Sterling and Summers 1978:184</p> <p>Fornander 1919, Volume V, cited in Sterling and Summers 1978:201</p>
He'eia Fishpond, Meheanu, Lupe-kia'i-nui	<p>One <i>mo'olelo</i> of He'eia Fishpond describes a <i>mo'o</i>, Meheanu, that served as <i>kia'i</i> of the <i>loko kuapā</i> (walled fishpond)</p> <p>Another <i>mo'olelo</i> of He'eia Fishpond describes a different <i>kia'i</i>, Lupe-kia'i-nui (sting ray)</p>	<p>McAllister 1933:173</p> <p>Henry 1993:39</p>

<i>Mo‘olelo</i>	Description	Sources
Hilu-ula and Hilu-uli	A pair of twins, Hilu-ula and Hilu-uli, fished in He‘eia, involving the creation of the <i>hilu</i> fish (various species of fishes of the genus <i>Coris</i> )	Thrum 1923:273
‘Ioleka‘a	A <i>mo‘olelo</i> of ‘Ioleka‘a describes rats rolling down the slopes of the <i>pali</i> (cliff) on the <i>mauka</i> side of He‘eia  ‘Ioleka‘a is described as a supernatural rat  Pikoi-a-ka-‘Alalā is mentioned as shooting a rat on the <i>pali</i> from a canoe coming from Kualoa and Ka‘a‘awa	McAllister 1933:176  Hawaiian Ethnological Notes ms. Vol I:819, cited in Sterling and Summer 1978:200  <i>Ke Au Okoa</i> 1 January 1866, cited in Sterling and Summer 1978:200
Ha‘akōlea and Kāmeha‘ikana	A hill named Kilohana in Kalihi connects with Ha‘akōlea in He‘eia and Kāmeha‘ikana, an incarnation of the goddess Haumea	Hawaiian Ethnological Notes Ms., Vol. II:150, Bernice Pauahi Bishop Museum (BPBM) Archives, cited in Sterling and Summers 1978:326; Kamakau 1991:11–13, original in 1865, and <i>Ka Nupepa Kuoka</i> in 1896
Kaualehu Cave	A <i>mo‘olelo</i> of Kāmeha‘ikana living in Kaualehu Cave	<i>Ka Nupepa Kuokoa</i> 13 August 1870, cited in Sterling and Summers 1978:201
Keahiakahoe	A <i>mo‘olelo</i> connects Kahoe, a farmer at the base of the Ko‘olau mountain range, to his coastal-dwelling brother, Pahu, and their sister, Lo‘e	Hawaiian Ethnological Notes Ms., Vol. I:3179–3185, BPBM Archives
Mā‘eli‘eli	A <i>mo‘olelo</i> makes a connection between Mā‘eli‘eli and the moon  A <i>mo‘olelo</i> of Lau-ka-ieie includes a reference to Mā‘eli‘eli as “the dragon woman of Heeia”	<i>Hoku o Hawaii</i> , 12 January 1926, cited in Sterling and Summers 1978:198  Westervelt 1915:41

#### 2.1.4.1 Creation of Kānehulihonua and Keakahuilani

A *mo‘olelo* written by Samuel Mānaiakalani Kamakau for *Ka Nupepa Kuokoa* and *Ke Au Okoa*, translated by Mary Kawena Pukui (Kamakau 1991:130–132), tells a creation story of the first man,

named Kānehulihonua, and the first woman, Keakahulilani. A synthesis of Kamakau's *mo'olelo* was also retold in *Kuokoa* on 9 October 1896 (HEN newspapers, BPBM Archives). According to the *mo'olelo*, the gods Kāne, Kū, and Lono created Kānehulihonua on the eastern side of Mololani (Ulupa'u Crater) on Mōkapu peninsula, within Kāne'ohe just south of the *ahupua'a* border with He'eia. When these gods spoke the words, "*Hiki au; e ola*" (I have come; live), the red and black earth at a place called Kahakahakea, which at the time of Kamakau's writing in 1869 was known as Pāhonua, became a living man and the progenitor of the people of Hawai'i and the rest of the Pacific (Kamakau 1991:130–131). The following excerpt details this *mo'olelo*:

When the threefold god, *ke kolu akua*, made heaven and earth, the first separation of land by the god was Nu'u-hōlani—before the lands of Kahiki-kū, Kahiki-moe and Kahiki-i-kapakapa-ua-a-Kāne were made.

Mōkapu, on O'ahu, is a peninsula, and Mololani [the crater thereon] is almost a mountain. Between Kualoa and Kāne'ohe a model of the lands of the earth was spread out and copied by the threefold god. When the gods looked at all the things that had been made, they saw that there was no man. Therefore these gods resolved to make a man and to place him as chief over all the things they had made. There was a single great enemy in the making of heaven and earth and man—Kanaloa. It is said that the earth of which man was to be made was his. He wanted man to be of earth and to return to earth. He did not want man to live as a master, and so he gave bitter-tasting things and thorny plants of the brush and things that cause death.

There on the eastern flank of Mololani, facing sunrise and near the seashore, the soil is red mixed with dark, blackish earth. This is where the first man was made. That place was called Kaha-kaha-kea in olden times and Pāhonua now. There Kāne drew the form of man in the earth, in the likeness of these gods—with head, body, arms, legs, and features like theirs. When the model was drawn, Kanaloa said, 'You will not get your man; you have not the *mana*; I am the one with *mana*.' Then Kanaloa made a model in the dirt just like Kāne's model. Kāne *mā* said, 'Change your dirt into a man.' But no man came forth. Kanaloa's dirt figure of a man remained lying there and became stone. Then Kāne said to his fellow gods Kū and Lono, 'Listen you two to my words and respond. It is up to you two to pay attention and to listen.' These were the words Kāne said: 'I have come; live,' *hiki au; e ola*. Kū and Lono responded, 'Live,' *ola*. '*Hiki au; e ola*' '*Ola*.' Then the earth form became a living man.

When the first man was made, the gods took him to the house they had made, called Halekou, and there the first man lived. There was no woman. However, the man saw how his shadow followed his body going outside the house and coming into the house, and when he ran to the beach of Nu'upia and Oneawa, he found to his surprise that his shadow stuck to him. When the man had fallen asleep and awakened suddenly, a pretty woman was sitting beside him, and he thought it was his shadow that was sticking to his side. The gods had changed his shadow into a wife for him, and so he named her Ke-aka-huli-lani, Shadow-changed-by-heaven. The name of the first man was Kāne-huli-honua because of his form (the gods having changed the soil of the earth into man). In the many genealogies, there are

many names given to this man; in some, he is called Kumuhonua, in some Kuluipo, in some Kumuuli, and in some Hulihana.

Kāne-huli-honua the husband and Ke-aka-huli-lani the wife are the progenitors of the people of Hawai‘i and of all who dwell in the islands in the Pacific, in Kahiki-kū and Kahiki-moe, and in other lands. [Kamakau 1991:130–132]

This pair, Hulihonua and Keakahuilani, is also mentioned in *He Mele No Kualii* (A Song for Kualii), a mele composed in honor of the *ali‘i* (chief) Kūali‘i that was dictated by S.M. Kamakau to Curtis J. Lyons in 1868 with the slight difference, as explained in the subsequent notes, that Keakahuilani was created from the *aka* (spirit) of Hulihonua when he slept (Lyons and Alexander 1893). In a slightly different version, Pilahi Paki provided a *mo‘olelo* of this first man created on Mōkapu (Paki 1972:27). In this version, Kulu-wai-maka related that the first man, Kumuhonua, was made of brown sand on the shores of Kahakahakeea, and that the gods Kū and Lono formed the body, and that Kāne descended from a cave to breathe the “Breath of Life into the nostrils of the earth-sand image that had been designed. The image stood up and became a living being” (Paki 1972:27). This led to the *‘ōlelo no‘eau*, “*E kolu mea nui ma ka honua, O ka mana‘o i‘o, mana‘o lana, a me ka aloha*,” or “Man was endowed with three vital powers, Mind, Heart, and Expression” (Paki 1972:27).

#### 2.1.4.2 He‘eia

Several *mo‘olelo* are associated with He‘eia (washed away). The *ahupua‘a* of He‘eia may derive from a tidal wave that washed (*he‘e ‘ia*) the warriors from Leeward O‘ahu during a battle (Pukui et al. 1974:44) or from He‘eia, the foster son of the goddess Haumea and the grandson of the demigod ‘Olopana (*Hoku o Hawaii* 12 March 1928, cited in Sterling and Summers 1978:184):

Kumuhonua, chief of Kona was vexed with the goddess Haumea for snatching her husband, Wakea, away from his warriors . . .

Kumuhonua organized a very large army to fight her [Haumea]. The only ammunition she used were kukui nuts and again the warriors were defeated [Haumea had defeated them at their first attempt to fight her]. A tidal wave suddenly arose and washed Haumea, Wakea and all their followers to sea. They swam around until they were almost exhausted. Kamoawa, the kahuna, suggested that Wakea cup his hands together to represent a *heiau*. He caught a humuhumu-nukunuku-a-puaa and stuck it head first into the cupped hands to represent a pig. Then the followers swam around in a procession dedicating a *‘heiau*.’ As soon as this was finished the sea washed them ashore on an island outside of Kahaluu called Moku-Kapapa.

Haumea moved to Pali-ku (now called Kualoa). She went to get Olopana’s grandson to rear and name him Heeia, because they had been washed out to sea. The place adjoining Kaneohe [now known as He‘eia Ahupua‘a] was named for him . . . [*Hoku o Hawaii* 12 March 1928, cited in Sterling and Summers 1978:183–184]

Another *mo‘olelo* describes the formation of the coral of He‘eia from the hanging of Malulani out of grief for her sister Kaohelo who was betrayed by her husband, He‘eia:



Kaohelo’s [sister of Pele] spirit forms a marriage with the spirit of the handsome He‘eia on Oahu, who abandons her later for another woman. The little hills about the district of He‘eia (the land division adjoining Kāne‘ohe in Ko‘olau) are formed by her from the body of Malulani, who hanged herself out of grief for her sister. Kaohelo’s spirit daughter Waialani comes to visit her relatives on Hawai‘i and is given some of the berries to each which are the body of her mother. Blood flows from them as she eats and she vows never to see Pele again on earth . . . After some days Waialani made up small bundles of the body of Malulani which she scattered outside of He‘eia, a hill here and a hill there until the place held many hills which are standing even unto this day. And because of the Flood, all these hills were submerged, and appeared are islets, and that is why it is called the sharp coral of He‘eia; and it is there even to the present time as most of you know who have been to the place. [Fornander 1919, Volume V:580]

#### 2.1.4.3 He‘eia Fishpond, Meheanu, Lupe-kia‘i-nui

One *mo‘olelo* of He‘eia Fishpond describes *mo‘o* (lizard, dragon, serpent) that served as *kia‘i* of the *loko kuapā*. McAllister (1933:173) characterizes Meheanu, the *mo‘o* of He‘eia Fishpond who lived at the adjacent land of Luamo‘o:

Here [at Luamo‘o] lived Meheanu, the *kiai* or watchguard of the He‘eia fishpond. Meheanu had supernatural powers and could change herself into many forms, as a frog or a lizard, but she was particularly fond of being an eel. About Luamoo there were formerly many sheltering *hau* trees beneath which this *mo‘o* lived. When the *hau* was yellow, then the natives were certain of the presence of Meheanu, but when the *hau* was green, then she was more likely to be somewhere else in the form of an eel. [McAllister 1933:173]

Another *mo‘olelo* of He‘eia Fishpond describes a different *kia‘i*. According to Henry (1993), the god of the *hīhīmanu* (stingray) assigned a special stingray—Lupe-kia‘i-nui—to protect He‘eia Fishpond, but only after the *konohiki* of the fishpond made a promise that the fishpond would forever remain a fishpond:

The *konohiki* (overseer) of He‘eia Fishpond knew that he needed to solicit the help of a squadron of sting rays (*hīhīmanu*) that lived at Kekepa Island, near Mōkapu, to watch over his pond. He paddled his canoe out to the island and prayed to the god of the *hīhīmanu*, ‘Oh, *hīhīmanu akua*, I need your guardian services. I need you to help save my crop of ‘*ama‘ama* [mullet]. The *kākū* (barracuda) and ‘*aihue loko* (pond robbers) are stealing me blind! I will do anything to get your help.’

‘Anything?’ the voice from above bellowed as the *konohiki* bounced around in his little canoe.

‘Yes, anything,’ he replied.

‘I want you to promise me that your fishpond will always be a fishpond and will be a fishpond for your children and a fishpond for their children and their children to come forever,’ the voice resounded.

‘*Ae, ‘ae,*’ the *konohiki* answered. ‘Yes, yes, my fishpond will be another monument to the genius of my people forever and ever and ever!’

With that, the water started to churn and spin the canoe around as hundreds of *hīhīmanu* (various sting rays) in the water rushed and glided in a circle around him. The canoe spun around and around as he was dizzily sucked into the darkness of the *wiliwai* (whirlpool) that consumed him.

When he came out of the whirlpool, the *konohiki* was being pulled across the bay by a large *hīhīmanu* that was flying in the sky like a kite (which it resembled); the kite-string, made of *olonā*, was over a mile long. This special *hīhīmanu* was the legendary *Lupe-kia ‘i-nui*, the super-watching sting ray.

Because He‘eia Fishpond was one of the largest ponds along the shore, it needed a special sting ray to dwell there. That is why *Lupe-kia ‘i-nui*, the super sting ray, was assigned to this Fishpond. At times, *Lupe-kia ‘i-nui* would visit his friends and family at Kekepa. He would wing his way between the reefs and coral heads. When returning, he would fly over the wall into the fishpond.

*Lupe-kia ‘i-nui* made his home near the *mākāhā-nui* (large water-control gate). From this advantageous spot, he could watch the fishpond walls and all that happened in the large body of the pond. He could swiftly fly to any spot when he sensed a predator or intruder. He would kill a predator and eat it; *kākū* were good eating too. Sometimes when there were many to be taken, he would call to his friends at Kekepa. At such times, the waters of the pond would sparkle and glow in the night as many *hīhīmanu* whipped and lashed out at the predators.

*Lupe-kia ‘i-nui* would slash human pond robbers to death with his whiplike tail and tow the human carcass to his *manō* (shark) friends that lived at Ko‘amanō Reef, a short distance from the pond. After stripping the flesh from the bodies, the sharks would bury the bones of the *‘aihue loko* in shallow holes along the sandy shore near the mouth of He‘eia Stream. Fishermen knew that this area was a good source of human bones to make fish hooks. [Henry 1993:39]

#### 2.1.4.4 Hilu-ula and Hilu-uli

A *mo‘olelo* compiled by Thrum (1923:273) tells of a pair of twins, Hilu-ula and Hilu-uli, fishing in He‘eia and the creation of *hilu* (various species of fishes of the genus *Coris*):

Hilu-ula and Hilu-uli were born twins, one a male and the other a female. They had human forms, but with power to assume that of the fish now known as *hilu* (*Coris* wrasse fish). The two children grew up together and in due time when Hilu-uli, the sister, was grown up, she left her brother and parents without saying a word and went into the sea, and, assuming her fish form, set out on a journey, eventually reaching He‘eia. During the time of her journey she increased the numbers of the *hilu* so that by the time they came close to He‘eia there was so large a school that the sea was red with them. When the people of He‘eia and Kāne‘ohe saw this, they paddled out in their canoes to discover that it was a fish they had never seen nor heard of before. Returning to the shore for nets, they surrounded the school and drew in so many that they were not able to care for them in their canoes. The fishes

multiplied so rapidly that when the first school was surrounded and dragged ashore, another one appeared, and so on, till the people were surfeited. Yet the fish stayed in the locality, circling around. The people ate of them in all styles known to Hawaiians; raw, salted, and broiled over a fire of coals.

While the Ko'olau people were thus fishing and feasting, Hilu-ula, the brother, arrived among them in his human form; and when he saw the hilu-uli broiling over the coal fire he recognized the form of his sister. This so angered him that he assumed the form of a whirlwind and entered every house where they had *hilu* and blew the fish all back into the sea. Since then the *hilu-uli* (species of *Coris* wrasse fish) has dark scales, and is well known all over the islands. [Thrum 1923:273]

#### 2.1.4.5 'Ioleka'a

*Mo'olelo* of 'Ioleka'a describe rats rolling down the slopes of the *pali* on the *mauka* side of He'eia. McAllister's (1933:176) version refers to 'Ioleka'a as the pool of water at the base of the *pali* in He'eia where *kama'aina* (native) rats of He'eia led *malihini* (newcomer) rats to their death:

For many, many years the *kamaaina* rats of Heeia . . . had a feud with the rats from other sections. From Ewa and Honolulu and Waialua the *malihini* rats frequently follow a trail which leads up the ridge and over the range near Kaiwipoo to the *pali* overlooking Heeia. Here the strangers meet the *kama'aina* rats, who in a friendly and gracious manner offer to lead them down the steep trail, for on the Heeia side the range rises almost perpendicularly from the land and the path is dangerous. The *kama'aina* leads the *malihini* over the difficult path until they are about halfway down the *pali*. Then they come to a rock, green with moss and wet from the water which seeps out. 'This is not dangerous,' says the *kama'aina* and with the *malihini* he steps onto the slippery surface. With a quick jump to the side the *kamaaina* rat catches himself on a small ledge, but the poor *malihini* rat slips and slides over the steep *pali*, and is knocked and rolled to the foot, where he falls insensible into the small pool of water. You can always tell the *malihini* rats from the *kama'aina*, for the rats of Heeia have red feet; and all the rats that drown in the pool have feet that are black or white, any color but red. [McAllister 1933:176]

Another *mo'olelo* of 'Ioleka'a involves a similar feud between *malihini* rats of 'Ewa Moku (District) and *kama'aina* rats of Ko'olaupoko Moku but describes 'Ioleka'a as a supernatural rat from 'Ewa:

Iolekaa, is a place in Ko'olaupoko. If the feet of a rat was red, it came from Ewa, but if white, it came from Ko'olaupoko. Iolekaa was a supernatural rat that belonged to 'Ewa. He fought against Maka-iole-nana-wai, Ko'olaupoko's rat. The 'Ewa rat had such a long way to go and was weary before he started to fight. He was defeated and rolled down the hill. If you go to the pool there, you will find a stone rat with red feet. [Hawaiian Ethnological Notes ms. Vol I:819, cited in Sterling and Summer 1978:200]

A third *mo'olelo* involves a character by the name of Pikoi-a-ka-'Alalā shooting a rat on the *pali* from a canoe coming from Kualoa and Ka'a'awa:

They (Pikoi and others) sailed outside of Kaoio Point, between Kualoa and Ka'a'awa, he said, 'Say there is a big rat on that hill.' 'How can you see that rat. You are lying, little boy.' 'There is a rat and it has nibbled on the roots of the awa, and is drunk. He has rolled in some taro peeling. With one shot with my arrow, he will be killed . . . If you want to see it send some men ashore to see it there above the hill. The rat is there . . . ' One of the canoe paddlers went ashore and ran as far as He'eia. Pikoikalala shot the rat and said, 'The rat is struck on the nose and the arrow has gone through it. The point of the arrow has lodged in a stone on the base of the cliff' . . . When the man who went ashore reached the place pointed out to him, he saw the rat shot through the nose . . . The spot was called 'Iole-ka'a (Rolling-rat) because the rat rolled and lodged on a ledge of the cliff. This place bears the name of 'Iole-ka'a to this day (*Ke Au Okoa* 1 January 1866, cited in Sterling and Summer 1978:200).

#### 2.1.4.6 Ha'akōlea and Kāmeha'ikana

The following *mo'olelo*, which involves a hill named Kilohana in Kalihi, connects with Ha'akōlea in He'eia and Kāmeha'ikana, an incarnation of the goddess Haumea. Versions of this *mo'olelo* appear in Kamakau's writings in 1865 (Kamakau 1991:11–13) and *Ka Nupepa Kuoka* in 1896. The following version is from Martha Beckwith:

A visitor today to the uplands of Kalihi valley on the island of O'ahu, should start just *mauka* of Kamehameha school grounds and go on to the center of the valley and look straight up toward the Ko'olau mountains, will see a peak on the north eastern side of the valley. That is the peak or hill of Kilohana, the home dark with mist, of Wākea and Papa, the ancestral kupua [demigod or culture hero] chiefs of Hawai'i and this is the account of their life in the forest uplands and of planting the root from which spring the mysterious people of that upland.

Of Papa it is said that she was a woman more than mortal, a *kupua* (supernatural being), and that she bore many names, such as Papa, Haumea, and Kamaha'ikana.

Wākea was a man and human and he was the husband of Papa when she was called Haumea. They left the border of Kahiki in the days long past, and became the parents of the Hawaiian people, and lived on the hill of Kilohana which stands high up in the valley of Kalihi, upland on the north-east side, on the cliff which rises west of the place where are the coral beds of He'eia. They got their living by gathering over-ripe bananas in the uplands, the mealy yam that lay in the soil, the wild taro so delicious for poi, these were their vegetable food, growing things made tabu by a chief who lived in Honolulu in those days, and also the gobey fish ('*o'opu moe wai*) in the stream, the smooth shrimp ('*ōpae kala 'ole*) without a spike, the edible fern-root (*lau hō'i'o*) of the forest, the black crab ('*alamihī*) of the Koolau side, the fragrant seaweed of the coral beds of Heeiea, the fat crabs (*papa'i*) from all these places. These were relishes to be eaten with the things that grew in the uplands. And so many days passed in this mode of living.

When these ancestors of ours came to live on these heights, they built a house for themselves in that depressed place on the right side of the hill which stands up in a

peak on the *mauka* boundary of the road taken by visitors at this time. Here they passed the hot days of summer and the time of drenching showers of the rainy season.

One bright sunny day they were eating at their home on the mountain and Haumea turned to look down to the lowland where lay the sea of Mōkapu and the tranquil waters of He'eia. She longed for the crabs and seaweeds of these places and descended on the Ko'olau side of the ridge through a tangle of plants and along the trail leading through the pandanus groves of Kekele (seen to this day) . . . eager to wet her hands in the sea.

Wākea meanwhile went after wild bananas to eat with the fish his wife would bring home, seeking them in the place where he was accustomed to find them on the other side of Kilohana. The chief's men had found the trees thrown down and the fruit taken, as well as popolo broken. He had long suspected a thief but had never been able to catch him. Now they watched and when Wākea came to cut bananas they seized him, bound him and brought him to the pool of Wai-kahalulu and tied him to a big tree standing at the north of the pool. Then they went to notify the chief in Honolulu. Haumea, meanwhile, as she was catching the black crabs and gathering seaweed, felt a sudden wave of longing for her husband clutch her heart and she hurried home. He was not there. She looked down the valley and saw him with his hands tied behind his back and being led away to the chief.

She left her container and went after her husband. The crabs crawled out and went in to the underbrush, the seaweed crept up the trees and became tangled there, where both are to be found to this day.

She followed along the route her husband had been taken as far as this side of the stream of Puehuehu. There she met a farmer who told her of the fate awaiting Wākea. She asked for water and was told there was none. She said, 'If I throw a stone and there is a splashing sound what then?' 'Then there is water,' he said. She threw the stone, it dropped water, and that is the spring above Puehuehu today. She drank and went on.

Haumea was a beautiful woman. She wore a skirt of yellow banana leaves and wreaths of ti leaves around her head and neck. Upon reaching the place where her husband was to be burned to death, she requested the overseer to allow her to give her husband a last embrace. As soon as she touched her husband, the tree to which he was bound opened up, the ropes fell away, the two disappeared within and the tree returned to its former shape. The men were excited and ran to tell the chief. He commanded them to cut down the tree with an axe, and all gathered about to find the missing man and his wife. The first man who struck his axe into the tree was hit with a chip from the tree and fell dead. Another man was served likewise. So it went on until they consulted a kahuna. He told them that his woman was no other than Haumea, 'the mysterious one from the borders of Kahiki,' the woman of many bodies and of the lineage of gods. They performed ceremonies to appease the gods and the mountain dwellers returned to their home in the hills. [Hawaiian

Ethnological Notes Ms., Vol. II:150, BPBM Archives, cited in Sterling and Summers 1978:325-326]

#### 2.1.4.7 Kaualehu Cave

A *mo'olelo* written in *Kuokoa* in 1870 tells a story of Kāmeha'ikana living Kaualehu Cave:

Kameha'ikana went to dwell at the cave Kaualehu . . . She went to He'eia to gather sea weeds and crabs. When she had enough she returned above 'Iole-ka'a to the top of the cliff. There she turned to look on this side of the cliff of 'Iole-ka'a . . . the cave of Kaualehu. [*Ka Nupepa Kuokoa* 13 August 1870, cited in Sterling and Summers 1978:201]

#### 2.1.4.8 Keahiakahoe

The *mo'olelo* of Keahiakahoe illuminates the entire landscape of He'eia Ahupua'a. Kahoe, a farmer at the base of the Ko'olau mountain range, always gave poi (pounded, cooked taro) to his coastal-dwelling brother, Pahu. Pahu, a fisherman living near the coast on Pu'u Pahu (Pahu Hill), however, regularly gave Kahoe his leftover bait fish. When Lo'e, their sister who lived on Moku o Lo'e, told Kahoe that his brother was a good fisherman, Kahoe realized Pahu's deceit. A few months later a shortage of fish forced the farmers in the mountains to cook at night for fear of drawing hungry fishermen from the shore during the daytime. However, the smoke from Kahoe's fire drifted far up a cliff before it could be seen, so he did not have to cook at night (Hawaiian Ethnological Notes Ms., Vol. I:3179–3185). One day Lo'e saw Pahu looking up toward the summit of the *pali* and stated "So, now all you can do is stand and look at Kahoe's fire [*Ke ahi a Kahoe*]" (Landgraf 1994:94).

The following is one version of the *mo'olelo* of Ke-ahi-a-Kahoe (Hawaiian Ethnological Notes Ms., Vol. I:3179–3185, BPBM Archives):

That is the tallest peak on the mountain above Ke-a'a-hala (The *hala* root) at Kane'ohe.

There were brother and a sister from Moku-'ume 'ume (Ford Island) and Kahua-iki at 'Ewa who were expelled for constantly fighting with their parents. The four who were sent away were Kahoe of Ke-ahi-a-Kahoe (male), Kahua-nui (male) who was also known as Kahua-uli, whose home was at Luluku, Pahu or Pu'upahu (male) and Lo'e (female) whose name is found in Moku-o-Lo'e to this day.

The name Ke-ahi-a-Kahoe was derived from a deed committed by Pahu against Kahoe and Lo'e, which is given in the following account.

Kahoe was a farmer who lived on the Ha'ikū side of Ke-a'a-hala and so was Kahua-uli at Ka-'akau-wai at Luluku. Pahu was a fisherman, living on the He'eia side of that hill now known today as Pu'u Pahu (Pahu Hill). Their sister lived at the place that is still known as Moku-o-Lo'e (Lo'e's Island).

All went well in the first days of their settling in that locality but there was an indifference and stinginess in Pahu that was not recognized by the other brothers and their sister. In those days Pahu went up to visit Kahua-uli and Kahoe always

returned laden with loads of poi from them. With the sister, the brothers always brought her share to her.

After a passage of time the men took wives to themselves and an unhappy condition began. Pahu or Pu'u-pahu mated with Pa'u, a maiden across the valley and stream where he farmed. This place is on the upper side of a row of hills that separates Ke-a'a-hala and Ka-puka-'uki.

One day Pu'u-pahu came down from the upland home of Pa'u his wife, accompanied by his brother-in-law, to fish in the early morning. Upon returning in the evening, Pu'u-pahu sent the latter to go home by the seaward side of the row of hills or ridge separating Ke-a'a-hala and Ka-puka-'uki. He went on alone before it to the upland where Kahoe was farming. As they met, Pu'u-pahu said, 'You are in need, brother Kahoe, for all I have returned with is some bait.'

The meaning of these words was that he had some left over fish used as bait and the remainder were tiny ones. This was the beginning of deceit, as told in this tale, for the brother-in-law who went on another path had the *ulua* [crevalle, jack or pompano] and the *kahala* [amberjack or yellowtail] fish. This practice went on for a long time.

In all of this time Kahoe had no suspicion whatever until Lo'e arrived to get some vegetable food. It was after the evening that Pu'u-pahu had gone home with some kahala and other large fish.

When she met her brother (Kahoe), her first question to him 'Have you removed the cooked ulua fish from the imu [underground oven]? Pahu returned with the brother-in-law of you two laden with kahala last evening. I received some amomomi.'

The brother stared at her and replied, 'He has been returning with the bait fish every evening!' After saying this he recalled something some fellow farmers had told him. Lo'e exclaimed at once, 'Oh! Whenever he returned from the deep sea, there was never a time he had come without fish. How heartless of him!' and with this her tears fell. It was said that where Lo'e's tears fell, they formed a spring in front of the cliff of Ke-ahi-a-Kahoe facing Pa'u and there it is to this day.

(Note, I do not remember this spring, for I did not hear this tale while I was in Kane'ohe; I had gone there from 'Ewa to seek the things told me by A. Dickey. The spring was named Lo'e-wai.)

After Kahoe had heard this and saw the falling of her tears, he changed his residence and his farming place to the Ha'ikū or He'eia side of the cliff standing there. He stopped doing anything for Pu'u-pahu except when he came in person to the door of his house. Only then did the latter receive anything. It was not like before, when Kahoe brought food to him.

A few weeks after Kahoe had changed his place of residence, Pahu and his wife went down to Ka-'opu-lolia to make their permanent residence. He continued in his

trade of fishing. His brother-in-law always came down and the two went fishing together.

When Pu'u-pahu went to Ka-'opu-lolia to live, his brother-in-law supplied him with vegetable food. He, too, was a farmer and rarely was it ever heard that his home and family ever lacked food. But since his family was added to by his sister Pa'u and her children, Mr. Hunger and Mrs. Famine spread throughout He'eia and Kāne'ohe. Kahua-uli, Kahoe and a few others not mentioned in the story were exceptional cases. So let us turn back our narration to Ke-ahi-a-Kahoe and Pu'u-pahu the two 'dwellers of Kahua-loa.'

In the meantime Kahoe did not leave off farming at Ke-a'a-hala, where he grew sweet potatoes, pumpkins and other food plants suitable for a plain like this one. The food plants requiring much water were planted on the other side of Ha'ikū, all the way to the lowland of Hoi. This was a place in the center of He'eia Valley, that led to the fishpond of He'eia-uli. (I do not know or heard of this name while I was at Ko'olau).

When Pu'u-pahu returned again to dwell at Ka-'opu-lolia, he continued his daily fishing, but in those days life depended on the brother-in-law and on Kahua-uli. Kahoe did not actually refuse to give Pu'u-pahu any food, but the latter knew and heard that he had learned of his unkind deeds in the past.

It was several months after he and Pa'u had moved to the lowland that hunger and famine began to rage over the land. He went up to Kahua-uli to get some food and on the way he met with Kahoe. They had not seen each other in many months and were delighted at the meeting. As they were talking of the conditions of those days, Pu'u-pahu mentioned the trouble that they were in. He magnified the trouble and mentioned something that recalled a thought to Kahoe's mind, 'I just took some bait fish to the others (Kahua-uli and his brother-in-law) on that side.' He meant the other side of the valley that separated Pa'u and Ke-a'a-hala. This raised the heat of anger in Kahoe, who replied, 'How true that is. The famine in these days is indeed great. The bit of life-giving food is hard indeed to obtain. Therefore you are not receiving anything for all I have to sustain life are some broken pieces of sweet potatoes.'

After a short conversation which followed this, Pu'u-pahu went on his way to his brother-in-law's. He failed to obtain any food at all from there and so he continued on to the presence of Kahua-uli on the other side of Luluku.

When he reached Kahua-uli's place, he came at a time when the latter and his family were peeling taro and so Pahu was asked to join them in the work so as to have it done while it was day. As the peeling ended, it was late in the evening. Pa'u and the children were down at Ka-'opu-lolia waiting with hunger as darkness fell.

Pahu had never tried to pound poi in his life and this remaining in the upland until dark distressed his mind. Because of the love and kindness of Kahua-uli, he commanded some men who lived under him to fill Pahu's container with the first batch of poi made.



When Pahu received enough poi to last them a week or ten days it was already dark. (Perhaps it was the equivalent of eight or nine o'clock to us today). After receiving it, he hastened home, thinking of his family's hunger. It was quite late when he arrived at home, about 11 or 12 o'clock at midnight.

Upon reaching home, he found his family asleep. This caused anger and quarrelling between the two (his wife and himself).

Let us go on talking about the source of the name. Ke-ahi-a-Kahoe, on the cliff of Ke-a'a-hala. It remains to this day in which the modern generation of this people live, the majority of the Hawaiian youths, who regard the seeking of the old lore a stupid and time wasting occupation.

Remember that in those days when the famine was at its worst, the cooking of food was kept secret, because when it was noticed, the place would be full of hungry people who looked with longing before the imu [earth oven] was opened. Therefore the others made it a habit to hide the imu full of food; to postpone the time of cooking until evening or at night, between nine o'clock and daybreak. When day came, the food was prepared and in the bowls and containers. In the daylight hours was the time going to and fro seeking things to benefit the family. Remember it was the smoke of the *imu* (earth oven) who told the public, 'So-and-so is baking food,' and the time for the opening was then eagerly watched for. As soon as the imu was opened, women and children gathered about and it was said that some men did likewise. This one scooped that one grabbed, and before long the owner of the imu had nothing at all. That was why the cooking was done at night, but later the result was just the same.

As to this Kahoe, whom we are discussing, he did preparing or cooking at night, for rarely was the smoke of his imu seen. Besides that, he and his family were quick in peeling and pounding the taro as they cooked.

The *poi* was mixed before the people gathered to scoop up the food and this deprived them. By the time the cheeky beggars arrived, they were sitting quietly, with all the food mixed and in large containers inside the house.

The reason that Kahoe was never caught cooking was his ability to conceal the smoke of the imu he lighted. While the imu was lighted, all those who watched eagerly for it never saw it. He had two dwellings, one was in a valley on the Ha'ikū side of the cliff bearing his name and the other in another valley in front of Ke-a'a-hala, on the side looking out toward the sea of Kāne'ohe. The other homes in which Kahoe lived in these valleys were far away from the spot where the smoke rose on the cliff which bore his name. When the fire was lighted in the imu, the smoke traveled a half or a whole mile before it appeared at the summit of the cliff of Kahoe. Therefore whenever the imu was lighted, rarely did any man or woman recognize the time that Kahoe did it.

Remember now, when the imu made by Kahoe was being readied for the food, the smoke was not seen rising from that spot at all or anywhere near it. It crept along inside of the valley to the spot mentioned, a distant place of over a half a mile from

where the fire was burning. This helped him greatly in keeping secret the time for the lighting of his imu for the food of his family before beggars, the result of the bitter famine, arrived there.

Remember, these two homes of Kahoe, standing at Ha'iku and Ke-a'a-hala, were alike in being so well situated. The smoke appeared at the same spot and rose at the edge of the cliff.

Now let us turn over the conversation to Pahu and his family down at Ka-'opu-lolia.

About three or four months after they had moved to Ka-'opu-lolia, where they found the worst of hunger because of the lack of food, the planting fields of his brother-in-law failed to grow dry land food, such as sweet potatoes, and wet land food such as taro, therefore the welfare of three families depended on one person to feed them and that was Kahua-uli at Luluku, a distance of about a mile from Pa'u, where Pahu's brother-in-law lived with his family.

One of the warmest days of the warmest month, Makalii, Lo'e thought of Ka-'imi-hana, a lover of hers. He was the favorite brother of 'Ula-i-ka-poki and the two lived on the eastern side of the place where Pahu dwelt with his wife and children.

Remember, O Reader, this was the day on which Lo'e mentioned something about Kahoe's cliff. It (the smoke) was discovered as he (Pahu) stood by the wall of their shed and gazed up at Ke-a'a-hala. His arms were crossed behind him (in sorrow) that day because of his lack of food and hunger. He recalled the things he did to Kahoe, who in turn, did not disown him. He had come out doors that evening with hands crossed behind his back and turned his face to look at Ke-a'a-hala where his oldest brother was living.

As he looked toward the upland, without turning behind him to the sea, Lo'e arrived. Because of Lo'e's affection for her oldest brother and remembrance of what she had heard of the unkindness of this brother to him, she said to him sternly, 'So! Standing at the wall of the house with eyes gazing at Ke-ahi-a-Kahoe (Kahoe's fire).' Pahu was startled by the voice behind him, and when he turned about he saw his sister with an amused look on her face. He offered no reply for she had already given him a verbal lambasting in the past for his treatment of Kahoe. Therefore at seeing his sister, he looked up once more and returned indoors. After he had gone in, she continued on her way to Ka-'imi-hana, her heart's desire.

I recall the name Ka-'imi-hana, as the name of a spring on the west corner of the large taro patch lying close to and above 'ula-i-ka-poki. The name was also applied to the large taro patch during the lifetime of Alapa'i and Kikaha, my beloved parents who have gone to the other side of the round world, where all must go. There also will I follow them. [Hawaiian Ethnological Notes Ms., Vol. I:3179–3185, BPBM Archives]

#### 2.1.4.9 Mā'eli'eli

A *mo'olelo* written in *Hoku o Hawaii* in 1926 makes a connection between Mā'eli'eli and the moon:

They reached Pakole and there was Maelieli directly above them. Hi'iaka said to her friend, 'That hill that is standing there on our left is Maelieli and it was from here that a relative of ours, Hina-i-ka-malama left the earth to go and dwell in the moon. Because her husband clung to a leg and it broke off, she flew maimed into the moon called Lono-muku (Maimed-Lono).' [*Hoku o Hawaii*, 12 January 1926, cited in Sterling and Summers 1978:198]

In addition, a *mo'olelo* of Lau-ka-ieie includes a reference to Mā'eli'eli as "the dragon woman of Heeiea" (Westervelt 1915:41). Mā'elieli is also a place where Kāne and Kanaloa raced, digging in with their fingers and toes as they climbed up the steep cliffs (Pukui et al. 1974).

#### 2.1.5 Early Historic Period

The importance of He'eia in traditional accounts—Souls' Leap, burial grounds, and *heiau*—is directly related to the productivity of the *ahupua'a*, including both terrestrial and marine resources. Early historical accounts also indicate the desirability of He'eia because of this high productivity.

The earliest historic accounts relate major battles of conquest during the late 1700s. The feeding of such amassed armies necessitated procuring valuable food supplies and highly productive locales. In the 1780s, Kahekili, King of Maui, fought Kahahana, King of O'ahu, for control of O'ahu. Kahahana, who sometimes lived in the Kāne'ohe/He'eia area (Devaney et al. 1976:5), was in Nu'uano when Kahekili defeated his forces and took control of O'ahu. However, prior to Kahekili's O'ahu landing, his fleet had "sailed to Moloka'i to secure fish from the walled fishponds" (Kamakau 1961:135). After the battle Kahekili lived at Kailua, O'ahu with most of his chiefs and followers staying at Kāne'ohe and He'eia (Kamakau 1961:138).

Kamehameha followed much the same route as Kahekili some ten years later. After Kamehameha had conquered O'ahu, he kept the *ahupua'a* of Kāne'ohe as his personal property with He'eia also retained as Kamehameha lands. Obviously many *ahupua'a* of Ko'olaupoko were highly desirable because of their valuable food resources. The large walled fishponds, of which He'eia is the largest, and the expansive taro lands of Kawainui, Kāne'ohe, and He'eia, were at times the wealth to be won or lost.

The *'ili* of Kikiwelawela and surrounding lands seems to have been a center for habitation and an extension of the northward expansion of recent development in Kāne'ohe. In addition to the increase in population, this "stifling hot" area may have been named for the intermittent streams of Keahala and Kalimukele that flow from Kikiwelawela into Kāne'ohe. Without a perennial stream, cultivation of *kalo* in this area was sustained through freshwater springs as described by Michael Okihiro. Aunty Rocky Kaluhiwa also described extensive *'auwai* systems that were operational during the late 1800s (Genz and Hammatt 2011). Her paternal great-great-grandfather, Komomua, and great-great-grandmother, Koa'omoku o He'eia (the high chiefess of He'eia) were *konohiki* of the *ahupua'a*, and her paternal grandfather, Ulysses Jones, was the last *konohiki* to maintain an extensive *'auwai* system. Water from a stream that once flowed at the base of the mountains between the valleys of Ha'ikū and 'Ioleka'a was diverted to flow along Ha'ikū Road toward St. Ann's Catholic Church. The *'auwai* forked, with one canal flowing toward He'eia

Fishpond and another flowing toward a fishpond near Yacht Club Street next to O'ohope Fishpond. Aunty Rocky suggested this second branch of the *'auwai* likely functioned similar to the *mākāhā* on the *mauka* walls of He'eia Fishpond, which create the proper salinity level for the raising of mullet by regulating the intake flow fresh water.

The day-to-day reality of *kalo* cultivation in an area that lacked a perennial stream source may be gleaned from early references to the area. In a letter written from Paulo Kānoa, agent of the *ali'i* Kīna'u in Honolulu, to Gidiona La'anui at Waialua on 12 October 1838, the following description speaks of famine due to the lack of taro production in Kikiwelawela:

I order you to [furnish] me with taro for the workers of the two of us, that is what I am telling you. If there is no taro of ours [*makaou*] when there is much work then we perhaps will [face] famine because there is not taro at Kikiwelawela [He'eia, O'ahu]. The *paahao* [workers] are cooking [the last of the taro] of the chief. [Correspondence from P. Kānoa to Gidiona La'anui, Chiefs' letters, cited in Kirch and Sahlins 1992, Vol. I:172]

### 2.1.6 The Māhele and Kuleana Act

He'eia remained under direct control of the Kamehameha dynasty until the Māhele (1848). From 1816 to 1829 Chief Boki was Governor of O'ahu and was in charge of Liholiho's (Kamehameha II) and then Kauikeaouli's (Kamehameha III) O'ahu lands (Kelly 1975:6). His wife Liliha succeeded him in the office of Governor of O'ahu (1829-1831). In 1831 Liliha was involved in an attempt to take over O'ahu, however, the rebellion (*Pahi kaua*) failed (Kelly 1975:7). As a result, Liliha was removed from power and lost official control of most of Kamehameha III's lands. However, Liliha maintained some of her lands and "continued to play a governess role in Pali Ko'olau (Ko'olaupoko) into the mid-1830s" (Kelly 1975:6).

During Boki and Liliha's tenure (ca. 1830), Chief Abner Pākī was appointed *konohiki* (land agent/overseer) of He'eia. Abner Pākī was Liliha's cousin but he also had ties to He'eia prior to the Kamehameha family. These "ties" are attributed to Kahekili's 1785 conquest of O'ahu, as Abner Pākī's uncles were prominent Maui warrior chiefs. "At least part of Paki's connection with the land at He'eia may stem from his uncle(s) earlier residence in that land, and may have been the reason why Paki was made *konohiki* of He'eia" (Kelly 1975:5). Abner Pākī acted in the capacity of *konohiki* until 1848.

In 1848, as part of the Māhele, Abner Pākī received the *ahupua'a* of He'eia (4,100+ acres) as his personal property (Land Commission Award [LCA] 10613). The award included the He'eia portion of Mōkapu peninsula and the sea fisheries of Kāne'ohe Bay (Hawaii Commissioner of Public Lands 1929). The Catholic Mission also received relatively large tracts of land within He'eia (LCA 43, 260+ acres), which was initially a gift to the Mission by Kamehameha III in 1845. Victoria Kamāmalu was awarded the *'ili kūpono* of Kikiwelawela (LCA No. 7713, *Āpana* 31, Royal Patent 4475).

The Kuleana Act of 1850 allowed for private ownership of lands by "commoners," the persons or families actually living and working on the land. "As a result of the Kuleana Act of 1850, there were 93 *kuleana* awards in He'eia which totaled 203 acres of land; they averaged 2.18 acres per award" (Kelly 1975:9). Figure 8 depicts known LCAs in the vicinity of the project area and Table 4 lists *kuleana* awards located within or near the project area.



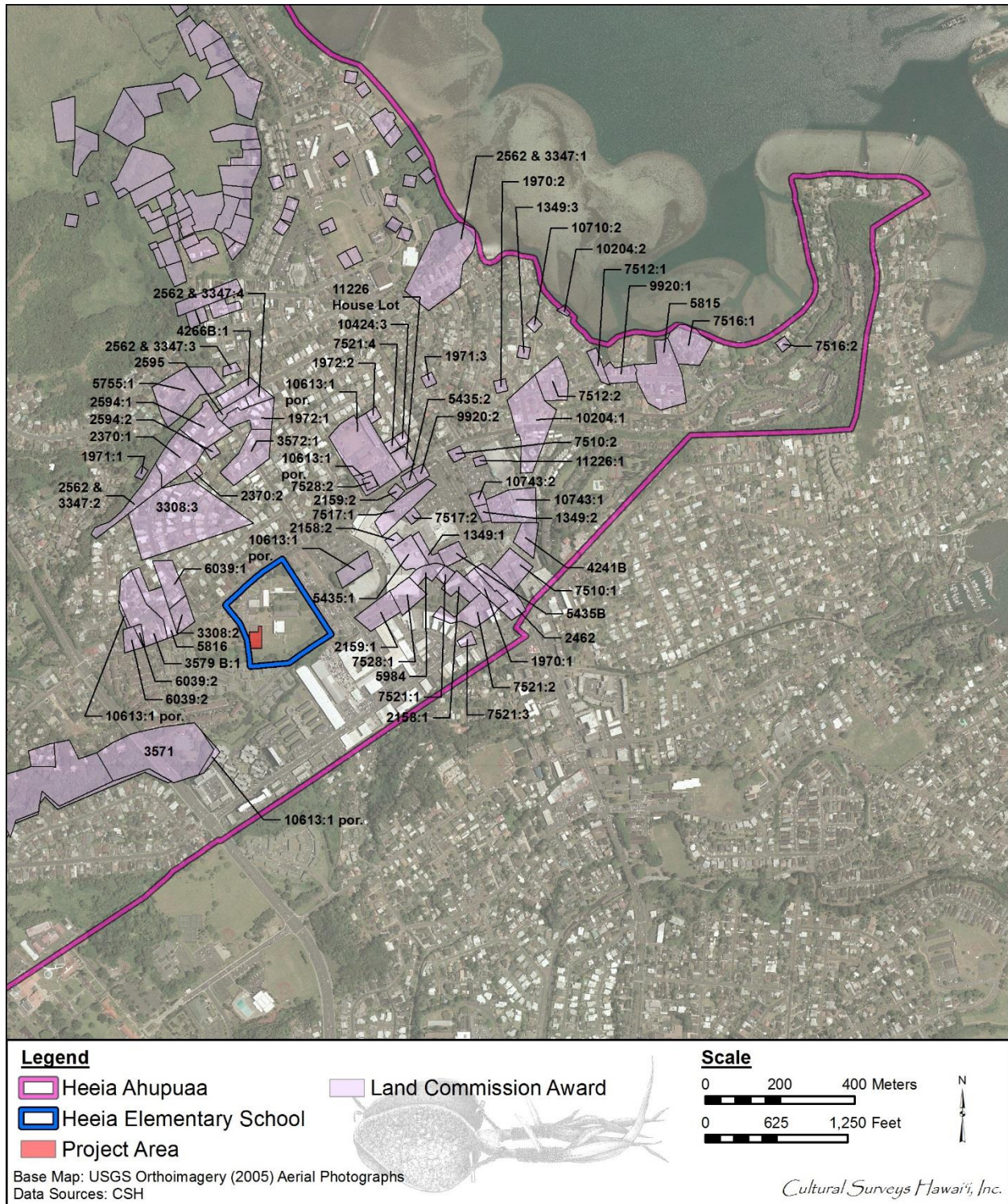


Figure 8. *Kuleana* LCAs in Kikiwelawela 'Ili, showing the location of He'eia Elementary School and the Play Court project area (base map: USGS 2005)

Table 4. Compiled Land Information for Kikiwelawela Section

LCA	RP	Claimant	'Ili	Mo'o, 'Āpana, Land Use, Stewardship of Land, and Other Notes
1349	1419	Pekane/ Paekane	Kikiwelawela	'Āpana 1: Six <i>lo'i kalo</i> 'Āpana 2: House lot 'Āpana 3: No information available Claimant had the land since 1844 from Paalaau
1970	1019	Ainui	Kikiwelawela	'Āpana 1: Three <i>lo'i kalo</i> 'Āpana 2: House lot Claimant had the land since 1844 from Paalaau
1971	1014	Lihue	'Ioleka'a	'Āpana 1: Mo'o 'āina (called Kipawale) 'Āpana 2: One <i>lo'i kalo</i> 'Āpana 3: House lot Claimant received land from Kalawalu in 1839; claimant's land borders He'eia Stream
1972	1010	Pahia	Koaena	'Āpana 1: Seven <i>lo'i kalo</i> 'Āpana 2: House lot Claimant had the land since 1832 from Nauka; <i>konohiki</i> took three taro patches but may be restored
2158	1028	Alotalio	Kikiwelawela	'Āpana 1: Seven <i>lo'i kalo</i> 'Āpana 2: house lot Claimant had the land since 1846
2159	1562	Kamai	Koaena, Kikiwelawela	'Āpana 1: Seven <i>lo'i kalo</i> (Koaena) 'Āpana 2: House lot (Kikiwelawela) Claimant had the land since the time of Liholiho from Nauka
2370	1008	Komomua	Koaena	'Āpana 1: <i>Lo'i</i> and <i>kula</i> 'Āpana 2: <i>Pāhale</i> Two <i>lo'i kalo</i> in the uplands; house lot; claimant had the land from 1839
2462	1004	Kekenī	Kikiwelawela	Claim not found; Kauwa swore he saw the written claim and payment; Paekane swore this is the claimant's land in the 'ili of Kikiwelawela; claimant has a mo'o 'āina called Kaihikapu; claimant received land from Palaau in 1841 and had it in peace until 1849; in 1849 the <i>konohiki</i> by the direction of his landlord, Kauwa, took back a large <i>lo'i kalo</i> from claimant for a <i>poahina</i> (no definition available) and gave no reason for taking it; it never was a <i>poahina</i> ; Kauwa (landlord) swore the above is true; a claim was found but was overlooked

LCA	RP	Claimant	<i>ʻIli</i>	<b><i>Moʻo, ʻĀpana, Land Use, Stewardship of Land, and Other Notes</i></b>
2562	993	Nauka	Koaena	ʻĀpana 1: Four <i>loʻi kalo</i> , a fish pond, and a house lot ʻĀpana 2: One <i>loʻi kalo</i> ʻĀpana 3: One <i>loʻi kalo</i> ʻĀpana 4: <i>Moʻo ʻāina</i> Claimant received land from Pākī in 1832
2594	1002	Piena	Koaena	ʻĀpana 1: Six <i>loʻi kalo</i> ʻĀpana 2: House lot Claimant had the land since 1844 from Nauka
2595	991	Poohina	Koaena	Five <i>loʻi kalo</i> and upland Nauka gave claimant the land from 1846
3308	8107	Makakehau	Koaena	ʻĀpana 1: <i>Moʻo ʻāina Papala</i> ʻĀpana 2: <i>Moʻo ʻāina Papala</i> ʻĀpana 3: House lot Claimant received land from Pākī in 1839
3347	993	Nauka	Koaena	See LCA 2562
3571	3629	Kalehuna	Kalimukele	ʻĀpana 1: <i>Moʻo ʻāina</i> , house lot Claimant received land from Pākī in 1839
3572	997	Kania	Papala	ʻĀpana 1: Eight <i>loʻi kalo</i> ʻĀpana 2: One <i>loʻi kalo</i> ʻĀpana 3: House lot Claimant had his land from Uhuu in the year 1834; <i>moʻo ʻāina</i> is Puolo
3579 B	3960	Naihepahee	Hoi	Seven <i>loʻi</i> ; <i>moʻo ʻāina</i> ; house lot; <i>kula</i> lands ʻĀpana 1: Information unavailable (Kikiwelawela Map) ʻĀpana 2: Information unavailable (Waipao Map) Claimant had the land since 1839
4241 B	1569	Kahau	Kikiwelawela	ʻĀpana 1: Two <i>loʻi kalo</i>
4266 B	1560	Ehumaka-weuweu	Koaena	ʻĀpana 1: Three <i>loʻi kalo</i> ʻĀpana 2: House lot Nauka gave the land to the claimant in 1832
5435	1023	Kahuena	Kikiwelawela	ʻĀpana 1: Five <i>loʻi kalo</i> ʻĀpana 2: House lot Claimant had the land from Palaa in 1844

LCA	RP	Claimant	<i>ʻIli</i>	<i>Moʻo, ʻĀpana, Land Use, Stewardship of Land, and Other Notes</i>
5435 B	1025	Keau	Kikiwelawela	Kahuena swears the claimant died in 1850 and his widow Umakolu is his heir; he has one son <i>ʻĀpana 1: One loʻi kalo</i> <i>ʻĀpana 2: Eight loʻi kalo</i> Claimant received land from Palaaui in 1844
5755	1575 3396 3404	Kahaulua- kea	Wawae	<i>ʻĀpana 1: Two loʻi kalo</i> <i>ʻĀpana 2: Nine loʻi kalo</i> Claimant received this land from Pākī in 1839
5815	998	Kekohai	Kikiwelawela	<i>ʻĀpana 1: 16 loʻi kalo, house lot</i> Claimant received this land from Palaaui in 1843
5816	2498	Kapai	Hoi	<i>Loʻi</i> in uplands; house lot Claimant had land since 1839
5984	1005	Makaioulu	Kikiwelawela	<i>ʻĀpana 1: Four loʻi kalo</i> Claimant received land from Malailua in the time of Liliha
6039	1564 2020	Elemakule	Hoi, Waipao	<i>ʻĀpana 1: Hoi; six loʻi</i> <i>ʻĀpana 2: Hoi; house lot</i> <i>ʻĀpana 3: Waipao; four loʻi</i>
7510	999	Kauwauwa	Kikiwelawela	<i>ʻĀpana 1: Two loʻi kalo</i> <i>ʻĀpana 2: One loʻi kalo and a house lot</i> Claimant received land from Palaaui in 1844
7512	4713	Kuakapiko	Kikiwelawela	<i>ʻĀpana 1: Four loʻi kalo</i> <i>ʻĀpana 2: House lot</i> Claimant received land from Palaaui in 1844
7516	1024	Kaailoli	Kikiwelawela Kai	<i>ʻĀpana 1: Six loʻi kalo, one loko puʻuone, hale, and kula ʻāina;</i> <i>ʻĀpana 2: Pā hale</i> Claimant received land from Palaaui in 1844
7517	1029	Kapule	Kikiwelawela	<i>ʻĀpana 1: Three loʻi kalo</i> <i>ʻĀpana 2: Eight loʻi kalo</i>
7521	1027	Keliikanaka -ole	Kikiwelawela Uka, Kumupali	<i>ʻĀpana 1: Two loʻi kalo</i> <i>ʻĀpana 2: Six loʻi</i> <i>ʻĀpana 3: One loʻi</i> <i>ʻĀpana 4: Pāhale</i> Claimant received land from Pehia in 1832
7528	1026	Kimokeo	Kikiwelawela	<i>ʻĀpana 1: Six loʻi kalo</i> <i>ʻĀpana 2: One loʻi kalo</i> <i>ʻĀpana 3: House lot</i> Keliikanakaole gave claimant this land in 1846; one <i>loʻi kalo</i> was taken by the <i>konohiki</i>



LCA	RP	Claimant	'Ili	Mo'ō, 'Āpana, Land Use, Stewardship of Land, and Other Notes
9920	1561 2287	Lula	Kikiwelawela	'Āpana 1: Three <i>lo 'i kalo</i> 'Āpana 2: House lot Claimant received his land from Palaau in 1845
10204	1420	Mahi	Kikiwelawela Kai	'Āpana 1: Four <i>lo 'i kalo</i> 'Āpana 2: One <i>lo 'i kalo</i> 'Āpana 3: House lot Claimant received his land from Palaau from 1847; <i>konohiki</i> has took the land but restored it
10424	2289	Naipu	'Ioleka'a	'Āpana 1: Mo'ō 'āina 'Āpana 2: One <i>lo 'i kalo</i> 'Āpana 3: House lot Claimant received land from Kalauwalu in 1836 and had it in peace until then
10613	1664	Abner Pākī		(No description available for He'eia lands) 10613:1 por. (Kikiwelawela Map) 10613:1 por. (Kikiwelawela Map) 10613:1 por. (Kikiwelawela Map) 10613:1 por. (Kikiwelawela Map) 10613:1 por. (Kikiwelawela Map) 10613:1 por. (Waipao Map)) 10613:1 por. (Waipao Map) 10613:1 por. (Waipao Map) 10613:1 por. (Waipao Map) 10613:1 por. (Waipao Map)
10710	1009	Paa	Kumupali	'Āpana 1: Fourteen <i>lo 'i kalo</i> 'Āpana 2: Two <i>lo 'i kalo</i> 'Āpana 3: Five <i>lo 'i kalo</i> 'Āpana 4: House lot Claimant had his land from Ukeke, an agent of Pākī, about the year of 1832 and has had it in time since
10713	6158	Poohiwi	Paahale	'Āpana 1: Five <i>lo 'i kalo</i> 'Āpana 2: Two <i>lo 'i kalo</i> 'Āpana 3: House lot Claimant received his land from Puahiki in 1838

LCA	RP	Claimant	'Ili	Mo'ō, 'Āpana, Land Use, Stewardship of Land, and Other Notes
10713 B	6616	Haalou/ Haaloa		Kamaka swears he knows the land of claimant; it is in He'eia and consists of four <i>lo'i kalo</i> , a house lot, and a little <i>kula 'āina</i> with trees 'Āpana 1: Four <i>lo'i kalo</i> 'Āpana 2: House lot Claimant had the land from Uhuu in the time of Liliha
10740		Puaiole		Eight <i>lo'i kalo</i> in one piece (bounded on all sides by the <i>konohiki</i> 's land); piece of <i>kula 'āina</i> , the house lot also sits on the <i>kula</i> parcel (not enclosed) Claimant received the land from Kalawaia about ten years ago (ca. 1841)
10741		Puupea	Mōkapu	Papala: One 'ili Pohakuloa: Four 'ili Wiiwii: One 'ili Paehala: One 'ili Papaiole: Three 'ili Palawai: One 'ili Pamakani: One 'ili
10742		Puhi	Mōkapu	Pamakani: Three 'ili Makahuna: Two 'ili Pahihi: Four 'ili Wiiwii: One 'ili
10743	1559	Palaau	Kikiwelawela	'Āpana 1: Five <i>lo'i kalo</i> 'Āpana 2: House lot Claimant had the land from Kanoa in 1844
10977	1567	Wiwi	Pahele	'Āpana 1: Three <i>lo'i kalo</i> Pākī gave claimant his land in 1843
11226		Naihe	Kikiwelawela Kai	'Āpana 1: Four <i>lo'i kalo</i> 'Āpana : house lot Claimant received the land from the <i>konohiki</i> in 1842

The early historic accounts and land records of the mid-1800s indicate the *ahupua'a* of He'eia was very productive in terms of both marine and terrestrial food resources. These included the fisheries of the shoreline ponds and Kāne'ohe Bay and the extensive taro (*lo'i*) lands which extended up to the base of the Ko'olau mountain range (i.e., Ha'ikū Valley). Because of this high productivity, lands of He'eia Ahupua'a were considered very valuable. The LCA claims located nearest to the project area indicate the land at the time of the Kuleana Act was used primarily for *lo'i* cultivation and house lots (Figure 9).

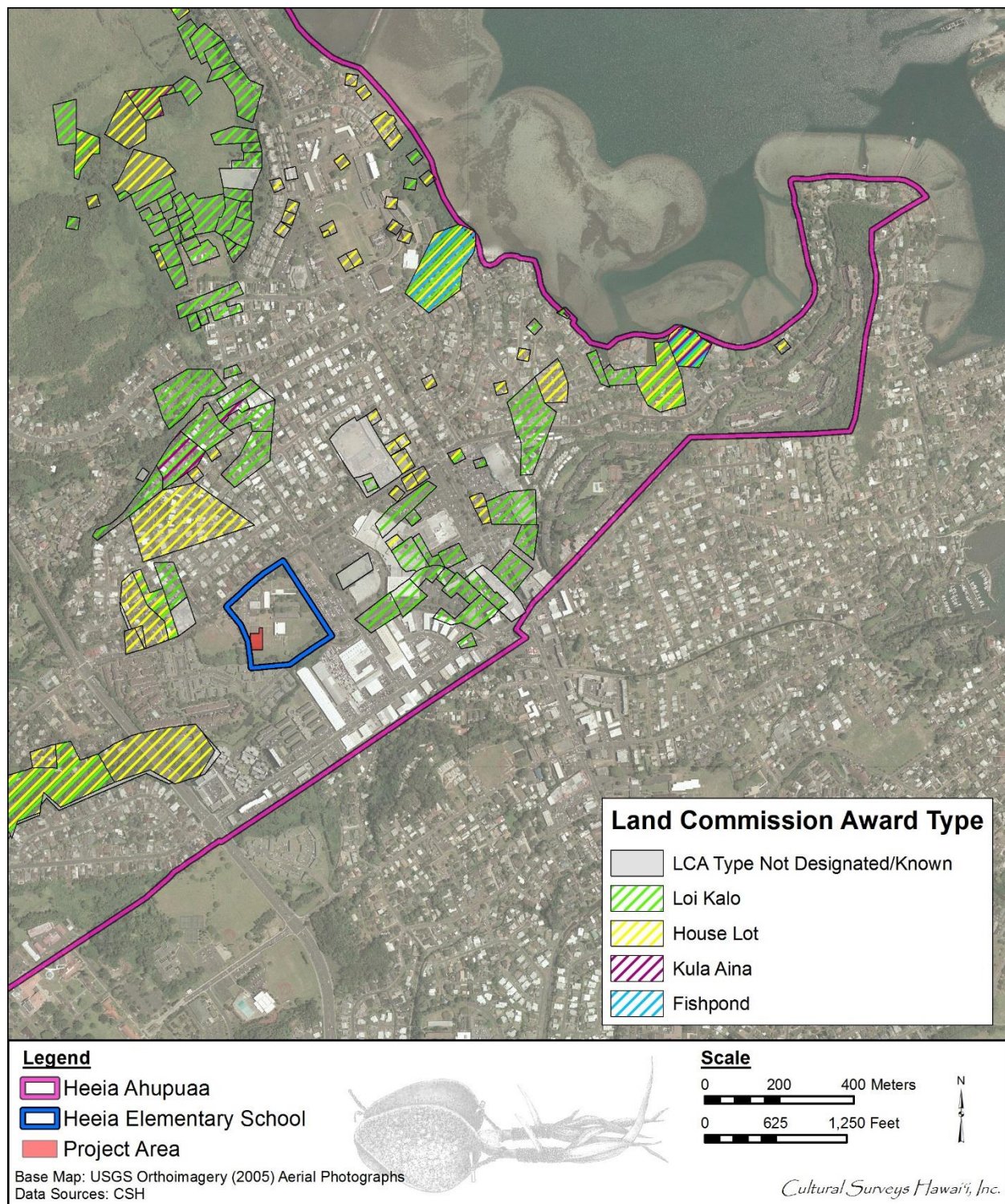


Figure 9. Land use in Kikiwelawela 'Ili as documented in *kuleana* testimonies, showing the location of He'eia Elementary School and the Play Court project area (base map: USGS 2005)

The testimonies for the various *kuleana* LCAs in this northern *makai* region of He‘eia indicate additional ‘*ili*. The mapped extent of these ‘*ili* similarly denote a large area of Kikiwelawela ‘Ili that roughly corresponds to the 1913 Baldwin and Alexander map (Figure 10). The 1913 Baldwin and Alexander map indicates the southern coastal area of He‘eia contained the dominant ‘*ili* of Kikiwelawela, as well as Kalimaloa to the north and Koaena, Hoi, Makawiliwili, and Kalimukele more inland extending toward Waipao. Other areas of near congruence are the clusters of ‘*āpana* designated within the ‘*ili* of Hoi and Koaena. Of note is that the ‘*ili* of Koaena has several outlying segments with no other intervening ‘*ili* forming borders with the ‘*ili* of Hoi to the southwest, Kikiwelawela to the south and southeast, Wawae to the north, and Kalimulua to the northwest. If so, the ‘*ili* of Koaena is fairly expansive. Also, designations of Kikiwelawela as Kikiwelawela Kai and Kikiwelawela Uka do indeed form several sections of the *makai* and *mauka* portions of Kikiwelawela, respectively. In addition, the testimonies provide the locations for discontinuous segments of the ‘*ili* of ‘Ioleka‘a, as well as ‘*ili* interspersed within Kikiwelawela, including Kumupali and another ‘*ili* designated as He‘eia. The LCA testimonies also describe patterns of land use. Overall, this southern *makai* area of He‘eia contained ‘*āpana* designated primarily as either *lo‘i kalo* (ranging from one to 16 *lo‘i*) or *pā hale*, with several ‘*āpana* used for both subsistence and house lots. In addition, one ‘*āpana* was designated as containing a *kula āina*. The mapped locations of these various ‘*āpana* indicate widespread settlements with local cultivation of *kalo* and one instance of dryland cultivation (see Figure 9). Such cultivation extended quite far *makai*. Of note is Land Court Application Map No. 703 (1925), which indicates that a *kuāuna* (bank or border of a *lo‘i kalo*) bordered the coastal section of LCA 5815, ‘Āpana 1, and appears to abut the wall of O‘ohope Fishpond. The testimonies also reveal several parcels were given to tenants by Pākī, Uhuu, and other land managers prior to the Māhele “from the time of Liliha” (LCAs 6006, 5984) until 1846.

## 2.2 Mid- to Late 1800s

### 2.2.1 Saint Ann’s Catholic Church and Schoolhouse

Saint Ann’s Catholic Church and schoolhouse, located west of the project area, was founded in the 1840s (Schoofs 1978). The church grounds included “a large priest house, comprising 13 small rooms, a kitchen, a dining room and a community room” (Schoofs 1978:103). It is also noted that “the little monastery was ideally situated in a large French garden replete with flowers, green shrubbery, and a great variety of trees” (Schoofs 1978:103). The schoolhouse was built near the church:

On the outskirts of the five acre property [...] Catholic Hawaiians had dug four large ponds in which taro was raised in sufficient quantity to feed the 150 schoolchildren and a number of women occupied in the workshop. Father Martial’s first work was to build a school, native style, and also a hall 70 feet long, which he opened as a workshop for women. [...] The success of the women’s workshop was very encouraging for Father Martial, so much so that [he] planned a similar shop for men and boys. [Schoofs 1978:103]

A new schoolhouse was built in 1871 close to St. Ann’s Catholic Church. The new St. Ann School became “the best school in Koolau District” (Schoofs 1978:103). After 1927, five classrooms were added to the schoolhouse, which had consisted of two classrooms plus one small building. (Schoofs 1978:104)



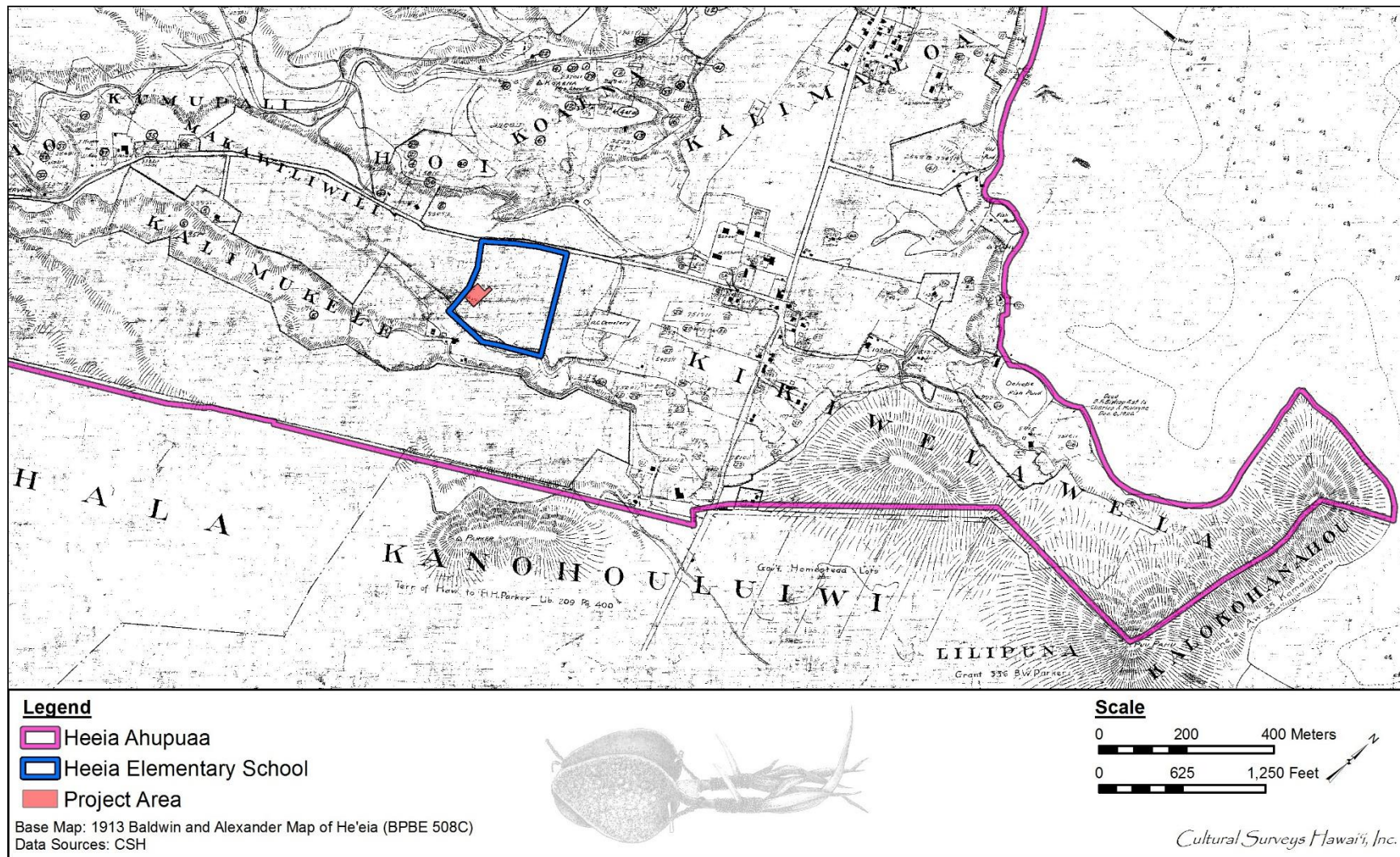


Figure 10. Portion of the map of He'eia by Baldwin and Alexander in 1913, showing the location of He'eia Elementary School and the Play Court project area; note the general locations of 'ili near Kikiwelawela 'Ili

### 2.2.2 Rice and Sugar Cane (1870s–1920s)

Taro remained the dominant crop surrounding the project area until the 1870s. The influx of Chinese and the decline of the Native Hawaiian population in the 1850s–1870s caused a changeover to rice cultivation. In 1871, Bernice Pauahi Bishop, the daughter of Abner Pākī and Chiefess Konia, signed a lease with Chinese rice farmers in He'eia (Kanahele 1986:157); she had inherited the He'eia lands from her father. Individual *kuleana* were also being leased to Chinese rice farmers during the 1870s. The Wing Wo Tai Company had the lease on a number of *kuleana* and was also growing rice on “Bishop Estate” land. In the 1880s there was also a rice mill within the leased Bishop Land. Rice was shipped to Honolulu as well as used for local consumption. The Heeia Rice Plantation of the 1880s was operated by Ma Ah Kau and is described as “one of the most complete and well cared for [plantations]” (Bowser 1881).

Coinciding with the increase in rice production was the advent of commercial sugar cane production in He'eia. However, it was not until 1878 that the sugar mill was completed (Condé and Best 1971:295). The plantation rented or leased most of its land, including some of the *kuleana* lands for growing rice and taro for its laborers. The plantation completed rail lines and a wharf allowing for cane from Kāne'ohe to be milled at He'eia and then shipped to Honolulu. The plantation had some 250 laborers by the 1880s. A few years of bad crops eventually led to changes in plantation ownership, and the Heeia Sugar Plantation ceased operations in 1903 (Condé and Best 1973:295-296; Devaney et al. 1976:44). A later account of He'eia describes the area as, “where the Catholic Church stands and where the old mill of Heeia sugar plantation stood” (*Hoku o Hawaii* 1926; Sterling and Summers 1978:197).

### 2.2.3 1900s

The commercial cultivation of pineapple began in the 1890s and expanded through the first decade of the 1900s in Kāne'ohe. From approximately 1910 to 1925, pineapple cultivation was a major industry in this area. At its peak, 2,500 acres were under cultivation in Windward O'ahu (Harper 1972), and of this a large percentage was in the Kāne'ohe Bay region.

Taro made a comeback between the 1920s and 1940s coinciding with the decline in rice; much of the former *lo'i* land was returned to taro production. The extensive salt marshes of He'eia inland of the fishpond (*loko*) were not suitable for cultivation, but fringing them to the southward, flanking both sides of He'eia Stream from which they were irrigated, lay the vast terraced lowland flats of this *ahupua'a*, which were in 1935 still largely planted in commercial taro (Handy and Handy 1972:454-55).

The 1919 U.S. Army War Department Fire Control map depicts a fenced road alignment along the northern boundary of the project area that corresponds with present-day Haiku Road (Figure 11). Another dead-end fenced roadway extends into the southeast corner of the project area and three possible structures are depicted within the project area. No development is depicted within the project area in the 1936 U.S. Army War Department Terrain map (Figure 12).

Post-war military measures filled in six fishponds in Kāne'ohe Bay and provided for 107 residential lots. The Ali'i Shores subdivision, adjacent south of the project area, replaced a traditional fish camp (Dorrance 1998:95). A Naval Reservation supporting He'eia Radio Station occupied what is now King Intermediate School from June 1933 until just after the bombing of Pearl Harbor in December 1941. The radio station was moved to Wahiawā in December 1941 and



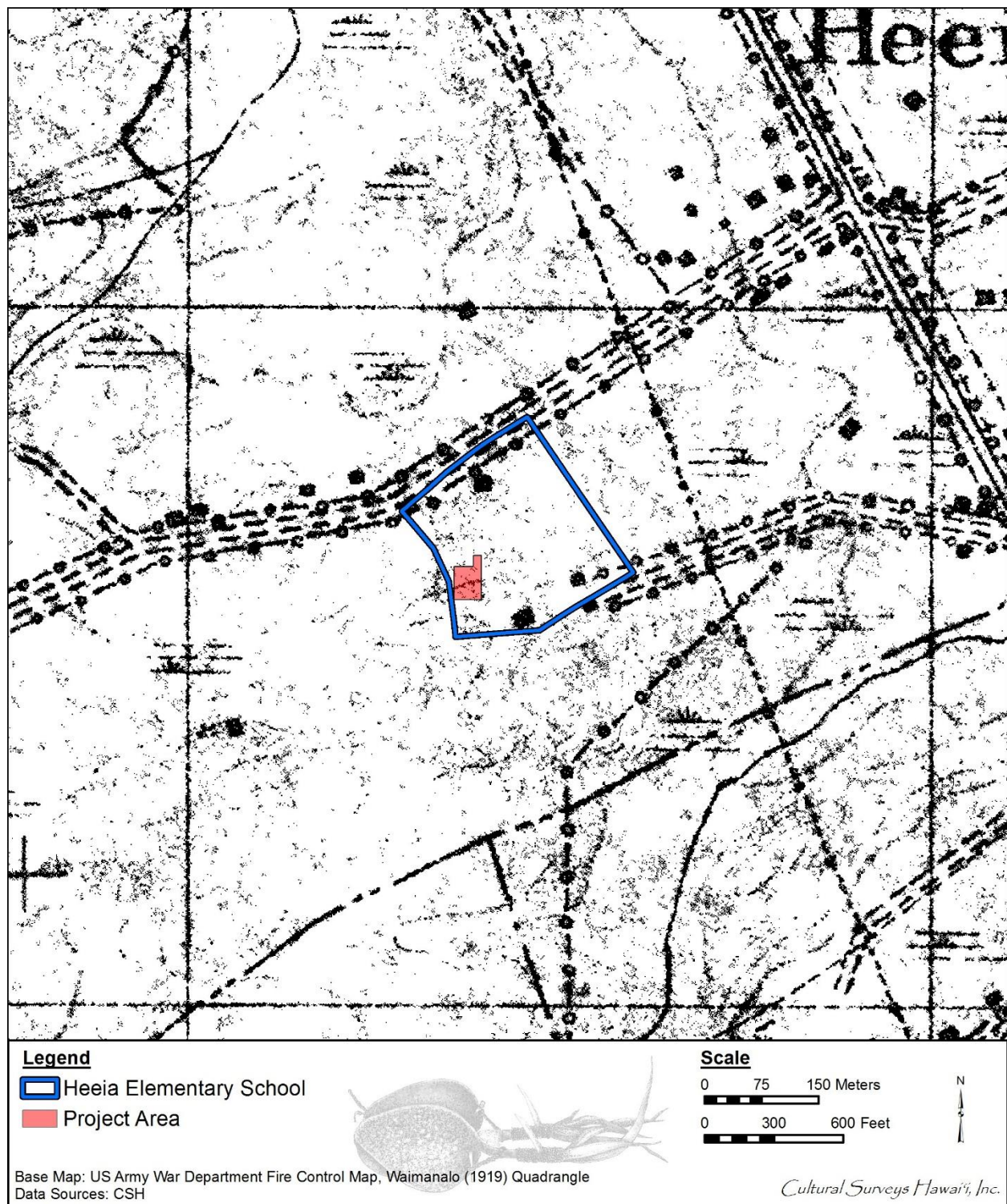


Figure 11. Portion of the 1919 U.S. Army War Department Fire Control Map, Waimanalo Quadrangle showing the location of the future He'eia Elementary School and the play court project area



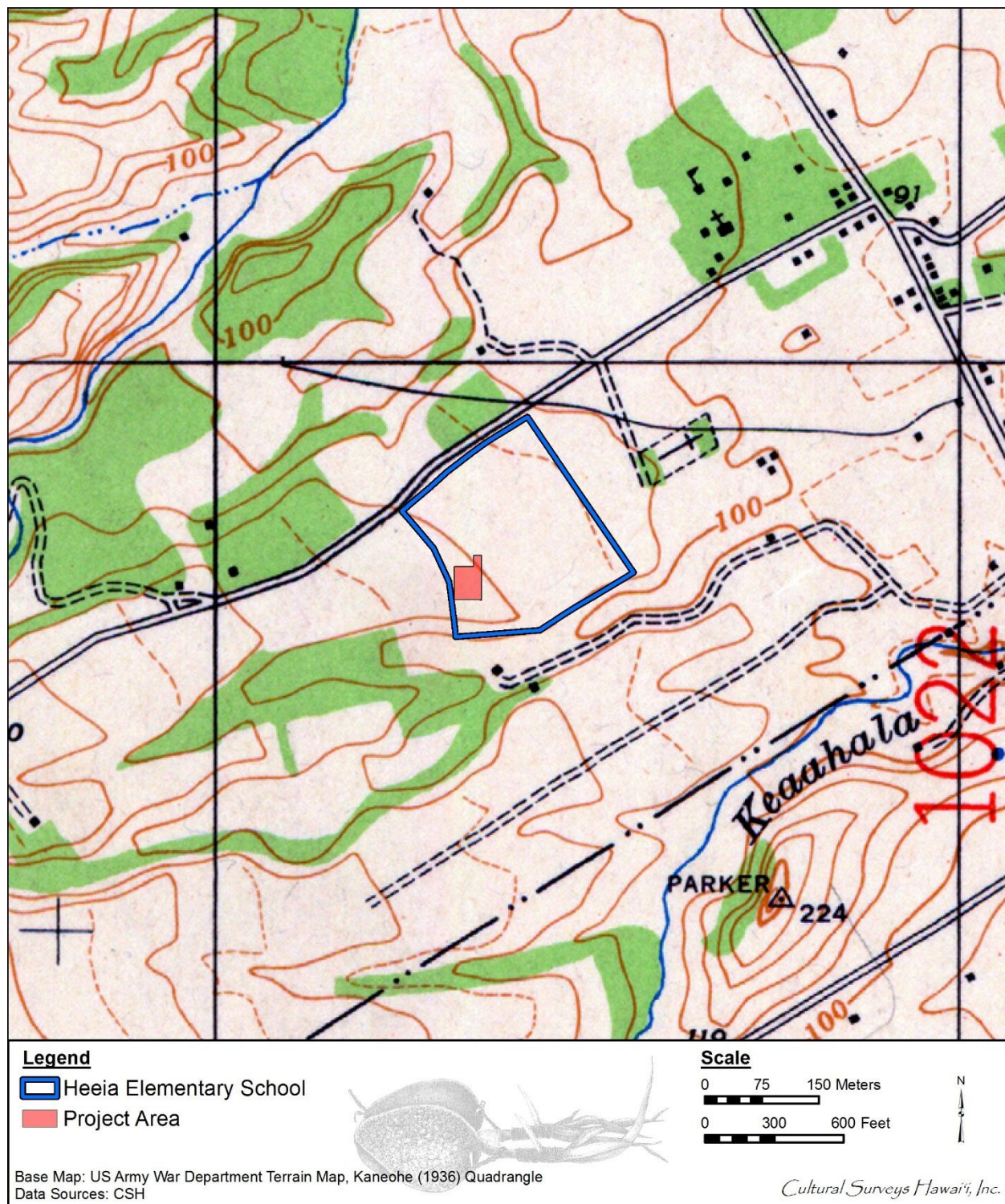


Figure 12. Portion of the 1936 U.S. Army War Department Terrain Map, Kaneohe Quadrangle showing the location of the future He'eia Elementary School and the play court project area



the reservation was closed around this time (Stinnett 2001: 93). It is likely the Naval Reservation passed into state ownership in 1959 when statehood forced reorganization of federal and state lands.

Kāneʻohe developed from a rural area into a suburban community after World War II, during the Honolulu residential housing shortage of the 1950s. The 1954 USGS topographic map depicts five structures within the project area and the beginnings of extensive urban development along Haiku Road and Kamehameha Highway (Figure 13). The housing demand of this time period also placed pressure on the infrastructure development of Windward Oʻahu (Johnson 1991:359-361). These population pressures likely facilitated the eventual conversion of the Naval Reservation in the early 1960s into what is now King Intermediate School.

#### **2.2.4 Contemporary Land Use**

The rapid urbanization of the vicinity of the project area as depicted in historic maps explains the need to develop Heʻeia Elementary School in 1960 (see Figure 11 through Figure 13). A 1978 USGS orthophotoquad depicts the completed school campus (Figure 14).

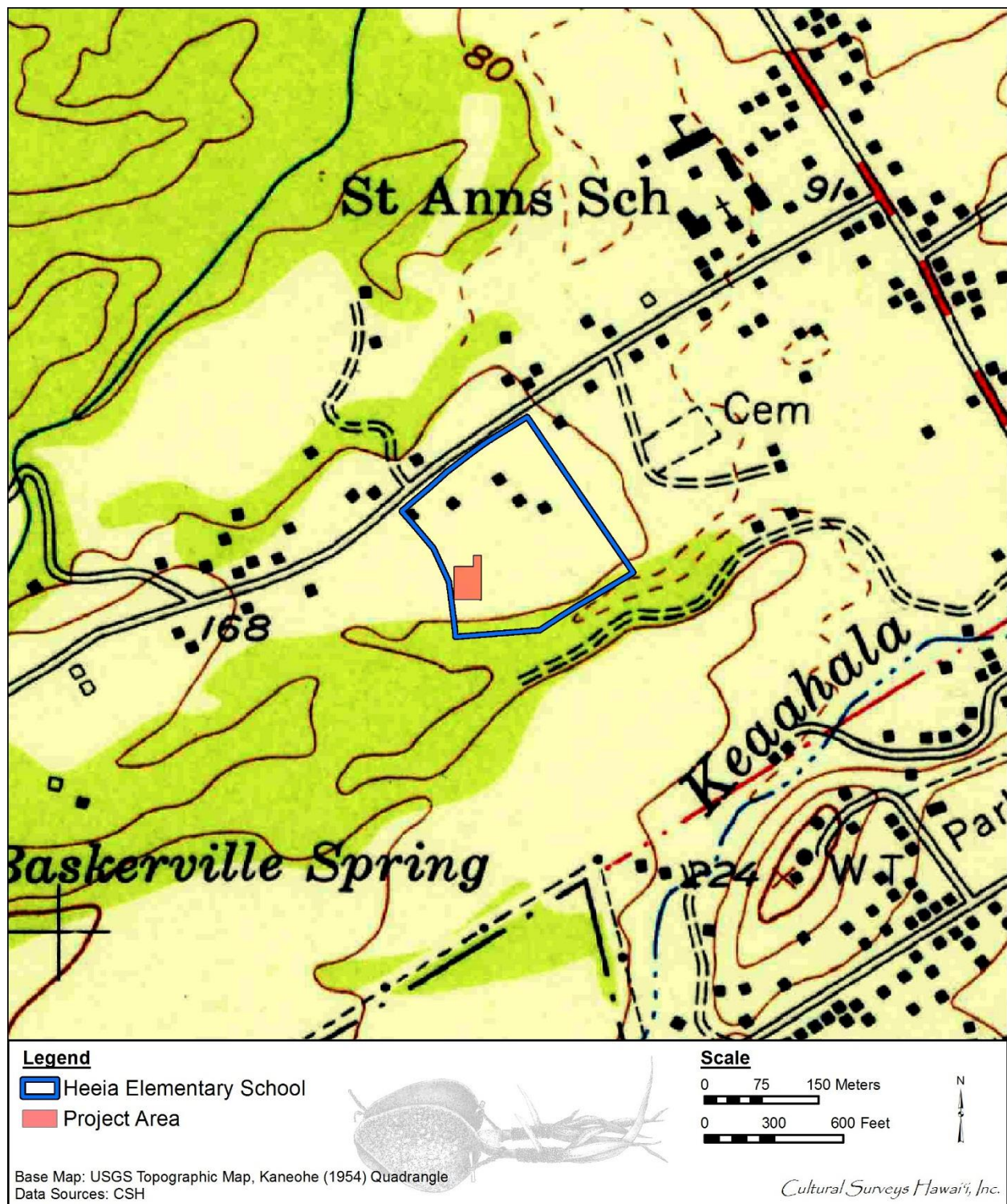


Figure 13. Portion of the 1954 USGS Topographic Map, Kaneohe Quadrangle showing the location of the future He'eia Elementary School and the play court project area





Figure 14. Portion of the USGS Orthophotoquad map (1978) Kaneohe Quadrangle showing the location of He'e'ia Elementary School and the play court project area

## Section 3 Previous Archaeological Research

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Numerous archaeological studies have been conducted in He'eia, with several studies within Kamehameha Schools (KS) lands. This section summarizes previous archaeological studies within He'eia Ahupua'a (Figure 15, Table 5) and identifies the types and locations of historic properties (Figure 16, Table 6).

### 3.1 McAllister 1933

J. Gilbert McAllister (1933), who conducted the earliest archaeological research in He'eia Ahupua'a, reported some 19 major sites, three of which (Sites 365, 366, 367) are on Mōkapu Peninsula and one that is on the modern boundary of He'eia and Kāne'ohe (Site 342). Of the 16 sites not on Mōkapu, seven were *heiau*; six *heiau* had been destroyed prior to 1930. The seventh *heiau* is the remains of Kaulauki Heiau (SIHP # 50-80-10-328).

J.G. McAllister's descriptions of five sites within the KS parcels include the following:

Site 327. Heeia fishpond, adjacent to Heeia.

The wall is approximately 5000 feet long with an inclosed area of 88 acres. There are now four watch-houses and several outlets (*makaha*). The walls of lava stone facing and dirt fill are 12 feet or more in width. The water is brackish. [McAllister 1933:173]

Site 329. Leleahina heiau, Iolekaa, Heeia (fig. 60; pl. 5, B).

Located nearly at the foot of the palis, the heiau covers an area of 110 feet by 115 feet. Two platforms were apparently the prominent features formerly, but now the higher division on the north has been disturbed and a small graveyard 40 feet square has been built on this platform. Here Keliikanakaole and his wife Kopaea are said to be buried. The stones for building the heavy wall which surrounds the graves were undoubtedly taken from structures which were on the mountain side of the present burials, for there are the partial foundations of many walls which have been so badly disturbed that it is impossible to determine their former position. On the lower platform, roughly 74 feet by 110 feet, are some interesting remains, particularly that of the probable lele or anuu tower, which is in the southeast corner (pl. 5, B). A growth of guava, fern, and some Lantana now covers the site. [McAllister 1933:173]

Site 330. Land called Iolekaa, 'rolling rat,' mountain side of Heeia. At the foot of the perpendicular *pali* is a small pool of water. It is here that the old natives tell this story [see previous Section 2.1.4.5 'Ioleka'a for text].

Site 334. Kapuna, a spring at which Kane and Kanaloa are said to have obtained their drinking water. [McAllister 1933:176]

Site 335. Old taro terraces, now neglected. The valley broadens out with many acres of level rich lowlands protected by ridges which surround them almost completely. The land is now swampy and full of weeds, but the rectangular terraces can still be seen. [McAllister 1933:176]



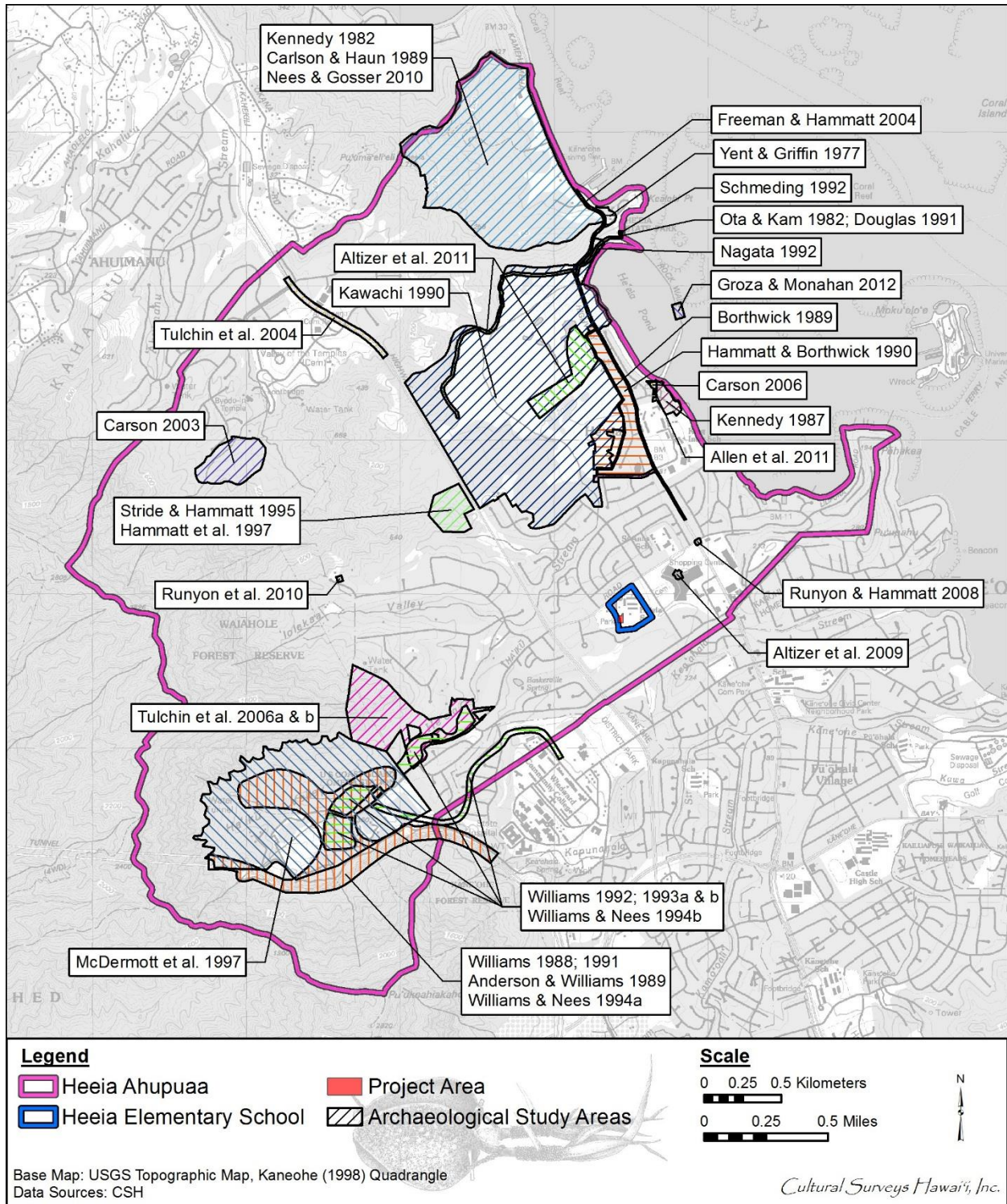


Figure 15. Previous archaeological studies in He'eia Ahupua'a

Table 5. Previous Archaeological Studies in He'eia Ahupua'a

Reference	Nature of Study	General Location	Results
McAllister 1933	Island-wide survey	Island wide	Identifies 17 major sites, including six <i>heiau</i>
Yent and Griffin 1977	Archaeological surface survey	He'eia State Park TMK: [1] 4-6-005:004	No historic properties observed
Kennedy 1982	Archaeological reconnaissance survey	He'eia State Park TMKs: [1] 4-6-006:001, 002, 004, 007-016, 022-051; 4-6-016:032	Located five sites, including three terraces (agricultural in function) and two religious structures—one family shrine ( <i>kuahu</i> ) and one small altar
Ota and Kam 1982	Burial disinterment	He'eia State Park TMK: [1] 4-6-006:03	Discovered a single human burial and assorted animal bones 1 m offshore of He'eia Stream (SIHP # 50-80-10-4109; part of SIHP # -4671); human remains reburied
Kennedy 1987	Surface survey and subsurface testing	TMKs: [1] 4-6-004:011 and 4-6-005:005	Surface survey revealed one site: the Japanese Cemetery; subsurface testing revealed no buried cultural material
Williams 1988, 1991; Anderson and Williams 1989; Williams and Nees 1994a	Data recovery plan and preliminary report	H-3 Hwy construction TMK: [1] 4-5, 4-6	Recorded a total of ten sites during H-3 construction through He'eia; pre-Contact sites (including locations of two possible <i>heiau</i> ) and post-Contact sites (mainly WWII era)
Borthwick 1989	Archaeological reconnaissance and literature review	He'eia Marsh TMKs: [1] 4-6-004, 007, 008, 016, 018-020, 022, 033	No historic properties observed

Reference	Nature of Study	General Location	Results
Carlson and Haun 1989	Archaeological inventory survey	Kealohi Point TMKs: [1] 4-6-006:001, 002, 004, 007-016, 022-051; 4-6-016:032	Confirmed, recorded, and assigned SIHP numbers to Kennedy's (1982) previous five sites; also located a site complex with three temporal components (pre-Contact habitation and tool manufacture, historic agriculture, and modern habitation and agriculture), several retaining walls, terraces, and mounds, two WWII bunkers, and one shrine/possible burial; modern debris at SIHP # -41237, and subsurface cultural deposits beneath surface stonework at SIHP #s -4139 and -4142, yielded radiocarbon dates of AD 940-1020 and AD 1530-1950, respectively
Hammatt and Borthwick 1990	Reconnaissance survey and literature search	He'eia Marsh TMKs: [1] 4-6-004, 007, 008, 016, 018-020, 022, 033	Former taro and rice features including terraces and 'auwai located in He'eia Marsh zone; literature search indicated extensive wetland taro cultivation ( <i>lo'i</i> ) where the fields were watered from permanently flowing He'eia Stream and a network of 'auwai
Kawachi 1990	Archaeological reconnaissance survey	TMK: [1] 4-6-016:010, 001 (por.)	No historic properties observed
Kawachi and Yent 1990; Douglass 1991	Burial report	He'eia State Park	Skeletal remains of a single individual of Polynesian ancestry uncovered from beneath fallen coconut tree at mouth of He'eia Stream; lack of long limb bones believed to have resulted from disturbance shortly after burial for purpose of tool manufacturing (SIHP # -4122; reassigned SIHP # -4671) (Kawachi and Yent 1990 inadvertent find not shown on Figure 15)
Nagata 1992	Surface survey and subsurface trenching and coring	TMK: [1] 4-6-005:009	Identified three burials eroding out of bank facing Kāne'ōhe Bay near mouth of He'eia Stream; noted five burials located in this area since 1982
Schmeding 1992	Geological study of subsurface stratigraphy	TMK: [1] 4-6-005:009	Identified four distinct stratigraphic layers (A, B, C, and D); two (A and B) are cultural depositions, one mixed cultural and natural (C), and one natural deposition (D)

Reference	Nature of Study	General Location	Results
Williams 1992, 1993a, 1993b; Williams and Nees 1994b	Reconnaissance and limited subsurface testing	U.S. Coast Guard Omega Transmission Station, Ha'ikū Valley TMK: [1] 4-6-15	Historic properties include a house site radiocarbon dated to AD 1260–1450 as well as possible shrine, <i>imu</i> , pondfield agricultural terraces, and military use of Ha'ikū Valley
Stride and Hammatt 1995	Archaeological inventory survey, literature review	TMK: [1] 4-6-014:005	One historic site identified (Kaulauki Heiau, McAllister site 328, SIHP # -328)
Hammatt et. al. 1997	Archaeological inventory survey, limited subsurface testing	TMK: [1] 4-6-014:005	Observed remains of Kaulauki Heiau (McAllister's site 328, SIHP # -328) and recommend minimum 100-ft buffer zone from any ground disturbance be afforded the <i>heiau</i> structure
McDermott et al. 1997	Archaeological inventory survey	U.S. Coast Guard Omega Transmission Station, Ha'ikū Valley	Located 18 of the 26 sites previously identified by Williams and Nees (1994b), and identified five new sites: an agricultural terrace complex (SIHP # -5498), a habitation enclosure (SIHP # -5601), a wall segment (SIHP # -5602), a probable <i>heiau</i> enclosure (SIHP # -5603), and an irrigation ditch (SIHP # -5604)
Carson 2003	Archaeological inventory survey	Valley of the Temples Memorial Park TMK: [1] 4-7-007:001	No historic properties observed
Freeman and Hammatt 2004	Archaeological and cultural impact evaluation	TMK: [1] 1-4-006 (various parcels)	No historic properties observed
Tulchin et al. 2004	Literature review and field inspection	Kahekili Hwy TMKs: [1] 4-7-004 and 051	No historic properties observed
Carson 2006	Archaeological assessment	TMK: [1] 1-4-6-005:001	No historic properties observed, although the project area is within SIHP # -0327 (He'eia Fishpond)



Reference	Nature of Study	General Location	Results
Tulchin et al. 2006a	Phase I cultural investigation	TMKs: [1] 4-6-014:001, 006	Nine historic properties identified, including two ditches, three terrace complexes, two road remnants, a garden planter, and a pair of charcoal kilns (SIHP #s -6706 through -6711), as well as a section of a previously recorded irrigation ditch (SIHP # -5604; McDermott et al. 1997)
Tulchin et al. 2006b	Phase II cultural investigation	TMKs: [1] 4-6-015; 001,006	(same as above, Tulchin et al. 2006a)
Runyon and Hammatt 2008	Archaeological monitoring	Kamehameha Hwy and Ha'ikū Rd TMKs: [1] 4-6-002, 011, 018, 021	No historic properties observed
Altizer et al. 2009	Archaeological monitoring	Windward Mall TMKs: [1] 4-6-011:001 por., 041 por.	No historic properties observed
Nees and Gosser 2010	Archaeological reconnaissance survey and monitoring	Former He'eia Combat Training Area; one section located in He'eia Kea on slopes of Pu'u Mā'eli'eli	No historic properties observed, but several traditional basalt flakes and historic artifacts observed on surface (but since not part of intact cultural deposits, not considered as archaeological sites)
Runyon et al. 2010	Archaeological monitoring	TMK: [1] 4-6-010:042	During vegetation clearing at Leleahina Heiau, exposed 16 of 18 features previously documented; <i>heiau</i> found to be in fair to good condition
Allen et al. 2011	Archaeological monitoring	TMK: [1] 4-6-005:001	One extensive concentration historic-period materials discovered beneath former Quonset hut house (Feature 1a) within SIHP # -0327; discrete concentration under former south corner of house (Feature 1b); single rock retaining wall (Feature 2); small subsurface ash deposit produced charcoal but no artifacts (Feature 3)

Reference	Nature of Study	General Location	Results
Altizer et al. 2011	Literature review and field inspection	He'eia wetland TMKs: [1] 4-6-016:001, 002	Identified remnants of historic-era infrastructure related to agriculture, <i>lo'i</i> berm, and a pre-Contact basalt quarry
Groza and Monahan 2012	Archaeological literature review and field inspection	He'eia Fishpond TMK: [1] 4-6-005:001	During field inspection of Makai Gap, which included both above- and underwater observations and measurements, original <i>kuapā</i> basalt rocks found scattered between 20 and 40 m <i>makai</i> of the existing <i>kuapā</i> ; other than constituent components of existing wall structure, including basalt and coral materials, no other historically significant cultural materials observed

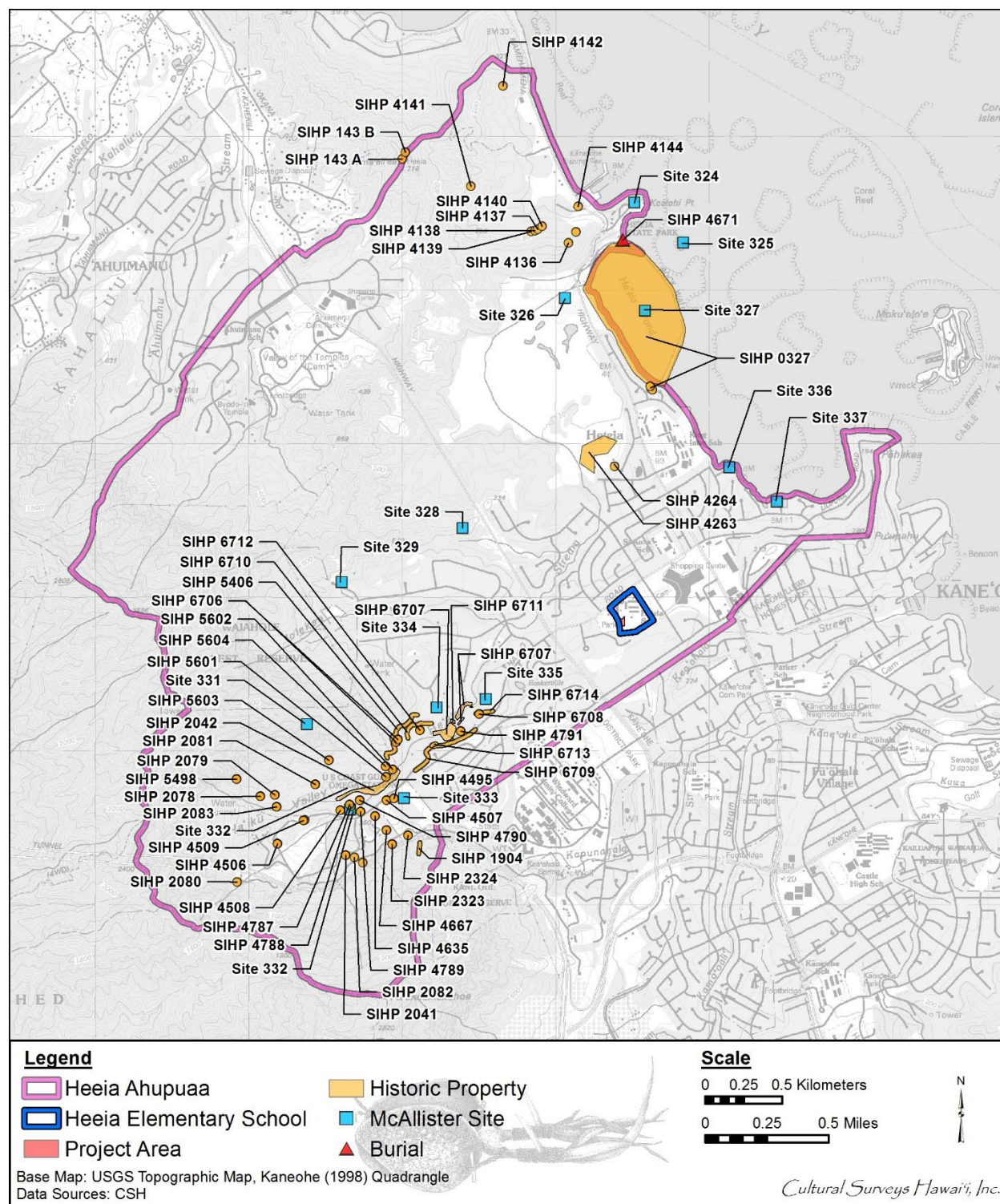


Figure 16. Archaeological sites in He'eia Ahupua'a (base map: USGS 2005)

Table 6. Archaeological Sites in He'eia Ahupua'a

SIHP # (50-80-10-)	Site Type/Name	Description	Reference
324	Kalae'ula'ula Heiau	<i>Heiau</i> at Kealohi Point	McAllister 1933
325	Ko'amano Reef	A reef near He'eia Fishpond where many sharks dwell	McAllister 1933
326	Luamo'o	A <i>mo'o</i> named Mehanu, who was the <i>kia'i</i> of He'eia Fishpond, lived here	McAllister 1933
327	He'eia Fishpond	Wall 5,000 ft in length enclosing 88 acres with several <i>mākāhā</i>	McAllister 1933; Allen et al. 2011
328	Kauaulaukī Heiau	An upright columnar basalt boulder, described as a possible "godstone" observed set into the surface, surrounded by basalt cobbles and modern floral offerings	Hammatt et al. 1997; McAllister 1933; Stride and Hammatt 1995
329	Leleahina Heiau	Vegetation project uncovered Leleahina Heiau, exposing 16 of the 18 features previously documented at the site by McAllister (1933); attributes not recorded by McAllister include a semi-circular arrangement of stones adjacent to the west side of the burial platform and a moderately sized cupboard observed in the exterior northern wall	McAllister 1933; Runyon et al. 2010
330	'Ioleka'a	Name of valley, stream, and <i>'ili</i>	McAllister 1933
331	Kaualehu Cave	Located on the <i>pali</i> , reported to contain burials	McAllister 1933
332	Kehekili or Kahekili Heiau	Located near the U.S. Coast Guard Omega Station in Ha'ikū Valley; a remnant weathered stone relocated (McDermott et al. 1997)	McAllister 1933; McDermott et al. 1997
333	Kāne ame Kanaloa Heiau	Located in Ha'ikū Valley	McAllister 1933
334	Kapuna Spring	Spring	McAllister 1933
335	Taro terraces	Many rectangular terraces	McAllister 1933
336	Two <i>loko i'a</i>	Two small fishponds, with walls 340 and 320 ft long	McAllister 1933
337	O'ohope Fishpond	Former fishpond with 500-ft wall	McAllister 1933

SIHP # (50-80-10-)	Site Type/Name	Description	Reference
365	<i>Heiau</i>	Located on Mōkapu	McAllister 1933
366	Lu o Wai o Kanaloa	Lava tube well, located on Mōkapu	McAllister 1933
337	Ko‘a and the stones of Ku and Hina	Located on Mōkapu	McAllister 1933
1904	Boundary wall	A wall in a small gully on the south side of Ha‘ikū Valley	Williams and Nees 1994a
2041	House complex	Features include two stone-faced earthen terraces, a pavement, two subsurface pit features, a modern enclosure, and a surface scatter; radiocarbon dated to AD 1446–1666	Williams and Nees 1994a
2042	Pondfield complex	Features include ten flood-damaged stone-faced terrace remnants, two rock concentrations, a large depression, and one rock alignment; radiocarbon dates reflect continued use from the fifteenth century	Williams and Nees 1994a
2078	House complex	Features include six terraces and a depression; radiocarbon dated to AD 1185–1450	Williams and Nees 1994a
2079	Platform	A small stone platform with a possible modified outcrop and potential rock alignments in a nearby area	Williams and Nees 1994a
2080	Shrine	Features include a stepped mound, two alignments, a wall, and an alignment with a possible modified outcrop	Williams and Nees 1994a
2081	<i>Imu</i>	Features include two charcoal-stained areas, one with fire-affected rock, radiocarbon dated to AD 1640–1800	Williams and Nees 1994a
2082	<i>Imu</i>	A pit feature with charcoal, radiocarbon dated to AD 1442–1646	Williams and Nees 1994a
2083	Pondfield complex	Two earthen terraces likely stone-faced at one time	Williams and Nees 1994a
2323	<i>Imu</i>	Single subsurface charcoal concentration, likely an <i>imu</i> , radiocarbon dated to AD 1332–1339	Williams and Nees 1994a
2324	<i>Imu</i>	A small subsurface pit, likely an isolated cooking feature common to Ha‘ikū Valley	Williams and Nees 1994a

SIHP # (50-80-10-)	Site Type/Name	Description	Reference
4109 (part of SIHP # -4671)	Burial	Skeletal remains discovered near mouth of He'eia Stream	Ota and Kam 1982
4135	Terrace	Pre-Contact habitation or agriculture	Carlson and Haun 1989
4136	Cut slope	Military lookout station or temporary gun emplacement	Carlson and Haun 1989
4137	Boulder/cobble mounds	Possible pre-Contact shrine or burial site	Carlson and Haun 1989; Kennedy 1982 (Site ACH-HK-5)
4138	Retaining walls	Associated with the previous construction of a road	Carlson and Haun 1989
4139	Boulder/cobble mounds	Possible pre-Contact shrine or burial site; subsurface cultural deposits beneath surface stonework	Carlson and Haun 1989
4140	Terrace	Pre-Contact habitation or agriculture; retained by rock wall or mound, for dryland cultivation of <i>kalo</i> or <i>'uala</i>	Carlson and Haun 1989; Kennedy 1982 (Site ACH-HK-4)
4141	Terrace	Pre-Contact habitation or agriculture; mounded terrace, possibly used for dryland cultivation of <i>kalo</i> or <i>'uala</i>	Carlson and Haun 1989; Kennedy 1982 (Site ACH-HK-1)
4142	Habitation and/or agricultural complex	Thirty-seven features include terraces likely associated with pineapple cultivation, agricultural mounds, cobble/boulder alignments, rubble piles, retaining walls, an irrigation ditch, a possible shrine, and pre-Contact lithic scatters; subsurface cultural deposits beneath surface stonework	Carlson and Haun 1989; Kennedy 1982 (Sites ACH-HK-2 and -3 for Features 23 and 22, respectively)
4143	WWII bunkers	Situated near the summit of the ridge	Carlson and Haun 1989
4144	Shrine	Upright stone on a small earth mound	Carlson and Haun 1989
4122 (reassigned SIHP # -4671)	Burial	Burial located at mouth of He'eia Stream	Douglass 1991

SIHP # (50-80-10-)	Site Type/Name	Description	Reference
4495	House complex	Remnant of a permanent traditional house site, radiocarbon dated to AD 1260–1450	Williams and Nees 1994b
4506	Building	Military-related infrastructure	Williams and Nees 1994a
4507	Building	Military-related infrastructure	Williams and Nees 1994a
4508	Building	Military-related infrastructure	Williams and Nees 1994a
4509	Retaining wall	Military-related infrastructure	Williams and Nees 1994a
4635	<i>Imu</i>	Radiocarbon dates ranging from mid-seventeenth century to the present	Williams and Nees 1994b
4667	Shrine	Possible shrine	Williams and Nees 1994b
4671	Burial	Human remains eroding from shoreline bank at He'eia State Park	Kawachi and Yent 1990
4787	Building	Military-related infrastructure	Williams and Nees 1994b
4788	Marker	Military-related infrastructure	Williams and Nees 1994b
4789	Pondfield complex	Two partially exposed stone-faced terraces, radiocarbon dated to AD 1428–1679	Williams and Nees 1994b
4790	Pondfield complex	Four remnant stone-faced terraces, damaged by flooding	Williams and Nees 1994b
4791	Pondfield complex	Two badly eroded remnants of stone-faced pondfield terraces	Williams and Nees 1994b
5498	Terrace complex	Pre- and post-Contact agricultural terrace complex	McDermott et al. 1997
5601	Enclosure	Rectangular enclosure and a modern paved area, likely for habitation	McDermott et al. 1997
5602	Wall segment	Historic-era wall	McDermott et al. 1997
5603	Enclosure	Probable <i>heiau</i>	McDermott et al. 1997



SIHP # (50-80-10-)	Site Type/Name	Description	Reference
5604	Irrigation ditch	Likely the <i>makai</i> extension of an earth-lined historic-era ditch previously documented in the adjacent Omega Station parcel (McDermott et al. 1997), which either tapped a spring above Ha'ikū/He'eia Stream, or Ha'ikū/He'eia Stream itself, and conducted water <i>makai</i> to agricultural lands most likely located within the modern day Ha'ikū Plantation subdivision	McDermott et al. 1997; Tulchin et al. 2006a; Tulchin et al. 2006b
6706	Depressions	Two similar, shallow circular excavated depressions, likely historic charcoal kilns	Tulchin et al. 2006a; Tulchin et al. 2006b
6707	Agricultural complex	Nine features consist of interrelated water management and agricultural elements that together comprise the remains of an extensive pondfield agricultural complex along the north and south banks of Ha'ikū/He'eia Stream	Tulchin et al. 2006a; Tulchin et al. 2006b
6708	Landscaping planting ring	Semi-circular alignment of basalt boulders	Tulchin et al. 2006a; Tulchin et al. 2006b
6709	Ha'ikū Rd	500 m section of the historic Ha'ikū Road	Tulchin et al. 2006a; Tulchin et al. 2006b
6710	Road segment	Unimproved road 165 m in length	Tulchin et al. 2006a; Tulchin et al. 2006b
6711	Habitation remnant	Several habitation features, including basalt alignments, earthen berms, mango trees, chicken wire fencing, and bottles	Tulchin et al. 2006a; Tulchin et al. 2006b
6712	Terrace remnant	Partially eroded basalt boulder alignment	Tulchin et al. 2006a; Tulchin et al. 2006b
6713	Irrigation ditch remnant	Historic irrigation ditch 35 m in length	Tulchin et al. 2006a; Tulchin et al. 2006b
6714	Road segment	Unimproved road 125 m in length	Tulchin et al. 2006a; Tulchin et al. 2006b

### 3.2 Yent and Griffin 1977

In 1977, the Department of Land and Natural Resources Division of State Parks conducted an archaeological survey of the He'eia-Matson Point State Park (Yent and Griffin 1977). The study involved surface and subsurface surveys of the area, including two test cores sampled from beneath the surface. No surface or subsurface historic properties were identified.

### 3.3 Kennedy 1982

In 1982, Archaeological Consultants of Hawai'i, Inc. conducted archaeological surveys and excavations in approximately 100 acres of property at He'eia Kea (Kennedy 1982). This survey was on Bishop Estate land north of Kealahi Point (He'eia Kea), much of which had been subject to post-Contact commercial pineapple cultivation and military developments. A total of five sites were located, including three agricultural terraces (SIHP #s -4116 through -4118; cited as Sites ACH-HK-1 through -3 in the report), possibly related to pre-Contact cultivation of sweet potato or dryland taro, and two religious structures (SIHP #s -4199 and -4120; cited as Sites ACH-HK-4 and -5 in the report). SIHP # -4119 was a stone feature that measured 8.7 m (28.5 ft) by 5.6 m (18.4 ft) by 2 m (6.6 ft) and was interpreted as a large shrine. It was determined to be "a nice example of the type of shrine that once was a frequent sight in ancient Hawai'i under the *kapu* system" (Kennedy 1982:11). SIHP # -4120 was a small stone platform that measured 4 m (13.1 ft) by 3.4 m (11.2 ft) by 0.5 m (1.6 ft) and was interpreted as a small altar. Kennedy noted that historic land modification associated with pineapple cultivation and military developments had likely removed possible surface archaeological features in He'eia Kea. Because of this historic land modification all the sites identified were ". . . located along the edges of the property line, and away from the thrust of the pineapple, military, and contemporary settlement activities" (Kennedy 1982:7).

### 3.4 Ota and Kam 1982

In 1982, human skeletal remains (SIHP # -4109; part of SIHP # -4671) at He'eia State Park were discovered about 1 m offshore of He'eia Stream (Ota and Kam 1982). The human remains were reburied.

### 3.5 Kennedy 1987

In 1987, Archaeological Consultants of Hawai'i, Inc. conducted a two-part investigation involving a surface survey, excavations of a series of backhoe trenches, and two hand-excavated test pits at Ali'i Landing Subdivision, located on the southeast corner of He'eia Fishpond (Kennedy 1987). The surface survey revealed only one site—the Japanese Cemetery—with burials dating from the 1870s to the 1930s. Some of the burials had been previously removed, and the landowner decided to relocate the remaining burials to the cemetery at the Valley of the Temples. No subsurface cultural material was observed. Kennedy indicated negative excavation results were expected as ". . . the notion that habitation sites and fishponds are not associated with pre-Contact items has been put forth by other archaeologists and this seems to be true, at least for this small southeast corner of the He'eia Fishpond" (Kennedy 1987:9).

### 3.6 Williams 1988, 1991; Anderson and Williams 1989; Williams and Nees 1994a

In 1988, the BPBM began archaeological survey, testing, and mitigation work in conjunction with the beginning of the H-3 Highway construction (Anderson and Williams 1989; Williams 1988 and 1991; Williams and Nees 1994a). The work was carried out between 1988 and 1990, both prior to and during construction along the H-3 corridor. Investigations were concentrated along the 100 m wide road corridor on the south side of Ha'ikū Valley as well as in the arc-shaped antenna expansion area across the central and northern portions of the valley.

Fifteen archaeological sites (SIHP #s -2041, -2042, -2078 through -2093, -2323, -2324, and -4506 through -4509) containing pre-Contact or post-Contact components were discovered, recorded, and tested; one previously recorded post-Contact site (SIHP # -1904) was tested; and buildings related to military activities in the valley during WW II were noted and evaluated. The archaeological sites in the valley represent a variety of pre- and post-Contact activities and land use within the valley, including two house site complexes, two traditional locations of *heiau*, a possible shrine, a large irrigated terrace complex, and five isolated cooking features.

The agricultural site SIHP # -2042 has yielded radiocarbon dates that may reflect continuous use from the fifteenth century. The habitation site SIHP # -2041 also dates to the fifteenth century, and the other habitation site, SIHP # -2078, appears to have been occupied at an earlier period, perhaps as early as the thirteen century. These radiometric data suggest initial land use in Ha'ikū occurred by the thirteenth century and was most likely widespread by the fifteenth century.

### 3.7 Borthwick 1989

In 1989, CSH conducted an archaeological reconnaissance survey and historical literature search for a proposed sewer line within the He'eia Marsh area (Borthwick 1989). No archaeological sites were identified. The background literature research indicated the marsh was formerly *lo 'i* converted to rice cultivation in the early 1900s and to pasture by 1930.

### 3.8 Carlson and Haun 1989

In 1989, Paul H. Rosendahl, Ph.D., Inc. performed an archaeological inventory survey in the same area as that of Kennedy (1982), identifying ten archaeological sites (SIHP #s -4135 through -4144) and conducted subsurface testing at three sites (Carlson and Haun 1989). The study identified and recorded ten archaeological sites (SIHP #s -4135 through -4144) containing 48 components. The sites identified in this study included multiple terraces. Some of these were interpreted as possibly related to pre-Contact habitation or agriculture (SIHP #s -4135, -4140, -4141, and -4142 [Feature 35]). Many of the observed terraces were associated with an extensive complex of agricultural and habitation-related features (SIHP # -4142); these terraces were primarily interpreted as post-Contact in origin and likely associated with pineapple cultivation in the area. SIHP # -4142 included many features in addition to terraces, such as agricultural mounds, cobble/boulder alignments, rubble piles associated with agricultural excavations, retaining walls, lithic scatter areas, an irrigation ditch, and a possible shrine. Most of these features were interpreted as associated with post-Contact agriculture; however, the lithic scatters contained artifacts such as basalt cores and flakes, volcanic glass flakes, and adze fragments and pre-forms indicative of pre-Contact habitation and tool manufacture activities. The study identified two boulder/cobble

mounds (SIHP #s -4137 and -4139) interpreted as possible pre-Contact shrines or burial sites; SIHP # -4137 was Kennedy's Site ACH-HK-5 that he had interpreted as a small altar. Two boulder/cobble retaining walls (SIHP #-4138) were identified and interpreted as associated with the previous construction of a road. Two sites related to military development were identified (SIHP #s -4136 and -4143). SIHP # -4136 was a flat area cut into a sloping ridge and leveled; it was interpreted as a military lookout station or temporary gun emplacement. SIHP # -4143 consisted of two WWII bunkers situated near the summit of the ridge. SIHP # -4144 consisted of "an upright stone placed upon a small earth mound" (Carlson and Haun 1989: 26). The mound had another smaller stone on its west end, and a ti plant growing on its south end. The site was interpreted as a possible burial location, but a later test excavation at the location found no evidence of a human burial (Carlson and Haun 1989: Appendix:2), and this site was not determined conclusively to be either pre-Contact or post-Contact in origin. The subsurface testing revealed modern debris at SIHP # -4137, and subsurface cultural deposits beneath surface stonework at SIHP #s -4139 and -4142, with radiocarbon dates of AD 940–1020 and AD 1530–1950, respectively.

### 3.9 Hammatt and Borthwick 1990

In 1990, CSH conducted an archaeological reconnaissance survey and literature search for proposed improvements to a portion of the He'eia wastewater collection system (Hammatt and Borthwick 1990). During the reconnaissance surveys, features related to former taro and rice cultivation, including terraces and an *'auwai*, were located in the He'eia Marsh Zone (Hammatt and Borthwick 1990). Rock and earthen terraces were observed very near the eastern border of the current project area; however, modern fill activities have destroyed most surface evidence of any terraces. The observed *'auwai* was stone-lined in some parts and showed evidence of being historically modified and maintained. The literature searches indicated extensive wetland taro cultivation (*lo'i*) where fields were watered from the permanently flowing He'eia Stream and a network of *'auwai*. During the late 1800s, until the 1900s, the *lo'i* system was converted for rice cultivation. Taro cultivation made a short-lived comeback from the 1930s to the 1950s.

### 3.10 Kawachi 1990

In 1990, the Forestry and Wildlife Division and the Historic Preservation Program conducted an archaeological reconnaissance of He'eia wet- and fast-lands (Kawachi 1990). The goal of the study was to identify the physical, biological, and historical settings of the area. While the study did not cover all the wetlands of He'eia, it documented various topographical features and floral species present. Kawachi noted encountering ferns, java plums, Christmasberry, and hau trees. No significant historic properties were identified, although two areas of scattered trash were encountered which contained old broken bottles and ceramics, and were documented as associated with Chinese rice field workers.

### 3.11 Kawachi and Yent 1990

In 1990, SHPD and State Parks recorded human skeletal remains (SIHP # -4671) eroding from the bay shoreline bank about 10 m north of where Ota and Kam (1982) had previously recorded human remains.

### 3.12 Douglass 1991

Michele Douglass (1991) documented skeletal remains recovered in 1990 from beneath a fallen coconut tree at the mouth of He'eia Stream (Douglass 1991). The individual was of Polynesian ancestry, and the lack of long limbs is believed to have resulted from disturbance shortly after burial for the purpose of tool manufacturing.

### 3.13 Nagata 1992

In 1992, the Division of State Parks reported on three burials eroding out of the bank facing Kāne'ohe Bay near the mouth of He'eia Stream, noting there have been five burials located in this area since 1982 (Nagata 1992).

### 3.14 Schmeding 1992

Debi Schmeding (1992), a student from Windward Community college, assisted by Dr. Floyd McCoy and Martha Yent (State Park archaeologist), dug a trench near previously discovered skeletal remains (Ota and Yent 1982) in order to further document the subsurface sedimentary deposits. The study identified four distinct stratigraphic layers (A, B, C, and D); two cultural depositions (A and B), one mixed cultural and natural (C), and one natural deposition (D).

### 3.15 Williams 1992, 1993a, 1993b; Williams and Nees 1994b

Between 1990 and 1994, following the BPBM investigations along the H-3 corridor, seven individual parcels of the U.S. Coast Guard Omega Transmission Station property and adjacent properties in Ha'ikū Valley were surveyed for archaeological resources (Williams 1992, 1993a, and 1993b; Williams and Nees 1994b). Historic properties include the following sites: SIHP # -4495, a house site with a hearth feature radiocarbon dated to AD 1260–1450; SIHP # -4667, a possible shrine; SIHP # -4635, an *imu* (earth oven) with radiocarbon dates ranging from the mid-seventeenth century to the present; SIHP #s -4787 and -4788, military-related use of the valley; SIHP #s -4789, -4790, and -4791, remnants of pondfield agricultural terraces.

### 3.16 Stride and Hammatt 1995; Hammatt et al. 1997

In 1997, CSH conducted an archaeological inventory survey with limited subsurface testing for the He'eia Kai 272 Reservoir, across Kahekili Highway (Hammatt et al. 1997; Stride and Hammatt 1995). A single, previously documented historic site (Kaulaukī Heiau, McAllister's Site 328, SIHP # -328) was observed. The *heiau* was described as a large terrace with boulders stacked at its sides, and scattered boulders and cobbles on its leveled surface. An upright columnar basalt boulder, described as a possible "godstone" (Hammatt et al. 1997:19), was observed set into the surface, surrounded by basalt cobbles and modern floral offerings. Limited subsurface testing was conducted at this site to better determine its physical boundaries and cultural material content. Three test trenches were excavated and one charcoal sample collected from Trench 2 was radiocarbon dated to AD 1810–1930, which suggests it may derive from activities related to pineapple or sugarcane cultivation.

### 3.17 McDermott et al. 1997

In 1997, CSH conducted an archaeological inventory survey of the U.S. Coast Guard Omega Transmission Station in Ha'ikū Valley (McDermott et al. 1997). The study located 18 of the 26 sites previously identified by Williams and Nees (1994b), and identified five new sites: an agricultural terrace complex (SIHP # -5498), a habitation enclosure (SIHP # -5601), a wall segment (SIHP # -5602), a probable *heiau* enclosure (SIHP # -5603), and an irrigation ditch (SIHP # -5604).

### 3.18 Carson 2003

In 2003, International Archaeological Research Institute, Inc. conducted an archaeological inventory survey of a proposed Garden of Valor expansion parcel of the Valley of the Temples Memorial Park (Carson 2003). No historic properties were observed.

### 3.19 Freeman and Hammatt 2004

In 2004, CSH conducted an archaeological and cultural impact evaluation study for a proposed Kamehameha Highway water line project (Freeman and Hammatt 2004). The archaeological aspect of the study identified no historic properties, and the cultural evaluation identified no associated traditional cultural practices, although Kealohi Point was identified as a *leina 'uhane*.

### 3.20 Tulchin et al. 2004

In 2004, CSH conducted a literature review and field inspection for an improvements project on Kahekili Highway (Tulchin et al. 2004). No historic properties were observed.

### 3.21 Carson 2006

In 2006, International Archaeological Research Institute, Inc. conducted an archaeological assessment for the replacement of a caretaker's house at He'eia Fishpond (Carson 2006). The project area for this study was located within the official boundary of He'eia Fishpond (SIHP # -0327). The study documented a Quonset hut that had apparently been moved to the project area after WW II and used as a fishpond caretaker's residence since the 1970s. The Quonset hut, located on twentieth century artificial land fill, was determined to be too dilapidated to warrant designation as a historical building. A surface inventory survey and minimal subsurface testing were conducted; no cultural resources were identified.

### 3.22 Tulchin et al. 2006a and Tulchin et al. 2006b

In 2006, CSH completed a cultural resource investigation of two Kamehameha Schools parcels in He'eia in northeast Ha'ikū Valley, including cultural and historical background investigations and systematic pedestrian surveys (Tulchin et al. 2006a, 2006b). A previously recorded historic-era irrigation ditch (SIHP # -5604) was identified, likely the *makai* extension of a historic-era ditch previously documented in the adjacent Omega Station parcel (McDermott et al. 1997), which either tapped a spring above Ha'ikū/He'eia Stream, or Ha'ikū/He'eia Stream itself, and conducted water *makai* to agricultural lands most likely located within the modern day Ha'ikū Plantation subdivision. In the 2006 study, a total of nine additional historic properties were identified (SIHP #s -6706 through -6714), including excavated depressions (SIHP # -6706), an agricultural complex

(SIHP # -6708), a portion of the historic Ha'ikū Road (SIHP # -6709), two road segments (SIHP #s -6710 and -6714), a habitation remnant (SIHP # -6711), a terrace remnant (SIHP # -6712), and an irrigation ditch remnant (SIHP # -6713). In addition, cultural remains not considered historic properties include terraces less than 50 years old (CSH Sites #6 and #9).

SIHP # -6707 is the central historic property located within the KS parcels in northeast Ha'ikū Valley. Its nine features consist of interrelated water management and agricultural elements that together comprise the remains of an extensive pondfield agricultural complex along the north and south banks of Ha'ikū Stream, with at least two separate construction events. The features include one irrigation ditch remnant (Feature I), three water diversion features (Features A, B, and H), and five different sections of agricultural terraces, which in one case includes irrigation ditches (Features C, D, E, F, and G). Radiocarbon dating of charcoal from Feature C indicates agricultural activity between AD 1260 and 1300, followed by an expansion of the pondfield system between AD 1450 and 1640 as evident in a cut and fill construction event. Similar agricultural complexes were likely not confined to Ha'ikū Stream but rather extended outward on both sides of the stream; however, archaeological evidence has likely been destroyed through development.

### **3.23 Runyon and Hammatt 2008**

In 2008, CSH monitored construction activities related to traffic light replacement at the intersection of Kamehameha Highway and Ha'ikū Road (Runyon and Hammatt 2007). No historic properties were observed.

### **3.24 Altizer et al. 2009**

In 2009, CSH conducted archaeological monitoring at the Windward Mall for a renovation project of the food court, which is on land owned by the Bishop Trust Estate (Altizer et al. 2009). While a cemetery is located on the southwest perimeter of the Windward Mall, no historic properties were observed.

### **3.25 Nees and Gosser 2010**

In 2010, Pacific Consulting Services, Inc. conducted an archaeological reconnaissance survey and monitoring for ordnance cleanup activities at the former He'eia Combat Training Area, part of which was located on the slopes of Pu'u Mā'eli'eli in He'eia (Nees and Gosser 2010). No historic properties were observed in the He'eia project area. However, several traditional basalt flakes and historic artifacts were observed on the surface, but since they were not part of intact cultural deposits they were not considered as archaeological sites.

### **3.26 Runyon et al. 2010**

In 2010, CSH conducted archaeological monitoring for vegetation clearing at Leleahina Heiau (Site 329, located on KS land within the Ha'ikū Plantation Subdivision) (Runyon et al. 2010). The vegetation project uncovered Leleahina Heiau, exposing 16 of the 18 features previously documented at the site by McAllister (1933). The overall site was found to be in fair to good condition. Attributes not recorded by McAllister (1933) included a semi-circular arrangement of stones adjacent to the west side of the burial platform within Feature 13 and a moderately sized cupboard observed in the exterior northern wall of Feature 13.



### 3.27 Allen et al. 2011

In 2009, International Archaeological Research Institute, Inc. (Allen et al. 2011) conducted archaeological monitoring for the removal of an old Quonset hut house within SIHP # -0327, He'eia Fish Pond. One extensive concentration of historic-period materials was discovered beneath the former Quonset hut house (Feature 1a) within SIHP # -0327. Feature 1b was a discrete historic concentration under the former south corner of the house (Feature 1a). A possible traditional Hawaiian single rock retaining wall (Feature 2) was also discovered and Feature 3 was a small subsurface ash deposit that produced charcoal but no artifacts.

### 3.28 Altizer et al. 2011

In 2011, CSH conducted an archaeological literature review and field inspection of the He'eia wetlands (Altizer et al. 2011). The inspection identified remnants of historic-era infrastructure related to agriculture, *lo'i* berms, and a pre-Contact basalt quarry. Agriculture-related infrastructure included remnants of a fence line, fence posts, a bull pen, two bridges across an *'auwai*, and possible remnants of a service road. Additionally, subsurface probing in the wetland area identified probable buried *lo'i* berms. A concrete foundation of an apparent post-Contact *'ōkolehao* (traditional Hawaiian liquor) still was observed along the Kealahi Road corridor. Pre-Contact use was evident by the basalt quarry, and the *'auwai* may have been utilized in pre-Contact times as well.

### 3.29 Groza and Monahan 2012

In 2012, CSH conducted an archaeological literature review and field inspection at the "Makai Break" of He'eia Fishpond. During field inspection, which included both above- and underwater observations and measurements, original *kuapā* basalt rocks were found scattered between 20 and 40 m *makai* of the existing *kuapā*. Other than the constituent components of the existing wall structure, including basalt and coral materials, no other historically significant cultural materials were observed. CSH archaeologists measured the current wall break as 25.0 m (82 ft). Available background information suggests this break was once up to 130 ft wide, as a result of the 1965 flood. It appears incremental repair between the 1965 event and the present may have narrowed this once larger gap.

### 3.30 Background Summary and Predictive Model

During traditional Hawaiian times (pre-1778), the *ahupua'a* of He'eia, with its large fishpond and Kāne'ohe Bay fisheries, was undoubtedly one of the more resource-rich land divisions on O'ahu. Such high productivity within a single *ahupua'a* made He'eia important and desirable. The desirability of He'eia can be viewed in terms of chiefly control and the relatively high number of awarded *kuleana* (LCAs). After Kamehameha I's conquest of O'ahu (1795), He'eia remained in the Kamehameha family until 1848, when Kamehameha III awarded it to Chief Abner Pākī. In the 1850s there were some 90 *kuleana* awarded within He'eia, the bulk for *lo'i* lands.

The mid-1800s saw a gradual shift in crop production to rice. By the late 1800s, rice was the dominant crop, cultivated mainly by Chinese who leased both individual *kuleana* and large tracts from Bernice Pauahi Bishop, Abner Pākī's daughter. Pauahi was said to have been a frequent visitor to He'eia, sometimes staying for weeks. The sweet mullet fish, for which He'eia Pond was

noted, “often graced the table of Bernice Pauahi Bishop” (Krout 1908). The fishpond was eventually leased to Chinese as well (Kelly 1975). Rice cultivation declined rapidly between 1910 and the 1920s when pineapple cultivation became a major industry in this area and taro cultivation made a short-lived resurgence during the 1920s–1940s.

Saint Ann’s Catholic Church and schoolhouse was an important activity site in He‘eia, providing teaching, housing, and craft schools for the population. The church, schoolhouse, associated buildings, and ponds expanded over a 5-acre area. A Naval Reservation supporting He‘eia Radio Station occupied what is now King Intermediate School from June 1933 until just after the bombing of Pearl Harbor in December 1941.

Based on historic background research and previous archaeology in the area, there is a possibility subsurface deposits associated with taro/rice terraces and historic military use may be encountered below modern fill layers during excavations in the project area.

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## Section 4 Results of Fieldwork

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A brief field inspection was carried out by David W. Shideler, M.A. under the overall supervision of Hallett H. Hammatt, Ph.D. on 31 March 2014. The campus was observed to be largely composed of concrete two-story classroom buildings with an open veranda and louvered windows for ventilation typical of DOE construction in the 1960s (Figure 17 and Figure 18). The proposed playcourt building area was accessed from the parking area to the north. The general vicinity is mowed lawn with some bare patches of reddish silty clay (Figure 19 through Figure 21). Landscaping in the vicinity includes monkeypod, *kukui*, and bottlebrush trees. The project area per se appears relatively flat although the land drops away steeply to the south just further to the south.

No evidence of any historic properties was observed and the prospect for any archaeological historic properties in the immediate vicinity appears quite low.

It was observed that He'eia Elementary School appears to occupy something of a low ridge which may explain the lack of LCAs in the immediate vicinity within an *ahupua'a* with a relatively high density of LCAs.



Figure 17. General view of the He'eia Elementary School entrance area looking towards administration offices, view to east



Figure 18. General view of the He'eia Elementary School campus buildings, view to northeast





Figure 19. General view of proposed play court building area from southeast corner of the existing basketball court, view to southwest



Figure 20. General view of proposed play court building area from southwest corner of the existing basketball court, view to southeast



Figure 21. General view of proposed play court building area from the south towards the existing basketball court, view to north

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## Section 5 Summary and Interpretation

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Historic records indicate that coastal He'eia was particularly densely inhabited which is reflected for example in the density of LCAs in the vicinity of He'eia Elementary School (see Figure 8). Research indicates however that there were no maka'āinana kuleana LCAs at the location of the present school campus. This may be because the school campus lies on a low ridge between areas of better watered, more fertile bottom lands. The project area is well back from the coast and is not immediately adjacent to any fresh water. Houses are indicated at the present He'eia Elementary School campus by 1919 (see Figure 11) but there do not appear to have ever been houses at the present project location per se.

Field inspection indicates the project area is presently a mowed lawn (see Figure 21) with no indication of any subsurface historic properties likely to be present in the silty clay soils.

The project area is evaluated as having no surface historic properties and as having a very low probability of subsurface historic properties. No further archaeological work is recommended.

Because the school is more than 50 years old, early consultation with the SHPD architecture branch is recommended to ensure there are no concerns for adverse impacts to the school itself as a possible architectural historic property.



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## Appendix A Evaluation of Cultural Impacts

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This cultural impact evaluation begins with a descriptions of the present project area, the contemporary landscape, the traditional cultural landscape and then examines the specific associations of *wahi pana*, trails, burials, archaeological sites, and traditional gathering practices relative to the project area.

### Project Area Description

The very small project area (0.22 acres or 9,400 sq ft) occupies the southwest portion of the He'eia Elementary School campus located at 46-202 Ha'ikū Road in central He'eia, He'eia Ahupua'a, Ko'olaupoko District, O'ahu (TMK: [1] 4-6-031:020). He'eia Elementary School opened in 1960 at a time when many new elementary schools were being established in Hawai'i in response to the Baby Boom and statehood. It is a typical DOE school campus of 1960s construction. As an active elementary school, and in consideration of the welfare of the children, access is restricted to those who have good reason to be on campus.

### Contemporary Landscape Description for the Project Area

The project area is adjacent to paved basketball courts used by the He'eia Elementary School children and is presently a mowed field used by the school children for general recreation. The project area is in short grass lawn with bare patches of silty clay at 3 to 8% slopes visible. There are no constructions within the project area per se. The project area was almost certainly graded at the time the school was established (1960).

### Traditional Cultural Landscape Description of the Project Area

The project area lies within the traditional area of Kikiwelawela 'Ili of He'eia Ahupua'a approximately 1.1 km. inland (southwest) from the coast of Kāne'ōhe Bay. While He'eia was known as an *'Āina momona* or "land of abundance" for its well watered taro fields, fishponds, and extensive reefs, the specific area of the future He'eia Elementary School campus was not a part of any *maka 'āinana kuleana* Land Commission Award claims. Possibly this is because the school campus location lies on something of ridge separating it from well watered agricultural lands to the northwest and northeast. The LCA claims located nearest to the project area indicate the land at the time of the Kuleana Act (1852) was used primarily for *lo'i* cultivation and house lots. It is not clear that there was ever a structure in the project area per se or any specific land use prior to the establishment of the school.

### Wahi Pana (Storied Places)

Storied places or *wahi pana* of He'eia include Mōkapu peninsula and Moku o Lo'e island, the extensive coral reefs and fishponds (particularly He'eia Fishpond), and the inland *pali* and caves of 'Ioleka'a. None of these *wahi pana* is believed to be within a kilometer of the He'eia Elementary School campus. Perhaps the closest *wahi pana* would have been Kaulaukī Heiau (SIHP # 50-80-10-328, approximately 1.1 km northwest of the project area), a *heiau* "of good size" (McAllister 1933:173). This modest school playcourt project would have no effect on the *wahi pana* of He'eia.

## Trails

The map of He'eia by Baldwin and Alexander in 1913 (see Figure 10) shows an alignment approximating present day Ha'ikū Road that bounds the He'eia Elementary School campus on the northwest side, descending down to a coastal road approximating contemporary Kamehameha Highway. These may well have been the major *mauka/makai* and cross-*ahupua'a* trails of He'eia Ahupua'a and remain major public thoroughfares to this day. The playcourt project would have no effect on these probable early trail alignments.

## Burials

Few burials have been reported from the general vicinity of the project area. Human remains were documented near the mouth of He'eia Stream (Ota and Kam 1982) and eroding from a shoreline bank at He'eia State Park (Kawachi and Yent 1990) both more than a kilometer and a half to the north. Perhaps the major burial ground at Mōkapu peninsula was indeed the preferred resting place for the departed of He'eia.

## Archaeological Sites

No traditional Hawaiian archaeological sites have been reported from the vicinity of the present project area in the archaeological literature. The nearest archaeological sites are former taro and rice terraces (Hammatt and Borthwick 1990).

## Traditional Gathering Practices

It is likely that if *pili* (*Heteropogon contortus*) grass grew in the vicinity (none grows there now) that it would have been gathered but few other resources appropriate for gathering seem likely. A field inspection of the project area indicated only a mowed lawn of exotic grasses.

## Summary

This cultural impact evaluation has attempted a good-faith summary of the likely traditional Hawaiian landscape of this small (approximately 0.22 acre) project area considering such potential issues as *wahi pana*, trails, burials, archaeological sites, and gathering practices. The project area is a graded, mowed lawn of exotic grasses. On the basis of this evaluation the prospect for any traditional or on-going Native Hawaiian cultural practices in this project area appears very low.